The Official Guide to the Norwich Castle Museum

Published with the sanction and approval of the committee.
Norwich Castle Museum
LEUCOPTERNIS SEMIPLUMBEA LAWR. — £ 100.
THE OFFICIAL GUIDE
TO THE
NORWICH CASTLE MUSEUM

With an Account of its Origin & Progress

BY
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ALSO AN HISTORICAL ACCOUNT OF THE CASTLE KEEP BY
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AND A GUIDE TO THE COLLECTION OF PICTURES, WITH SOME ACCOUNT OF THE "NORWICH SCHOOL" OF ARTISTS BY
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(Published under the Special Sanction of the Castle Museum Committee)

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## CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>9</td>
</tr>
<tr>
<td>Formation and History of the Norfolk and Norwich Museum</td>
<td>16</td>
</tr>
<tr>
<td>The Progress of the Old Museum</td>
<td>21</td>
</tr>
<tr>
<td>The History of the Castle Keep</td>
<td>35</td>
</tr>
<tr>
<td>Origin of the Castle Museum</td>
<td>43</td>
</tr>
<tr>
<td>Opening Ceremony</td>
<td>51</td>
</tr>
<tr>
<td>Approach to the Castle</td>
<td>54</td>
</tr>
<tr>
<td>The Museum</td>
<td>56</td>
</tr>
<tr>
<td>Muniment Room</td>
<td>59</td>
</tr>
<tr>
<td>The Library</td>
<td>60</td>
</tr>
<tr>
<td>The British Bird-Room</td>
<td>62</td>
</tr>
<tr>
<td>The Lombe Collection</td>
<td>63</td>
</tr>
<tr>
<td>British Birds' Eggs</td>
<td>84</td>
</tr>
<tr>
<td>CONTENTS</td>
<td>PAGE</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>RAPTORIAL BIRDS</td>
<td>84</td>
</tr>
<tr>
<td>THE SKIN ROOM</td>
<td>114</td>
</tr>
<tr>
<td>COLLECTIONS OF INSECTS</td>
<td>114</td>
</tr>
<tr>
<td>BOTANICAL COLLECTIONS</td>
<td>115</td>
</tr>
<tr>
<td>GENERAL COLLECTION OF BIRDS</td>
<td>117</td>
</tr>
<tr>
<td>THE PICTURE GALLERY</td>
<td>166</td>
</tr>
<tr>
<td>THE GENERAL COLLECTION OF SHELLS</td>
<td>182</td>
</tr>
<tr>
<td>BRITISH LAND, FRESHWATER, AND MARINE SHELLS, ETC.</td>
<td>200</td>
</tr>
<tr>
<td>OSTEOLOGY</td>
<td>244</td>
</tr>
<tr>
<td>GEOLOGY: MINERAL AND FOSSIL REMAINS</td>
<td>248</td>
</tr>
<tr>
<td>THE FITCH COLLECTION</td>
<td>260</td>
</tr>
<tr>
<td>THE KEEP, ANTIQUITIES, AND ETHNOLOGY</td>
<td>272</td>
</tr>
<tr>
<td>THE DUNGEONS</td>
<td>287</td>
</tr>
<tr>
<td>THE MURDERERS' GRAVES</td>
<td>293</td>
</tr>
</tbody>
</table>
## List of Illustrations

<table>
<thead>
<tr>
<th>Illustration Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Leucopternis Semiplumbea Lawr</em></td>
<td>Frontispiece</td>
</tr>
<tr>
<td>The Keep Seen from the Moat</td>
<td>12</td>
</tr>
<tr>
<td>The Keep from the Museum Gardens, Shewing Bigod's Tower</td>
<td>37</td>
</tr>
<tr>
<td>Doorway in S.W. Corner of Keep</td>
<td>39</td>
</tr>
<tr>
<td>The Castle Well</td>
<td>41</td>
</tr>
<tr>
<td>Norman Doorway, Entrance to Bigod's Tower</td>
<td>42</td>
</tr>
<tr>
<td>The Chapel, Gallery of the Keep</td>
<td>43</td>
</tr>
<tr>
<td>Gallery in the Thickness of the Wall</td>
<td>44</td>
</tr>
<tr>
<td>The Cathedral from the Battlements of the Keep</td>
<td>45</td>
</tr>
<tr>
<td>Saxon Arch, Approach to the Keep, Over the Dry Moat from Castle Gardens</td>
<td>53</td>
</tr>
<tr>
<td>Terrace Walk Surrounding the Keep</td>
<td>55</td>
</tr>
<tr>
<td>The Entrance to the Museum</td>
<td>57</td>
</tr>
<tr>
<td>Gare-Fowl or Great Auk</td>
<td>64</td>
</tr>
<tr>
<td>The Hen Harrier (Male and Female)</td>
<td>73</td>
</tr>
<tr>
<td>The Bittern</td>
<td>74</td>
</tr>
<tr>
<td>Great Crested Grebe</td>
<td>82</td>
</tr>
<tr>
<td>Illustration Description</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>THE SECRETARY BIRD</td>
<td>87</td>
</tr>
<tr>
<td>THE HARPY EAGLE</td>
<td>93</td>
</tr>
<tr>
<td>NEW ZEALAND LAUGHING OWL</td>
<td>112</td>
</tr>
<tr>
<td>THE BOWER BIRD</td>
<td>Face 122</td>
</tr>
<tr>
<td>HUMMING BIRD ON NEST, NATURAL SIZE</td>
<td>134</td>
</tr>
<tr>
<td>FLAMINGO</td>
<td>160</td>
</tr>
<tr>
<td>THE NORTHERN KIWI</td>
<td>165</td>
</tr>
<tr>
<td>SEAL</td>
<td>229</td>
</tr>
<tr>
<td>HEAD OF WALRUS</td>
<td>245</td>
</tr>
<tr>
<td>ROMAN ANTIQUITIES FROM CAISTER</td>
<td>263</td>
</tr>
<tr>
<td>BRONZE BUST OF GETA FOUND AT CAISTER</td>
<td>264</td>
</tr>
<tr>
<td>JEWELLED FIBULA FOUND AT SWAFFHAM</td>
<td>265</td>
</tr>
<tr>
<td>ROMAN URNS FROM HEDENHAM</td>
<td>266-7</td>
</tr>
<tr>
<td>TORQUE RINGS FOUND AT HEIGHAM</td>
<td>268</td>
</tr>
<tr>
<td>INSIDE OF THE KEEP</td>
<td>273</td>
</tr>
<tr>
<td>ROMANO-BRITISH URN OF GREEN GLASS, FOUND AT GELDESTON, 1849</td>
<td>280</td>
</tr>
<tr>
<td>ANGLO-SAXON URNS</td>
<td>283</td>
</tr>
<tr>
<td>YARMOUTH TROLLEY CART</td>
<td>288</td>
</tr>
<tr>
<td>THE CASTLE WELL</td>
<td>290</td>
</tr>
<tr>
<td>INSTRUMENTS OF TORTURE</td>
<td>291</td>
</tr>
<tr>
<td>GIBBET IRON FROM EAST BRADENHAM</td>
<td>292</td>
</tr>
</tbody>
</table>
INTRODUCTION.

The frequent demand for a Guide Book to the Norwich Castle Museum has induced the enterprising firm of Jarrold and Sons to add yet one more to the useful series of such works which has been issued by them, and the Committee of the Museum, having given their consent and offered every facility for its production, the result will be found in the following pages, which it is hoped may be useful to those who visit the collections.

The removal into the spacious galleries in the Castle was of necessity effected so speedily, that the complete re-arrangement of the various collections on the most modern systems could not, at the time, be carried out, and one of the chief difficulties which the writer had to contend with was the unfinished condition in which some of the sections at present are; to remedy this will necessarily be a work of time, and it is satisfactory to know that the task is gradually but surely approaching completion. In the Guide this re-arrangement has occasionally been anticipated, and the places of some of the objects named may not just at present quite coincide with those here assigned to them; but it is hoped that no serious inconvenience in that respect will be experienced.

In preparing what it is hoped will be a useful guide to the collections, the writer's object has been not to confine himself simply to an enumeration of the specimens actually
to be seen in the cases, but rather to use them as illustrations of a general review of the orders to which they belong, and to make this intelligible, he has commenced, in each great natural division, by giving very briefly some slight particulars of the leading characteristics of the group and of the principles on which they are classified. He has then taken them family by family, and genus by genus, using the individual specimens as illustrations, and where possible, so far as space would permit, referring to any special characteristic. It is thus hoped that if the visitor will take the trouble to go through any particular group, Guide Book in hand, reading as he goes, he will find not only chaos reduced to system, but that by such a means he will derive a greater amount of both pleasure and profit than by an unassisted stroll through the Galleries.

With a view to inducing mere sightseers to go more deeply into the various branches of Natural Science, which they will find here represented, and from admirers to become students, the writer begs to submit the following list of works which he has found most useful in compiling this Guide, and to which those desiring further information on any of the contents of the Museum can with confidence be referred.

For the Mammalia, *An Introduction to the Study of Mammals, Living and Extinct*, by Professor Sir William Flower and Mr. Rd. Lydekker, will be indispensable. The British Birds will find their exponent in the Fourth Edition of Yarrell’s *British Birds*, and those in the general collection in Dr. St. George Mivart’s *Elements of Ornithology*; but no student of Ornithology should be without Professor Newton’s *Dictionary of Birds*, without exception the most useful and valuable contribution to general Ornithology known to the writer. In the Mollusca, Woodward’s
Manual is still a most useful Book, but the modern student should possess the recently issued volume of the Cambridge Natural History, Vol. III., Mollusca, by Rev. A. H. Cooke. Dr. Günther's Introduction to the Study of Fishes is a most useful book to the general student, and Day's British Fishes to those who confine their attention to those which inhabit our own waters. All these books are to be found in our public libraries.

It only remains for the writer to thank those friends who have been so kind as to render him assistance in his task. To the Rev. William Hudson he is indebted for the chapter on the Castle Keep, than whom no more competent authority could be found. Mr. G. C. Eaton kindly contributed the section on the pictures, which will be found prefaced by some interesting and useful remarks on the originators of the "Norwich School" of Painters, and the chapters on Geology and Antiquities are by Mr. Mark Knights.

Mr. J. H. Gurney, Dr. Henry Woodward, and Mr. J. B. Bridgman, have most kindly read the portions of the Guide on which they are special authorities, and Mr. James Reeve, the Curator of the Museum, has been of the greatest assistance in all ways.

To Messrs. Adam and Charles Black, and to Professor Newton, the thanks of the publishers are due for permission to use illustrations, nine in number, from the Dictionary of Birds. They are also indebted to the kindness of Mr. Boardman for the accompanying plans. Other illustrations, all of which are duly acknowledged in the text, first appeared in the Norfolk Archaeology.

Norwich, 1896.

T. S.
THE KEEP SEEN FROM THE MOAT.
THE OFFICIAL GUIDE
TO THE
NORWICH CASTLE MUSEUM.

"The value of a Museum will be tested not only by its contents, but by the treatment of those contents as a means of the advancement of knowledge."—Sir W. H. Flower.

In nothing has there been a greater revolution during the present generation than in the arrangement and management of Museums; from being mere show places where literally, antiquarian and other rubbish might be shot, they have, where worthy of the name, become admirably arranged educational institutions, conveying not only pleasure to the eye but instruction to the mind; the well-selected specimens in all departments being exhibited to the best advantage with abundant light and
space, and fully descriptive labels; where necessary, accompanied by outline maps indicative of the distribution of the Genus or Species, and giving it not only a name, but also a local habitation. So immense is the transformation in this respect, that it has with great truth been said that a modern Museum is a collection of labels illustrated by specimens. It is no longer considered sufficient to exhibit a number of cases, say of birds, preserved in more or less natural attitudes; but, to meet the rational requirements of the Museum as at present understood, the systematic place in the Class, Order, Family, and Genus to which the specimen belongs, as also its geographical distribution, and to some extent its habits, must be indicated. Nor is this all. The modern conception of a Museum is entirely that of a teaching institution, and those who have studied the carefully prepared index collections arranged round the Central Hall of the Natural History Museum at South Kensington, will have come away with a clearer idea of the structure and marvellous variety, yet singular agreement in type, pervading the various classes of the animal kingdom there displayed; the almost endless variety in the adaptation of the bony skeleton and all its integuments, the singularly diverse organs of locomotion, the beautiful mechanisms of sight, hearing, and other faculties, which will invest with an interest altogether new, the animals whose external characters will be found illustrated by mounted skins in the galleries devoted to their display.

We cannot claim all this for the Norwich Museum, but we think those who were acquainted with the various collections in the old building will admit that considerable progress has been made in the right direction, and we trust that the work so well commenced will be vigorously prosecuted, so that in time the rich collections at our command
may be fully utilised, not only as a source of pleasure, but also of instruction.

For the purpose of study in the present day the specialist, in any department of Zoology for instance, requires such an abundant supply of material, representing every stage of development, age, sex, variation of plumage, and racial peculiarities, that it is impossible for provincial collections ever to meet his wants; nor would it be right that they should do so, the sacrifice of life would be too great; only in our great National Museums have we a right to expect all this. The proper function of a local Museum, on the other hand, is to illustrate the Natural History, Art, and Antiquities of its own district, and to do this as completely as possible no labour should be spared. And this, the most modern view of the principles on which a Provincial Museum should be formed, was aptly expressed in the original prospectus of the Norwich Museum by its enlightened founders seventy years ago. "One of the most useful objects of a local Museum," it is there stated, "is the concentration of the peculiar local natural productions of the district;" and in the first annual report of the committee their view as to the formation of general collections is set forth in terms which might do credit to the most advanced member of the modern Museums' Association. "It appears to the Committee that the best means of attaining the object in view is by directing the principal attention, at present, to collecting the types of the Modern Genera, in the various classes of Natural History. Though some sacrifice may be made, by this plan, of the more showy and popular methods of forming a Museum, your Committee feel convinced it is the only system by which a scientific acquaintance with the objects collected can be promoted, and the utile et dulce of such an institution enjoyed."
Under these enlightened views with regard to its management and development, the history of the Norwich Museum—which we shall now briefly record—although one continued struggle between impecuniosity and progress, has been a continued success, and even in its darkest days, help has repeatedly been nearest when to all appearance the prospect has been most dreary.

Formation and History of the Museum.

The County and City in which resided one of the most talented men of his age, and one of the most advanced thinkers perhaps of any period—the enlightened author of *Pseudodoxia Epidemica* (Sir Thomas Browne)—has always been noted as the home of a number of men of intellect beyond the common, forming quite a little society of their own, irrespective of rank or social position. In all grades of society, from the Bishop's palace to the weaver's cottage, have there been found men whose chief happiness during their leisure hours has been the study of Natural Science. William Arderon, a miller's clerk, earned the distinction of F.R.S., and Samuel Woodward,* the occupant of a desk in a local Bank, produced a book on Norfolk Geology, which even now has not been entirely superseded, as well as a learned treatise on the *History and Antiquities of Norwich Castle*, which after his death was edited by his son, who became the Queen's librarian.

It is not a matter for surprise, therefore, that in 1784 we find a public subscription Library established, or that in 1822, thirty-eight years after, a number of gentlemen not satisfied with the class of literature which it supplied

determined to establish a "Literary Institution" of their own, at an advanced subscription, to be employed in the purchase of "Standard Works in every department of Science and Literature, English and Foreign." To this Library, which made rapid progress, were attracted all the Literary men of the City and neighbourhood; Mr. Simon Wilkin, F.L.S., the Editor of Sir Thomas Browne's Works, being the first Librarian. Two years after its formation, on the 22nd October, 1824, the Secretary read the following communication from the Committee, to the Annual General Meeting:

"At the Committee meeting held on Tuesday, September 14th, 1824, it was resolved that a recommendation be made to the General Meeting to authorise their Committee to adopt such measures as may best promote the establishment of a Museum; and may render it of the greatest avail, and most general utility, and yet of the least possible expense to the funds of the Institution." A conversation ensued on this resolution, and it was finally resolved as an amendment: "That the proposed resolution respecting the Museum be referred for consideration to the following gentlemen as a special Committee, viz.: Sir J. E. Smith, Dr. Evans, R. Taylor, Thomas Brightwell, William Stark, G. Sothern, Joseph Sparshall, William Youngman, with authority to add to their numbers, and to confer, if they find it desirable, with the Committee, and to report to a Special General Meeting to be called for that purpose by the special Committee." On the 2nd December, 1824, at a special General Meeting of the Literary Institution, held at the Society's Rooms, John Harvey, Esq., in the chair, after the president had made some remarks as to the advantages to be derived from the establishment of a Museum, the following report was presented and read:
"Your special Committee having attentively considered the subject referred to them, are of the opinion that the establishment of a collection of subjects in Natural History, Mineralogy, Geology, Coins, and ancient or curious works of art, would be highly advantageous in affording much amusement and scientific instruction to the inhabitants of this County and City.

"It is also their opinion . . . that it is most expedient to commence the formation of such Museum under the auspices of the Institution; and they have no hesitation in expressing their conviction that such an establishment, under liberal arrangements, would also tend to increase the efficiency of the Institution." Then follow a series of resolutions as to its formation and government, as wise in the interest of its offspring as they were prudent on the part of the parent Society, and the Norwich Museum at once became an accomplished fact. At the next Annual Meeting on the 22nd October, 1825, the Chairman "adverted in terms of high satisfaction to the very considerable prosperity of the Museum which had been established by the votes of their last General Meeting, and had been constantly and rapidly increasing in public favour and estimation," and with this mark of approval on behalf of its originators we may quit the records of the Norfolk and Norwich Literary Institution, and turn to those of the Museum itself.

I have already spoken of the wise principles which guided the founders of the Museum, and it may be well before proceeding farther to put on record the names of some of those to whom we are indebted for the legacy which has descended to us. In the first printed list of subscribers which I can find, occur among others, the following well-known names: Rev. John Alexander, Edward Back, T. C. Bacon, Alfred Barnard, John Barwell, S. S. Beare, Henry

The list of 244 members, from which these names are selected, as belonging to families many of whose successors have been benefactors to the Museum to the very last, is undated; but as it is signed by Dawson Turner as president, it was probably published about the year 1828. It may be well here to give a list of the Presidents of the Museum, with the years of their election—the interval between each successive date indicating the duration of the predecessor's term of office.

1825 Sir James Edward Smith, F.R.S.
1828 Dawson Turner, F.R.S.
1833 Rev. William Kirby, F.R.S.
1837 Rev. Prof. Sedgwick, F.R.S.
1839 Right Rev. Bishop Stanley.
1841 Capt. Richard Glasspoole.
The first Secretary was Richard Taylor, who does not seem to have acted, George Sothern being requested to act for him, which he did till January, 1826, when he was succeeded by Mr. H. Boulter, who, leaving Norwich in the following August (although apparently only for a time), was succeeded by Mr. Sparshall, pro tem.; and at the Annual Meeting on 28th November, 1827, Mr. Richard Griffin was elected, who, very much to the advantage of the Museum, held the office till February 17th, 1841, when he resigned, and was succeeded by Mr. E. H. St. Quintin, who, in his turn, gave place to Mr. George Harper in 1852. At Mr. Harper's death, in 1854, Mr. Henry Stevenson was appointed, and till his death in August, 1888, he laboured indefatigably in the interests of the Museum. Mr. Stevenson,* the last representative in this City of a talented family, was a distinguished ornithologist, and has left in the *Birds of Norfolk* a lasting monument to his unequalled powers of observation, recorded in a style the fascination of which has rarely been exceeded. After Mr. Stevenson's death the post remained vacant until 1891, when Mr. G. C. Eaton undertook the delicate task of piloting the affairs of the Institution through the difficult and devious paths which led to the final conveyance of the Collections to the Corporation by deed, dated the 17th of April, 1893.

* For a Memoir of Mr. Stevenson, see the Introduction to the third Vol. of the *Birds of Norfolk*. 
Of the Curators, the records of the Museum state, that in January, 1826, Mr. R. G. Denny was appointed pro tempore, but he retained the post till his death in 1847. Mr. H. J. Bellars, jun., son of a Solicitor at Whittlesea, succeeded Mr. Denny. He was very eccentric and intelligent, but of weak health. He was succeeded in 1851 by the present Curator, Mr. James Reeve, who had been his assistant since 1847, and at the same time the late Mr. John Quinton was appointed Assistant Secretary.

Having thus devoted some space to the administrative staff, we may now proceed briefly to trace

The Progress of the Old Museum

from its commencement to its final transfer to the noble building in which it is now located.

The origin of the Museum, as has already been said, was on a very humble scale. A room in the building then occupied by the Literary Institution, situate in the Haymarket, on the site now occupied by the London and Provincial Bank, was devoted to its purposes; a circular was issued, asking donations of money and specimens, and presentations poured in apace. Suitable cases were ordered, and on the 5th January, 1825, a collection of birds, eighty in number, was ordered to be purchased, at a cost of £12—from whom is not stated—on the 5th of February, a spoonbill cost the committee £2 10s., and on the 5th of March, the treasurer was empowered to pay Mr. Sparshall £4 for birds purchased by him of Mr. Harvey, a noted dealer in birds at Yarmouth.

The Yorkshire Philosophical Society sent a present of Yorkshire fossils, and a bittern was purchased, also Mr. Denny's collection of insects for £10.
Thus a foundation was laid for the future Museum, which was opened to the public on the 9th May, 1825.

On the 8th October, 1825, it was resolved that the sum of £500 be raised by means of transferable shares bearing interest, and that the property of the Museum be vested in such shareholders for the benefit of the subscribers. This was the commencement of a system of finance, which had a disastrous effect on the prosperity of the Museum throughout the whole of its subsequent career, the funds, which were raised by voluntary contributions, being devoted to the payment of interest on its share-capital, instead of the advancement of the objects for which it was established.

The first annual general meeting, to which the public were invited, was held in the Guildhall on November the 28th, 1825, the chair being taken by Sir James E. Smith, who was then elected the first president.

Want of space soon became a subject for grave consideration, and frequently occupied the attention of the committee, who were constantly adding to the collections by purchase and otherwise. Among other sources, frequent mention is made of animals dying in travelling menageries, the skeletons of which were prepared by the medical members of the committee, and some of the best contributions to the osteological collection were made during the first few years of the Museum’s existence. Captain Manby, R.N., whose portrait now hangs in the picture gallery, in acknowledgment of his services to the Museum, was made an hon. member in June of this year.

On February 8th, 1826, Mr. Hudson Gurney, who had early become a benefactor to the Museum, was also made an hon. member. In the same year a collection of eggs from the Rev. W. Whitear, one of the authors of the catalogue of *Norfolk and Suffolk Birds* and whose whole
collection subsequently, through the liberality of his daughter, became the property of the Institution, is acknowledged; and Mr. Scales, of Beechamwell, another noted Norfolk naturalist—to whom we were subsequently greatly indebted, and from whom two of the bustards in the case in the British Bird Room were purchased by Mr. J. H. Gurney—is thanked for a pair of golden orioles and nest and eggs, probably of foreign origin; Mr. C. B. Rose, of Swaffham, whose valuable geological collections also subsequently came to the Museum, is thanked for "fifty-one fossils from the diluvium and the débris of the disrupted strata of this county;" and finally Captain Richard Glasspoole, who became one of the most valued and liberal contributors to the collections, is thanked for the skull of a female Hippopotamus, and other valuable foreign animals and birds, and he was forthwith made an hon. member.

A temporary relief to the crowded state of the Museum was obtained by the hire of a second room on the other side of the court in the autumn of 1826. The second annual meeting was held in the new room at the Museum, under the presidency of Sir James E. Smith, on the 5th December, 1826. In his address he stated that its contents had been valued at £850, and that the society was nearly £400 in debt. Mr. Joseph John Gurney expressed his great satisfaction at the results of the exertions of the committee, notwithstanding the debt which they had incurred, and had the fullest conviction that the public would give that support to which the institution was so fully entitled; indeed, when he compared even its present improved state with what it would ultimately become, he was reminded of the feelings with which Bruce, striding across the source of the Nile, compared it with the same stream, increasing and fertilizing in its course, and finally discharging its majestic
waters into the ocean. Could prophetic vision have revealed to this kind-hearted philanthropist the frowning prison in which he loved to minister to the wants of his fallen brethren, as it now is, converted to purposes of rational enjoyment and intellectual culture, he would indeed have rejoiced.

In October, 1827, it was resolved to purchase Mr. Simon Wilkin's cabinet of insects at a cost of £105. The Rev. W. Kirby offered to re-arrange the collection, and supply any desiderata he was able from his own collection; and at the annual meeting, held on November 28th, the society was congratulated upon its improved condition. Many valuable presentations had been received, and the debt had been reduced £176. An experiment had also been made of charging an admission fee on certain days, which produced £26.

On the 11th December, the thanks of the society were voted to James Morrison, Esq., for his handsome present of the mummy from Sacchara, which now forms a conspicuous object in the Keep, and handbills were ordered to be printed to inform the public of its arrival. Mr. Denny was presented with two guineas for having made a copy of the figures on the sarcophagus, which copy is also still in evidence.

On the 28th May, 1828, in consequence of the death of Sir J. E. Smith, Mr. Hudson Gurney was asked to be president. He, however, declined, but sent a donation of £50. The Rev. W. Kirby was made a vice-president, and at a general meeting on 11th June of the same year, Mr. Dawson Turner was elected president.

At the annual meeting the debt was found to have been reduced to £120. Some difficulty was experienced with regard to finding a suitable bird-presenter. The committee
not being satisfied with some work done by Mr. John Hunt, a local ornithologist of note, and author of a history of British Birds, he declined to work for them again, and Harvey, of Yarmouth, was tried, but without success; then Leadbeater, of London, who seems to have been too expensive. This led to the Rev. Robert Hamond, of Swaffham, himself an excellent amateur taxidermist, offering to subscribe ten guineas a year if they would employ a more efficient bird-stuffer, to which they replied that they would gladly do so if they could find one.

In January, 1830, Dawson Turner proposed that the committee should consider a plan for the publication of a natural history of the county of Norfolk, a work in which he and other Yarmouth naturalists were much interested. This was eventually done by the Norwich Naturalists' Society many years after; but excellent local lists were published by the Brothers Paget, of Yarmouth, in 1834, to which doubtless Mr. Turner largely contributed. In November of the same year, the first annual dinner of the supporters of the Museum was held. From the reports of these social meetings, which were held for many years, they appear to have been very interesting gatherings.

In June, 1831, the Rev. G. W. Steward, of Caister, near Yarmouth, presented to the Museum his collection of birds, consisting of 152 specimens, including Steller's duck, shot in that parish in February, 1830, which for fifteen years remained unique as a British specimen. This beautiful bird is still one of our greatest ornithological treasures. Mr. Steward accompanied his gift with the remark, "I do not wish them to be labelled with my name, nor any fuss to be made about the matter." He was very properly made an hon. member.

On the 2nd May, 1832, a letter was addressed by the
committee to Captain Glasspoole, in which they expressed themselves as desirous, individually and collectively, to present to him their warmest thanks for his unwearied attention to the interests of the Museum and to congratulate him on his return to his native land, etc.

At the eighth annual general meeting, held on 28th November, 1832, a fourth donation of £50 was acknowledged from Mr. Hudson Gurney, and it was announced that the debt which had pressed so heavily upon the committee for the last few years, was entirely discharged. The negociations, which had been entered into with the directors of the new "Bazaar," then being erected in St. Andrew's, for the use of the top floor of the building for the purposes of the Museum, and which had been pending for more than a year, having fallen through in March, 1833, a fresh scheme was at once set on foot for erecting a museum in Post Office Street. This was taken up so energetically, as the old rooms were utterly inadequate for their purpose, and so rapidly was the work carried on, that the ninth annual meeting, on 27th November, 1833, was held in the new Museum at the house next the north corner of Bedford Street.

The Museum was thus divorced from its parent, the Literary Institution, and started on a separate existence in a building of its own. The sum of £1,550 was raised for this purpose in shares of £50 each, bearing interest at 4% per annum, and the Corporation made a grant of £60 towards the expenses of removing into the new building.

Sir Jacob Astley was a frequent contributor, and on the 15th November, 1834, he presented a Hindoo bull and cow; the former, at least, was alive, and was ordered to be exhibited at sixpence per head; but the state of the cow, it was stated, rendered its preservation impossible.
In 1835-6 a series of conversazioni were held, at which tea and coffee were supplied, and the public admitted at a charge of one shilling each. In January, Professor Sedgwick read a paper; in March, Rev. R. Lubbock discoursed on "The Study of Natural History;" in April, Mr. J. W. Robberds on "Alluvial Formations;" in October, Mr. Brightwell on "Invertebrate Animals;" and in November, Dr. England on "Vertebrated Animals." On December 9th and successive Wednesdays, Professor Sedgwick gave a course of lectures on "Geology," and in February, 1836, Rev. R. Lubbock lectured on "Some Observations on the Ornithology of Norfolk," followed in November of the same year by a paper on "British Birds of Prey."

Professor Sedgwick's lectures were delivered in the Assembly Rooms, and an address of thanks was presented to him on their conclusion, which informed him that such an audience had been in regular attendance, as, in regard to rank, elegance, and intellect, never indeed before met together in this city upon any similar occasion, and which indicated how highly his lectures had been appreciated; but unfortunately they did not pay, for we are told in the next report that, in consequence of these lectures by Sedgwick and Lubbock, the number of members, who were admitted free, went up to over 600, but that two-thirds of these were only five-shilling subscribers, and this increase was almost absorbed by the expenses. The donations also fell to £2, and there was a charge of £80 for interest on shares. The Institution, which commenced the year with £4 in hand, thus left off £22 in debt, and it was therefore determined to admit no more five-shilling subscribers.

Mr. J. J. Gurney offered to deliver a lecture on "The Accordance of the discoveries of Geology with natural and
revealed Religion," presumably as a corrective to Professor Sedgwick's lectures; but the committee prudently declined, apprehending that it might involve them in a controversy not strictly within the objects contemplated by the Institution. Mr. Gurney seems not to have been daunted by this refusal, for later on a sum of three-and-a-half guineas was presented to the Museum, proceeds of the sale of his letter on geology. In 1836 an inkstand was presented to Professor Sedgwick at a cost of £6½, raised by subscription, as a token of respect and gratitude for his services to the Museum. It resembled the official inkstand of a Secretary of State, being 18 inches by 12 inches, and weighing 120 ounces.

In 1837 a plan for the extension of the premises in Post Office Street having fallen through, a scheme was set on foot for acquiring the building in St. Andrew's, then vacated by the Public Library, and in January, 1838, an agreement was entered into with the Duke of Norfolk for the purchase of the premises for a sum of £1,600. The estimated sum required for purchase, alterations, and fittings was £3,200, and this it was decided to raise by means of shares of £5 each, at 3½% interest, and by donations, the Literary Institution and Medical Book Club agreeing to become sub-tenants. The Literary Institution thus followed the fortunes of its offspring, and remained the tenant of the Museum until the year 1886, when it was re-united to the Public Library, and removed to the present premises.

The sum required was not all forthcoming, and £1,000 had to be borrowed of Messrs. Gurney, Birkbeck, and Martin, to complete the scheme; this amount was subsequently transferred to a mortgage, and remained a charge upon the building until the affairs of the old Museum were finally wound up; but so rapidly was the new scheme carried
out, that the annual meeting on 5th December, 1838, was held in the new building, to which the collections had already been removed. It may be worth recording that the principal shareholders were Hudson Gurney, thirty shares; J. J. Gurney, twenty; H. Birkbeck, twenty; J. Godwin Johnson, forty-five; Mrs. M. Trafford Southwell, sixty-two, etc., etc.

The total sum paid to Messrs. Wright and Cattermole for work on the new Museum appears to have been £1,517 14s. 5d., the total expenditure being £1,763, exclusive of the purchase money.

In 1839 Bishop Stanley was elected president, and the late Samuel Woodward's geological collection was purchased at a cost of £300, and presented to the Museum.

In the year 1840, there were several lectures by Mr. Stark, Rev. R. Lubbock, Professor Lindley, and T. Brightwell; a female great bustard was purchased at a cost of £5; and Captain Manby conveyed to the Museum the whole of his pictures, models, etc., illustrating his inventions for saving life from shipwrecks.

The chief events of 1841 were the election of Mr. E. H. St. Quintin, as hon. secretary, and a course of lectures on geology, by Professor Sedgwick; also a course on botany, by Mr. R. J. Mann.

It would be very interesting to follow up the progress of the Museum did space permit, a large amount of which would be required to chronicle the repeated efforts made from time to time to meet the increasing outlay of the Institution, although managed on the most severely economical principles; but, henceforth, reference must be made only to the most important events in its history.

In 1845 an invitation was sent to the British Association to visit Norwich, which brought forth fruit in due season.
In 1846 the Museum lost a most munificent donor by the death of Captain Glasspoole, of whose generosity the visitor to the Museum receives constant reminders.

In 1848 it was stated, in an appeal to the public, that "the entire sum at the disposal of the committee to meet the salaries of a resident curator and an assistant; for mounting specimens and providing cases for them; for insurance, rates, coals, cleaning, repairs, and various incidental expenses, is barely £100 per annum," and that 14,946 visitors had entered the Museum on free days that year. This appeal resulted in a grant of £15 from the Corporation, and of £50 from the same source in the following year; and at the annual meeting of 1851 the subject of transferring the Institution to the Corporation, under the recent Museums' Act, was seriously considered and favourably entertained by the shareholders, but after prolonged discussion eventually came to nothing.

In this year Mr. J. H. Gurney gave his course of Lectures on "Ornithology" at St. Andrew's Hall. In 1852 Mr. Harper was elected Hon. Sec. In 1854 Mr. Gurney applied for the help of Mr. Henry Stevenson, to assist him in the care of the British birds. He was at once elected upon the Committee, and his long and useful career in the service of the Museum commenced. Mr. Gurney also made an extremely interesting announcement, foreshadowing the important work which resulted in the formation of the splendid collection of Raptorial birds, of which we are so justly proud; he stated that he was endeavouring to make a complete collection of the Raptorial birds, which, if it could be effected, would be a feature of considerable interest and value.

At the annual meeting on 30th Nov., 1854, Mr. Stevenson was elected Hon. Sec., which appointment he held till his
Norwich Castle Museum.

death in August, 1888. In 1856 the large room subsequently known as the British Bird Room, belonging to the Free Library, was added to the Museum, and fitted up at the expense of Mr. Gurney. Financially the position of the Museum grew more and more hopeless, and yet so highly was the Institution appreciated that in 1859 there were 23,000 visitors on the two weekly free days.

In 1860 the Museum was enriched by the duplicates from the Wolley collection. Mr. Wolley having long been a benefactor to the Institution, a sincere tribute of sympathy was offered to Rev. J. Wolley, the father of this talented naturalist, whose early death was a severe loss to natural science. At the annual meeting on 26th November, 1861, the fine portrait of Mr. J. H. Gurney, by Mr., afterwards Sir Francis Grant, P.R.A., now in the picture gallery, was uncovered.

In 1868 the "Owl Room" was added, at a cost of £440, raised by public subscription; also the "Gunn Room," to receive the forest-bed fossils, presented by Mr. Gunn; and in the same year Mr. John Gurney, who subsequently became such a liberal supporter of the Museum, was elected on the Committee. The year 1868 was also noteworthy for the visit of the British Association to Norwich. The balance remaining from the reception Committee, amounting to £168, was handed over to the Museum; this amount was deposited in Messrs. Harveys' Bank at the time of its failure in July, 1870, but through the liberality of the friends of the Museum, more especially of Messrs. Lucas Brothers, who added to their many previous liberal donations by giving £100, the loss was turned into a gain; for the bulk of the sum was made up, and the Institution greatly assisted by the dividends paid from time to time, which amounted to 14/3 in the £. On April 22nd, 1870, the portrait of Mr. Gunn was presented.
In 1872 the Rose* collection of chalk fossils was received. On the 30th July, 1873, the Lombe collection of British birds was opened to the public, and the duplicates of the old collection were sold to the Brighton Museum.

The Social Science Congress was held in Norwich in 1874, and the balance of the reception fund, amounting to £117, was handed over to the Museum.

The East Anglian Art Society having been formed, in 1876 their pictures were deposited in the Museum, to which they were ultimately presented at the dissolution of the Society, and formed the nucleus of the present picture gallery.

An interesting addition—the last of the native Norfolk race of Bustards—was presented to the Museum by the Rev. W. A. W. Keppel, in 1877.

The old Museum was again in 1883 indebted to Mr. J. H. Gurney, through whose exertions a sufficient sum was raised to heat the whole building with hot-water pipes, Messrs. Lucas with their usual liberality subscribing £60. At the annual meeting on 30th January, 1884, it was stated that the idea had been mooted (by Mr. John Gurney) of acquiring the Castle, which was then condemned as a prison by the Prison Commissioners, for the purpose of converting it into a Museum and recreation grounds; further particulars with regard to the origin and development of which scheme will be given later on.

In 1885 many valuable local birds were purchased by subscription at the sale of Mr. Rising, of Horsey. The Literary Institution, having re-joined the Public Library, vacated their portion of the building in 1886. In the year 1887 Mr. Stevenson's collection of local birds was disposed

* For a Memoir of Mr. Rose, one of the Fathers of Norfolk Geology, see Trans. Norf. and Nor. Nat. Soc., Vol. V., p. 387.
of by auction, and many of the rarer specimens were purchased by subscription for the Museum. A severe loss was sustained by the death of Mr. John Gurney, which occurred on the 24th February, 1887; and on the 18th August, 1888, Mr. Henry Stevenson died, who had been for thirty-four years Hon. Sec. of the Museum. This was followed by the loss of Mr. J. H. Gurney,* whose death took place on the 20th April, 1890, after his having been President of the Museum for forty years. Mr. John Gunn also died on the 28th May, 1890. These losses occurring at a time, when Mr. John Gurney's Castle Scheme was approaching maturity, were greatly felt. Lord Walsingham was elected President in succession to Mr. J. H. Gurney.

A special appeal for funds to carry on the Museum to the time when it should be transferred to the Castle not being considered desirable, arrangements were actually in progress with Messrs. Gurney and Co. for borrowing money from them to tide over the interregnum, when, on the 10th December, 1890, the secretary received intimation of a bequest of £1,000 under the will of the Rev. Charles Turner, formerly Vicar of St. Peter's Mancroft, thus suddenly removing the great difficulty which had weighed so heavily on the committee. A similar legacy of £1,000 was also left by Mrs. E. P. Clarke, of Wymondham, who died in February, 1894. The Museum thus ending its career as a private Institution in a position of affluence never before known to it.

During all this trying period the collections increased exceedingly, contributions flowed in on all sides, and although for years the Museum possessed no funds for

* For a Memoir of Mr. J. H. Gurney, see Trans. Norf. and Nor. Nat. Soc., Vol. V., p. 156.
the purchase of specimens, yet through the liberality of the friends of the Institution—chief amongst whom were the Gurney family and their connections, and Mr. J. J. Colman, M.P.—money was always procurable for such purposes, even in considerable sums. The collection of Raptorial birds was also receiving frequent additions—Mr. Gurney losing no opportunity, through friends at home and correspondents abroad, of obtaining new species or specimens which would add to the value of the collections. Mr. Fitch's intention to present the whole of his valuable collection of local and general archæological and geological specimens and works of art was also made known about this time; and at the annual meeting on the 25th January, 1893, an amended scheme was accepted, providing for the taking over of the museum by the Corporation, who should find the requisite cases and fittings; the estate of the old Museum to be realized as early as possible, and the balance remaining, after discharging all liabilities, handed over to the general fund for the purposes of the Castle Museum. The collections were duly assigned to the Corporation on 17th April, 1893, and the management taken over by the Castle Museum Committee on the 1st January, 1894. Thus after seventy years the Norfolk and Norwich Museum ceased to exist as a private Institution, closing its last annual report as follows:—

"Your committee may perhaps be permitted to remind you that during the period of the Museum’s existence, as private property, it has grown from a small beginning to its present dimensions almost entirely from private gifts, and that the change to its new and improved circumstances is also due entirely to private munificence. Some changes would at the present time have been imperative, owing to the collections having far outgrown the accommodation necessary for their proper preservation and exhibition. Should the
second period of the Museum's history, under its greatly improved conditions, be in proportion to the past advance, it may confidently be asserted that the citizens of Norwich will, at no distant date, be in possession of a Museum second in extent and value to no local Museum in this, or, perhaps it may even be said, in any other country."

It only remains in this place to say that the official opening of the Castle Museum, an account of which will be found further on, took place on the 23rd October, 1894.

The History of the Castle Keep.

The "Castle," which is now the home of the Museum collections, comprises the whole series of galleries in which they are exhibited. There is, however, only one building which rightly deserves the name, the great square Norman Keep. The rest of the buildings, surrounded by the granite-faced wall, are the modern prison buildings, which were appended to the Keep by the County Magistrates in 1824. That has constituted their only history until now, when they have been dexterously converted into Museum Galleries. Of them we need speak no further. By the word "Castle" we shall mean only the old Keep.

Here again we must remember that words change their meanings. A "Castle" did not always mean a stone building or tower. Any fortified place, though defended only by earthworks, was so called; the Latin word used for it, "castrum," being that also used for a Roman "camp." When therefore we read of the first establishment of Norwich Castle, we do not mean the first building of the Keep, but the first establishment of a fortified post on this spot. When that took place is not certainly known, but a fact which bears upon it has been recently placed beyond
doubt. When the interior of the Keep was cleared of its prison buildings, careful excavations were made, by which it was ascertained that the mound on which the Keep is built is entirely artificial. This is confirmed by a statement made in Gough's *Camden's Britannia*, that when, in 1784, a well was being sunk in the basement, the workmen at a great depth found a pathway which had crossed the spot before the mound was thrown up. As it has been proved that, while the Celtic tribes and the Romans placed their forts on natural elevations, the Angles and other Teutonic chieftains piled up great mounds of earth for the purpose, we may reasonably accept a tradition that Uffa, called the first King of the East Angles, who reigned about 575, threw up the mound, excavating the great moat, and setting on the top of the mound a timber fort defended by a stockade. This fort may have been occupied from time to time by some of the East Anglian kings, but there is no certain evidence on the point. When Canute instituted the Earldom of East Anglia, the Earl lived at Norwich; but, instead of living in the "Castle," he and his successors lived in a palace close by, at the south end of Tombland.

The first stone castle was begun soon after the Norman Conquest by one of the Conqueror's chieftains, William Fitz-Osbern, whom he set to watch the conquered people towards the north. He must have built something substantial and of considerable size, for in 1075 the Countess Emma, wife of the rebel Earl Ralph, successfully defended it for three months against the King's troops armed with engines of war, and when she was forced to an honourable capitulation, 300 and more of the King's soldiers were able to find accommodation within it. It is doubtful, however, whether any relics of this building survive, except perhaps a few slight remains in the walls of the basement.
THE KEEP FROM THE MUSEUM GARDENS, SHEWING BIGOD'S TOWER.
In the time of William Rufus, the great Earl Roger Bigod was lord of the Castle, and afterwards, under Henry I., Roger's son Hugh. During part of the reign of Stephen, he set himself up here as an independent chief, and to him at that time we may attribute the building of the Keep as we now see it. When Henry II. came to the throne, Hugh surrendered the Castle to him. In 1174, with the help of some Fleming mercenaries, he seized it again for a short time. In 1217 it was held by the French King Louis in opposition to King John.

From this time the Castle ceased to have any military importance. It was placed in the hands of a Constable of the King, and used as a Royal prison throughout the rest of the thirteenth and nearly half of the fourteenth centuries. In 1345 it was given to the Sheriff of Norfolk for a county gaol, and so it continued until the present century. In 1806 its control was transferred to the Magistrates of the County of Norfolk, who held it till 1884, when it was decided by the Government to build a new gaol on Mousehold, and after some negotiations the old building was purchased by the Corporation, with the result that, as described elsewhere, it and the surrounding prison buildings have been converted into the present admirable "Castle Museum."

During the 750 years or more of its existence, the old Keep has of course passed through many alterations. Externally, however, it must have retained substantially the same appearance until 1834, when the County Magistrates thought it advisable to restore its dilapidations. They unfortunately restored it so far that they gave it an entirely new facing, though they claim to have preserved the architectural features, only replacing old materials by new. It is doubtful whether this statement is quite correct. At all
events they destroyed the appearance of antiquity, which under present circumstances would have added greatly to the charm of the building. Some compensation for this loss outside may be found in the unexpected gain which recent changes have produced in the interior. Visitors to the gaol only a few years ago saw nothing but a gloomy set of prison buildings set in the midst of a great open well-like space enclosed in four huge brick-cased walls. When all these buildings were cleared away, and the floor level lowered some ten feet, it was discovered that a great many of the old architectural details in the walls and the basement still existed. They were carefully cleared out and preserved, and there can be no doubt that the revelation of these relics of the ancient construction and arrangements
of the building have doubled its value to the student and its interest to all.

The Keep, in its internal construction, was similar to those at Dover, Rochester, and many other places, and in particular very closely corresponds with one at Castle Rising in West Norfolk. It was intended as a place of refuge rather than a permanent habitation. It was therefore only accessible by an outside staircase (now destroyed) on its east front. The staircase, which was broken by a drawbridge, terminated in the "forebuilding" called Bigod's Tower, still standing, but much spoiled by its refacing in 1834. In the interior, as the visitor stands on the floor of the great hall, he will observe from the character of the walls on the level where he stands, that he is in the old gloomy basement, lighted only by narrow slits of windows. Between these narrow openings on the south side are some curious pipe-like passages in the wall, by which the archers could communicate with each other. The level of the floor of the basement was several feet lower than the present floor. It may be reached by a staircase at the south-west corner, and there the general arrangement of the building may be seen. It was divided into two halves by a great wall running from east to west. The foundations of this wall are still there; it is marked above by the line of modern columns, and it rose to the height from which the double-pitched roof now springs. The passage through the wall below is the original passage. In the northern half of the basement are the bases of an arcade of Norman columns, which supported a floor on the level of the present gallery. In the southern half will be seen another great wall, which sub-divided that half of the building into two parts. In the angle between these two walls is the old well, a most important feature of such
Norwich Castle Museum. 41

places of refuge. Its place is a little unusual, it being generally sunk in the middle of the great dividing wall for the utmost security. When the basement was cleared it was discovered, having been filled up for a long time, and its position unknown. Beyond the sub-dividing wall are remains of dungeons with some interesting scratchings made, probably in very early times, by some prisoners. Returning to the present floor, the visitor should go up to the gallery. At the north-east corner is the great entrance, with its richly-ornamented Norman doorway, still existing outside. It gave access to the great hall, which extended

across the Keep on the level of the gallery, and was lighted by the windows with which the wall is pierced. The southern half of the Keep on this level was apparently divided into two apartments, the character of which cannot now be ascertained. That on the south-east terminated in a recess, which from its shape and from some designs carved on the walls has long been called the chapel, but it is very doubtful whether it was ever devoted to that purpose. The double roof follows the lines of an ancient roof of uncertain date. To get from the basement to these apartments, and thence to the outer parapet on the top of the walls, there were two spiral staircases, one at the north-east and the other at the south-west corners of the building, while on the level of the windows there are passages in the thickness of
the walls running all round the Keep. From the battlements an almost unique view is obtained of the old city, its more modern suburbs, and the surrounding country for a circuit of several miles.

**THE CHAPEL, GALLERY OF THE KEEP.—p. 42.**

**Origin of the Castle Museum.**

Before proceeding further, it may be well, briefly to put
on record the steps which resulted in the acquisition of the Castle for Museum purposes, as well as some of the preliminaries which led to this desirable consummation.

It is many years since the finances of the old Museum first engaged the attention of the late Mr. John Gurney, and he frequently discussed with the writer, not only their lamentable condition, but also the best method of placing its affairs on a sounder basis. The heavy charge on the revenue of the Museum for interest on shares has already been mentioned, and it was evident that nothing could be done by way of effectual remedy until the share capital was abolished. This had more than once engaged the attention
THE CATHEDRAL FROM THE BATTLEMENTS OF THE KEEP.
of the committee previous to the year 1866, and some progress had been made in that direction; but in the year named an earnest appeal was made to the shareholders to cede in perpetuity their claims to interest on the shares known as "Red" shares. Again in 1878 the subject was seriously considered, and it was found that out of the original number of 480 of these shares 67 had been declared forfeited, and 209 had been exchanged for certificates reserving to the holders all their proprietary rights, but relinquishing their claim to interest in perpetuity, thus leaving a balance of 204 shares on which there was a liability to interest. Not only was this charge a very serious drain upon the finances, but the public objected to subscribe funds which, instead of directly benefiting the Museum, were employed to pay interest to the representatives of original shareholders, who probably in the first instance treated the advance more in the nature of a gift than of a profitable investment.

The first step, therefore, was evidently to dispose of the remaining "Red" shares, so as to be ready to seize upon any favourable opportunity of benefiting the Museum which might present itself. With this intention Mr. Gurney, who first became a shareholder in 1871, commenced purchasing these shares, till he eventually became possessed of 81; the late Mr. E. W. Trafford, who was the holder of 62 shares, heartily co-operated, and several other gentlemen, notably Mr. J. T. Hotblack and Mr. Reeve, who together held 21 shares, made a determined effort to abolish the charge, by promising to relinquish their claim to interest, conditionally upon all other shareholders doing the same. Eventually, in 1883, all the holders of "Red" shares having then generously consented to resign their claims to interest, this incubus which had so long weighed down the Museum, ceased to exist.
The way being thus cleared, Mr. Gurney had not long to wait for an opportunity of extending his usefulness to the Institution in which he took so great an interest. Some years previous to 1883 the Prison Commissioners determined to close the women's prison at Wymondham, and its occupants were transferred to a ward on the west side of the enclosure in Norwich Castle, now the Geological Room. The unfitness of this building was speedily discovered, and represented by the Visiting Justices to the Prison Commissioners. An inspector was forthwith sent down, who unhesitatingly condemned the ward, and this eventually led to the entire abandonment of the Castle, and the erection of a new prison on Mousehold Heath.

It was not until December, 1883, that the Government definitely offered the prison to the County authorities, but it was known some time before that such would be the case; and that body, having no means of utilising the buildings, it was arranged that they should waive their right in favour of the City, and eventually, as will be seen, the Castle became the property of the citizens. But Mr. Gurney had not been idle. So soon as it was known that the prison was condemned, he at once saw the desirability of securing the fine old Keep and adjoining grounds for some purpose connected with the City, and on the 13th July, 1883, he wrote to the late Sir Willoughby Jones, the then senior Chairman of the Norfolk Court of Quarter Sessions, pointing out that the Museum was not housed as it ought to be, that there was no room for additions, or for a Picture Gallery, which he thought it was most desirable to form, and asking for his views as to the feasibility of acquiring the Castle for that purpose. He was ably seconded by Mr. W. M. R. Haggard, the Chairman of the Visiting Justices, Mr. John Henry Gurney, President
of the Museum, and Mr. Harvey Mason, the latter of whom, at a meeting of the Swaffham Quarter Sessions in July, 1883, spoke publicly of utilising the Castle for City purposes. Mr. Haggard also, in August of the same year, wrote to Mr. Gurney strongly urging the "opening the magnificent old Castle, and making it a central point of historical interest in the Eastern Counties." Mr. Mason, holding an official position with regard to the Castle, and in constant communication with his brother-in-law, Mr. Gurney, was of great assistance to him in developing his idea of utilising the Castle as a Museum.

Steps were at once taken to ascertain the fitness of the prison buildings for Museum purposes, and its probable conversion to that use was mentioned at the Annual Meeting of the Museum in January, 1884, but nothing could be publicly done until the Castle became the property of the City. For this purpose a deputation waited on the Home Secretary, which brought the matter to a successful issue, and the Corporate seal was set to the transfer of the building to the City for a sum of £4,000 as the closing act of the Mayoralty of Sir Peter Eade in 1884.

It was not, however, till September the 12th, 1887, that the Castle was handed over to the City authorities, an event entirely devoid of ceremony. The then Governor of the Castle, Mr. A. E. Dent, states that he received authority from the Secretary of State on Sunday, 11th September, 1887, to give up possession, and that the next morning accidentally meeting Mr. Miller, the late Town Clerk, walking with Mr. Knights of the Eastern Daily Press, he told him of the authority he had received, when they all entered the Castle, and the Governor unlocking the Keep, handed over the keys to the Town Clerk.

In 1885, the writer, Mr. Gurney being blind, more than
once visited the Castle at his request, and closely inspected the building under the guidance of Mr. Dent, who very kindly gave Mr. Gurney every information in his power; and on the 10th December, 1885, Mr. Gilbert R. Redgrave (accompanied by Sir William Vincent, and the late Sir P. Cunliffe Owen) inspected the Castle Keep, and sent in a report, accompanied by plans, for its conversion to the purposes of a Museum. Mr. Redgrave's plans, however, only comprised the Governor's house, which he suggested should be retained as a residence for the Curator, the buildings over the entrance as offices, the women's prison, which he would connect with the Keep by a one-storey building, and the Keep itself to be fitted with galleries; all the rest of the buildings he would clear away. This plan was soon found to be quite inadequate for the purpose, and at a private preliminary meeting held in Mr. Gurney's room at the Bank, attended by a few of those most intimately connected with the Museum on the 10th May, 1886, a more extended plan prepared by Mr. E. Boardman, including the Keep, entrance, treadmill house, and women's prison was adopted. Mr. Gurney made his plan public by a letter to the Corporation dated 6th October, 1886, and offered £5,000 towards the completion of the scheme. On the 7th October, 1886, the writer, in the unavoidable absence of Mr. Gurney through illness, waited upon the City Committee and laid the plan before them; this was discussed at the next Council meeting and accepted. Mr. Gurney died on 24th February, 1887, but Mrs. Gurney confirmed his munificent offer.

What was known as Lord Walsingham's Committee was at once formed, and at its first meeting held on 27th October, 1886, Mr. Boardman was officially appointed architect. A subscription list was opened, to which the
City and County liberally responded, and fifteen trustees were appointed, known as the Castle Museum Trustees, to whom the Corporation granted a lease of the Castle for seven years from September 29th, 1889, and who carried out the alterations of the Castle buildings according to the plans already agreed on. This body of Trustees was composed of representatives, in equal numbers, of the Corporation, the Norfolk and Norwich Museum, and of Donors to the Fund chosen by Lord Walsingham's Committee. Lord Walsingham himself was their Chairman, and Mr. Wild Vice-Chairman and Chairman of their Building Committee. To this body of Trustees were also transferred the whole of the collections of the Museum. During the course of the work of alteration the scheme was extended by the addition of two blocks of prison buildings not originally included, but which completed the circuit of the galleries; and also by the building of the Fitch Room connecting them with the Keep. The Picture Gallery had been in an earlier stage included in the scheme.

Having completed the structural alterations, the Trustees found their funds exhausted, chiefly, no doubt, owing to the additional work undertaken, but without which the buildings would not only have been incomplete, but inadequate to the requirements of the Museum. The modification of the original Castle Museum Scheme already alluded to, by which the Corporation undertook to supply specimen cases and to move the collections, was thereupon adopted, and the Trustees surrendered the lease of the Castle, and transferred the collections to the City, by deeds dated April 17th, 1893. In the beautiful and extensive Museum which was opened to the public by the Duke and Duchess of York on the 23rd of October, 1894, in the second Mayoralty of Sir Peter Eade, we see the result of
Norwich Castle Museum.

their operations. The cost of the conversion of the buildings amounted to £16,489, and of the fittings to a further sum of £4,640; the total cost, including purchase of the Castle and furniture, being about £26,474. Of this amount £14,389 was raised by subscription.

To Mr. John Gurney is owing the inception and launching of the grand idea which has resulted in the present beautiful and commodious galleries, and we are indebted to Mr. J. H. Gurney for the principal of the treasures which fill them. Neither of these gentlemen, however, lived to see the completion of the work in which they took so great an interest.

The way in which Mr. Boardman performed the very difficult task of converting what had formerly been a dreary prison into the present light and beautiful series of rooms, is deserving of the highest praise; in this he was ably seconded by Mr. G. E. Hawes, who not only carried out the structural alterations, but also entirely constructed the wall cases, and the elegant fittings in the Fitch Room, all of which reflect the greatest credit on Norwich workmen. The refitting the wall cases in the British Bird Room, and the making of the new table cases, were entrusted to Mr. Dart, of Crediton.

The following account of the

Opening Ceremony

is extracted from the first Annual Report of the Castle Museum Committee.

"On July 13th, 1894, it was resolved to open the Castle Museum in October, and the Mayor (Sir Peter Eade) was asked by the Committee to request the presence of some member of the Royal Family on the occasion. His Royal
Highness the Duke of York graciously consented to be present, accompanied by Her Royal Highness the Duchess of York, and to open the Museum on October 23rd. A Committee was immediately appointed to make the necessary preparations for the reception of their Royal Highnesses; and a joint Committee for the decoration of the streets was also formed from the Castle Museum and Executive Committees.

At the opening ceremony on October 23rd, "on a dais erected on the south side of the Keep, their Royal Highnesses received the Address of Welcome from the Corporation of Norwich, and H.R.H. the Duke of York read his reply. Here, too, after having been conducted through the Galleries of the Museum, the Duke accepted from the Mayor a gold key as a symbol and memorial of the event of the day, and declared the Castle Museum open, at the same time expressing his good wishes for its prosperity.

"A luncheon was given by the Mayor in the Picture Gallery to the Royal Visitors, to which many distinguished guests were invited.

"After the luncheon, His Royal Highness, in response to the toast of his health and that of the Duchess, and other members of the Royal Family, proposed the following toast:—'Prosperity to the Ancient and Loyal City of Norwich, and a long career of usefulness to the Castle Museum, and may it always be worthy of the City and County to which it belongs,' coupling with the toast the name of the Mayor.

"Their Royal Highnesses having entered their names in the Visitors' Book, left the Castle, conducted by the Mayor and Mayoress.

"On the evening of October 23rd, the Castle was most
picturesquely illuminated under the direction of the City Engineer, by means of coloured fires at its base and on its battlements.

"On the evening of the next day, October 24th, the whole of the galleries of the Museum were thrown open to the guests invited by the Mayor, when a very brilliant scene was witnessed by those who had the good fortune to be present. On this occasion the arrangements both within and without the Castle were planned with great care, and were admirably successful, the difficulty of bringing a large company to and from the Castle in carriages at night being very happily overcome.

"On October 26th, the Castle Museum was first opened to the general public, and special provision was made for their admission, as it was thought the numbers would be large. Turnstiles were placed at the entrance, and recorded on October 26th, in the daytime, 2,308 admissions, and at night 1,973. On October 27th, in the day the number recorded was 2,962, and in the evening 4,216.

* * * * *

"The admissions on October 29th, the first ordinary day, were, from 10 till 4, 2,559, and from 7 till 9, 2,718; making a total for the first three days of 16,736."

This auspicious event was most appropriately and successfully brought to a completion by Sir Peter Eade, who, in his previous Mayoralty, just ten years before, had set the Corporate seal to the transfer of the noble old Norman Keep to the citizens of Norwich for ever. The

**Approach to the Castle**

is over a fine old Saxon arch which spans the dry moat
TERRACE WALK SURROUNDING THE KEEP. — Fig. 56.
surrounding the hill on which the Keep stands, the moat is now cultivated as a recreation garden, much appreciated by the citizens; this leads to a broad Terrace walk, extending quite round the Keep, from which extensive views in all directions are to be obtained, the whole of the Museum buildings being enclosed by a lofty granite wall, and the terrace bordered by a light iron palisade.

The Museum.

A glance at the accompanying plan will show that the Museum buildings consist of six main blocks, connected by corridors, and arranged in the form of a hexagon, the Castle Keep being situated at the south-west corner. Three of these buildings, two of which are 66 feet long by 22 feet broad, and the third 55 feet long by 28 feet, are arranged parallel with the outer walls of the enclosure, the remaining three, which have their longer axis directed towards the centre of the space enclosed by the outer walls, are each 68 feet by 28 feet. These are all lighted from above, the three large rooms having each a window in the inner gable in addition. The connecting corridors receive their light from windows on the side next the enclosed garden. The Keep, round which runs a spacious gallery, is about 70 feet square, with cellars in the basement, which are of considerable archæological interest, and contain the remains of the ancient prison, also the old well, which supplied the Castle in former times. The whole of the buildings are warmed by hot air, and lighted by electric light.

The visitor enters the Museum through a fine pair of oak, iron-studded doors, and an inner glazed lobby, with screen and swing doors also of oak, and finds himself in a spacious
THE ENTRANCE TO THE MUSEUM.
hall, beautifully paved, like all the rooms and corridors (except the Picture Gallery and the floor of the Keep), with marble mosaic. In the centre of the floor is the City Arms, formed of coloured mosaic; immediately in front is the stone staircase leading up to the Keep, and embedded in the wall on the left are two slabs of red granite, one at present blank, but intended for an inscription commemorative of the conversion of the prison into a Museum, the other bearing the following inscription:

_This royal castle built by William Ruffus as knyghton testifies in his chronicle on the site of one much more antient has been used as the county gaol since the year 1345, and was finally vested in the magistrates of Norfolk for that purpose by royal grant, confirmed by act of parliament in 1806._

_The ornamental work and facing of the exterior having fallen into a state of extreme decay, the same were ordered to be restored at the expence of the county by the court of quarter sessions in April, 1834._

_This restoration was carried into effect with the most carefulvfy adherence to the details of the antient work in bath stone as most resembling that of Normandy, which had been originally used under the superintendence of the visiting justices, and completed in 1839._

_The battlements and corbel table were designed from the best discoverable authorities, as no portion remained of the original termination of the building._

_Anthony Salvin, Esq., of London, Architect._

_Mr. James Watson, of Norwich, stone mason._

The objects exhibited in the entrance-hall are of rather a miscellaneous character, notably a highly-sensational group showing a fine tiger in the deadly coils of a giant boa-constrictor, which however admirable in execution, must
not be accepted as representing an event of everyday occurrence, but rather as an example of the taxidermist's skill and inventiveness; a case containing a very fine pair of so-called Polish swans (*Cygnus immutabilis*), a species not recognised by all naturalists, but which has been met with more frequently in Norfolk than perhaps any other part of the country, although not quite so striking as its neighbour, is very beautiful. These two fine birds were killed at Wroxham in 1878, and are the gift of Mr. J. J. Colman, who is also the donor of the next case, containing a remarkably fine old male of the domestic swan. This bird is known to have been upwards of sixty years of age, and became so fierce that it was found necessary, however reluctantly, to end its career. The two fully adult males, in these cases, indicate the external differences between the Mute and Polish swans, and in the British Bird-room will be found a cygnet of the latter species, which is pure white, instead of the sooty colour of the young of the domestic bird. There are a few other cases of birds, but they do not call for special mention here.

On the right of the entrance-hall is a flight of stone stairs leading up to the Corporation Muniment Room,

...
of Documents relating to City Police and Magisterial Jurisdiction, such as early Leet Rolls, beginning in 1287, Sheriffs' Tours, Informations, Depositions and Indictments for the City Courts; a very complete series of the Accounts of the City Chamberlain (or Treasurer) from 1375 downwards; some rolls of the early Assembly (or Town Council) between 1365 and 1426. From 1440 the proceedings of the Assembly have been kept in Books. The Documents connected with St. George's Company may also be mentioned. The Lists of Freemen commence in 1317. There is also a most valuable series of Rentals, Account Rolls, and Court Rolls of the Great Hospital and the country manors belonging to it, going back to 1296, together with many Deeds of earlier date. All kinds of miscellaneous business and matters of interest are also represented. The Royal Charters are still in the Guildhall.

Near the staircase is the door leading into the Curator's and Committee rooms, in which are

The Library.

This, though not very extensive, contains some valuable works, among which are Gould's *Birds of Australia*, and his *Century of Birds from the Himalaya Mountains*; Sowerby's *English Botany*, 2nd Edition; Hooker's *British Flora*, interleaved with Salmon's Notes; Turner's *Fuci*; Wolf's *Zoological Sketches*; Ewing's *Merchants' Marks* (large paper copy) interleaved with 27 additional plates, and a large number of marginal illustrations; the British Museum *Catalogue of Birds*, etc., as well as some books and manuscripts of great local interest, such as the MS. Diaries of the late J. D. Salmon, 1825—1841, containing interesting notes on the Natural History of the Neighbourhood of
Norwich Castle Museum. 61

Thetford, etc.; three volumes of MSS. of Lectures and Notes on the Fauna of Norfolk, etc., by the late Rev. Richard Lubbock; fifteen Diaries and nine quarto volumes, containing the MS. notes of the late Henry Stevenson on the Ornithology of Norfolk, made during the years 1850 to 1888; a copy of Bewick's *British Birds* (1826), with original MS. notes of rare Norfolk and other British Birds, by the late Edward Lombe, of Melton; a *facsimile* copy on vellum of the Corporation of Norwich Swan Marks; also collections of autographs, Norfolk portraits, views, etc.

Through the glass door in front are seen the central gardens, which will doubtless be much resorted to in summer.

Passing to the right in the first corridor, hanging against the walls, will be noticed a fine cartoon by J. G. Waller, F.S.A., by whom it was presented to the Museum, representing the Brothers rescuing their Sister from Comus and his Rabble (Milton's *Comus*, lines 657—664)∗; and near the door leading into the garden is a view of London in 1647, showing the houses as they existed at that time on London Bridge—this is not original, but a reproduction, dated 1832. Between the windows of the corridor are two of the cases, Nos. 31 and 34, belonging to the Lombe collection of birds, to be mentioned shortly; and on the opposite wall is a copy of Cleers' Map of Norwich, dated 1696, which formerly belonged to Kirkpatrick, and bears his MS. notes in red ink, as well as his signature. There is also a fine copy of Kirkpatrick's N.E. prospect of Norwich, dated 1720—remarkable for showing the long streets of houses with pointed gables, which have now

∗ This cartoon was exhibited in Westminster Hall in 1843, and was awarded a premium of £100.
almost disappeared—and a fine view of the celebrated sign which formerly spanned the road at Scote Inn.

Passing through a swing door at the end of the first corridor, the visitor enters

**The British Bird-Room.**

It is well that this room should be seen first, for notwithstanding the many treasures it contains, its first appearance, compared with the beautiful wall-cases in the other parts of the building, is slightly disappointing. This arises from the Lombe collection, which occupies the whole of the right side, being in the original old-fashioned though excellent cases, and the wall-cases on the other side of the room having been adapted from the old Museum. But this feeling soon passes away, more especially should the visitor have some knowledge of Ornithology, when he inspects the contents of the room more closely. There are here some of the most beautiful as well as the rarest of British birds, most of which possess the additional attraction of local origin.

We will first speak of the Lombe collection, many of the birds included in which were doubtless obtained in this county; but unfortunately no complete list with dates and localities was ever made, an omission perhaps pardonable fifty years ago, but altogether inexcusable, although but too frequent, in the present day. Did the possessors of such collections, often consisting of specimens for the most part killed by their owners, fully realise the interest which may attach to the specimens in after years, and their utter valuelessness as mere stuffed birds without a history, they would surely not grudge the small amount of trouble necessary to record the history of each bird if only on the back of the case which contains it.
The Lombe Collection

was formed by the late Edward Lombe, of Melton near Norwich, and presented to the Norwich Museum, by his daughter, the late Mrs. E. P. Clarke, of Wymondham

At the time it was made, early in the present century, it must have been one of the most complete private collections in this country. It was removed to the old Museum, and opened to the public in July, 1873, and consists of thirty-six large uniform cases of British Birds, and two of
British Mammals, all preserved and cased by the celebrated Leadbeater, of London. There are 289 species of British birds, represented by 540 specimens remarkably well preserved, and frequently exhibiting adults of both sexes, as well as immature examples. The gem of the collection is the Great Auk, or as modern ornithologists prefer to call

GARE-FOWL OR GREAT AUK.
From Professor Newton's "Dictionary of Birds."
it, the Gare-fowl, which will be noticed under a separate glass shade; unfortunately the history of this particular bird is not known. The species, however, is now extinct, and comparatively few examples are in existence. The Gare-fowl was quite incapable of flight, but fully at home on and in the water, which it seldom left. Its chief home, when it visited the land on the coasts of North America in the breeding season, was certain islands off New Brunswick and Newfoundland; at the former it appears to have been exterminated first, but those which resorted annually to the last named, existed some years longer until they were there also most ruthlessly exterminated. The final existence of the species terminated with those which resorted to a small group of rocky islands off the south-west point of Iceland, where it became extinct in 1844. As a British bird it was probably never numerous, but a pair or two frequented some localities in the extreme northern portion of the kingdom, the last British specimen having been killed at St. Kilda in the year 1840. About 68 or 70 specimens exist in collections in this and other countries, 22 of which are in the British Isles; there are also some 70 eggs, 47 of which are owned in Britain. As may be imagined, these birds are exceedingly valuable, the last which changed hands was offered and withdrawn on the 23rd April, 1895, at Steven’s Auction Rooms, but subsequently sold to the Museum of Science and Art, Edinburgh, for £350—and a somewhat faded and cracked egg produced at the same sale 180 guineas. Another specimen, accompanied by an egg, sold by private contract for £600; whilst the eggs alone have produced by auction almost fabulous prices, one which formerly belonged to Mr. Yarrell, selling in 1888 for £225; and two others, accidentally discovered amongst some fossils of little value, which were purchased for 36s., although both somewhat damaged, one more so than the other, sold on
the 24th April, 1894, for £273 and £183 15s. respectively.

A bird of great interest to Norfolk Ornithologists, although very inconspicuous, will be found in Case 7, No. 35. It is a male of a small Warbler, known as Savi's Warbler, of which the Museum is the fortunate possessor of the three other specimens, all killed in this county; one of these is the first example of the species known to have been obtained in Britain, and probably in Europe. The specimen in the Lombe collection was killed at Strumpshaw early in the present century. This interesting bird, which was known to the fenmen more by its note than by sight (for it was of most retiring habits) as the "night-reeler," is now believed to be extinct in fenland, and although said to be found in small numbers in Holland, and may be in one or two other stations on the continent, will probably very soon be lost to Europe. Another interesting bird will be found in Case 5, No. 7. It is a small falcon, known as the Red-footed Falcon, a young male, one of three killed at Horning in May, 1830, which were the first recorded British specimens. Further references will have to be made to the birds in the Lombe collection as we proceed, and it will be found additionally interesting as representing a system of classification long since abandoned.

In the centre of the room, and arranged in vacant spaces round the walls, are a number of separate cases containing birds, in many instances of great rarity, and almost all of local origin. Amongst these are a beautiful specimen of White's Thrush, killed at Hickling on 10th October, 1871; a case containing a lovely pair of Waxwings, with nest and young, the gift of the late John Wolley, who was so liberal a donor to the Museum. This talented naturalist was the discoverer of the nidification of the waxwing, which had long been a mystery, and very generously presented these,
almost the first fruits of his discovery, which were obtained in Finnish Lapland in the summer of 1856, to the Norwich Museum. Other cases will be found containing specimens of the Black-tailed Godwit; a beautiful series of that singular bird, the Ruff; and the no less curious Avocet; each of which species formerly bred in Norfolk; also examples of the Pallas’s Sand Grouse, which visited this county in such remarkable numbers in 1863 and again in 1888; a very lovely Plover, known as the Caspian or Asiatic Plover, killed at Yarmouth, on 22nd May, 1890, the first known occurrence of this species in Britain; three excessively rare Ducks, Steller’s Western Duck, a male, shot at Caister, near Yarmouth, which long remained the only British specimen; the Buffle-headed Duck, which was shot near Yarmouth about the year 1830; and the Red-crested Whistling Duck, killed at Horsey, on 12th January, 1844; the young of the Polish Swan already mentioned, the offspring of a pair kept by Mr. Gurney, at Northrepps, hatched in May, 1876. A very interesting memento of the almost forgotten but once popular sport of cock-fighting will be found in one of these cases. It consists of two cocks, trimmed and spurred, the one triumphant over its fallen foe, which lies prone at its feet. This group is the work of John Hunt, formerly a bird preserver in Norwich, and the author of an illustrated work on British Ornithology, dated about 1815, of considerable merit, but unfortunately never completed.

The most interesting of all the rarities in the local collection, and certainly the most imposing, is the unequalled group of Native Great Bustards, which occupies the centre of the room, and bears the following explanatory label:

THE BUSTARD (*Otis tarda*).

This fine species, the largest British land-fowl, was formerly found
in various champaign parts of Great Britain, from East Lothian to Dorset. Gradually it became extirpated, and at present occurs in this country only as an occasional wanderer. On the continent of Europe this species is found as an accidental visitor as far north as Denmark, Southern Sweden, and Central Russia, further south in which latter country it is plentiful, as also in Germany, the Danubian and Black Sea districts, the east of France, and in portions of the Spanish peninsula; in the rest of Europe and North Africa it is rare, but extends into Manchuria and China, and has been met with in the valley of the Indus.

In England, the native race disappeared from Cambridgeshire, Hertfordshire, Berkshire, and some other districts, unheeded; it was last seen on Salisbury Plain about the year 1810, on the Yorkshire and Lincolnshire Wolds about 1826, in Suffolk in 1832, and in Norfolk in 1838.

Two main "droves" of these birds were formerly found in the open Brecks of Norfolk and Suffolk, the headquarters of one drove being the neighbourhood of Westacre in the former, and those of the other about Icklingham in the latter county. From these centres they strayed to the suitable country surrounding, for the most part nesting in the spring corn, but during the latter years of their existence, they seem to have dropped their eggs indiscriminately, and these, as no males were observed, were probably unfertilised. One of these eggs will be noticed on the floor of the case. The seven birds forming the group are all of local origin, and the last of the native race.

1. § This fine bird, which weighed 24 lbs. in the flesh, was found dead on Beechamwell Warren some time between the years 1815 and 1818, having been previously shot at and wounded at Narborough.

2. © Caught in a rabbit-trap on Westacre field in 1831. Both this and No. 1 were originally set up by the late Mr. John Scales, in whose collection they were, and were presented to the Norwich Museum by the late Mr. J. H. Gurney, in 1843.

3. © These two specimens were presented by the late Rev. Robert Hamond, of Swaffham, to Sir Robert Clifton, of Clifton near Nottingham, and were eventually purchased by subscription for the Norwich Museum, the male in 1892, and the female in 1893. The date of their capture is not known, but their history is recorded in the Birds of Norfolk, Vol. III, p 401.
5.  From the Lombe collection. Presented to Mr. Lombe by the late Rev. Edward Evans, formerly rector of Eriswell, Suffolk, by whom it was kept alive until its leg being accidentally broken necessitated its being killed, when it was preserved for Mr. Lombe's collection. The exact date is not known.

6.  Killed at Elveden, Suffolk, it is believed about the year 1815, and came into the possession of Rev. G. R. Leathes, and through him to the late H. M. Leathes, by whose son, the present Colonel Leathes, it was presented to the Norwich Museum in 1844.

7.  This bird, killed at Lexham in May, 1838, and presented to the Norwich Museum in 1877 by Rev. W. A. W. Keppel, is believed to be the last of the indigenous race of British Bustards. The EGG, which is unblown, is from the Whitear collection.

The case in which these birds are displayed is the gift of J. J. Colman, Esq., M.P., at whose expense also the birds have been reset in more suitable attitudes after sketches kindly supplied by Mr. Abel Chapman, author of "Wild Spain."

The birds in the wall cases in this room are arranged in accordance with the system adopted by a Committee of the British Ornithologists' Union, and embodied in their published catalogue, generally known as the "Ibis List." There are eight cases. Commencing with

Case I.,

we find the Thrushes take precedence, in which family are our well-known Song Thrush and Blackbird, as well as a great diversity of other species, some of which the unlearned would hardly expect to find associated even under different sub-families. In the same case will be noticed the pretty Blue-throat, nearly allied to the Redstart, which breeds in Arctic Europe, wintering far to the south. We mention this bird for the reason that it was formerly considered a great rarity in the British Isles, but it is now known that it
generally visits the east coast on its autumn migration, sometimes in rather considerable numbers. The three examples of Savi's Warbler already referred to, are in close proximity, in a small glazed case. A very attractive bird, known as the Dipper or Water Ouzel, a frequenter of rocky mountain streams, into which it deliberately walks until quite submerged, in search of the aquatic larvæ which form its food, will be seen well represented. It appears surprising that this charming bird, the very sight of which recalls the sound of rushing water, should be met with near the sluggish streams of Norfolk, and curiously enough, it happens that all the Dippers, with one or two exceptions, which have been procured in Norfolk, are undoubtedly over-sea migrants. There are two races of these birds. Those frequenting the mountain streams of Central Europe and the British Isles, belong to a form which is distinguished by a chestnut band below the chest, whereas the Scandinavian form has the pectoral band quite black. It is the latter form which occasionally occurs in Norfolk, clearly indicating that the stranger is a visitor from Scandinavia. When met with here it is generally near the broken water of some mill tail, the nearest approach to be found in the sluggish waters of this hill-less county to the torrents of its native land. Some beautiful examples of the Golden Oriole are followed by the Shrikes or Butcher Birds, and lovely specimens of the Wax-wing, an occasional winter visitant. A number of small but interesting species, amongst which are the Bullfinch, Crossbills, and Buntings, bring us to another rarity, the Rose-coloured Pastor, a very occasional summer visitor to this country; succeeded by the Nutcracker, a straggler from the European continent; the charming but persecuted Jay, and its companion in evil repute, the sprightly Magpie. Then follow the Crows and Larks, amongst which latter
will be noticed the Shore Lark, an inhabitant of Northern Europe, Asia, and America, which, like the Blue-throat before mentioned, although formerly considered a great rarity, is now known to be a constant autumn visitor to the east coast. The Alpine Swift, another rare straggler, is represented by an example killed at Old Buckenham, in September, 1831, and two beautifully pied varieties of the Nightjar will be seen, one of which, the gift of Mr. Wilkinson, of Holt, was killed near that town in 1858; for the other the Museum is indebted to Lord Hastings. It is known that examples of this singular variety were observed in the above locality in the years 1856, 1858, 1859, and it is probable that both these examples had a like origin. See *Birds of Norfolk*, Vol. I., p. 349. Passing the Woodpeckers, we come to some bright tropical-looking birds, our own lovely Kingfisher, the not less beautiful Roller, Bee-eater, and the crested Hoopoe, which, with the Cuckoo, bring us to the end of the case.

**Case II.**

Few birds are more interesting than the Owls, which follow here; the well-known Barn, or White Owl, being the most familiar species. A beautiful pied variety of the Long-eared Owl, a bird very little given to variation, will be found in a separate case; it was killed at Filby, and is the gift of the Rev. C. J. Lucas of that place. Perhaps the most conspicuous objects in this case are a very interesting group of Snowy Owls, with young ones in various stages of plumage, from a new-born chick only a few hours old, to fine adult birds in their striking white plumage, sparingly spotted and varied with black. All the birds of prey are white when first hatched, and that will be seen to be the case with the
chick 14 hours old, the next example 19 days old shows the sooty-coloured down which speedily succeeds the white covering. Three other young ones, from 39 to 45 days old, are plainly showing their first feathers, white spotted with black, whereas the three fully adult examples are arrayed in all the beauty of the mature plumage. These interesting examples all came from the aviary of the late Mr. Fountaine, of Easton, who was singularly successful in rearing birds of this family in confinement. A similar change of plumage is shown in the nestlings of the Eagle Owl in the same case. A very striking object also is a young common Barn Owl in its white down.

In this case commence the diurnal Birds of Prey; the first family of which is known as the Harriers, a group occupying a position in the arrangement here adopted between the Owls and the Buzzards, to the former of which its facial disk causes it to bear some resemblance. All the three species of Harrier were frequent breeders in the uncultivated districts of Norfolk at the beginning of the present century, but have now become exceedingly rare, and with one exception have ceased to breed here. The Marsh and Hen Harriers are here, but the third species, Montagu's Harrier, will be found in Case III. The last named is followed by the Buzzards, one species of which formerly bred in Norfolk. Next in succession are two fine British Eagles, the Golden Eagle of very rare occurrence in South Britain, and the White-tailed Eagle. The specimen of the first named in the case was killed in Perthshire, but an English example procured in Yorkshire will be found immediately on entering the next corridor, where a few separate cases forming an overflow from this
room are placed. The White-tailed Eagle is not unfrequent in the Eastern Counties, occurring in autumn on its migration southward, it has, however, never been met with here in adult plumage; the bird with the white tail, although captured in this county, attained maturity in confinement. The Goshawk, now a very rare visitor in the Eastern Counties, is succeeded by the Kite, another example of a once common bird now become excessively rare in this country. The beautiful Greenland and Iceland Falcons will be found in the lobby before mentioned, and should not be missed. The smaller Falcons, including a charming little Red-footed Falcon, killed near Norwich, on August 10th, 1843, form a very attractive group. The Osprey, or
Fish-hawk, sometimes a visitor to our waters, is the last species in this case.

Case IV.

contains some very showy birds. The Shag and the

THE BITTERN.—p. 75.
From Professor Newton's "Dictionary of Birds."

Cormorant will be found in the Lombe collection, Case 23; the latter is another bird lost to this county as a breeding species, for which purpose it resorted to the trees at Fritton, certainly as late as the year 1825. The Gannet
Norwich Castle Museum. 75

occupies a position at the top of the case, and is followed by fine examples of the Heron. The Lombe collection, also Case 17, contain some very beautiful birds of this family, including the lovely Egrets, whose beautiful side plumes only developed, be it remembered, when the bird is breeding, prove a fatal gift, and have led to the extermination of the species in many of its former nesting-places to meet the cruel and thoughtless demands of fashion. A very rare species, known as the Squacco Heron, a native of Southern Europe and Northern Africa, formerly in the Stevenson collection, and which was killed at Surlingham, occupies one of the small cases. Lower in the wall case are the Bittern, once so common in the fenny parts of Norfolk, and the White Stork. Of the rarer Black Stork, a Norfolk specimen, from the Stevenson collection, which was killed on Breydon in June, 1877, will be found in the lobby at the entrance of the room. Some fine adults of the Spoonbill, a species which, like the Herons, and in their society, formerly bred at Claxton and Reedham, on lofty trees, seemingly a strange nesting-place for these long-legged birds, bring us to the end of this order.

We now come to the Anseres, and a fine series of the British Geese are contained here, and in Cases 29 and 30 of the Lombe collection. Especial attention is called to the Pink-footed Goose (in a separate case), which, although not recognised in this country till the year 1841, is now, as it doubtless was before that time, by far the most numerous Goose found in Norfolk. It is especially abundant on the Holkham marshes in winter, and from that locality Mr. Yarrell received the specimen which he described in the above year. Of the Swans two species have already been referred to in the vestibule, and here will be seen two other elegant wild species, the Whooper and
Bewick's Swans, both of which are occasional winter visitors to our waters, of uncertain occurrence, but sometimes rather numerous. The eight species of wild Duck known to breed in Norfolk are well represented here and in the Lombe collection (Cases 25 to 28), amongst which may be mentioned the beautiful Sheld Duck and the Gadwall; the latter species is worthy of note, for though occasionally occurring in this county previous to the year 1850, it could, up to that time, be only regarded as a winter visitant. In the year just mentioned, however, a pair of wild birds taken in a Decoy were pinioned and liberated at Narford; the descendants of these have become naturalised, and many pairs breed in South-west Norfolk yearly, where they appear to be on the increase. Those rare Ducks, the Red-crested, Buffle-headed, and Steller's Western Duck, have already been mentioned; and at the bottom of this case will be seen a young male King Eider, which was killed at Hunstanton in the middle of January, 1888, and is the first recognised Norfolk specimen. It has, however, been met with twice since in the same locality. These are followed by the Mergansers and the Smew. In

Case V.

are the Pigeons and the Game Birds, an interesting series of which will also be found in Cases 10 to 14 of the Lombe collection. The original stock of Phasianus colchitus, now rarely met with pure—so many crosses having been introduced—is particularly worthy of note, as are also some curious hybrids between the Common Pheasant and the Green-breasted Pheasant of Japan, which were produced in a wild state from the descendants of a male P. versicolor, imported many years since by the then Earl of Derby, at whose Knowsley sale they were purchased and turned adrift.
in Norfolk. There are also pied varieties, and a hen bird assuming the male plumage. A fine case of Grouse and Capercailly is in the Lombe collection, No. 11. The Spotted, Baillon's, and Little Crakes are all represented by locally killed birds, as also the Crane, a bird noted for its beauty and stately bearing, which formerly bred in England, and probably in this county; the specimen here shown was killed on September 1st, 1873, at East Wretham. At the bottom of the case is a fine Bustard. The beautiful group of these birds in the centre of the room, as already explained, represent the extinct race of Norfolk-bred Bustards, which have vanished never to return, the species now ranking with us as an occasional migrant; of the latter class, the bird above mentioned is a representative, having been shot at Winterton, on the coast, in the year 1820. Several other migratory examples have been obtained in this county since that date. The two Little Bustards, in close proximity, are also Norfolk specimens, one was killed at Trunch and the other near Norwich; both are females. There are also two others, male and female, localities unknown.

Case VI.

devoted to the Limicolæ, also contains many rarities worthy of notice. The fine bird known as the Stone Curlew, or Norfolk Plover, is found in summer breeding sparingly in the open parts of the county; there are also specimens of a remarkable long-legged bird, the Avocet, which at the beginning of the present century nested in more than one locality in this county, notably at Salthouse Marshes, where it was called the “Shoe-Awl,” from its peculiarly-formed beak. A still longer-legged bird, close by, is appropriately named the Stilt Plover, the bird in this case was killed
on Hickling Broad on June 10th, 1822. Some beautiful varieties of the Woodcock from the Hastings collection, and several very rare Sandpipers, amongst which are an example of the scarce melanistic variety of the Common Snipe known as "Sabine's Snipe;" the Broad-billed Sandpiper first made known as a British Bird from a Norfolk-killed specimen; the Pectoral Sandpiper, another American species first obtained on Breydon; and an even rarer bird, the Siberian, or Sharp-tailed Pectoral Sandpiper, which has only twice been procured in Britain, and both times on Breydon. The Museum specimen of this bird has only recently been recognised, although it was killed in September, 1848. The splendid series of Ruffs, all local specimens in breeding plumage has already been mentioned, but others will be observed in this case. Two more New-world stragglers must be pointed out; the Buff-breasted Sandpiper, the Museum specimen of which was killed at or near Sheringham on 29th July, 1832, and the Brown Snipe (*Macrorhamphus griseus*), killed at Horsey, on 9th October, 1845. The collection also contains some beautiful breeding examples of the Black-tailed Godwit, a bird which early in the present century nested in several localities in Norfolk.

Case VII.

is appropriated to Aquatic Birds, and commences with perhaps the most graceful of all these charming birds, the Terns and Gulls. The lovely Common and Lesser Terns are the only species now left to us as summer residents, and these from persistent egging, and the heartless fashion of adorning (?) ladies’ hats with their distorted bodies, are in great danger of extermination. The Arctic Tern is only a passing migrant, and the Roseate Tern, a great
rarity in this county—although it formerly bred in some numbers on the Farne Islands—is represented in the collection by only one local specimen, which was killed at Hunstanton on 12th July, 1880, and generously presented by Lord Lilford. The Caspian and Sandwich Terns, of which fine species examples will be noticed, are only passing visitants to this county, and the Whiskered and Noddy Terns are both represented by other than local specimens. The Black Tern is another of those birds which is lost to us as a summer resident, and the White-winged Black Tern is a rare southern species, which occasionally appears in the neighbourhood of the Broads.

Nearly allied to the Terns are the Gulls (Larinae), the first example of which is the beautiful Ivory Gull, a circum-polar species rarely found on the British coast. This is followed by the pretty Kittywake (Rissa tridactyla), one of our most common Gulls. Next are the Glaucous and Iceland Gulls, both Arctic species, the former sometimes met with off our coast in winter, generally in immature plumage, the latter of very rare occurrence. The Lesser Black-backed, Common Gull (Larus canus), and Greater Black-backed Gulls are met with all the year round; the first and last, as well as the Herring Gull, most commonly in immature plumage. The fine Great Black-headed Gull here exhibited is not a British killed specimen; its home is the Mediterranean and Black Seas, and its claim as a British bird rests on a single occurrence at the mouth of the Exe. The next however, the Common Black-headed Gull, nests at Scoulton and Hoveton, and is probably our most numerous species at all seasons. The Little Gull—which also has a black head in the breeding plumage—inhabits Northern Europe in summer, and is only an occasional straggler to our shores; it is shown here in both summer and winter
plumage, as is also the beautiful Sabine's Gull, the last of the black-headed species.

Of the Skuas or Robber Gulls there is a fine series; the first of the family, the Great or so-called Common Skua, will be found in the Lombe collection, Case 33. This fine bird, which breeds in a restricted area in Shetland, is very rare on the Norfolk coast.

Case VIII.

commences with the Pomatorhine Skua, an uncertain but sometimes rather numerous visitor to our shores; two others, Richardson's and Buffon's Skuas, claim attention, the former breeds in the northern division of the kingdom and adjacent Isles, and is by far the most common species on our coast; the latter, known as the Long-tailed Skua, from the two centre feathers extending sometimes as much as nine inches beyond the other feathers of the tail, is circumpolar in its habitat, and seldom visits us, especially in adult plumage. The Order TUBINARES which follows, is distinguished by the nostrils being external and tubular; all its members are Oceanic birds, perhaps the best known of which is the Storm Petrel, a swallow-like bird, which rough weather at sea frequently brings to our shores sometimes in large numbers. The same may be said to a less degree with regard to the Fork-tailed Petrel. Some rare birds of the genus Puffinus and its allies have been met with in Norfolk; unfortunately they are not in the Museum collection.* Examples of the Manx and Greater Shearwaters will be seen, and of the Fulmar, which seldom visits the shore, but is often rather

* These are the Sooty Shearwater, taken at Lynn in 1851, and now in the Museum of that town; the Dusky Shearwater, found dead at Earsham in 1858; and the Capped Petrel, taken alive at Southacre in 1850, and now in the collection of Mr. Newcome, of Feltwell.
numerous out at sea; it is a handsome, powerful-looking bird, and breeds in some of the Scotch Islands. Of Bulwer's Petrel, a southern species of this wandering family, we are unable to exhibit a Norfolk-killed specimen, but it will be found represented.

The Divers commence with the Great Northern Diver, the largest of its kind, which, with the Black-throated and Red-throated Divers occurs off our coast, generally in immature plumage. The White-billed Diver, an Arctic species, has recently been added to the Norfolk list on the strength of a specimen in the Booth collection, shot on Hickling Broad, on December 14th, 1872. The Grebes, next in order, are not strictly marine; the largest, the Great Crested Grebe, is one of the greatest ornaments of the Norfolk Broads, on most of which it breeds. There are four other species of Grebe in the collection, one only of which, the Little Grebe, is found in any numbers in Norfolk.

The Auks are Oceanic birds, more or less common on our shores, particularly the Razor-bill; but its cousin, the Great Auk, before referred to, is now extinct. The Guillemot is another well-known inhabitant of our waters; the Black Guillemot is much rarer, but it breeds on the Irish coast and some of the Scotch Islands. The Little Auk, a quaint little bird, circumpolar in its habitat, occasionally visits our shores in stormy weather, even in considerable numbers, and on such occasions is often driven far inland; one of our specimens was taken on the Gentleman's Walk, another will be observed to have the black chin and throat of summer, a state of plumage very rare so far south; this example was killed at Wells, in May, 1857. Only one more bird remains for us to mention, and that a very remarkable one, known as the Puffin. It is a dapper little fellow, breeding in suitable localities all
round the coast of Great Britain, depositing a single egg in holes in the ground, and for the most part availing itself of rabbits' burrows. The bill in summer is enormous and gaudily coloured; it has the curious habit of shedding some portions of it, as well as some other horny ornamental appendages, after the close of the breeding season.

The corridor, opening out of the British Bird Room,
through which we pass into the next block, contains on the left side four cases devoted to the collection of

**British Birds' Eggs,**

and three small wall cases, in which are a number of nests, also of British Birds. The latter are not so numerous as could be wished, but now that the means of properly displaying them are provided, they will doubtless soon be of a more representative character. The eggs are, however, a fairly good collection, and have from time to time received additions from Mr. Scales, of Beechamwell; J. D. Salmon, who eventually bequeathed to this Museum the duplicates of his collection; and the Rev. W. Whitear, whose collection was presented by his sister, Miss Whitear, of Redenhall. Some of these eggs have additional value as being those of local species which have since ceased, or nearly so, to breed in this county. Many other additions have also been made from time to time by Mr. Gurney, Colonel Irby, and others.

Passing for the present the line of wall cases on the right-hand side of the corridor, we enter the noble room in which are displayed the bulk of the specimens forming the splendid collection of

**Raptorial Birds,**

which form a lasting memorial of the energy, liberality, and profound acquaintance with this branch of Ornithology possessed by the late Mr. J. H. Gurney, who, in 1853, stated his intention to form as complete a collection as possible of the Birds of Prey; and the beautiful series here exhibited, as well as a large number of skins reposeing in the cabinets in the "Skin Room," testify to the success
which has attended his untiring efforts. Many of the specimens are described or otherwise alluded to in the *Ibis*, a scientific journal devoted to Ornithology (vols. for 1859-1882), and some of them are figured either there or in the publications of the Zoological Society.

Before proceeding to call attention to some of the more interesting of the birds in this collection, it may be well to say a few words as to the system of classification adopted by Mr. Gurney, and which has been followed in the arrangement. In describing these, frequent use will be made of the excellent *Sketch of the Raptorial Birds in the Norwich Museum,* written by Mr. Gurney in 1872, a little book replete with information, and a model of the popular treatment of a scientific subject.

The birds of prey, nearly all of which are feeders on flesh, are divided in Mr. Gurney's Museum Catalogue into two great groups—the ACCIPITRES, or birds which seek their prey by day, and the STRIGES, or Owls, most of them nocturnal or crepuscular in their habits. The Accipitres are, for the most part, powerful birds, possessing great capacity for soaring and sustained flight, bold in their habits, and furnished with formidable claws for holding, and hooked beaks for rending. They vary greatly in size, as will be seen in the collection, from the giant Lammergeyers to the tiny Indian Microhierax; but their fierceness is not always in proportion to their bigness, as instanced by our familiar little British Merlin, one of the boldest of the Accipitres. They are widely distributed, some of them—as the Peregrine Falcon—being almost cosmopolitan; others are very restricted. About 470 species are recognised by Mr. Gurney, and of these 403 are represented

* Published by Jarrold and Sons. Price Sixpence.
in the Norwich Museum. The various main divisions of this order will be referred to more at large as we pass them in review in their proper places, and for the present we shall confine ourselves to the first family,

**ACCIPIITRES.**

**Case 1.**

On entering the large room containing the bulk of the Birds of Prey, we turn sharp to the left, commencing with the wall case numbered 1. There are also many small, and some of them very beautiful cases, containing rare or choice specimens, to all of which reference cards will be found in their proper places in the wall cases; these small cases will here be indicated by separate numbers. The first bird which attracts our attention, following the order in which they are arranged in Mr. Gurney's Catalogue, is a very abnormal form, the only member of the family *Serpentariidæ*, so called from its favourite food consisting of snakes and reptiles, but perhaps better known as the Secretary Bird, from the fanciful resemblance of the feathers at the back of the head to a pen fixed behind the ear. This bird is over three feet high, and has very long and powerful legs and feet, with which it beats its serpent prey to death, guarding itself meanwhile with its wings as a shield. It is said that a wing or a leg is occasionally broken by the force with which the blows are delivered, and it will be noticed that the upper wing bone (humerus) of the skeleton in the case has been fractured, but has knit together again apparently by a natural process. The Secretary Bird may be seen alive in the Zoological Gardens, Regent's Park, and is sure, from its great size and quaint appearance, to attract attention; if its keeper can be induced
to throw it a dead rat, with a string attached, by pulling which it can be made to simulate a living animal, the pounding blows delivered with its foot with astonishing force and rapidity, will illustrate the way in which it destroy its dangerous prey. This is the only species of this very restricted family.

THE SECRETARY BIRD.—p. 86.

From Professor Newton's "Dictionary of Birds."

Following *Serpentarius* is the genus *Polyboroides*, which contains two species, *P. typicus* and *P. radiatus*. They are both reptile feeders, the former having an extended range on the continent of Africa, the latter being found in
Madagascar. Both species are possessed of a remarkable peculiarity which exists in no other bird, they are able to direct the tarsus (the long bone immediately above the foot, popularly regarded as the leg) both backwards and forwards. This peculiar flexibility at the joint between the tibia and tarsal bones appears to be of great service to the bird in searching sun cracks in the parched soil for the reptiles which take refuge there after the waters of the smaller pools are dried up. Mr. Gurney has had one of the specimens so mounted as to show this singular action. The remaining birds in this case belong to the Caracaras, or carrion-eating Hawks, natives of South America, a country inhabited by more birds of prey than any other region in the world. A member of this group, Senex australis, inhabits the Falkland Islands, where one of our specimens was collected by Charles Darwin. In

Case II.

we find the first of the true Vultures, a well-defined family inhabiting the warmer parts of both hemispheres. The typical Vultures are characterised by their heads and necks being more or less bare, which gives them a somewhat repulsive appearance, although some species are remarkable for the delicacy and vividness of their colouration; their habit of feeding on carrion renders them invaluable as scavengers in hot climates where they most abound, and render important service in removing the putrescent animal matter which would otherwise prove pestilential.

The Egyptian Vulture, the Gier Eagle of Scripture (Lev. xi. 18, Deut. xiv. 17), (Neophron percnopterus), has a claim upon us as one of the two species which has wandered to our shores. A large series of these birds will be found in various states of plumage as well as skeleton and eggs. These are followed in
by the Black Vulture (Catharista atrata) found in South America, and the Aura Vulture (C. aura) known in the United States as the "Turkey Buzzard," a large series of these will be found differing considerably in size. On the floor of the case is a fine group of one of the most highly-prized species in the Museum, viz., the California Vulture (Pseudogryphus Californianus), a grand species frequenting the Rocky Mountains and the North-western shore of America, from Southern Mexico northward to Oregon, but now almost extinct. A fine series of these birds will be found with nestling, eggs, and skeleton, and some of the soft parts are in spirits.

contains the great American Condors from the Andes, the largest bird of prey known, and four King Vultures (with skeleton and eggs). The latter beautiful species inhabits the tropical parts of America, and gains its appellation, says Mr. Gurney, from the circumstance that the other Vultures inhabiting the same district never venture to alight on the carcase at which it is feeding until he "has satisfied his royal appetite, and with slowly flapping pinions, has winged his way to the dead limb of some lofty tree, where, with his crimson head and purple neck nestled down between the cream-coloured feathers of his wings and shoulders, he will patiently sit till the return of hunger recalls him from the memories of his last feast to a quest for the repast which shall succeed it." In

is a very fine old example of the Oricou Vulture (Ototyphus
auricularis), which lived in Mr. Gurney's aviary from the year 1855 to 1877, where she was well-known as Mrs. Stockings, from the white feathers of the thigh. During her long confinement she laid many eggs, some of which are now in close proximity to her; there is also a skeleton of the Oricou.

Case VI.

holds a fine series of Rüppell’s Vulture, with skeleton and egg, as well as good examples of the Griffon Vulture (Gyps fulvus) and its sub-species, with nestling, eggs, and skeleton; and with

Case VII.

we arrive at the last of the true Vultures, as represented by Gyps indicus, the long-billed Griffon Vulture, and G. africanus.

This very extensive family is widely distributed in both hemispheres; in the Eastern inhabiting probably the whole of Africa, omitting Madagascar; it is absent in Australia, Borneo, and the adjacent Islands, occurring in Sumatra, Southern India, and Asia, as high as latitude 50° N., and in Europe extending as far North as the 55° of N. latitude. In the Western Hemisphere Vultures are found over the whole of South America, and in the North, on the Western side of the continent, probably nearly up to the 50° N. latitude.

In

Cases VIII. and IX.

begin the Falconidae, the first examples of which are both in form and habits intermediate between the true Vultures and the Eagles. Of these there is only one genus, Gypaetus,
signifying Vulture-Eagle, and it is represented by two species, the magnificent Lämmergeyers (Lamb Vultures). The best-known of the two is the European Bearded Vulture, distinguished by a beard-like tuft of bristly feathers, at the base of the mandible, this adds greatly to its fierce appearance. Of these fine birds there is a unique series in the collection, numbering thirteen individuals, with skeleton and eggs. In the present day the Bearded Vulture is found in some of the most lofty mountain chains in the Old World, in Portugal, Greece, the Italian Alps, Sicily, and Sardinia; it is also found in the Himalayas, the Punjab, and some other parts of Asia; but it is one of those birds probably marked for extinction in Europe, and has indeed disappeared from several of its ancient haunts. The food of the Lämmergeyer appears to be very varied; its name indicates one habit, doubtless fatal to its existence, but it is also said to be very partial to tortoises which it carries high up into the air and drops on a rock or stone to break the armour with which they are covered. The well-known story told by Pliny will be remembered, how the bald head of the poet Æschylus being mistaken for a stone by one of these birds, it dropped a tortoise from on high and caused the death of the poet.

Case X.

commences the Eagles, amongst which will be noticed the great Wedge-tailed Eagle of Australia (also skeleton and eggs), and our own Golden Eagle found in some parts of Scotland—where its numbers appear to be increasing—it is represented by a grand series from Europe, North Africa, Asia, and North America; here is also a fine species known as the Imperial Eagle. In
Case XI.

will be seen the beautiful Tawny Eagle from Mogador, the Abyssinian, and Cawnpore Eagles, and others; and in

Case XII.

the last of the true Eagles, the Spotted and long-legged Eagles.

On the last two shelves we commence the Hawk Eagles, so called from their short wings and more fully-developed tails; of these there are a large number of species from widely-dispersed localities. *Nisaetus fasciatus*, the first, is a handsome bird known as Bonellis' Eagle, it is widely-dispersed all over Southern Europe and Asia and North Africa, and not unlikely some day to be met with in England.

Case XIII.

contains some beautiful crested Hawk Eagles of the genus *Limnaetus*; one species, *L. caligatus*, the changeable Hawk Eagle, represented in its melanistic as well as in its normal phase. Gurney's Hawk Eagle, in

Case XIV.,

the type specimen, named by J. E. Gray, in honour of the late Mr. Gurney, is still a rare species, and was at the time it was acquired to be found in only one other public collection; we now possess four specimens, one having been added since Mr. Gurney's death; the Occipital Hawk Eagle, a handsomely-crested bird, will also be observed, it is remarkable for the extraordinary development of the occipital feathers, greater in proportion to the size of the bird than in any other Hawk Eagle.
also contains some imposing-looking species, amongst them the Crowned Hawk Eagle, one of the largest and most destructive Hawk Eagles of the Old World. The female,
contains three fine Harpy Eagles of tropical America. They are great destroyers of monkeys, fierce-looking, with wonderfully powerful feet and talons, and are perhaps the most formidable birds in existence.

Next follow the Buzzard Eagles, a large group of a much feeblener type, but some of them very handsome birds; they extend through

Cases XVII., XVIII., and XIX.,

and are found both in the Old and New World. One of the most beautiful of these is the Belted Buzzard Eagle (*Antenor unicinctus*) Case 16. This bird, departing from the habits of its kind, delights to feed on carrion. The birds of the genus *Spilornis*, Cases 16 and 17, remarkable for their peculiarly spotted plumage, are succeeded by the genus *Circaetus*, here fully represented; one species, *C. fasciolatus* (Case 18), of which there are two specimens in the collection, was formerly very rare, it will be found figured in the *Ibis*, for the year 1862, Plate III. The genus *Helotarsus*, short-tailed Eagles of great beauty of plumage, but of rather grotesque appearance, are the last of the series of Buzzard Eagles. These birds will be found in Case 18, the last in the room; they are known as "Bateleur" or Tumblers, from their very peculiar flight at times resembling that of the carrier pigeon. The Bateleurs are great devourers of snakes which they carry away in their talons. It was Mr. Gurney, I believe, who first suggested that it is this species which gave rise to the ancient fable of the Phoenix. Leaving the large room we now go to the bottom of the corridor, on the right-hand side of which we find the next
Cases XX. and XXI.,

commence with a new class, Halisætus—the Sea Eagles—a magnificent group of powerful birds frequenting both salt and fresh water in every quarter of the globe. They prey chiefly on fish, often however, supplemented by other animal food. One species, known as the White-tailed Eagle, is found in the Northern division of Britain, and is an almost annual winter visitant to the County of Norfolk, where it is generally erroneously recorded as the Golden Eagle. A very unusual variety of this bird, killed many years ago in Ireland, will be noticed; it was figured in Meyer's British Birds, 1828-43. This is in Case 20, No. 14. The largest and most powerful of these Eagles is the Kam-skatcha Sea Eagle, the adult of which has a white shoulder; the fine bird with a white head, No. 5, is the Bald Sea Eagle, the National emblem of the United States. On the leg of one of these adult birds will be noticed a chain; it was formerly for many years kept chained to a block at Rackheath, but escaped at night, causing great alarm to the natives.

Case XXII.

contains the Osprey, a fish-eating bird, almost cosmopolitan in its distribution; indeed, Professor Newton, in his Dictionary of Birds, says, "The countries which it does not frequent would be more easily named than those in which it is found—and amongst the former are Ireland, Iceland, and New Zealand." It is now a rare bird in Britain, but still nests in one or two localities where every endeavour is made to protect it. The three nestlings in various stages are from Florida. No more charming sight can be imagined than that presented by these beautiful birds engaged in fishing.
for their prey, in their descent they sometimes precipitate themselves with such force into the water as to be completely submerged. There are some slight differences in the Ospreys inhabiting various parts of the Globe, considered by some sufficient to render them specifically distinct. The interesting Indian and Australian genus *Haliastur* follows, three species of which are very similar.

The next genus is that of *Milvus*, containing the Kites, graceful birds on the wing, with long forked tails; one species, the Common Kite, of which there are lovely specimens in

**Case XXIII.**

with nestlings, from Germany, was indeed once common in this country, but is now exceedingly rare, though still nesting in Wales. Two other species have occurred in Britain, the Black Kite once, and the still more beautiful Swallow-tailed Kite on two occasions. The various Kites are spread over Africa and Southern and Eastern Asia. Of one species, the Australian Black-breasted Kite (*Gypoidinia melanosternon*), the Museum long contained only one wing, which was sent over from the Swan River with other birds' wings, intended for plumes for hats; we now, however, possess four specimens of this rare bird as well as its eggs. [Small Case 1.]

Nearly allied to the Kites are the Perns, which commence in

**Case XXIV.**

amongst these will be noticed the Honey Pern or Honey Buzzard, as it is more frequently called (*Pternis apivorus*), a not unfrequent migrant to this county, where it doubtless formerly bred; but although its favourite food consists of the grubs of wasps, and it is therefore a positive benefactor, it usually falls to the gun of the game preserver. The
Long-tailed and Andersson’s Pernis, the latter first described by Mr. Gurney from a specimen sent from Damara, S.W. Africa; the former procured in New Guinea by the celebrated traveller, Mr. A. R. Wallace. The Eastern Keel-billed Pern (*Machærirhamphus*), another rare species, is represented by two specimens from New Guinea and Borneo respectively.

**Case XXV.**

contains some rare birds of the genus *Baza*, met with in India, Ceylon, and the Islands of the Indian Ocean. The Great-billed Baza (*B. reinwardtii*), collected by Mr. A. R. Wallace, in New Guinea, will be found in small Cases 2 and 3; also of *Baza gurneyi*—a very rare species from the Solomon Group—in small case, No. 2. Passing from these elegant birds we come to the Falcons, some of which are small insect-feeding birds; others are possessed of great powers of flight, and are strictly carnivorous.

The extensive genus *Tinnunculus* is represented by twenty-one species, amongst the rarest are *Tinnunculus arthuri* (Gurney) from Mombassa, and *T. alopex* (Heugl.), the Fox-like Kestrel, from Keren, Central Africa. In

**Case XXVI.**

the first three shelves are still devoted to the Kestrels, amongst them will be recognised our own familiar species; there are also fine series of *T. newtoni* (Gurney) with eggs, and of *T. punctatus*, from Mauritius; also *T. gracilis*, from the Seychelles group of Islands, the two latter are very interesting species, both rapidly becoming extinct. Four beautiful specimens of *T. caribbaearum* should be looked for in small case, No. 6. These birds were sent in spirits from the Island of Saint Thomas in the West Indies to
Sir Edward Newton, and in a glass-topped box are the remains of Lizards, etc., which formed the contents of their stomachs. Then follow the Red-footed Falcons (Erythropus), one species of the genus has been met with in this county. Poliohierax semitorquatus from Namaqua Land, is also an interesting species, remarkable for its small size and elegant plumage; and the beautiful series of Microhierax or Dwarf Falcons, the smallest of the diurnal birds of prey, albeit very fierce little fellows, from South-eastern Asia and some of the Islands of the Indian Ocean, will certainly attract attention. Microhierax melanoleucus, presented by Mr. C. B. Rickett, is a recent addition to the collection. The Merlins, including our British species, are also in this case.

Cases XXVII., XXVIII., and XXIX.

are all occupied by the Falcons, commencing with the Hobbies, one species of which is a well-known summer visitant to Britain, followed by a magnificent series of the Peregrine Falcon and its sub-species, inhabitants of almost every part of the world. In this fine series, which Mr. Gurney was anxious to make as fully representative as possible of the geographical distribution and racial varieties of this widely-distributed Falcon, the New World is represented by specimens from Fort Kennedy in the North, to Panama and Chili in the south; and in the Eastern Hemisphere from Lapland to the Cape of Good Hope; whilst from east to west there is scarcely a country from California to Japan which does not contribute. This is certainly one of the most interesting of the birds of prey, whether we regard it in the light of its beauty, courage, wide distribution, or of the romance attaching to it as the favourite of the falconer in days gone by. The remaining Falcons are also noble birds, fierce yet docile, and formerly were greatly
valued by falconers in various parts of the world. There are the Barbary and Babylonian Falcons, the Lanner and the Saker; also the Gyr Falcon, the Iceland, and the Greenland Falcons, of which there are lovely specimens in this case, and eggs of each; also in small Cases, Nos. 9 and 10. Of both the Greenland and the Iceland Falcons there are British-killed specimens in the collection, the former killed near Cromer, and the latter in Rosshire.

Case XXX.

The next group which claims our attention is rather an extensive one, comprising, according to Mr. Gurney's arrangements, four genera, known as Buzzards. They are imposing-looking birds, as a rule much smaller than the Eagles, slow and heavy in flight, deficient in courage as compared with the Falcons, and feeding chiefly on the smaller mammals, reptiles, and insects. They are found to inhabit nearly the whole world, with the exception of the Australian region. One species, the so-called Common Buzzard, was really at the beginning of the present century common in Britain, but notwithstanding its harmless or even beneficial character, it has fallen under the ban of the game preserver, and is doomed. Small Case, No. 12, contains nestling specimens of this bird. A white variety, killed at Metz in 1860, will be observed in small Case 31. Another species of Buzzard, of frequent occurrence in this county as an autumnal migrant, is known as the Rough-legged Buzzard. As is the case with most birds of prey, these migrants are almost entirely young birds.

Case XXXI.

A nearly white variety of Buteo borealis, from Jamaica,
is a conspicuous object in this case, and the examples of \textit{B. solitarius} should be noticed as beautiful specimens of the taxidermist's skill. These, like many other lovely specimens of the birds of prey, were mounted by the late Mr. Roberts, who excelled in giving a lifelike character to often very impracticable materials.

**Case XXXII.**

The last case in the corridor contains the remainder of the Buzzards. The members of the handsome South American genus \textit{Leucopternis} are conspicuous; one known as \textit{L. ghiesbrihtii}, almost pure white, was obtained in Honduras; another specimen will be found in small Case, No. 16. Mr. Gurney remarks that in this species the proportion of black which mingles with the snowy white of the general plumage is greatest in the young birds, and appears to diminish as the age increases. The subject of the illustration, \textit{L. semiplumbea}, was killed in Costa Rica in 1890; it is a very rare bird, and its acquisition by the Museum was regarded by Mr. Gurney with much gratification, but we still require three other species to make the series of this genus complete.

Returning to the large room, a staircase will be noticed, ascending which we reach the gallery containing the remaining families of the birds of prey. In

**Case XXXIII.**

will be found two exceptional genera, forming a link between the Buzzards and the true Hawks, and known as the Buzzard Hawks. The members of the genus \textit{Poliornis (Butastur)} are found in Eastern and South-Eastern Asia with one exception, which inhabits Abyssinia and the adjacent
countries of Africa, whereas the genus *Asturina (Melierax)* inhabits tropical America, and one species occurs in the West Indies. Their habits approach nearer to those of the Buzzards than of the Hawks, and they are probably more closely allied to the former than to the latter. In the next Case, No. XXXIV.,

we arrive at the true Hawks, a large family of nine genera, distinguished by their short wings and elongated tails. They are very widely distributed, some member of the family being found in almost every part of the world. A few of the more remarkable forms are *Urospizias wallacii* from Lombok, and *U. natalis* from Christmas Island; *Leucospizias albus*, the Great White Hawk of Australia, and *L. leucosomus*, the Lesser White Hawk of New Guinea, are remarkable as being the only Hawks which have pure white plumage. *U. rufitorques*, in

Case XXXV.,

is a beautiful and rare bird from the Fiji Islands, and *U. melanochlamys* is striking for the lovely contrast of its rufous and black colours. *U. jardini* (Gurney), the type specimen of which is under glass shade, No. 19, was found by Mr. Gurney amongst some skins from the late Sir William Jardine's collection. It was figured in the *Ibis* for 1887, Plate III., and remains unique. Next follows the large genus *Accipiter*, containing some thirty species, scattered over the four quarters of the world and many of the oceanic islands. They are "all more or less closely related

* In Mr. Gurney's *List of the Diurnal Birds of Prey*, he sank the name of *Poliornis* in favour of *Butastur*, and limited *Asturina* to one species.
to our well-known Sparrow-hawk,” says Mr. Gurney, “which, however, is itself a bird of extended geographical range, being found as far eastward as Japan.” There are in the collection some very rare species belonging to this genus. A beautiful little Sparrow-hawk, found in China and Japan, known as Stevenson’s Hawk, is now more generally recognised by its older name of A. gularis. Of this bird we have a fine series. The British Sparrow-hawk is also in this case, specimens of which are shown from widely distant localities. The whole of

Case XXXVI.

is devoted to birds of this genus, amongst which should be noticed A. minullus from Damara Land, A. hartlaubi (type specimen) from Bissao, West Africa, A. rufotibialis, and many others. The first three shelves in

Case XXXVII.

also contain some rare Sparrow-hawks, notably a fine series of A. melanoleucus from Natal, in all stages of plumage. Several of the specimens in this genus have been figured either in the Ibis or in Sclater and Salvin’s Exotic Ornithology. On the bottom shelf of this case are a fine series of birds of the genus Scelospizias, including S. pusillus (Gurney), figured by Joseph Wolf, in the Ibis, 1864, Plate VII.; and one of the African short-toed Hawks, which also extend into

Case XXXVIII.,

where will be noticed S. unduliventer, Rüppell’s Hawk, from Cape Coast and West Africa, [a bird with many synonyms, including S. tibialis (Verreaux),] of which we have the type
Norwich Castle Museum.

under bell glass, No. 20. Some beautiful birds of the genus Cooperastur will also be found in this case, amongst them the South American Capped Hawk, C. pileatus, C. coperi, Stanley’s Hawk, and the rare guttatus and pectoralis.

Case XXXIX.

commences the Goshawks. Lophospizias, the first genus, contains two or three species known as the Crested Goshawks, natives of South-Eastern Asia and the adjoining islands, followed by Erythrotriorchis radiatus from Australia, the Radiated Hawk, which brings us to the typical genus of the family Astur, first amongst which is A. palumbarius, the European Goshawk, now only a rare visitor to this country, but formerly much prized by falconers. It is a bird of great power and courage, inhabiting most parts of Europe, the temperate regions of Asia, and parts of Northern Africa. A. striatulus and A. hensti may be pointed out as very rare birds. Two of the equally rare West African Long-tailed Goshawks (Urotiorchis macrurus), from the Fantee country, one of which, the first ever brought to this country, was figured in the Ibis for 1870, are in this case, as well as Melierax musicus, the South African Chanting Hawk.

Case XL.

contains other species of Melierax and the co-type specimen of Micrastur amaurus (Gurney), from Panama. Geranospizias gracilis and G. nigra are also very handsome and noteworthy species from South America.

Case XLI.

introduces us to the last group of the diurnal birds of prey
known as the Harriers. These birds have a distinct facial disk resembling that so noticeable in the Owls, and are therefore regarded by some systematists as a connecting link between the Hawks and the Owls. There is, however, no alliance osteologically between them. The single genus *Circus* contains, according to Mr. Gurney, eighteen species and one sub-species, all but three of which are in the Museum collection. They have a very wide geographical distribution, the range of some, as pointed out by Professor Newton in the *Dictionary of Birds*, being exceedingly wide, whilst that of others is very limited. Three species were formerly numerous in some parts of Britain, but their numbers have greatly decreased. In suitable localities in the County of Norfolk at the beginning of this century they were found in considerable numbers; but at the present day, from various causes, they are, especially the Hen Harrier, very rare birds. The collection contains a large series of Hen Harriers (*C. cyaneus*) from very various localities,—Persia, East Siberia, Himalaya, Nepal, Oudh, and Japan. Five adult males in a case by themselves in the British collection were killed many years ago in Cambridgeshire.

The nearly-allied species, *C. hudsonius*, from North America, is also represented by numerous specimens in all stages of plumage, also eggs collected by Mr. D. L. Thorpe. *C. macrurus*, Swainson's Harrier, a widely-distributed species, is equally well represented by localities. The same may also be said of Montagu's Harrier (*C. cinereus*), of which there is a melanistic variety, killed in France.

**Case XLII.**

is also devoted to the Harriers. There are three specimens
of the rare *C. maillardi* [and in small Case 21] from the Island of Reunion, to which this bird is confined; but unfortunately ours are all immature. The type of *C. macroceles*, obtained by Sir Edward Newton in Madagascar, also other specimens, ten in all, of this Harrier will be found in small Cases 22 and 23. A very prettily-displayed example of *C. maculosus* from Brazil will be noticed.

**Case XLIII.**

contains the remainder of the Harriers, consisting of a fine series of *C. approximans*, Gould’s Harrier, an Australian species, and an even larger series of *C. aruginosus*, the British Marsh Harrier, from South Africa, India, and other localities. This splendid array of Harriers consists of 268 mounted birds and skins, several skeletons, and many eggs.

**STRIGES.**

The *Striges* or Owls are quaint but beautiful birds, clothed in soft and abundant feathers, noiseless in flight, at night keen of sight, having eyes peculiarly adapted for adjustment to their nocturnal habits, and ears furnished, in some species, with orifices of extraordinary dimensions. They are powerfully armed with beak and claws, the outer toes in most cases being reversible, thus giving them great grasping power. Another remarkable feature is the more or less circular facial disk, consisting of short stiff feathers radiating from the eye, which may roughly be said to form the centre; the circle is, however, narrowest on the side next the beak. In some species this arrangement is rendered more conspicuous by the colouration being in alternate light and dark circles. Another not less singular
feature in certain of the owls is the presence of two tufts of feathers on the head, known as "Ears" or "Horns;" the absence or otherwise of these tufts of feathers has, since the time of Willoughby, been made the basis of a convenient but not very trustworthy classification, by which the order has been divided into two main groups, the Horned and the Hornless. No birds are more persecuted than the British Owls, and none are greater friends of man, the small rodents which form their chief food being perhaps the worst enemies the agriculturalist has to contend with. The classification adopted by Mr. Gurney is by no means perfect, and was regarded by him as only provisional. Had he lived to work in the new Museum, there is reason to believe that he contemplated a revision of the arrangement on the lines proposed by Nitzsch and Milne-Edwards; but he very prudently refrained from discarding a useful if imperfect system until he became acquainted with something not only better but likely to be permanent, to substitute in its place. The total number of species and subspecies recognised by Mr. Gurney is 268, of which the Museum possesses 195.

Case XLIV.

commences the series of Horned or Eared Owls, the "Hibous" of the French, birds in which the auditory opening is greatly developed. Almost the first species is a well-known British Bird, the Short-eared or Woodcock Owl, so-called from its arrival in autumn, being generally simultaneous with that of the Woodcock. This bird not many years ago bred in the fen-lands of Norfolk, but has now virtually ceased to do so; it has the widest geographical range of any Owl, being found in all the four quarters of the
globe. Next in order is the genus *Otus*, which also contains a well-known British species, the Long-eared Owl, a pied example of which, singular for its rarity, will be found in the collection of British Birds. *O. madagascariensis* is the representative species in Madagascar, as its name implies, of which the collection contains five specimens. The extensive genus *Scops* follows next, containing a larger number of species than any other genus, all possessing a strong family likeness. Some of these are of very diminutive size, and are found dispersed nearly all the world over. First, however, must be noticed an offshoot of Scops which has been assigned to a genus of its own, *Heteroscops luciae*, found on the Kina-balu mountain in North Borneo at an elevation of 8,000 feet above the sea. Of the true Scops Owls, some of the most remarkable in the collection, are *S. erythrocampe* from Canton, the type specimen, described in the *Ibis* for 1874; *S. pryeri* (Gurney) from Loo Choo Island, also a type and described in the *Ibis* for 1889; *S. elegans*, a very pretty species from the same locality; *S. sibutuensis* from the Philippine Islands, a co-type; *S. ustus*, a type, from the Upper Amazon (small Case No. 25); *S. nudipes* from Costa Rica; and *S. hambroeci*, yet another type-specimen, from Formosa. One species of this genus, *Scops zorca* (Gould) (*S. giu* of Yarrell’s British Birds), is an occasional visitor to Great Britain, and has been met with in Norfolk. It is a woodland species subsisting on insects and occasionally small rodents.

**Case XLV.**

contains other rare Scops Owls, notably *S. kennicottii* from Chilliwack; *S. senegalensis* from Gaboon; and *S. minutus*, a pretty little Scops from Ceylon. A singular tufted species, allied to the Scops Owls, *Lophostrix stricklandi*, from Guatemala, will be found in the small Case numbered 26.
Case XLVI.

In this case are a good series of Fishing Owls of the genus *Ketupa*, of which there are three fine species from Northern India, Malacca, and Ceylon; these Owls prey chiefly on crabs, and it will be noticed that their tarsi (the lower bone of the leg) are practically divested of feathers. A small but elegant species, Gurney's Eagle Owl, *Pseudoptynx gurneyi* (Tweeddale), and two examples of *P. philippensis* are succeeded by a third example of the same genus named *P. blakistoni*, after the discoverer, the late Captain T. W. Blakiston, of Thorpe, by whom it was obtained in Japan; there is also a skeleton of this bird. This fine bird introduces us to the true Eagle Owls of the genus *Bubo* found in Europe, Asia, Africa, and America, the first of which is *Bubo pacificus*, from Chilliwack in British Columbia, and on the bottom shelf are fine examples of the North American Eagle Owl *B. virginianus*.

Case XLVII.

contains *B. maximus*, a species which has a very wide geographical range. It has occasionally been met with at large in the British Isles, but whether wild birds or escapes, is not certain. Mr. Gurney remarks that this magnificent bird of prey, a native of the wildest mountain forests, will occasionally breed freely in confinement, a result which has been nowhere more favourably attained than in the aviary of the late Mr. Edward Fountaine, of Easton, near Norwich, who was the first to bring the fact under the notice of naturalists, and who has succeeded in rearing young Eagle Owls, which have themselves become parents of a second generation, also bred and reared in confinement. Young birds from Mr. Gurney's aviary will be seen in the British
collection; the nestlings here shown are from Amoy. The specimens of *B. sibiricus* in this case are from the river Volga. In

**Case XLVIII.**

the Eagle Owls are continued, the next genus being that of *Urrua*, represented by one species only, to which succeeds a fine series of *Huhuas, H. leucosticta*—the white-speckled Eagle Owl—a rare and beautiful owl under a glass case, a native of the Fantee country, being specially worthy of note, as is also *H. shelleyi*, another Fantee species under the small shade, No. 30. In

**Case XLIX.**

are two beautiful examples of Pel's Owl, *Scotopelia peli*, one from Gambia, which was figured from life in the *Ibis* in 1857, the other from Zambesi, collected by Charles Livingstone. The type of Ussher's Owl (*S. ussheri*), a very rare species from the Fantee country, Western Africa, will be found under glass shade, No. 31. Other rare Owls are *Tybo (Myrtha) wiepkeni*, Whitehead's Wood Owl from the Island of Palawan in the Indian Ocean; the beautiful Owls of the American genus *Cicaba*, *C. nigrolineata*, and *C. huhula*, the former from Mexico and the latter from the Upper Amazon, should not be passed over.

**Case L.**

introduces us to the genus *Syrnium*, among which should be noted *S. alleni* from Florida, and *S. occidentale*, a single specimen obtained in California. At the bottom of the case will be seen a fine series of the European Brown Owl (*S. aluco*), much persecuted by game preservers, but still found in our own woods as well as dispersed over most of the
continent of Europe and some parts of North Africa and Asia. The Ural Owl is, as its name indicates, from the Ural Mountains.

Case Ll.

commences with the Lapp Owl, a magnificent species, of which there is a grand series, for the most part collected in Lapland by the late John Wolley; these are followed by the equally beautiful Snowy Owl *Nyctea nivea (scandiaca)* an inhabitant of most of the northern portions of Europe, Asia, and America, and occasionally visiting Great Britain, and even our own county; local specimens will be seen in the British collection. Mr. Gurney’s remarks with regard to the breeding of the Eagle Owl in confinement (before quoted) apply equally to this fine bird, nestlings of which in various stages will also be found in the British Bird room. Then follow the Owls of the genus *Nyctala*, including Tengmalm’s Owl, an occasional visitor to Britain; it has occurred three times in Norfolk, but its true home is the forests of Scandinavia and Russia. *Gisella harrisi*, Harris’s Owl, is a rather uncommon species from Bogota, South America; a pretty little owl, known as Whitney’s Owl from Lower California, is followed by *Microptynx passerina*, the smallest of European Owls. The remainder of the case is devoted to Owls of the genus *Glaucidium* from South America, remarkable for their small size, *G. pumilum* being the smallest Owl known.

The first genus in

Case Lll.

is a remarkable one. It consists of the American Burrowing Owls (*Pholeoptyx*). These birds inhabit holes in the
ground, frequently those formed by some burrowing rodent, particularly the Bizcacha, but on occasion probably excavate for themselves. They are sociable birds not only amongst themselves, but Mr. J. K. Lord, in British Columbia, found in one hole a female Washee, a Burrowing Owl with her two eggs, and a Green-racer Snake. A remarkable bare-legged Owl (*Gymnoglaux nulipes*) from the West Indies, collected by Professor Newton and figured in the *Ibis* for 1859, p. 64, will be found in small Case 34. *Microglaux brodiei* is a pretty little Indian species, and this is followed by *Athene noctua*, the Little Owl of British ornithologists, which like Tengmalm’s Owl is an occasional visitor to this country, straying from its true home, in Southern and Western Europe. This species was dedicated in ancient Greece to the goddess Athene, and regarded as emblematical of wisdom, it may be, as has been suggested, in a spirit of sarcasm. In

**Case LIII.**

are a number of rare species from New Britain and Australia of the genus *Spiloglaux* and *Hieraglaux*, some of which deserve mention did space permit; these are followed by another striking series of birds of the genus *Ninox*, the first, *Ninox goldii*, is the type specimen from New Guinea; *N. spilocephalus* is from the Philippine Islands; and a third, *N. theomacha*, Hoedt’s Ninox from New Guinea, is remarkable for the richness of its colour.

**Case LIV.**

contains other species of *Ninox*, and a very rare and abnormal Owl from New Zealand, known as *Sceloglaux albifacies*, the New Zealand Laughing Owl, and rapidly becoming extinct, which should not be overlooked; this
specimen, now somewhat faded, was excellently figured by Gould in the supplement to his magnificent *Birds of Australia*. A second specimen, which was brought alive from New Zealand by Sir Francis Boileau, and died in his aviary, will be found in a separate case. Then follow the Screech Owls, the first genus of which is *Scelostrix*, its members are found inhabiting Natal, Formosa, Assam, and the Philippine Islands, and are known as Grass Owls; they bear a close resemblance to our Barn Owl. The last two shelves in this case contain the first specimens of the genus *Strix*, in many respects a very remarkable one. Mr. Gurney enumerates ten species and eight sub-species; of these 18, thirteen are represented in the collection. It is an open
question how many of these may eventually be referred to a single species; but there appear to be several well-marked racial varieties. The series commences with the Neotropical Strix perlata, examples of which will be found from Brazil, Chili, Peru, Guiana, Antioquia, Para, and Ecuador, also Central America; and S. Pratincola from Mexico, Guatemala, California, Cuba, Jamaica, Trinidad, Granada, and Pennsylvania. Proceeding to

**Case LV.**

we come to the European Screech Owl, Strix flammea, the cruelly persecuted but still familiar "Barn Owl," examples of which will be found from the following localities, Denmark, Heligoland, England, France, Spain, Madeira, Syria, Morocco, Egypt, Nubia, Abyssinia, etc. The northern form of Screech Owl is represented by rufous-tinted examples from Funen and Heligoland. Like specimens have also occurred in this county, doubtless migrants from Scandinavia; the British form has the under parts nearly white and the spots small. S. poensis from S. Africa may be taken as typical of the southern form, the under parts being strongly marked with large and well-defined spots. There are other members of the genus Strix, among which may be mentioned S. delicatula, the Delicate Owl from Australia; a larger form, S. nova-hollandiae; the Masked Owl from Australia; S. castanops, the Chestnut-faced Owl from Van Dieman's Land; and S. arfaki, the Sooty Owl, a melanistic species from New Guinea. Heliodilus soumagnei, a rare and little known Owl from Madagascar, is followed in the collection by three species from Borneo, India, and Ceylon, belonging to the genus Photodilus, known from their colour as the
Bay Owls, the last of this remarkable and widely-dispersed group.

In the above brief and imperfect sketch of the fine collection of Birds of Prey, the writer's object has been, by pointing out the more remarkable forms and the system of arrangement adopted—showing the connecting links between the various groups—to add to the interest with which the visitor cannot fail to regard the extensive series of beautifully-mounted specimens, many of them from very remote parts of the world, and some of great rarity; but for scientific study the visitor must be referred to the unmounted collection to be found in the cabinets of

The Skin Room,

which is entered by a door between the two staircases leading up to the gallery. Here are to be seen, arranged in the drawers of the cabinets ranged round the wall and in the centre of the room, large numbers of skins in the most available form for close study, which will be found of invaluable help to the student. These are, of course, under the immediate charge of the Curator, and special application to him will have to be made by those who desire to use them for the purpose of study.

Ascending the spiral staircase in the Skin Room a gallery will be reached containing a number of cabinets devoted to the

Collections of Insects.

These comprise the collections purchased from Mr. Sparshall and Mr. Simon Wilkin, which were arranged
Norwich Castle Museum.

and added to by the Rev. William Kirby. Of late years the British Lepidoptera have been re-arranged by Mr. G. C. Barrett, who made large additions, Lord Walsingham also contributed. The cabinets of Hymenoptera and Coleoptera have also been entirely re-arranged and enriched, the former by Mr. J. B. Bridgman and the latter by Mr. James Edwards. There is also a large cabinet of Exotic Insects.

An important recent addition has been made in this department by the generous gift of his entire collection of Hymenopterous insects by Mr. Bridgman, as well as of 32 volumes of books, and several manuscripts devoted to the same subject. The collection is a very extensive one; it is contained in two cabinets of thirteen drawers each, and six boxes; the insects are beautifully set, and a large number of them of great rarity; they represent the labour of many years in a department of Entomology in which Mr. Bridgman is a recognised authority.

In the same gallery are the cabinets devoted to the

Botanical Collections.

the most important is that bequeathed to the Museum by the late John Drew Salmon. This really consists of two distinct Herbaria, the older of which contains many good local plants, chiefly collected in South Norfolk, probably during Mr. Salmon’s residence at Stoke Ferry. The later collection appears to have been formed during his subsequent residences at Godalming and in London; it contains a number of very good plants largely acquired through the old Botanical Society of London, and therefore of great value; almost all the species contained in the fifth edition of the London Catalogue are represented, and on the very
best authority attainable at the time it was formed. Next in importance to the Salmon Herbarium is that presented in 1885 by Sir James Paget, containing specimens of most of the flowering plants enumerated in his *Natural History of Great Yarmouth*, as well as a number of species collected by H. C. Watson, J. D. Hooker, and George Cooper (afterwards of Lynn). There are also many specimens of Marine Algae most beautifully preserved. Besides these there are two volumes of mixed British and Foreign plants collected by and named in the handwriting of Sir J. E. Smith. A portfolio of Foreign Ferns; a box of Musci and Hepaticæ, also containing some Algae from Victoria, Australia; and a case of Marine Algae, all the latter presented by Miss Barnard in 1881. In addition to these there is a large collection of flowering-plants made by B. T. Lowne, when with Canon Tristram, in Southern Syria, in the years 1863-4; and a number of the larger Fungi preserved by Mr. J. L. English, of Epping.

There are also several cabinets containing somewhat miscellaneous collections, notably a series of two hundred and thirty-two specimens of "Vegetable productions from Bengal," which formed part of the East India Company's Exhibition at the great International Exhibition of 1851; and a cabinet with a large number of Ecclesiastical and other seals.

Leaving the Skin Room and continuing along the corridor to the right—the Birds of Prey in the wall case having already been described—we pass on the left two table cases and three small glass wall cases devoted to the Nests and Eggs of Foreign Birds, of which at present there is not a very extensive collection, and enter the room containing the first portion of the
General Collection of Birds.

these, though acquired more by chance than on any particular plan, will be found to include a large number of the most remarkable types, as the Museum has been fortunate in times past in receiving many contributions of importance and interest, amongst these may be specially named those of Captains Glasspoole and Owen Stanley—the last while commanding H.M.S. Sulphur, which was long engaged in exploring the Australasian Seas—Mr. J. S. Chapman, formerly staff-surgeon to the Forces in India, Sir John Boileau, the

late Mr. J. H. Gurney, and recently from Lord Hastings. For the most part the specimens are in excellent preservation, and they are arranged in accordance with the classification propounded in 1892, by Dr. St. George Mivart, F.R.S.,* for the better understanding of which a few words may be necessary.

One of the great objects in the Classification of Birds, as in the classification of all other organic beings, is the

sorting and grouping them according to their natural relations, so far as they can be perceived. Thus, when beings resemble one another so closely that the only difference between them may be regarded as peculiar to the individual, such beings are grouped together and considered to form a Species. When the difference is observed to be greater, such species are placed in what is called a Genus, composed of one or more species. If the difference be greater still, a Family is formed, consisting perhaps of a single genus or perhaps of several genera, and so on, according to the increasing amount of difference, an Order, composing several families, and finally a Class for the whole assemblage of orders. For convenience sake minor divisions are also introduced, and thus we have sub-species, sub-genera, sub-families, sub-orders, and sub-classes. In this way a systematic arrangement or Taxonomy, as it is often called, can be made of any group of organic beings, however large or small that group may be; but, seeing that such a classification is founded on the characteristics of those beings, that is to say their mutual resemblances and differences, the importance or signification of which is very variously estimated by naturalists—almost everyone taking his own view of the subject—there is often great difficulty in arriving at any agreement on more than general principles. This is especially done with regard to the Classification of Birds, and though all are agreed in considering them to form a Class AVES, about the limits of which there is not the least doubt, the various ways of dividing and sub-dividing that Class are still the cause of much discussion among Ornithologists.*

* Those who may wish to pursue the matter further may be referred to Professor Newton's admirable article, "Ornithology," in the last edition of the Encyclopaedia Britannica, Vol. XVIII.
In the classification here followed the class AVES is divided into two sub-classes, I. CARINATÆ, or those in which there is a more or less well-developed "Keel" to the sternum or breast-bone, and II. RATITÆ, which have no such "Keel."

I. CARINATÆ.

This is composed of seventeen orders, of which the first is PASSERIFORMES, containing three sub-orders: (i) PASSERES, comprehending by far the greater number of existing birds; (ii) EURYLÆMI, and (iii) TROCHILI.

I. PASSERES, divided into two sections, Acromyodi, or Oscines, the birds which contain the organ of voice in its most perfect condition, and Mesomyodi, in which that organ is less elaborately developed. The first of these sections begins in

Case 1.,

with the family Corvidæ, the crows, a very numerous one, and of wide geographical range. The Raven, Black and Grey Crows, Rook and Jackdaw, are well-known British representatives of this family. But here will be seen the eastern Corvus splendens, the Grey-necked Crow of India—as useful, from a sanitary point of view, as it is troublesome on account of its thieving habits—and C. macrorhynchus from the Andaman Islands; the White-eyed Crows, C. australis, from Port Curtis; and the large-billed white-necked Corvultur from South Africa. Here too belong the Nutcrackers, of which several species inhabit the forests of Europe and Asia, while one occasionally visits England. Then follow the Magpies and Jays, though it is hard to
separate one or the other in some of the tropical forms, such as the long-tailed crested *Calocitta formosa* of Mexico. These are often of great beauty, as for instance the Red-billed Blue Magpie of the Himalayas, *Urocissa erythrorhyncha*. The Blue-winged Magpies, *Cyanopica*, are of interest, as showing one of the most remarkable, and at present unaccountable, instances of interrupted geographical distribution. Of this genus there are two species, one *C. cooki*, being found only in Spain and Portugal, where it is very local, and the other, *C. cyanea*, in Japan and Amoorland. The Jays cannot fail to attract attention, and among them especially the common Blue Jay of North America, *Cyanocorax cristatus*, immortalised by Mark Twain. A very remarkable bird, here placed with the *Corvidæ*, but with doubtful property (Professor Cabanis considering it an ancient and generalized form, which cannot really be assigned to any of the more differentiated families), is the New Zealand Huia (*Heteraloche acutirostris*), a species confined to a very restricted area, beyond which it seldom strays. It will be seen that there is a very marked difference in the form of the bill in the two sexes, that of the male being robust and pointed, whereas the same organ in the female is long, slender, and curved. This difference led Mr. Gould to describe the two sexes as distinct species; but it remained for Sir W. Buller to discover its true significance, and a very singular explanation he gives. This species feeds largely on the larvæ of a beetle, which infests decaying timber, and from actual observation of the birds in confinement, he found that the different development of the mandibles in the two sexes enabled them to perform distinctly different offices. "The male always attacked the more decayed portions of the wood, chiselling out his prey after the manner of Woodpeckers, while the female probed with
her long pliant bill the other cells, where the hardness of the surrounding parts resisted the chisel of her mate;” or when he is unable to reach the larva, after having removed the soft wood, she comes to his assistance, and with her long and slender probe removes the prize which he failed to reach—a truly remarkable division of labour.

An interesting bird too is the so-called Australian Chough, *Corcœx melanorhynchus*, with its white wings. Then follow the gorgeous Birds of Paradise, fairly represented in our series. These beautiful birds—in which Nature seems to have run riot, both as to the lavish display of superb metallic colours and eccentricity of plumage not even surpassed by the humming birds—are almost entirely confined to New Guinea and the adjacent Isles and North Australia; there are something like fifty known species, all more or less adorned, and it is difficult to imagine that they are closely allied to our familiar crows.

The lamentable fate which awaits this rare and strictly localised race of birds, may be imagined from the fact that sixty thousand dozen of their plumes, mixed with those of the Egret, were disposed of by a single warehouse in the season of 1895. But too surely this, one of the most lovely of all the families of birds which beautify the earth, will speedily be exterminated to gratify female vanity, and the world will be bereft of one joy more by the loss of this thing of beauty.

The Ptilonorhynchidæ are placed next to these, and contain the Rifleman Birds of Australia, so-called from the dark green hues of their plumage somewhat resembling the uniform worn by those regiments; but it will be seen that their resplendent hues far surpass the sombre tints of their namesakes; the rare Victoria Rifle bird is a very beautiful
example. These are followed by the Bower birds, also of Australian origin, and remarkable for the curious structures which they raise, ornamented with shells, stones, and any brightly-coloured object; these "runs," as they are called, seem to serve no other purpose than that of a playground for the birds, and appear to be built by the males to attract the opposite sex; the style of architecture varies considerably, one species inhabiting New Guinea, known as the Gardener Bird (Amblyornis), erecting a hut-like structure in front of which is a mossy lawn, enlivened by bright flowers and berries. The Satin Bower bird from New South Wales is the type of the family. Next in order are the beautiful Regent Birds found in Eastern Australia. Then come the Sturnidae, including our familiar Starling and other forms, some of which have plumage glowing with metallic colours. Closely allied to the Starlings are the Indian Mynas, placed by Dr. Mivart in a separate family Eulabeetidae, commonly called Grakles, an interesting class of birds, and from their excellence as mimics, great favourites as cage-birds. The Southern Gracle, Gracula religiosa, is remarkable for a curious wattle of bare skin of a bright yellow colour, which, beginning on either side the head behind the eye runs backward, forming a conspicuous lappet, and returns in a narrow stripe to just above the eye. Other birds of this family will be found in

Case II.

from Amoy, Nepal, etc. A lovely bird, the Shining Aplonus, a rare and beautiful Australian species, is in close proximity. The Ox-pecker (Buphaga africana), an inconspicuous bird found throughout most parts of Africa, has much the habits of the starling, and is useful in ridding the cattle
From Gould's "Birds of Australia."
of the parasites with which their hides are frequently infested.

Next follows the large and beautiful family of *Dicruridae*, the King Crows or Drongos. *Chibia bracteata* appears to be the only Australian representative, but various species are found in Africa and Asia; they are very handsome birds, the large Indian Racket-tailed Drongo (*Edolius*) being perhaps the most conspicuous. For beauty of plumage and purity of color few birds are more noticeable than the *Oriolidae* or Orioles, which come next in succession, and of which there are numerous examples in the collection; there are only two genera, but a considerable number of species, inhabiting temperate Europe, Africa, Asia, and the Australian region, where only are found the birds of the genus *Sphecotheres*, specimens of which will be noticed in the collection. The numerous family of *Icteridae*, peculiar to and most characteristic of America, is well represented here; it consists of the Cassiques and the Hangnests; notable among the former are the curious Crested Cassique (*Ostmops*) and the yellow Cassique (*Cassicus*), both from Central America. Another remarkable bird is the Purple Grackle or Crow-Blackbird (*Quiscalus major*), found in the Atlantic States of America. This leads us to the large family *Plocidae* or Weaver birds, to be found in

Case III.

The beautiful Old World Finches of the genus *Vidua*, are remarkable for the greatly elongated tail feathers assumed by the male bird in the breeding season, *V. paradisea*, the long-tailed Wydah Bird, is a good example. The contrasts of glossy black, gold colour, and brilliant crimson are very lovely, but the plumage of the female is much more homely.
The Bishop Bird (*Pyromelana oryx*), a nearly allied species, is also a very attractive bird, the velvety plumage of red and black forming a pleasing contrast; this species is often imported as a cage-bird. The South African Diamond Finch is a charming little bird, near to which will be seen the Java Sparrow, *Munia oryzivora*, and a number of pretty little Spotted-sided Finches from India and Australia, all of which are also well-known favourites as cage-birds. The Whiteheaded Java Grosbeak (*Munia maja*) is a conspicuous bird. Two rare Australian Grass Finches, *Poephila*, should also be noticed; then follow the Wax-bills of the genus *Estriida*, the Amadavade Finch, *E. amandava*, and the beautiful Madagascar Cardinal *Foudia madagascariensis*. These again are succeeded by the Tanagers, another of the characteristic American families, of which the two genera, *Procnias* and *Calliste*, inhabitants of the humid forest of South America, contain some lovely examples, but all are brilliant plumaged birds. *Cissopis leveriana*, a South African Magpie Shrike, is a remarkable bird, and the pretty little South American Warblers of the genus *Dacnis*, although not so striking in appearance, are interesting.

From these we pass to the great family of Finches, *Fringillidae*, commencing with the Indian and South American Grosbeaks, and the beautiful North American Cardinal Bird (*Cardinalis virginianus*); the Canary Finch, the Rock Sparrow (*Petronia*) of South Europe, and many species of Bunting (*Emberizinae*). These are followed by one of the least marked families of *Passeres*, the *Alaudidae* or Larks, of which there are many; the *Motacillidae* or Wagtails and Pipits; a very handsome species known as the Cape Lark (*Macronyx capensis*) is usually associated with the latter; the very characteristic family, *Mniotilidae* or
American Warblers, containing many genera, among them, especially to be noticed, that of *Dendroica*; and the Tree Creepers or Certhiidae, containing amongst other species our own familiar Tree Creeper, the Wall Creeper, and the Australian White-throated Creeper (*Climacteris*), of which latter a specimen will be observed—the case coming to an end with the family of the Nuthatches (*Sittinæ*), consisting of numerous species comprised in three genera.

There are also two large separate cases containing miscellaneous collections of brilliantly-plumaged birds arranged for effect, and comprising some of the most beautiful known species, among them some brilliant Cotingas and Rock Manikins. The first two shelves at the top of

**Case IV.**

are devoted to the Honey Eaters, a very numerous and remarkable family confined to the New Zealand and Australian Regions. One of the most interesting members of this family is the Tui or "Parson Bird," so-called from the two white tufts on the throat having somewhat the appearance of a parson's "bands." This charming bird, one of the sweetest songsters of the New Zealand forests, is, although still far from rare, rapidly decreasing in numbers. Captain Cook, in 1773, found it abundant, and states it to be equally remarkable for the beauty of its plumage, the sweetness of its notes, and the delicacy of its flesh. The Australian Bell-bird (*Myzanthra melanophrys*) (not to be confounded with the South American Bell-bird) is another member of this family. Mr. Gould says the note of this bird may be compared to the sound of a distant sheep-bell, and that when poured out by a hundred throats from various
parts of the forest, it has a most singular effect. The beautiful long-tailed *Promerops cafer*, from the Cape of Good Hope, is also placed hereabouts. These are followed by lovely Sunbirds from South and West Africa, and Honey Suckers from India and the Malay countries, charming little long-beaked creatures rivalling the humming birds in brilliancy. Pretty little Flower Peckers (*Dicaeidae*) from Australia give place to the White-eyes (*Zosterops*), a very numerous genus, and Honey-eaters (*Melithreptus*), from Australia. It is impossible to particularise these lovely forms in the space at our command, but they should not be passed over hurriedly. Then follow the various Titmice *Paridae*, a very numerous family, widely dispersed chiefly in Europe, Asia, and North America, several species are familiar to us; and the tiny Gold Crests, two of which are also known to this country. These delicate little fellows are followed by the *Laniidae* or Shrikes, the curious Australian Piping Crow and the Cow Shrikes taking the lead, to be succeeded by the Shrikes proper, a large and widely-dispersed sub-family inhabiting most parts of the world, and known to us at home by four or five species; also a curious crested white-headed bird known as Geoffrey's Shrike (*Prionops*) from West Africa. The Australian Wood Swallow (*Artamus*), the genus *Ampelis*, represented by the European Waxwing, an occasional winter migrant to this country, and the American Cedar Bird, the Icterine (*Hypolais*), and other warblers; the curious little long-tailed Emeu Wren (*Stipiturus melachurus*), and the pretty little birds of the genus *Acanthiza*, both the latter natives of Australia, bringing us to the end of the case.
commences with the extensive family of Turdidæ, of which the typical genus, Turdus, contains some of our most highly-prized song birds, such as the Song Thrush and the Blackbird, as well as some interesting migrants, the Redwing, the Fieldfare, and others to be found in the British Bird-room. A few of the more conspicuous forms are White's Thrush (Turdus varius), the Rock Thrushes (Monticola), of which the Blue Rock Thrush (M. cyanus) supposed to be “the sparrow that sitteth alone on the house-top” of our Scriptures (from the Mediterranean shore, is a beautiful example, and the Bluebirds (Sialia) from North America. These are followed by the Redstarts (Ruticilla), represented by two species in this country; another pretty example is the Himalayan Water Robin (R. fuliginosa)—and Saxicola, a very extensive genus to which our familiar Wheatear belongs, a bird having a very wide geographical range, extending over the whole of Northern Europe and Asia, and even reaching Alaska. Most of the various species by preference inhabit the desert tracts and occur throughout the Asiatic and the African continent. Passing on we notice a singular-looking bird, the position of which is very uncertain, Grammatoptila striata, with peculiarly striped feathers; Myiophoneus temminckii is another bird of striking appearance, with a beautiful purple tail, as also Copsychus saularis, the Indian Magpie Robin. Then follow the Dippers, Cinclidæ, containing a single genus represented in Europe by Cinclus aquaticus; also the North American Cat Bird, Galeoscoptes carolinensis, and other birds of the family Minidæ, known from their extraordinary vocal powers as “Mocking Birds.” Passing on we notice the Australian Spotted Ground Thrush (Cinciosoma) and the White-
eyebrowed *Pomatorhinus*, of which there are several species also from Australia. Close by are *Garrulax albicularis* and *G. leucotophilus*, two noticeable species from the Himalayas, and a host of birds rejoicing in the name of "Babblers." *Henicurus maculatus* is a remarkable plumaged bird from the Himalayas, well named the Forktail; then follow what are known as the Indian "Bulbuls." The genus *Chloropsis* contains beautiful green birds from the Malay country and Borneo, the Crested Otocompsa from India, and *Otocompsa jocosus* from China, with lovely blue and black *Irena criniger* from Borneo. These are succeeded by the Cuckoo Shrikes, *Graucalus*, from Australia, and several lovely Indian species of *Pericrocotus* from the Andaman Islands and the Himalayas.

The next family is that of the Flycatchers, *Muscicapidae*, and a very extensive one it is, containing some interesting and beautiful birds. We can only refer to a few of the numerous examples, which will be found in the collection. One member of the family, the Spotted Flycatcher, is a well-known British bird; there is a second species of the same genus, the Pied Flycatcher, but it is much more locally distributed. *Terpsiphone paradisi* is one of a very remarkable genus, it is known as the Paradise Flycatcher; nearly all the males of this group assume, for the breeding season, greatly-developed tail-feathers, only to be equalled in the genus *Vidua*; for the rest of the year they are hardly distinguishable from the other sex. The male of the pair here shown is nearly white, the female on the other hand is a beautiful chestnut, but both have the crown of the head dark steel blue; this species is from the Himalayas. *Arses kaupi*, a very rare little Flycatcher from Rockingham Bay, Australia, will be noticed under a bell shade.
The last family of Section "A" (Acromyodi) of the sub-order PASSERIES is that of the swallows, Hirundinidæ; the typical genus Hirundo is represented by our familiar Chimney Swallow, while the House Martin is now relegated to the genus Chelidon, and the Sand Martin to that of Cotile; these may be seen in the British Bird-room. This section is poorly represented here, there being only four species out of a total of seventy-two.*

Section "B" of the sub-order PASSERIES, Mesomyodi, is a much less numerous one than the preceding; it contains twelve families, all but three peculiar to the New World, the first of which, Tyrannidæ, is far the largest, comprising over 400 species, most of them confined to South America. Cybernetes is a striking genus containing only one species, C. yetapa, which inhabits S. E. Brazil, Paraguay, Bolivia, and the northern part of La Plata; it is conspicuous for its long forked tail. Of the typical genus Tyrannus, the Pipiri T. griseus may be taken as an example; it is found in North and Central America, Ecuador, and Peru. The Manakins, Pipridæ, a brilliant family of South American birds of small size, may be represented by Pipra aureola; its prevailing colour is red, the back, wings, and tail being black and the throat yellow. Near to this is the lovely Cock-of-the-Rock, Rupicola crocea, with its soft orange-red plumage and curiously-helmeted head. The Chatterers follow, two of which, Cotinga cometa and C. cerulea, are beautiful birds, and the like may also be said of the genus Xipholena. A large, richly-coloured bird, with brown back

* It must be understood that the number of species in any given family or genus, where mentioned, is, as a rule, only approximate, and is quoted simply to indicate in some degree the extent of the group to which reference is made.
and tail, *Haematoderus militaris*, is sure to attract attention, and the same may be said of *Querula cruenta*; in fact, Nature has been lavish in the bestowal of lovely tints on these beautiful South American birds. A singular bird is *Gymnocephalus calvus*, a native of Demerara, a bareheaded crow-like individual of a reddish-brown colour with dark wings. A large white bird near by is equally noteworthy, if only from contrast, with its brightly-coloured surroundings; it is known as *Chasmorhynchus nudicollis*, and has a singular bare patch of skin on the throat; but there is another snow-white bird of the same genus, *C. niveus*, of which one specimen will be found in the wall case, and two others under a bell glass on one of the tables. This is the South American "Bell Bird," so graphically described by Waterton in his "Wanderings." He says, speaking of this bird, "He is about the size of the Jay. His plumage is white as snow [when adult]. On his forehead rises a spiral tube nearly three inches long. It is jet black, dotted all over with small white feathers. It has a communication with the palate, and when filled with air, looks like a spire; when empty it becomes pendulous. His note is loud and clear, like the sound of a bell, and may be heard at a distance of three miles . . . . You hear his toll, and then a pause for a minute, and then another toll, and then a pause again, and then a toll, and again a pause. Then he is silent for six or eight minutes, and then another toll, and so on."

**Case VI.**

commences with the Pittas, a family of very quaint and beautiful birds, of which there are some forty-three species, all possessing a strong family likeness. They inhabit the
Malay Archipelago for the most part, and attain their greatest beauty and variety in Borneo and Sumatra; but one occurs in Australia, one in China, and another in India. Few birds display more vivid tints and greater contrast of colour than are found in the Pittas, which are fairly represented in the collection.

The Dendrocolaptidae inhabit the vast forests of the warmer parts of S. America; they are remarkable birds with short, stiff tails, and strong, pointed, or very long curved beaks, and look somewhat like our Tree Creeper, which they however only resemble in their food and manner of life, being structurally far removed from them. There are several representatives of each form in the collection, the largest are the strong-billed members of the genus Dendrornis; Xiphorhynchus has an exceedingly long slender and curved bill, and in Nasca the bill is long and straight. Several other genera are represented.

The next bird which calls for remark is one of the most extraordinary of the strangely-plumaged birds of which Australia furnishes so many examples; it is known from the curious form assumed by its tail feathers, as the Lyre-Bird, Menura superba. Gould gives an account of its habits in his Birds of Australia, and describes it as most difficult to obtain a sight of, its haunts being rocky and thick "brushes," where it may be heard for days together without being seen; the wonderful tail is not acquired by the male till his third or fourth year, and then only between the months of June and October; its food consists chiefly of beetles and snails. There are three species known (two of which are here shown), but it is feared that so remarkable a bird, and one of such natural boldness of habit, will not long survive.

We now enter upon the second sub-order of the great order
PASSE RIFORMES, namely EURYLAEMI, which contains two families only, those of the Green Broadbills and the Broadbills proper.

The Green Broadbills, CALYPTOMENIDÆ, are represented in the collection by three examples obtained in Borneo, they are quaint little birds, with helmet-like feathers on the upper mandible. Of the second family, EURYLAEMIDÆ, we have representatives of three genera, Eurylaemus javanicus and E. ochromelas; Corydon sumatranus; and Cymborrhynchus machorhynchus, the Black-billed Gaper, from the Malay Peninsula, the most striking form of all. The Green Broadbills are fruit eaters, but the second section are believed to be insectivorous.

The third sub-order of the Passeriformes is that of the TROCHILI or Humming Birds, consisting of a single large family, TROCHILIDÆ, numbering some 476 species, confined exclusively to America, but extending on that continent from Alaska to Patagonia. We are so accustomed to associate birds of bright plumage with the sunny regions of the tropics, that it may be a matter of surprise to some to learn that these birds, the brightest of all, inhabit not alone the forests of South America, but certain species have been seen “flitting about the fuchsias of Tierra del Fuego in a snowstorm,” and in the north-west another species “in summer visits the Ribes-blossoms of Sitka,” while others are found “just beneath the line of perpetual snow, at an elevation of some 16,000 feet, dwelling in a world of almost constant hail, sleet and rain, and feeding on the insects which resort to the indigenous plants.” Of the beauty of these gems of bird life much has been written, but the best account, in the opinion of the writer, is that given by Professor Newton in the dispassionate language of science in his Dictionary of Birds, p. 446. In describing the extraor-
dinarilly brilliant plumage of these birds, Professor Newton says, "ornithologists have been compelled to adopt the vocabulary of the jeweller . . . in all save a few of other birds, the most imaginative writer sees gleams which he may adequately designate metallic, from their resemblance to burnished gold, bronze, copper, or steel; but such similitudes wholly fail when he has to do with the Trochilidae, and there is hardly a precious stone—ruby, amethyst, sapphire, emerald, or topaz—the name of which may not fitly, and without exaggeration, be employed in regard to Humming Birds. In some cases the radiance beams from the brow, in some it glows from the throat, in others it shines from the tail coverts, in others it sparkles from the tip only of elongated feathers that crest the head or surround the neck as with a frill, while again in others it may appear as a luminous streak across the cheek." What in other birds would be considered sufficiently beautiful is far surpassed in these lovely creatures, "the sheen is overpowered by the almost dazzling splendour that radiates from the spots were Nature's lapidary has set her jewels."

The form of the feathers is subject to quite as much variety as their hues. There are "Racquet-tails," tails square, rounded, wedge-shaped, or deeply-forked; and though in a less degree, the wings display some remarkable variations, whilst in some the tarsus is "clothed with tufts of the most delicate down, sometimes black, sometimes buff, but more often of a snowy whiteness." Some of these delicate little creatures are not more than 2\(\frac{3}{4}\) inches in length, and the largest does not exceed 8\(\frac{1}{2}\) inches. Their food consists of insects attracted by the honey in the nectaries of flowers, for these the birds are continually seeking; when fed on honey alone, although it is readily taken, they soon die of hunger. Their beautiful little nests,
in which the two eggs are deposited, are very solidly constructed, generally of cotton or some vegetable fibre, felted together with spiders' webs, and often ornamented with lichens. So fearless are some of these birds that, entering by a window, they have been known to construct

HUMMING BIRD ON NEST, NATURAL SIZE.—(After Gosse.)—p. 134.

Professor Newton's "Dictionary of Birds."

their nursery in an ornamental plant placed in a dwelling room.

The Humming Birds in the collection have not yet been named and arranged, but the visitor will be able to
distinguish among the 250 specimens most of the peculiarities of form and colour which have been here referred to.

Case VII.

commences the second order of the **CARINATÆ**, namely, **CORACIIFORMES**, consisting of three sub-orders: (i) **CORACIÆ**, the Swifts and their allies; (ii) **HALCYONES**, Kingfishers; and (iii) **BUCEROTES**, the Hornbills, numbering in all some 523 species.

The Swifts proper (**Cypselidæ**) are poorly represented in the collection, although a numerous family; one is a well-known summer visitor to this country, and there are five other species met with in Europe, two of which have been killed in England. The builder of the edible "swallows' nest" is a Swift of the genus *Collocalia*. Next in order are the Nightjars (**Caprimulgidæ**), the typical genus of which is again a numerous one, members of the family are found nearly all the world over. One species is a common summer visitor to England, and two others are known in Europe. Numerous examples will be found in the collection; one remarkable bird, *Macrodipteryx* (*Cosmoptornis*) *vexillarius*, the standard wing Nightjar of Central and Southern Africa, has one of the wing feathers on each side enormously extended, so as to present a very singular appearance; another species will be observed to have two of the tail feathers elongated in the same extravagant fashion, so as to have obtained the name of the Lyre-tailed Nightjar. A very hawk-like bird, the only member of its family (**Steatornis** *caripensis*), met with chiefly in Trinidad, is known as the Oil-bird; it appears to be a fruit-eater. From Australia and New Guinea come the large birds of the
genus *Podargus* and *Eurostopodus*, examples of which will be seen. We must pass on to the Rollers (*Coracias*) and Bee-eaters (*Merops*), some of which are superbly beautiful, and both families send us an occasional straggler from the shores of the Mediterranean; the Bee-eater is confined to the Old World, but the Rollers inhabit the whole of Africa, India, and Australia.

The second sub-order HALCYONES commences with the genus *Colius*, a small family of graceful birds inhabiting Western Africa, and known as Colies. They have long tails, and the head surmounted with a crest; they are fruit-eaters. The next family is that of the Kingfishers, well known by our familiar British bird, to which they all bear more or less resemblance. There are something like 160 species, most abundant in the Indian Archipelago, and sparsely represented in the New World, the Belted Kingfisher being an exception. Some of these birds are very remarkable in appearance, others very beautiful; the birds of the genus *Halcyon* being conspicuous for their beauty, and the great Australian Laughing Jackass (*Dacelo gigantea*) is probably the most grotesque.

From the Kingfishers we pass to the Motmots, inhabitants of Central and South America. They are handsome birds, generally coloured with various shades of green and blue, and possessed of a powerful toothed bill, this they use for the singular purpose of stripping off the webs of the elongated central tail feathers, which thus partially denuded, have a racket-shape purely artificial. *Monotus brasiliensis* may be regarded as the type.

Case VIII.

The first shelf of this case is devoted to the third and
last sub-order of the order CORACIIFORMES, namely BUCEROTES or the Hornbills, consisting of a single family but nineteen genera, containing more than 60 species. These extraordinary birds are conspicuous for their unwieldy beak, usually adorned with a remarkable excrescence, which gained for them, from Aldrovandus, even before the bird which bore it had been seen in the flesh in Europe, the name of "Rhinoceros Avis." This enlargement is usually composed of light cellular structure, but in the Helmet Hornbill (Rhinoplax galeatus), a specimen of which will be seen in the case, it consists of a mass of horn strengthened by bony buttresses. Some of the habits of these birds are as remarkable as their appearance, and would hardly be credited were they not established by observation and placed beyond doubt. The female lays her eggs in the hollow of a tree, and when she begins to sit the cock plasters her in, leaving only a small opening through which he feeds her; but this is not all; at intervals, it is not known whether regularly or only occasionally, he has the power of casting the internal lining of his gizzard—which, with its contents, is ejected in the form of a purse—and this it is believed forms the food of the hen bird during her imprisonment. The usual food of the Hornbills is fruit and seeds, supplemented by snakes and lizards in the case of the larger species, and insects in the smaller species.

The third order, PICIFORMES, is composed of three sub-orders, containing nine families and about 650 species. The first family is restricted to one genus Upupa, the well-known Hoopoes, one species of which visits us occasionally; it is a handsome crested bird, prettily marked, of lively habits and fearless demeanour, but where it feeds it is not desirable to follow. These birds have a
wide range in the Old World, particularly in Southern Europe. *Irrisor erythrorhynchus* is a near relative of the Hoopoe; it inhabits Cape Colony, and differs from that species in being strictly arboreal. The next sub-order contains the Trogons, the long-tailed Trogon or Quesal (*Pharomacrus mocinno*), being one of the most beautiful plumaged birds in existence. It would occupy too much space to attempt to describe this splendid bird, and even then justice could not be done even to the faded beauty before us; how much more therefore would words fail to convey an adequate idea of the golden greens, and vivid scarlets of the living bird, and the flashing light refracted from the filamentous feathers of the scapulars and rump, or the beautiful central feathers of the tail, more than three feet long, and in constant motion. This bird alone is worth a journey to Guatemala to behold. Some of the other Trogons are very lovely birds, *Harpactes kasumba* has a beautiful black head and throat, with crimson chest and long tail.

The Jacamars (*Galbulinae*) are interesting South American birds, somewhat resembling the Kingfisher, with the habits of a flycatcher. Two singular birds, *Pityriasis gymnocephala*, male and female, from Sarawak, should not be passed without notice; and this brings us to the large and striking family of the Woodpeckers, which are too numerous to particularise; the pretty little *Picumnus pygmaeus* should, however, be noticed. These are followed by the Wrynecks, one species of which is a well-known summer visitor to this country, to be in turn succeeded by the Honey Guides, represented by *Indicator minor*. These birds are related to the Cuckoos, and like them lay their eggs in the nests of other birds. They are found in Africa, the Himalayas, Malay Peninsula, and Borneo. In Africa it obtains the
name of Honey Guide, from its habit of guiding the natives to trees in which bees have formed their nests, hoping to obtain its share of the young bees in the comb.

Case IX.

The gaudy but rather uninteresting-looking family of birds known as Barbets occupy the first shelf of this case. They are found in parts of Asia, Africa, and America, but are absent from Europe and Australia. Two rare species will be found here, *Calorhamphus hayi* and *C. fuliginosus*. Birds of this family are, as a rule, fruit eaters, but insects occasionally form part of their diet, and in confinement one species has been known to show a decided taste for small birds. Following these is the remarkable family of Rhamphastidae or Toucans, consisting of five genera and about 59 species; handsome but strange-looking birds, with bills apparently out of all proportion to their size, in this respect almost vying with the Hornbills; but unlike the same appendage in the latter bird, in the Toucan the bill is as remarkable for its lightness as it is for its size. They are restricted to South America, and are fruit feeders, but are also suspected of being occasionally carnivorous. The bills are as brightly coloured as the birds, which it is needless to describe, as they are fairly represented in the collection.

We now arrive at the fourth order, COCCYGES, which is divided into two sub-orders, the first containing the restricted family of Plantain-eaters, and the second the Cuckoos. The Plantain-eaters or Turacous (*Musophaga*), are handsome birds, restricted to Western Africa. Three species are in the collection, *Turacus buffoni*, a green-plumaged bird; *Musophaga violacea*, in which the prevailing tint is violet; and *Schizorhis africana*, a dull-coloured crested bird. Most
of these birds have beautiful red wing-primaries, but the colour is soluble in water, and after a shower the quills become pale; a few days, however, restore them to their pristine brilliancy. The crimson colour is due to a pigment named from the birds Turacin, and containing copper. The Cuckoos, which are represented in this country by our well-known summer migrant, form a numerous and widely dispersed sub-order, absent only from the coldest regions of the earth. The Old World species share the parasitic habit which characterises our familiar bird; but in America the Cuckoos construct their own nests, and there is even one kind (Crotophaga) which goes to the other extreme, several females possessing a nest in common. Some of the more remarkable species only can be pointed out, among which are the Australian shining Cuckoo (Chrysococcyx lucidus), the Indian Koels (Eudynamis), the curious Channel-billed Cuckoos (Scythrops) from New Holland, the handsome long-tailed Bengal Coucal (Centropus), and a fine chestnut-breasted bird of the genus Phoenicophaes or Bush Cuckoos. One of the Ground Cuckoos, the rare Carpococcyx radiatus, from Borneo, is a striking bird. The curious Chapparal-cock, Geococcyx affinis, from California, where it is known as the "Road-runner;" and Dromococcyx mexicanus, form fair representatives of this singular and very remarkable order of birds.

Passing to the fifth order, COLUMBIFORMES, which is divided into two sub-orders, and embraces about 370 species, we shall make the acquaintance of some very beautiful and singular forms. The first sub-order, Columbææ, contains all the Pigeons, and in it will be found our Ring Dove, Rock Dove, and Turtle, and Stock Doves. The foreign species are too numerous to mention in detail, but a pretty white-breasted bird, with pink head from the Malay
Archipelago, belonging to the genus *Ptilopus*, should be noticed; a beautiful Fruit Pigeon from Torres Straits, white with black primaries (*Carpophaga luctuosa*), has a very chaste appearance; a lovely little bird, *Geopelia tranquilla*, the Australian "Peaceful Dove," is in close proximity to the largest of the race, the magnificent Crowned pigeon of New Guinea, *Goura coronata*. Perhaps one of the most beautiful of the pigeons is the Nicobar Pigeon, remarkable not only for the iridescent hues of its plumage, but also for the long sword-shaped feathers which adorn its neck. Allied to the doves is the curious bird known as the Tooth-billed Pigeon (*Didunculus strigirostris*), an inhabitant of the Samoan Islands. This bird is interesting from its fancied resemblance to the extinct Dodo, hence it has been called the Dodlet, intended as a diminutive of Dodo. The resemblance, however, appears to be rather fancied than real.

The second sub-order of the *COLUMBIFORMES* comprises only the family *Pteroclidae*, and two genera, the first of which, *Pterocles*, numbers fourteen species, the well-known Sand Grouse, inhabitants, as a rule, of desert tracks in Africa, the Mediterranean region, Central Asia, and the Indian Peninsula. Species from Spain, S. Africa, and the Himalaya district, will be found in the collection. In the second genus, *Syrrhaptes*, is the bird whose strange and unexpected visits to Europe have been mentioned when speaking of the British collection, in which specimens killed in this county may be seen. This remarkable bird is appropriately named *Syrrhaptes paradoxus*.

**Case X.**

is a very attractive one, containing the birds of the sixth order, *PSITTACI*, of which there are six families, containing
some 500 species. Many of these are familiar to us as cage-birds—Parrots, Lories, Cockatoos, Macaws, and Parrakeets, forms which are so well known as to require no general description; but others are very rare and remarkable birds, not the least so those belonging to the first family Nestoridæ. These are fruit and insect eaters, with one apparently abnormal exception, and are entirely confined to the New Zealand region. We are fortunate in possessing examples of three of the five species; the first of which is Nestor meridionalis, the "Kaka" of the natives. In a separate case will be seen N. notabilis, the "Kea," a powerful bird, larger, but bearing a close resemblance in form to the preceding; it is finely coloured, with subdued shades of purple-brown, crimson, and orange; like its fellows it has a strongly-hooked beak. The evil habit of which this bird has been accused, as illustrated in the sensational case before us, has recently been shown to have been greatly exaggerated, if not to have altogether originated in a misconception. Its natural food is lichens and moss, perhaps supplemented by insects, and it is not unlikely that the latter may have formed the attraction, and that, like the starling in our own meadows, its visits to the sheep may have been in search of the parasites with which their fleeces or fly-blown backs were infested. Or it is suggested that they may have mistaken the frozen wool on the sheep's backs for the hoary lichens on the moss-covered rocks of their mountain pastures, and in rending it away have injured the sheep. When the flocks were first driven to the mountain pastures, where only these birds are found, they were exceedingly numerous, and so tame, that they would peck at the shepherd's boots and had to be driven away; but as one man admits having killed 3,000 in four years, and states that the same destruction was going on at other
Norwich Castle Museum.

hill stations, it is not surprising that they have become both wild and scarce, and it is probable that, whether rightly or wrongly accused, the death-warrant of the race has been pronounced. The third species, which will be found under a separate glass shade, is *Nestor productus*, the extinct Phillip Island Parrot; this is one of the treasures of the Museum. So far as is known with certainty this bird was entirely confined to the small Island named, adjacent to Norfolk Island, but it may be that a *Nestor*, also extinct, formerly found on the larger island, was identical.

The next family is that of the Lorikeets, comprising a considerable number of genera, and among them some of the most richly-coloured birds known. It is impossible to refer to them in detail, but one of the most singular forms is *Coriphilus notata*, and one of the most beautifully coloured, is Swainson's Lorikeet. Of the Cockatoos, all of which are confined to the Australian region, the fine Western Black Cockatoo, *Calyptorhynchus naso*, the yellow-cheeked *C. funerus*, and the handsome red-tailed *C. banksii*, should be noticed; the Ganggang Cockatoo is also a noble bird, and the familiar Sulphur-crested Cockatoo will be recognised, also the Rose-breasted *C. eos*. Then follow the Macaws, conspicuous among which is the Great Blue and Yellow Macaw of South America (*Ara ararauna*); and *Conurus pertinax*, a handsome yellow-faced species. *Psittacula cana* is a pretty little grey-headed species from Madagascar, and *P. galbulus* is also a lovely little bird. The handsome specimen of *Chrysotis amazonica*, a South American species, lived in confinement more than thirty years. *Paecephalus robustus*, Levaillant's Parrot, from the Cape of Good Hope, is another fine bird, which is followed by those of the genus *Psittacus*, containing the well-known Grey Parrot from Western Africa, and some other interesting birds. Several
beautiful Rose Parrakeets, among them *Palaearnis alexandri*, claim our attention, *P. affinis*, from the Andaman Islands, is also a charming species, as well as a Crimson-winged Australian Parrot of the genus *Ptistes* and the King Lory from the same continent, of which the male is a brilliant scarlet and the female an equally lovely green; and this remarkable difference in the colour of the sexes is observable from their first plumage. *Loriculus vernalis*, a pretty green Parrot from the Andaman Islands, and two beautiful birds of the genus *Platycercus*, the Rosella or Rose-Hill Parrakeets, are well-known cage favourites. Another beautiful and rare bird from Moreton Bay, is *Psophotus pulcherrimus*, near to this is the Crested New Holland Parrakeet, which makes itself quite at home in this country in confinement. Another well-known species, *Melopsittacus undulatus*, the pretty little Grass Parrakeet, breeds readily in our aviaries. There are a number of small long-tailed Ground Parrakeets, which it is impossible to mention, but the last family containing one genus only cannot be passed over without special notice. This singular and handsome bird, known by the natives of New Zealand, where alone it is found, as the "Kakapo," Ground or Owl Parrot (*Stringops habroptilus*), is nocturnal in his habits, hiding by day in holes, which are believed to be excavated by itself, or under rocks or roots; incapable of flight, and singularly owl-like in appearance, it strikes the observer as belonging to a past fauna, and indeed it is believed "to be one of the primitive forms of *Psittaci*;" there is every reason to fear that this bird, like the *Nestors*, will soon cease to exist. In confinement it is said to be gentle and intelligent, but unlike most of the Parrots, very short-lived. The beautiful examples of this curious Parrot in the separate case are thus of great interest.
Of the next or seventh Order, RAPTORES, containing the Birds of Prey, both Diurnal and Nocturnal, a full description has already been given; they will be found in the rooms devoted to the Gurney collection.

Passing to

Case XI.

we commence with Order eight, STEGANOPODES, a very restricted one, containing only three families and perhaps 68 species. The first of these is PELICANIDÆ, composed of the Pelicans, of which we have Pelecanus onocrotalus, the best known representative, occurring in South-eastern Europe, South-western Asia, and North-eastern Africa; a fine species from Tasmania, *P. conspicillatus*; also the much smaller American *P. fuscus*; the Gannets and Boobys follow; of the former, *Sula bassana*, the Solan Goose or Gannet of our seas, will be found in the British collection, and *S. piscator* from New Guinea in the case before us; next is the genus *Pha'acrocorax*, or Cormorants, of which there are examples from several parts of the world, and *Plotus*, the Darters or Snake Birds, inhabitants of South America, India, and Australia: there are only four known species, one of these is doubtless familiar to those who have visited the fish-house at the Zoological Gardens, where it may frequently be seen spearing its prey on the sharp bill, which terminates its long and snake-like neck and head. The second family, PHAETONTIDÆ, is restricted to the Phaëthons or Tropic Birds, handsome white birds, with the middle feathers of the tail greatly elongated; of these we have two species, one distinguished by having the long tail feathers red; and the third family is that of TACHYPETIDÆ, or the Frigate Birds, of which we possess both species—*T. aquila* from the Island of Ascension, and *T. minor*, killed at Moreton Island, Australia.
We now come to a very interesting group of birds, forming Order nine, HERODIONES, and containing the Herons, Storks, and Ibises, estimated at about 134 species. The type of the first family is our familiar Heron (Ardea cinerea), which is found throughout Europe, Africa, and Asia, extending to Japan and Australia; an example from China will be seen in the collection. There are several other representatives of this large sub-family, notably a beautiful white-fronted Heron (Ardea nova-hollandiae) from Cape York, a white-necked Heron (A. pacifica), and some pretty small species from India and China. The first bird to attract our attention in

Case XII.

is the little Egret (Ardea garzetta), which has a melancholy interest, it being one of the birds so cruelly persecuted by the world of fashion, who covet its beautiful nuptial plumes, called “Ospreys” in the feather trade, for the adornment of their persons. There are several species of these birds, all alike beautiful, found in different parts of the world, and endowed with that fatal gift of drooping filmy plumage, which at a certain period of the year renders them so conspicuous. Mr. W. H. Hudson, the author of The Naturalist in La Plata, in a pamphlet written for the Society for the Protection of Birds, referring to the purity of the plumage of the American Little Egret, says, “No words can give an idea of how white the Egret really is. It is as if the bird had some luminous quality existing within itself, which shows through the plumage, and gives it among birds something of a supernatural appearance. The Egret is seen at its best standing motionless on some dark dead branch, or on the margin of the water against the deep greens and browns of aquatic foliage, the neck curved to
the form of an S, the golden dagger beak inclining downward at a slight angle, and the plumage showing white as a drift of lately-fallen snow, with the clear sunshine glinting on it—a bird statuette carved by some divinely-inspired artist out of a white crystalline stone found in no earthly quarry. This is the bird which is sought after in its haunts, and killed for the sake of its few ornamental feathers.” He then proceeds to explain that these birds are only ornamented with these side plumes during the breeding season, and that it is only then they are gregarious, nesting in large communities, thus offering exceptional opportunities to the “plume-hunter,” and rendering easy his diabolical work. “And when the killing is finished, and the few handfuls of coveted feathers have been plucked out, the slaughtered birds are left in a white heap to fester in the sun and wind in sight of their orphaned young, that cry for food and are not fed!” Well may he add, “There is nothing in the whole earth so pitiable as this—so pitiable and so shameful—that for such a purpose human cunning should take advantage of that feeling and instinct, which we regard as so noble in our own species, and as something sacred—the tender passion of the parent for its offspring, which causes it to neglect its own safety, and to perish miserably, a sacrifice to its love! . . . And those who, not ignorant of the facts, encourage such things for fashion’s sake, and for the gratification of a miserable vanity, have a part in it, and are perhaps more guilty than the wretches who are paid to do the rough work.” Would that these words, and they apply not only to the Egret, but to scores of other beautiful birds killed at the time when they are most beautiful, could be made to haunt the conscience of every wearer of a bird plume.

After the Egrets are the Bitterns and Night Herons,
one species of the former was formerly common in this county, and is still met with every winter; the Night Heron is a rarer but almost regular visitant in spring or summer; both genera have a wide distribution in the Old and New World. The Boat-bill (*Cancroma cochlearia*), so called from its capacious beak—a native of South America—is another remarkable member of this order. The sub-family *Scopinae*, consists of a single species, *Scopus umbretta*, but that a very remarkable one; it is known as the Hammer Head, from the curious appearance presented by its beak and long occipital crest, and constructs an enormous nest, placed in a tree or on a rocky ledge, flat-topped and clay-lined, which is said to serve for many years. One seen by Mr. Layard was three yards long and one yard and a half broad, and was decorated with all sorts of bright objects, from bleached bones to brass buttons. It is an African species.

The third family, *Ciconiidae*, contains the Storks and Cranes. Of the former the Black Stork (*Ciconia nigra*) is an example, but the well-known White Stork (*C. alba*) is also an occasional migrant to this county; though never more than a visitant here, it is abundant and breeds in Holland; the family is for the most part confined to the Old World, one species only being found in South America. *Tantalus leucocephalus*, the so-called Indian White-headed Wood Ibis, belongs to this group. There are five species of *Tantalus* found in North and South America, also in India, where they frequent river banks and swamps, feeding on fish. *Anastomus*, of which genus there are two species inhabiting similar localities to the preceding, are said to feed chiefly on a species of freshwater mussel (*Unio*), the shells of these they break between their
Norwich Castle Museum.

mandibles, which in course of time become worn away, and the singular appearance noticed in the specimen of _A. oscitans_ here seen is the result. The fourth family is restricted to the Spoonbills (_Platalea_), beautiful birds with singular spatulate bills; one is a well-known European bird, and an annual visitant to this county, where it formerly bred. There are other species found in the Old and New World (five in all), one of these, the lovely Roseate Spoonbill (_P. ajaja_), is a native of Mexico and Tropical America. The fifth and last family of this order is that of _Ibididæ_, composed of some twenty-four species of handsome birds known as Ibises; these are found in Europe, Africa, and America. The Glossy Ibis inhabits both the Old and New World, occasionally visiting England and this county. Perhaps the best known species is the lovely scarlet Ibis, a native of South America; but the most interesting is the Sacred Ibis (_Ibis æthiopica_), the bird held in such veneration by the ancient Egyptians, which country it visits in summer at the period of the inundation of the Nile, apparently making no long stay there, but still abundant in some parts of Africa. Several other species of Ibis will be noticed, one an Australian bird known as the Straw-necked Ibis, from the singular quill-like feathers on the front of the neck; another Australian form has a white body and black head like the Sacred Ibis; and yet another, known as the Wharty-headed Ibis, is a native of India.

In

Case XIII.

will be found the first portion of the birds of the Tenth Order, _ALECTORIDES_, commencing with the Cranes (_Gruariæ_), the first of these is the noble Balearic Crane (_Balearica pavonia_), a handsome crowned Crane from West Africa, near which is the North African Demoiselle
Crane (Grus virgo). These are followed by three small birds, one of them, belonging to the genus Turnix, is known as T. taigoor, the Indian Black-breasted Hemipode, or Bustard Quail; the others are Australian species of Hemipodius, the Varied and the Black-backed Hemipodes. These Quail-like birds seem very much out of place between the Cranes and the Bustards, but they may at once be distinguished from the Quails by the absence of a hind toe. There are about 23 members of this family inhabiting Southern Europe, Africa, India, China, and Australia.

We now come to the Bustards (Otididae), one of which, in times past, was the glory of our own county, and has before been spoken of; the second species, Otis tetrax, is a wanderer to our shores. The Bustards are widely dispersed, but confined to the Eastern Hemisphere. The Houbara is found in Northern Africa, and the Macqueen’s Bustard, also a ruffed bird, is a native of Western Asia, but has been known to stray to this country. There are also two Indian species of Eupodotis—E. edwardsii and E. aurita—in the same case. The Brazilian Cariama (C. cristata) is a noteworthy bird of singular appearance; it is said to be a great serpent eater, and is protected accordingly. This species brings us to the end of the case.

Case XIV.

The first bird in this case is a rather abnormal species, Grebe-like both in appearance and habits, but allied to the Rails; it is known as the American Finfoot, Heliornis fulica, and is the only representative of its genus. Heliornis fulica is found in South America, extensively distributed, but not in Patagonia. The next bird, Podica petersi, is nearly allied to the preceding, but inhabits Africa from
Natal northward. We now pass to the Rails, of which there are a large number—our well-known Water Rail may be taken as the type; here will be seen various examples from South America, Australia, and other localities; these are followed by a number of small birds of the genus *Crex* (*Crakes, etc.*), to be succeeded by the handsome Porphyrios, of which there are several species, all bearing a strong family likeness, and known from their prevailing colour as purple, green-backed, grey-headed, and other Gallinules; they are very showy birds, and some species are occasionally kept in confinement. The Australian Black-tailed Water Hen (*Tribonyx ventralis*) is an interesting bird, which leads on to the Gallinules proper, of which our Moor-hen may be taken as the type; several species are here shown, one a handsome crested Bird, *G. cristata*, from India, and *G. phoenicura*, a native of China. The genus *Psophia*, which is represented by *P. crepitans*, the Gold-crested Trumpeter, a singular but handsome South American bird, brings the order to a conclusion.

Order eleven, GALLIFORMES, is said to contain some 320 species; it is divided into two sub-orders, the first of which contains only one family, and a single species, the Hoatzin.

The Hoatzin (*Opisthocomus cristatus*), a very remarkable bird, of which we possess a specimen, has long been a puzzle to systematists; it has occupied the attention of Huxley, Garrod, and Gadow in recent times, and has been assigned the isolated position at the head of the Gallinaceous birds, which is here accorded to it. It inhabits British Guiana and the Valley of the Amazon, and appears to feed on leaves and fruit; the nestling “has two well-developed fingers, each with a claw, and is said to creep about on all fours like a quadruped.”
The second sub-order, GALLINÆ, commences with the Peacocks; there are two species, placed for convenience in Case XV., although belonging here—Pavo muticus, inhabiting Burmah and Java, and P. cristatus, the common Peacock, a native of India, both birds of wonderful beauty, but so well known as to need no description. The Peacock Pheasant, Polyplectron bicalcaratum, ornaments the bottom of the case in company with the marvellous Argus Pheasant, Argus giganteus, the beauty of whose ocellated plumage becomes more and more wonderful the more closely it is examined. The tail is very long, but it is to a great extent hidden by the enormous extension of the wings, these are ornamented by an immense number of eye-like spots, whence its name. These lovely birds are inhabitants, the former of the Indio-Malayan region and the latter of the Himalayas.

Case XV.

is still devoted to the PHASIANIDÆ, which are natives of most parts of Asia, and display a prodigality of rich colour and variety of plumage truly astonishing, in addition to a stately bearing which seems to imply a conscious superiority. One of the most richly-coloured of the family is the Impeyan Pheasant, so called after Sir Elijah or Lady Impey, by whom the bird was first made known in this country. Two of the species closely resemble each other; the rarer, Lophophorus impeyanus, not in the collection, is confined to Southern Cashmere, whereas L. refulgens, here exhibited, inhabits "the Southern slopes of the Himalayas from Eastern Afghanistan to Western Bhotan;" they are both equally beautiful, and the metallic greens, purples, copper, and gold, richly burnished and changing with the varying lights, flash forth with unexampled brilliancy. Both species have suffered greatly from the rage for plumed hats and screens, and thousands are, or were, killed annually to
supply the plume market, this has greatly reduced their numbers. Fortunately it is the male bird only which attracts attention, and the females, being clothed in a much more modest attire, escape molestation. The Anglo-Indian name for these lovely birds is "Monal."

The curious Horned Tragopan (*Ceriornis satyra*), the less conspicuous Indian Pucras (*P. microlopha*), and the White-crested Kaleege (*Euplocamus albocristatus*), all natives of the Himalayas, will attract deserved attention.

The bottom of the case is occupied by fine specimens of the Mexican Wild Turkey (*Meleagris mexicana*), which Mr. Gould shows (*Proc. Zool. Soc., 1856*) to be distinct from the Canadian Wild Turkey, and the origin of our domestic breed, having been introduced from the mainland of America to the West Indies, and thence, in the sixteenth century, through Spain to the rest of Europe and Great Britain. In corroboration of Mr. Gould's views, the late Mr. Gurney caused to be placed near the Wild Mexican bird in our Museum, a Turkey of the Cambridgeshire breed, which was reared at Earlham, and the close agreement in the plumage of the two birds is very apparent.

**Case XVI.**

continues the Pheasants proper, among them will be noticed the beautiful Chinese Pencilled Pheasant, the Japanese Pheasant, the Cheer Pheasant (*P. wallichii*), the lovely Amherst's Pheasant, the Ringed Pheasant from Amoy, the brilliantly-coloured Chinese Golden Pheasant (*Thaumalea picta*), Scemmerring's Pheasant from Japan, and others. These are followed by the genus *Gallus*, the first of which, *G. bankiva*, the Indian Jungle-fowl, is believed to be the origin of our domestic fowl, from some breeds of which it is hardly to be distinguished; there are also specimens of *G. varius*, the Fork-tailed Jungle-fowl, a native of Java, and *G.*
sonnerati, found in Southern India, the male has the shaft of the feathers curiously prolonged and flattened. Then follow the Guinea-fowls (*Numidia*); one form *N. meleagris*, is domesticated in our farm-yards; the Francolins, a numerous family; the Partridges, Red-legged Partridges, and the Quails, which fill the bottom of the case.

**Case XVII.**

The fine Himalayan Snow Partridge (*Tetraogallus himalayensis*), in this case is a conspicuous bird; there are five species, all, like their relatives the Ptarmigans (*Lagopus*), inhabitants of lofty mountain ranges. One species of Grouse, the Red Grouse (*Lagopus scoticus*), is the only bird which can be claimed as exclusively British, it is found only in the northern counties of England and in Scotland. Another member of this family is the Capercally (*Tetrao urogallus*), a noble species formerly indigenous to the North of England, Scotland, and Ireland, where, however, it became extinct; but it has been again introduced from Sweden into Scotland with complete success, and is now firmly established. In Scandinavia it is a well-known species. The genus, *Bonasa*, is represented by a case of Ruffed Grouse (*B. umbellus*), an American species frequently seen in our markets, where it is imported in a frozen condition. The remainder of this case is occupied by a separate case of the more conspicuous birds of the sub-order GALLINÆ, including fine specimens of the Peacock and Himalayan Pheasants; the Horned and Black-headed Tragopans; the Peacock Pheasant (*Polyplectron*), the Crowned Partridge (*Rollulus cristatus*) from Malacca; the Indian Black Francolin (*Francolinus pictus*), and other showy species.

**Case XVIII.**

The third family of the present sub-order is that of the
Cracidae or Curassows, natives of South and Central America, represented in the collection by the Crested Curassow (Crax alector), a handsome bird with a singular crest not only on the head but extending some distance down the back of the neck; these are succeeded by birds of the genus Penelope, also of South American origin; one, however, being found in Mexico, where it is known as the "Guan," and appears to have much the same habits as the Curassows. Two species will be noticed, P. pileata, the Red-breasted Guan, and P. cristata, the Rufous-vented Guan.

There is one more family in this order which requires especial mention, namely, the Megapodes or Mound Builders. These singular birds are remarkable for their habit of building mounds of decaying vegetable matter in which they deposit their eggs, leaving them to be hatched by the heat thus generated, thereby escaping the task of incubation, the lot of most. birds. These mounds are remarkable structures, sometimes six or eight feet high, and twenty or thirty feet in circumference, formed of sand or earth mould, according as they are situated, and contain many eggs, which, the joint produce of several birds, are laid at intervals of several days. The young are able to take care of themselves as soon as hatched, although they do not at once quit the mound. In the collection will be seen examples of two genera of these birds—Telegallus lathami, the Wattled Telegallus or Bush-Turkey, so called from the resemblance of its bare neck and yellow wattles to those of a Turkey, and Megapodius tumialus, both Australian species.

Order twelve, Limicoliformes, has been estimated to contain 330 species, and is divided into two sub-orders, Limicolae or plovers, and Gaviae, the Terns and Gulls. The first genus is that of Ædicenemus, containing our Stone
Curlew or Norfolk Plover, *Œ. scolopax*. Several species are contained in the collection, *Œ. grallarius*, the Southern Stone Plover from Australia, and *Œ. crepitans*, an Indian species, may be taken as examples; another fine bird referred by some to this genus, *Esacus magnirostris*, has a very wide geographical distribution; our example came from the Falkland Islands, but it is found northward as far as the Philippine Islands. *Charadrius*, of which there are some thirty species, is the genus which contains our Golden Plover; *Erythrogonyx (Charadrius) rufiventer* is a handsome Australian example; there are other species of *Ægialitis* and *Hiaticula*. Some of the genus *Lobivanellus* are interesting birds; *L. (Sarciophorus) pectoralis*, the Australian Black-breasted Pewit, and the fine wattled Plover (*Lobivanellus lobatus*) from New South Wales, and a pretty little plover, common in the Nile Valley, known as *Pluvianus aegyptius*, the Crocodile bird; these birds, like the preceding species, are furnished with a well-developed wing-spur. The Stilt Plovers, a long-legged race (*Himantopus*), and the Avocets (*Recurvirostra*), are both peculiarly interesting to us, not only from their singular appearance, as indicated by their names, but from the fact of one species of the former genus being an occasional visitor to this county, and that one of the latter was formerly a regular breeder in several localities in Norfolk, and is still an almost annual visitor to our shores. There are some examples of the genus *Cursorius*, one member, the Cream-coloured Courser, has been killed in this county; the same may be said of the Pratincoles, *Glaerola; Hæmatopus*, the family of Oyster-catchers, of these there are several examples from various parts of the world; many species of Sandpipers (*Totanus*), Godwits (*Limosa*), Turnstones (*Strepsilas*), and Machetes, of which only one, the Ruff, is known; of this there is a beautiful white variety.
This singular bird is an inhabitant of the Northern parts of Europe and Asia, and was formerly abundant in Norfolk, and many other suitable breeding sites; but if it still breeds in England, a very restricted locality in East Norfolk is its only nesting place.

Of the Sandpipers (*Tringa*) there are many examples; *Rhynchaæa* is represented by the curious Australian Painted Snipe, and *Rhynchaæa capensis* from the Cape of Good Hope. Then follow the Woodcocks (*Scolopax*), not a large genus, but widely distributed; one species visiting us regularly as an autumn migrant, and breeding sparingly in this county—a white example will be seen. The last genus of this large family is that of *Gallinago*, consisting of perhaps sixteen species of Snipes, of world-wide distribution, three of these are known in this country.

The second family is that of *Parridæ*, and is composed of the Jacanas. These curious birds are found in the warmer regions of both the Old and New World, and are remarkable for the abnormal length of their toes, enabling them to walk with safety on the floating vegetation. Some of them also possess a shield somewhat like that of the Coot, but in an exaggerated form; and one species, which has been assigned to a separate genus (*Hydrophasianus chirurgus*), has a very long tail, and is known as the Pheasant-tailed Jacana; examples of each will be found in the collection. In the second sub-order, *Gaviæ*, the Terns (*Sternidæ*) are fairly well represented. They are a numerous family of very graceful birds, known from their easy skimming flight as sea-swallow. Several species are found in this country during summer, two of which used to breed abundantly on the coast of Norfolk, and still do so in greatly decreased numbers. The Terns are distributed all the world over, and vary very much in size and colour, as will be seen by
the specimens exhibited. The remaining family, Laridæ, is very poorly represented in the collection.

Passing into the adjoining corridor on the right-hand side, we find in

Case XIX.

the commencement of the thirteenth order, Tubinaires, so called from the tubular form of the external nostrils. This order consists of a large number of species divided into two unequal families, the first containing the Petrels and the other the Albatrosses. Of the first family, Puffinus, all of which are great wanderers, and vary in size from our familiar Storm Petrel to birds as large as a pheasant, several species are known in the seas surrounding our shores, some of the rarest of which have, however, been captured inland. Attention may be called to a Mediterranean species of Puffinus, P. kuhl ii; the short-tailed Australian P. brevicaudatus; a snow-white species, P. nivea, obtained on Ross's Antarctic Expedition in 78° 4 south latitude; and Daption capense, the Cape Pigeon. The second family contains the giant Albatrosses—restless wanderers—possessed of unsurpassed powers of flight; they are found chiefly in the Southern Hemisphere, frequenting the stormy seas off the Cape of Good Hope and Cape Horn, where the giant Diomedea exulans may be seen following in the lonely wake of the vessel for many days in succession, with a sailing flight that has so often excited the wonder and admiration of the beholders. There are other species frequenting the North Pacific, and even wandering across into the North Atlantic, where individuals believed to be the Black-browed Albatross, Diomedia melanophrys, have been several times
Norwich Castle Museum.

seen or procured, the last instance being in the Færøe Isles, where one was killed which is said to have associated with the Gannets there for more than thirty years. One killed by Captain Gray in Lat. 80° 11 N., long. 4, E., is now in the Peterhead Museum. The species just mentioned will be seen in the collection, as well as the yellow-billed Albatross, and the largest species of all, D. exulans.

The fourteenth order, Pygopodiformes, contains the Grebes and Auks, in all perhaps seventy-five species. In the first family our well-known Great Northern and Black-throated Divers are placed; in the second (Podicipes) are the Grebes proper, of these our Great Crested Grebe may be taken as the type; there are thirty-one species, several of which will be noticed from different parts of the world; P. gularis, a Black-throated Grebe from Moreton Bay; and P. carolinensis from N. America, are from two widely-separated localities. Then follow the Alcidae, the Great Auk being the type; Fratercula, represented by the Puffins; Uria, the Guillemots, of which a specimen of the Black Guillemot, an inhabitant of the seas of the northern division of this kingdom will be seen; and a crested species, U. umizusume, from Japan. The last genus, Alle, is restricted to the Little Auk, a winter visitor to our shores, which will be found in the British collection.

Case XX.

begins the Lamellirostres, order fifteen, consisting of the Flamingoes, Geese, Swans, Ducks, etc. The first is the Flamingo, of which we possess but one species, Phoenicopterus antiquorum, found abundantly in Spain, nesting in large communities in the low-lying districts known as the "Marismas," between the river Guadalquivir
FLAMINGO.—p. 159.

From Professor Newton’s “Dictionary of Birds.”
and the sea. The specimen exhibited is from the Hume collection of Indian Birds. Much misconception formerly existed as to the nesting of this bird; it was believed that it erected a tall sugar-loaf mound, astride of which it stood while engaged in incubation; it is well-known now, however, that the nest consists of a mound of clay simply raised slightly above the water of the marsh, on this the bird sits with its legs folded under it in the usual way. Some of these nests may be seen in the Natural History Museum, South Kensington. Of the true Geese there are some beautiful examples; Sarkidiornis melanotus, is a singular species, the male being ornamented with a large rounded compressed caruncle along the upper mandible; these birds are found in the warmer parts of America, India, and parts of Africa. Anseranas melanoleuca, the semi-palmated Goose, and A. jubata, are both Australian species, the latter is known as the Maned Goose; the Cereopsis Goose, of which there are three specimens, is a very abnormal-looking form; it is an Australian species, said to be becoming very rare, being easily destroyed through its unwillingness to take to flight. Anser cygnoides, the Chinese Swan Goose, as also A. hyperboreus, the Snow Goose, are both interesting species. Branta sandvicensis, is peculiar to the Sandwich Islands. The last species contained in the case is not the least remarkable; it is known as the Pigmy Goose (Nettapus coromandelicus). There are said to be four species of this genus known, all inhabiting the continental parts of India, Australia, and Africa, and it is stated by Mr. Blyth that the Indian species seems totally incapable of standing or walking upon the ground, invariably fluttering along like a wounded bird, and that they never alight on the ground of their own accord.
Case XXI.

The third family of the sub-order, ANSERES, is that of CYGNIDÆ, comprising eleven species of Swans; the best known is our domesticated Cygnus olor, in addition to this two, or perhaps three others, are winter visitors to our shores; these have already been referred to when describing the collection of British Birds. Here we have some good examples of the Australian Black Swan and Cygnet. The fourth and fifth families, ANATIDÆ and FULICULIDÆ, consist of a large number of true ducks, our common wild Duck may be taken as the type. They are cosmopolitan, some spending their time for the most part on fresh water, and restricted to vegetable diet; others frequenting the sea, where they subsist on marine organisms obtained by diving. They may be roughly divided into surface-feeding and diving Ducks. The first genus, Dendrocygna, inhabits Asia, Africa, the West Indies, South America, and Australia; they are fresh-water species, generally known as “Whistling” or Tree Ducks. One beautiful example is Eyton’s Tree Duck, an Australian species; another striking bird is the White-faced or Widow-cap Duck, D. viduata, a native of South America. Tadorna, the type of which is our Sheld Duck, a very handsome species, is represented by T. radjah from Cape York; and Casarca, the Ruddy Sheld Ducks, by a New Zealand species, C. variegata. There are also Carolina Ducks, very lovely birds, and Teals.

Case XXII.

The Diving Ducks are represented by specimens of Steller’s Duck, a beautiful Arctic species, a Norfolk-killed example of which is in the collection of British Birds; the Australian
White-eyed Duck, *Nyroca australis*, *Eunetta falcata*, and *E. formosa*, the Baikal Teal; and *Cairina moschata*, the Muscovy Duck, a South American species domesticated here. *Biziura lobata*, a singular Australian species, ornamented with a large caruncle hanging from the lower mandible like the wattle of a cock; and *Erismatura leucocephala*, the Spiney-tailed Duck, a southern species of a genus which ranges from Eastern Europe to the West Indies, Chili, the Auckland Islands, S. Africa, and Australia. A small case will be noticed containing two singular birds, *Nettapus coromandelicus*, the Pigmy Goose, already mentioned on p. 159, and the Freckled Duck (*Tadorna navosa*).

Order sixteen, IMPENNES, consists of a single family of three genera, inhabiting the Southern Ocean, and known as Penguins. They are incapable of flight, fearless of man, and gregarious in their breeding haunts, all circumstances favouring the extinction of the race, which the brutal treatment they almost invariably meet with from those who visit their “rookeries” must soon accomplish. The King Penguin (*Aptenodytes longirostris*), in the separate case, was brought alive to this country, and was the second living individual that reached England; it was captured in the Falkland Islands. Many specimens of several species have since been exhibited in the Gardens of the Zoological Society, where their singular appearance and quaint manners are most interesting. A second species, *Eudyptila minor*, from Goose Island, Australia, and a crested Penguin (*Eudyptes nigriventris*), will also be noticed.

Cases XXIII and XXIV,

which conclude the series devoted to the general collection of birds, contain some very interesting species. Order
seventeen, CRYPTURI, comprises a single family, Tinamidae, consisting of a number of birds of a very aberrant form, inhabiting the South American region, and in appearance not very unlike partridges, from these, however, their anatomical peculiarities show them to be far removed, their relationship being at least as near to the Struthious birds. Two species will be seen, one of the genus Tinamus, the other a Nothura.

We now come to the second sub-class, Ratitae, which contains one order only, the eighteenth and last, STRUTHIONES, flightless birds, generally very swift of foot. The first family is that of the Apteryx, another example of the marvellous fauna of the Australian region. These singular birds are found only in New Zealand; two species are said to inhabit the North Island and two the South; they are nocturnal in their habits, feeding chiefly on earth-worms. For these they probe the soft soil with their long bill, near the point of which the nostrils are situated; although an extremely sensitive organ, it is probable that they are assisted in this search for food, not only by the delicacy of touch possessed by the point of the mandible, but also by the sense of smell, as when searching for food they utter a sniffing sound, as though testing their food by smelling as well as by touch. In the daytime they remain hidden under the ferns and other vegetation with which the soil in the localities frequented by them is profusely covered. Professor Newton, in the Dictionary of Birds, speaks of Apteryx as “perhaps to Ornithologists the most interesting group of birds now existing, and the more interesting in regard to the melancholy doom of extinction which inevitably awaits them.” We have two species, Apteryx mantelli from the Northern, and A. australis from the Southern Island of New Zealand.
The Dromæidæ are comprised in two genera, *Casuarius* and *Dromæus*; of the former there are nine species, and of the latter two. The Cassowaries are all inhabitants of the Papuan sub-region, that is New Guinea and the adjacent Islands, one species being found in North Australia; all are ornamented with a large horny casque, the bare skin of the neck conspicuously coloured bright blue and red, the body covered with coarse black fanlike feathers, and

![Image of Northern Kiwi](image_url)

**THE NORTHERN KIWI. (Apteryx mantelli.)—p. 162.**

*From Professor Newton’s “Dictionary of Birds.”*

the wings replaced by a group of black quill-like spines; they wander in the forests feeding chiefly on fruits. We possess but one species, *Casuarius galeatus*, from the Island of Ceram. Of the Emeu, *Dromæus nova-hollandiae*, we have three specimens. There are two species both
inhabiting Australia. Next to the Ostrich this is the largest of existing birds. They are most interesting birds, and capable of domestication, breeding freely in confinement, but like so many other species are disappearing as the country becomes settled. Of the genus Struthio, containing only one species—the giant Ostrich—we can exhibit only a newly-hatched example in the down; but of the next genus Rhea, we have a fine example. These birds lack the beauty of plumage possessed by the Ostrich, but nevertheless are clothed with feathers which possess a considerable market value, their consequent total extinction is therefore only a question of time. It is with extreme regret that we have again to express the oft-repeated lament, that the ruthless demands of a passing fashion should entail the destruction of some of the most beautiful and interesting inhabitants of the globe.

The Picture Gallery.

On leaving the Ornithological Collections, the visitor immediately enters the Picture Gallery. This fine room is one of the three larger-sized galleries in the range of buildings adjoining the Keep of the Castle. It extends in length from north to south, and is entered near its north end through swing doors in its east wall. At present it contains the greater part of the works of art belonging to the Museum. On its east and west walls are the oil paintings; those on the east side being chiefly pictures by members of, what is now known as, the “Norwich School” of painters. At the south end of the room are the sketches in black and white and the etchings. On the north wall are the water colours. These drawings, both on the north and south walls, are also mostly by Norwich artists. It will be well to bear in mind this arrangement, as it will be found a useful guide to
the position of any particular work, for at present the pictures are not numbered. As, however, the names of the painters are placed on the frames of the pictures, we shall be able, by means of their position, to point out those of the greatest interest. In doing so, we shall not take them in the order in which they would be passed in a walk round the room, but shall single out the works of particular artists in whatever part of the gallery they may be found; and thus, we hope, give the visitor as much information as possible in the way that will most readily help him. But before doing this a word or two on the Norwich School may be acceptable to strangers to the City and County.

At the beginning of the present century there were living in Norwich a number of artists of considerable excellence, the foremost of whom have since been recognised as worthy
of a high place among the painters of England. Comparatively cut off as they were in those days from London and other places by the absence of the present easy means of communication, they were necessarily brought more together, and this union was further strengthened by an actual family relationship existing between many of them. In the year 1803 they formed themselves into "The Norwich Society of Artists," the first association of the kind established out of London. In 1805 they opened the first public exhibition of pictures in Norwich. This was followed by many others. In these exhibitions appeared pictures by Norwich artists which at that time were sold for modest sums but which have since fetched prices that would have astonished their painters. Some of these pictures are now the property of the nation. The leaders in this Society were John Crome and John Sell Cotman, both distinguished men, and perfectly distinct in the character of their art. It is not necessary to attempt any estimate of their comparative merits. It is enough that both were fine painters, and it is fortunate for us that the feeling for art shewn in their choice and treatment of subject was so different, the Norwich School being the richer for this difference.

John Crome, commonly called "Old" Crome—doubtless because he had sons, John Berney and William Crome, also excellent and well-known painters—must, as an artist, be considered self-taught. His subjects were simple. He painted common things and ordinary scenes under natural effects. His art was, in fact, founded on the Dutch School. His favourite painter was Hobbima. Most of his pictures are views in the neighbourhood of Norwich, where the character of the scenery and buildings is, in many respects, of the same kind as that to be found in Dutch pictures.
John Berney Crome is chiefly now known as a painter of moonlight effects. A bust of John Crome, by Mazzotti, is placed above the doorway at the south end of the gallery.

John Sell Cotman was an etcher and painter of architectural subjects. He published works on the architecture of Normandy, and on the architectural antiquities of Norfolk. He was, however, equally at home in pure landscape and in marine subjects. The charm of his work lies, principally, in the ease and grace of his composition, and in the simple manner in which his ideas of beauty were expressed. He idealized more than Crome, and his effects of colour, however striking and harmonious, were not so simply natural. Neither of these fine painters are at present adequately represented on the walls of the new Picture Gallery, but it must be remembered that until lately no attempt had been made to gather together for permanent exhibition in the City any collection of the works of local painters. A Society, called "The East Anglian Art Society," was formed in the year 1876 for this purpose, but was prevented by the high prices these pictures now command from securing any large or important work of the artists of the Norwich School. On the completion of the Castle Picture Gallery, the Society gave their whole collection to the City, and it is to be hoped that in time the work begun by them will be brought to a satisfactory termination by the addition of such pictures as shall give a fair and complete idea of the powers of the artists forming this local school of painters.

With these preliminary observations we pass to the pictures exhibited.

"Thorpe Water Frolic—Afternoon," by Joseph Stannard (born 1797, died 1830). In the centre of the
east wall is the most important work here exhibited of the Norwich School. In this fine picture the power of the painter is well shewn. It represents a regatta on the Yare, which is seen flowing under the houses of the village of Thorpe. The picture is full of subject and detail, but all subordinated to a simple and pleasing general effect. There are boats innumerable along the river side on the right, and in the centre of the picture a most effective and graceful group of sails, forming the principal mass of light, drawn and painted with admirable firmness and delicacy of light and shade. Dark trees are on the left, and on this side of the river are seen the houses of Thorpe, with an extremely pretty bit of high ground, characteristic of the place, appearing above them. Many figures are introduced, and they are drawn and painted with much skill and spirit, adding greatly to the life and effectiveness of the scene.

Immediately to the right of this picture is a smaller one by the same painter, "A Fresh Breeze," which, though rather cold in tone of colour, is in drawing, composition, and painting excellent. Here, again, the scene is full of subject and interest, vessels of different sizes and at various distances being freely introduced. The chopping character of the sea is well expressed. At the north end of the Gallery is a capital Pencil Drawing of Vessels, also by the same artist, whose subjects were generally of the river or the sea. On the west wall near the south end of the room will be found a very pleasing Portrait of Joseph Stannard, by G. Clint, R.A., lately bequeathed to the Museum by Miss E. Stannard, the artist's daughter.

It will be interesting to turn to the work of Mrs. Joseph Stannard (b. 1802, d. 1885), who was her whole life long a painter. As Miss Coppin, her works had won for her
several gold medals from the Society for Promoting Arts and Commerce. These medals are now in the Museum. Two of her pictures, "Dead Game" and "Flowers," will be seen on the east wall to the right and left of the central group, and her portrait, by Mr. J. C. Brewer, on the left of the door by which the visitor entered the Gallery.

Two small pictures by other members of this family, "River Scene with Mill," by Alfred Stannard (b. 1806, d. 1889), and "A Road Scene," by his son, A. G. Stannard (b. 1828, d. 1885), are also to be found to the right of the central group; while on the right and left of it are "Fruit" and "Flowers," by Miss E. H. Stannard—a daughter of Alfred Stannard—who now continues the work and sustains the fame of this artistic Norwich family. Alfred and Joseph Stannard were brothers.

John Crome (b. 1768, d. 1821) is represented at present by one small picture only, "A View on the Wensum." It will be found on the line, to the right of the central picture. Although there are characteristic marks of the painter in the breadth of effect in the "Keel"—a boat of a kind no longer used on the river—and in the transparency and lightness of touch in the foliage on the right, as well as in the general tone of colour and in the handling, this little work cannot be taken as giving a just idea of the powers of Crome.

John Berney Crome (b. 1794, d. 1842) is also represented by one picture, but one that more fully shows the power of the painter. It is a "View near Bury St. Edmund's," and it hangs on the line, to the right of the centre and by the side of the last-mentioned picture, the work of his father. In subject and treatment it reminds us of him, but there is not the transparency of colour or the masterly handling of John Crome. The picture is,
however, pleasing, and characteristic of the artist and of the country in which he found his subjects.

A portrait in water colour of **John Berney Crome**, by H. B. Love, also a Norwich man (b. 1800, d. 1838), will be found at the side of the doorway by which the visitor entered the Picture Gallery.

**John Sell Cotman** (b. 1782, d. 1842) is more fully represented. On the line, and to the left of the central picture, is an oil painting by him in an early stage of its progress, "A View on the Norwich River," described in a memorandum by the artist as "from my father's house at Thorpe." The warm ground on which the painter worked shows plainly throughout the picture. The distance is subdued by a cool tint. A little high light on sky and water carries the effect far enough to give an indication of what was intended. Two water-colour drawings, hanging on the north wall near the west door, "A Castle in Normandy" and "Yarmouth Tower," will give an idea of the breadth and simplicity so characteristic of Cotman, and will show how much depends on composition in his pictures and how little, comparatively, on the amount of detail and handwork. A small chalk drawing on the south wall, to the right of the doorway, "Old Tower at Carrow" (A Composition), will also illustrate his treatment of landscape, while a portrait of Professor Barlow, on the left of the doorway, will show how wide was the painter's range in subject.

**George Vincent** (b. 1796, d. circa 1836) was a Norwich artist of great ability. His fine picture of Greenwich Hospital, it may be remembered, was a surprise to the public at the International Exhibition of 1862. He is represented here at present by one small picture only, "Road Scene and Cottage,"—east wall, third picture
from south end. The effect is warm and rich, and the picture pleasing. It represents a road crossed by a stream, with a cottage gable, trees, distance, and cattle.

Above the Vincent is a small sea view, "A Pier Head with Boats," exceedingly well drawn and painted, by Miles E. Cotman (b. 1810, d. 1858); and on the north wall are some water colours, in which intense blue is skilfully managed, by J. J. Cotman (b. 1814, d. 1878). Both these painters were sons of John Sell Cotman.

James Stark (b. 1794, d. 1859), one of the most widely known of the artists of our local school—no doubt greatly owing to his published work on the Rivers of Norfolk—is also represented by one picture only, and one that can hardly be said to do justice to him. In his earlier days his manner of painting more nearly resembled the Dutch style of the true Norwich School. "Windsor Castle," the picture here exhibited, is in his later manner. It hangs near the door by which the visitor enters the gallery.

The Rev. E. T. Daniell (b. 1804, d. 1842) was an accomplished Norfolk painter and etcher. He is represented by two oil paintings, "A View of St. Malo" and "The Lake of Geneva," and by some sketches on the north wall. The oil paintings are long in shape, and hang on the right and left of the centre picture. The "St. Malo," to the left, though more simple in subject than its companion picture, is, as is so often the case, better as a picture. It is admirable in its rendering of the power and warmth of the light which floods the air on a summer morning. The delicacy of the mingled warm and cool tints of sea and beach, and the greys of distant rock, hill, and buildings are excellent. The sketches are four in number. The centre one, "Havre," is a very delicate drawing of buildings. Two of the others, views of
"Teignmouth," on the left, and "The Entrance of the Dart," on the right, are sketched on grey paper. The fourth, called "A Waterfall in Switzerland," is slight, and rather suggestive of Black Gang Chine.

Near the door on the east wall is "The Nave of Norwich Cathedral," by David Hodgson (b. 1798, d. 1864). In this artist's subjects picturesque buildings generally played the principal part, and many of his views of Norwich, Lynn, and Chester, to be found in private collections in the city, are interesting and well-composed pictures and pleasing in colour. The interior of the Cathedral is a more ambitious work than was usual with the painter, who however has risen with his subject, which is well treated and effective in its rendering of space, and in the play of light and shade in the architecture of the building. Above the Cathedral is a smaller work, "Sandlin's Ferry," also by David Hodgson. This little picture gives a fair idea of his treatment of outdoor effects. Although a view of the old tower or gateway of the ferry, the river is not included in the scene.

"Mary Kept all These Things and Pondered Them in Her Heart," by Alice Havers (east wall). This striking picture, though not a work of the Norwich School, is by a Norfolk lady; Miss Havers having been a member of the Havers' family, formerly of Thelveton Hall, near Diss. The picture is one of the largest here exhibited, and has been but recently presented. It has enriched the gallery with a kind of subject entirely new to it. It is well painted, and simple and natural in treatment—so natural, indeed, that but for the thin ring of light which surrounds the head of the female figure, the spectator would perhaps hardly feel that the subject is sacred. The Virgin Mother is represented as seated, with the Divine Child sleeping by her
side, His head resting on her lap. The great charm of the picture is to be found in the pleasing and expressive face of the mother, in whose countenance is well represented that “pondering” of deep things “in the heart” which is the subject of the picture.

The name of Ladbrooke is a well-known one in Norwich. A portrait in water colour of Robert Ladbrooke (b. 1770, d. 1842), by Wageman, will be found near the west door of the gallery. There is nothing by Robert Ladbrooke himself exhibited, but the “Head of a Bloodhound,” after Landseer, by his son, Henry Ladbrooke, of Lynn (b. 1800, d. 1869), hangs at the other end of the west wall; and “Pollard Oaks,” a characteristic work by J. B. Ladbrooke (b. 1803, d. 1879), another son, whose life was chiefly spent in Norwich, is on the opposite wall near the south end of the room. These painters, it may be mentioned, were related to Crome.

In the centre of the group of water colours on the north wall is “Whitlingham Reach,” a beautiful example of the work of John Thirtle (b. 1777, d. 1839). Like the paintings of John Sell Cotman, it derives its charm chiefly from the beauty of its composition. A long line of wooded hill, with its reflection in the river, bounds the view; and the eye is more truly satisfied with the grace of its simply-expressed and well-balanced form than it would have been with the most elaborate detail; nor does it feel the need of detail. Another fine water colour by Thirtle, “Dilham Staithe,” hangs a little to the left of the central picture. In this view a rainbow is introduced. “Norwich from Mousehold” and “A View on the River Wensum,” as it flows by King Street, are also by Thirtle; one hanging above and one to the right of the centre. It is probable that the colouring of Thirtle's
drawings has altered somewhat in the course of time, leaving a reddish hue, for which therefore allowance must be made; but whether this be so or not the pictures shew great power.

"Gateway and Cattle," by Henry Ninham (b. 1793, d. 1874), hangs by the doorway on the east wall. It is a delicately-painted little picture. Ninham was an heraldic painter, but is well known as an illustrator of works on local antiquities.

"Effect after Rain," by Henry Bright (b. 1810, d. 1873), a small picture on the line, at the south end of the east wall. Although a native of Saxmundham in Suffolk, Henry Bright is looked upon as a Norwich artist, he having lived at Norwich in early life and been associated with the Norwich painters. He was originally intended for a chemist and druggist, but was not satisfied until allowed to devote himself entirely to art. He is represented in the gallery by the oil painting just mentioned, by two water colours, and by several chalk and charcoal sketches on the south wall. His style is unlike that of the old Norwich School, but his pictures are always effective, and very brilliant in execution. The little oil painting gives a good idea of his colouring, treatment, and manner. The chalk drawings are also very characteristic of his rendering of rocks, trees, and buildings, of his feeling for beauty, and of his mastery of the materials with which he produced his powerful effects. There is a great charm in all his sketches, which will be felt even by the uninstructed in art.

"Sunshine and Shade, Ivy Bridge, South Devon," by John Middleton (b. 1827, d. 1856). Middleton was first a pupil of J. B. Ladbrooke and afterwards of Bright. He copied Bright's manner and had great power of execution. Had he lived longer he would, probably, have developed a
more independent style; but his treatment of his favourite subjects—rocky streams and avenues of trees—is excellent, particularly in water colour. He is fairly represented in the gallery. The visitor will find it interesting to compare the oil painting on the east wall with the same subject in water colour on the north wall. This oil painting, which hangs between the door and the central picture, is one of the last works of the artist.

"Iffley Mill, Oxford," by Alfred Priest (b. 1810, d. 1850). Near the south end of the east wall is this effective picture, the work of Alfred Priest, who began life as a sailor and ended it as an artist. There is one other work by him on the same wall called "Owlegarchy"—a group of owls—which will attract from its subject. Both pictures are rich and transparent in colour, and painted with considerable power.

"Mill at Reedham," by T. Lound, a well-known Norwich amateur (b. 1802, d. 1861). A very pleasing little picture on the right of the door on the east wall. There is a water colour, "Ely Cathedral," by the same artist. In choice of subject and manner of treatment he was more nearly allied to David Cox than to the Norwich School.

On the west wall will be noticed a portrait of R. R. Boardman, by Anthony Sandys (b. 1806, d. 1883). Miss Emma Sandys, his daughter, is also represented by her "Study of a Head," one of her last works, and unfinished. The picture hangs on the east wall above the little river scene by Crome. It is a female head, and is carried sufficiently far to show the artistic feeling and power of the painter.

Among the water colours will be found "St. Leonard's Priory," by Robert Dixon (b. 1780, d. 1815); a native of
Norwich, who was well-known as a scene painter. The subject of the drawing here exhibited is a ruin, and the treatment and style of colouring are of the early days of water-colour painting.

So much space has been given to the pictures more strictly belonging to the Norwich School, that the works of other artists must be lightly touched on. C. J. Watson and J. W. Walker, though no longer living in the city, may be claimed as Norwich men. Mr. Watson is represented by "Dirty Weather near the Mouth of the Yare," painted in 1873, which hangs above Thorpe Water Frolic; by two smaller oil paintings, "Old Cottages, Trowse Hythe" (painted in 1870), and the "Shades of Evening, Barton Broad"; by a water colour, "Whitefriar's Bridge, Norwich," a very sunny picture, giving quite a Venetian character to the scene; and by several of his effective etchings of "London Thoroughfares." Mr. Walker by his water colours, "A Cumberland Stream" and "The Rush Cutter's Harvest," a characteristic Norfolk subject. Mrs. Walker by her capital water-colour drawing of "Dead Linnets."

With the bare mention of the highly-finished "Autumn Fruit," by the late Mr. R. P. Burcham; of Mr. H. G. Barwell's "Exterior of the Strangers' Hall, Norwich"; of a study of "Hippopotami," in the Zoological Gardens, by Samuel J. Carter, of Swaffham (who died in 1892); of one of the late Charles Keene's original drawings for Punch; of the etching, "Rain and Wind," by Sir J. C. Robinson; and of the etching of "Pardenick, Land's End, Cornwall," by Edwin Edwards, a Suffolk artist (b. 1823, d. 1879), we must turn to the west side of the gallery, where is arranged a small collection of works not limited to any particular time or school of painters.
In the centre of the west wall is a group of pictures of marine subjects by Joy, Francia, Sartorius, and Pocock, surmounted by a fine portrait of the donor, Capt. George William Manby, by J. P. Davis. The pictures were painted to illustrate the use of Capt. Manby's life-saving rocket apparatus. They are of various degrees of merit, those by Joy being the most important. W. Joy (b. 1803, d. circa 1857), was a native of Gt. Yarmouth. His love for art had been encouraged and himself aided in following it by Capt. Manby. The central picture of the group, "Lifeboat Going to Vessel in Distress," by Joy, is perhaps the most effective. It represents a large ship, or barque, at some distance off, while in the foreground are breakers on a sandy coast. A row of men on the beach are hauling at a rope. The other pictures by Joy are, "Saving a Crew near Yarmouth Pier," to the right of the centre, and "Saving Vessel in Distress, Yarmouth," to the left. There is one other oil painting still more to the left, also by Joy, "Vessel in Distress." On the north wall is a water colour by him, "Saving the Crew of the Killarney Steamer." This drawing has been lithographed. On the south wall are four small drawings in Indian ink, illustrating "The Greenland Whale Fishery."

Of the pictures by Francia, that on the right of the centre represents the "Saving of the Crew of a Vessel at Winterton," and the other picture, "Saving the Crew of a Vessel at Yarmouth."

Of the pictures by Sartorius, that to the right represents the "Saving the Crew of a Vessel at Anhalt," and that to the left, "A Stranded Vessel" (the Snipe Gun Brig). Of the pictures by Pocock, that on the right is a "Vessel in Distress, Yarmouth," and that on the left, "Saving a Crew at Corton."
It may be of interest to add that Capt. George William Manby, son of Matthew Pepper Manby, Captain in the Welsh Fusiliers, was a native of Norfolk, having been born at Denver near Downham Market, in 1765; he died at Southtown, Gt. Yarmouth, 1854. His attention was first turned to the subject of saving life from wrecks by witnessing the loss of the *Snipe* Gun Brig at Yarmouth, during the storm of February, 1807. A painting of this disastrous wreck has just been pointed out.

Near the north end of the west wall is a portrait of Capt. G. W. Manby’s father, CAPT. M. P. MANBY (artist unknown).

The west wall is rich in portraits. On the left of the central group of pictures is that of the late MR. JOHN HENRY GURNEY, by SIR FRANCIS GRANT, P.R.A. An inscription beneath the portrait records the services rendered by Mr. Gurney to the Norfolk and Norwich Museum, and to commemorate which the picture was presented to that Institution. On the right of the centre is a portrait of the late Mr. John Gunn, painted by Capt. (now Lieut.-Col.) H. H. Roberts, formerly of Norwich; also presented to the Museum in recognition of the services of Mr. Gunn. Here also is the The Rev. W. Kirby, a former President of the Museum, and a distinguished entomologist. This work, which was painted for the Claydon Book Club, it must be confessed, is of less interest for its treatment than for its subject.

Towards the north end of the west wall will be found a well-painted head of LORD NELSON (artist unknown). It does not give the idea of Nelson with which we are familiar, but it was painted in 1781, when he was Captain of the *Albemarle*, and was but twenty-three years of age. It is hardly likely that there are other portraits of him at that age with which to compare it.
To the left of the central group is a good portrait of Alderman John Browne, of Norwich (ob. 1834), by Joseph Clover, also of this city. Further to the left is the late Mr. John Gurney, to whom we are chiefly indebted for the transfer of the Museum from the building in St. Andrew's Street to the Castle. This picture is a copy by Cecil Schott, of the original by G. F. Watts, R.A.

Near the door on the west wall is Robert Forby, who was born at Stoke Ferry in Norfolk, in 1759, and died in 1825. He was the author of a well-known Vocabulary of East Anglia. The name of the painter is not given. Near it is an interesting Head, date 1577, also by a painter whose name has not come down to us. At the top of the picture, on the left, is the name—"Mr. Bitt," and a coat of arms. On the right-hand side is the inscription, "Ætatis suæ, 32."

Another and a smaller head hangs close by, Edmund Gillingwater, of Lowestoft, author of a History of that town. He died in 1813, aged 77.

Two larger portraits, one of Bishop Sparrow, the other of his wife, although rather hard in style, are interesting. The name of the painter is not known. Anthony Sparrow was a native of Depden in Suffolk. He was translated from the see of Exeter to that of Norwich in 1676, and was Bishop of Norwich from that time until his death in 1685.

Three pictures of the Dutch School will be found on this wall—"The Vigilant Mistress," by N. Maes; a bright and pleasing "View on the Scheldt," by Koekkoek; and "The Coming Squall," by Backhuyzen. Here also will be found a "Study of a Head," by John Barwell (b. 1798, d. 1876), a well-known Norwich amateur, who, in conjunction with Crome and Cotman, established a Drawing Academy in the city.
A view of "Norwich Cathedral," by B. Sewell, though painted in oil colour is, strictly, not a picture, but an architectural elevation.

A small bronze statuette of "Narcissus," a copy of a celebrated antique, occupies a pedestal at the north-west corner of the room.

The Picture Gallery has just been enriched with a portrait of Sir Peter Eade, M.D., by Mr. Stanhope Forbes, A.R.A., presented to commemorate Sir Peter's services in connection with the Castle Museum during his second Mayoralty, in 1894, when he received and entertained their Royal Highnesses the Duke and Duchess of York, on their coming to open the Castle Museum. Sir Peter Eade, in his first Mayoralty, in 1884, conducted the negotiations for the purchase of the Castle from the Government by the City of Norwich. By his energy and munificence he contributed greatly to the successful carrying out of the Castle Museum Scheme in 1894, so that the opening of the Castle Museum took place in that year.

Since the above account of the Picture Gallery was in type, a large and valuable addition has been made to the collection of works of art in the Museum through the generous donation by Mr. J. W. Walker, of Southport, and formerly of Norwich, of upwards of three hundred paintings in oil and water-colour, by himself, Mrs. Walker, and other well-known artists; including—in addition to those to be mentioned presently—James Macbeth, Clara Montalba, Jennie Moore, William Eden, John Finnie, Hampson Jones, W. W. May, John Parker, and others; together with a large
number of specimens of English and foreign china, Fulham stone-ware, Japanese, French, and other bronzes, etc.

Most of the pictures exhibited are arranged in the Picture Gallery on two screens—one at each end of the room—and on two winged standards—one on either side of it; but provision is made for a change of subject, among these last, so that the whole collection is not shown at any one time. Four fine bronze figure groups occupy pedestals at the corners and in the centre of the gallery; that in the centre is the well-known "Laocoon," that in the north-east corner, the equally well-known "Farnese Hercules," that in the south-east, "Boreas and Oreithyia," and that in the south-west, "Pluto and Persephone." The pictures, however, have not yet been numbered, labelled, or even completely placed, so that it is impossible to include them in detail in this edition of the guide-book, and all that can be done is to furnish the visitor with some general information as to their position.

The Water-colour landscapes, then, on the screen at the north end of the gallery are by Mr. Walker, and the still-life on the same screen by Mrs. (Pauline) Walker. The groups of water-colours on the screen at the south end of the room are by various artists. The three fine drawings facing north, viz.:—"Dove Dale" (in the centre), "A Farmyard," and "Wild Hyacinths," are by Mr. Wilmot Pilsbury, A.R.W.S.; and the three principal figure subjects on the same screen, facing south, are as follows:—"Pleasant Hours" (in the centre), by R. W. Macbeth, A.R.A., "The Grindstone," by J. D. Watson, R.W.S., and "A Musketeer," by W. H. Sullivan.

The movable drawings on the standards on either side of the Central Bronze are chiefly by Mr. J. W. Walker (the donor), though these groups are not confined to his works.
Among the oil paintings, "Glen Sannox,"—the large mountain scene with torrent, is by J. W. Oakes, A.R.A., and the upright mountain scene with rough bridge and sheep—"Below Dungeon Ghyll,"—is by Thos. Huson, R.I., R.P.E., and is the original picture from which the engraving of this subject in "Round about Helvellyn" was produced.

The collection includes almost every kind of landscape scenery, as well as many studies which will be valued by the student.

With this brief notice we reluctantly leave a most important addition to the Museum, merely adding that the pictures will all soon be labelled, so that the visitor will have no difficulty in ascertaining either subject or painter.

[It must be remembered, that an alteration in the position of some of the pictures whose place in the Gallery has been indicated in the Guide, will, necessarily, be made when the oil paintings of the new donation are hung.]

The General Collection of Shells.

Before proceeding further it may be well to inspect the collection of shells, British and Foreign, which the exigencies of space render it imperative should be somewhat dispersed. The Lombe-Taylor collection is to be found in the Foreign Bird Room; this must be taken to supplement the more important collection in the Reptile Room, in connection with which it will be described, and with which it will probably eventually be incorporated; whereas the collection of British Land, Freshwater, and Marine Shells will be found in the Corridors as shown on the plan.

The great beauty, both of form and colour of many of
the exotic shells, renders them so attractive that the fact is too often overlooked that they are merely the habitations in which dwelt the organisms they were designed to protect, and in contemplation of the casket the jewel is in danger of being forgotten. Thus it became fashionable to collect shells as mere objects of beauty, quite irrespective of their former inhabitants, the very name which was assigned to their study, "Conchology" (a discourse about shells), indicating its incompleteness; as well might one attempt to form a just idea of the life history and racial peculiarities of a people by the study of their deserted dwellings only. Dr. S. P. Woodward was very severe upon the Conchologists, designating them as followers of "a Craft rather than a Science," and their pursuit "a capital amusement for young people, and ladies, and for gentlemen who have some leisure and spare means, and whose tastes are not sanguinary; but those whose ambition it is to make advances in the knowledge of the Mollusca, cannot be content with the outward form, and to treat the shell-fish themselves as mere abominations, unfit for the contemplation of those who daintily arrange their 'Cones' and 'Cowries' in drawers of rosewood and cedar."* Of late years much more rational and scientific methods have prevailed, and the sub-kingdom Mollusca (soft-bodied)—in a large measure owing to the facilities afforded by the excellent Manual of our fellow-citizen, Dr. S. P. Woodward—is intelligently studied, the modern Malacologist (malakos, soft, and logos a discourse) giving due value to the Molluscan morphology whether the soft-bodied animals inhabit an external shell, or are supported by an internal one.

The recent classification of the Mollusca is based upon
the organ of locomotion known as the "foot," and is divided
by the Rev. A. H. Cooke* into four primary classes,
namely:—I. CEPHALOPODA, in which the organs
of progression are arranged round the head, as in the Cuttle-
fish. II. GASTROPODA, those which crawl on the
under surface of the "foot," and generally have a distinct
head, bearing one or more pairs of soft tactile processes or
tentacles ("the horns of the Dodman" as children say in
Norfolk), represented by the Snails, Slugs, and Chitons.
The Snails and Slugs, besides being furnished with a distinct
head, have an organ called an odontophore (tooth bearer),
a kind of ribbon-like tongue bearing a radula (scraper), set
with minute, often siliceous teeth, arranged in rows, like the
teeth of a file, which rasp the food on which the snail feeds.
They have also a labium and labrum—upper and lower lip
—which in the Cuttle-fishes and Squids take the form of
horny beaks like those of a parrot. III. SCHAPHA-
PODA, those possessing a long tubular shell open at both
ends, from one of which the foot extrudes, and is supposed
to dig into the mud, in which the animal dwells; to this
class the Tusk-shell (Dentalium) of our coast belongs. Class
IV. PELECYPHODA, familiarly spoken of as the
"Bivalve Molluscs," characterized by the absence of a
distinct head, and having the mantle of the animal divided
into two (right and left) lobes, each of which secretes a
shell, so that the body is more or less completely enclosed
in a bivalve shell. They have one or two pairs of leaf-like
gills (hence called Lamellibranchiata), most of them, save
the fixed ones like the oyster, have a hatched-shaped foot
(hence they have been called Pelecypoda), by the aid of

which the burrowing bivalves, such as the Cockle, are enabled quickly to bury themselves in the wet sand.

To these a fifth class, known as PTEROPODA, is often added, but the precise position of this group is not at present satisfactorily determined, and by some its members are regarded, probably correctly so, as modified forms of the Gasteropoda, and therefore not entitled to rank as a separate order. These singular creatures are inhabitants of the ocean, nocturnal in their habits, rising at pleasure to the surface, and propelled by wing-like appendages; they are present in almost every ocean, often in vast numbers, one genus (Limacina) so abounding in the Arctic seas as to form no small part of the food of the Right-Whale.

The arrangement followed in the Museum Collection is not of the most recent, being that of Woodward's *Manual of the Mollusca*; but as we shall have to deal mainly with the Gasteropoda and Pelecypoda, both well-defined orders, it will not occasion any inconvenience, especially as the examples we shall have to point out must be taken very much at random, nor is it necessary to enter more fully into details of classification which can be followed by reference to the labels in the cases. We shall treat the collection in the Reptile Room as the standard one, taking the examples in the order of their arrangement, and refer when necessary to specimens in the Taylor collection.

Case I.

**Class I., CEPHALOPTERA; Order I., DIBRANCHIATA.** This order contains the Octopus, Cuttle-fish, Squid, Spirula, and Paper Nautilus, and is so named from its members possessing two gills. The shuttle-shaped mass is the internal shell or "bone" of the Cuttle-fish (*Sepia*
The curious coiled, many chambered shells resembling "Post-horns" belong to a cuttle-fish of the genus Spirula; these were long a puzzle to "Conchologists," for although very abundant on the shores of New Zealand, and even occasionally borne by the Gulf Stream to Tenby, S. Wales, on our own coast, the animal of which they formed a part was unknown in its perfect state till 1878, when Professor Owen had the opportunity of dissecting a complete specimen and dispelled the mystery. The shell of the Spirula is situated at the base of the body, which is furnished with a sucker whereby it attaches itself to rocks at a considerable depth in the open sea, maintaining a vertical position with its tentacles free, and it is probably owing to this mode of life that the perfect animal is so seldom found. The delicately beautiful shell of the "Argonaut" or Paper Nautilus, is sure to attract well-merited attention; it is remarkable in all respects, from the romance which so long surrounded it, as well as for other circumstances connected with it. This is the only species of the order which has an external shell, and yet although formed by it, is not attached to the animal which inhabits it, and is, moreover, peculiar to the female sex. Until the year 1839, when Owen published the results of a series of observations upon the Argonaut made by a lady at Messina, the tenant of the shell was even believed to be a parasite; it is now known that the female inhabits the shell which she builds for herself, and uses chiefly as a receptacle for the safe keeping of her eggs, maintaining
her position by purely mechanical means, the shell being grasped by the dorsal arms which also secrete the shelly matter, a function usually pertaining to the mantle in the Mollusca. There are four species of Argonaut which inhabit the seas throughout the warmer parts of the globe.

Another very remarkable Mollusc, with which also the name of Professor Owen will always be associated, is the Pearly Nautilus (Nautilus pompilius), an inhabitant of the tropical seas of China, India, and the Persian Gulf. This species is the only existing member of the once numerous order TETRABRANCHIATA, or four-gilled Molluscs, of which more than 1,600 fossil species are known belonging to several families, with one of which, that of the Ammonites, we are very familiar. Of all these numerous forms that of Nautilus is the only one remaining; this fact alone should invest the creature with surpassing interest, for in it we behold an animal of very ancient descent, left as it were to form a key to the structure and habits of its brethren of the Carboniferous and Jurassic periods.

The only portion of the shell inhabited by the Nautilus is the last chamber, the remainder being divided into a number of cells, through the central portion of which passes a slender tube known as the siphuncle. This, as well as the pearly nature of the inner lining of the chambers, will be seen in the section exhibited. Externally the shell is striped with a rich brown colour, and when living is coated with a layer of epidermis. The expanded animal presents the external appearance of a mass of tentacles somewhat like those of a Sea Anemone. The late Professor Moseley (Notes by a Naturalist on H.M.S. Challenger, p. 296-300), gives an excellent description of a living Pearly Nautilus dredged by the Challenger off Matuka Island in 320 fathoms, from a coral bottom, and it is doubtless in such situations,
at considerable depth, that they procure their animal food, and he attributes to this fact the great abundance of the shells of the Pearly Nautilus met with in comparison with the rarity of the animals belonging to them.

I have dwelt longer on the members of the class Cephalopoda than it will be possible to do on those which follow, the excuse for which must be their surpassing interest.

Class II. consists of the GASTEROPODA, containing a very large number of orders and species, of which our common Garden Snail may be taken as a familiar example. The visitor will be sure to be attracted by the well-known form of Strombus gigas, the Indian fountain shell, immense quantities of which are annually imported from the Bahamas for the manufacture of cameos; it is said to be a favourite article of food with the natives of Barbadoes, and the shell is used for the manufacture of various articles, useful and ornamental, wherever found. Triton variegatum is also a fine shell. This is the Conch shell, used as a trumpet by the natives of the southern seas, and a specimen will be seen in the collection perforated in the side for that purpose. Some singular shells of the genus Murex are remarkable for their development of spines; they are all carnivorous, and furnished with a long proboscis, at the end of which is a spiny tongue, with which they bore through the shells of other species and devour their soft parts. From certain species of Murex found in the Mediterranean the ancients obtained their purple dye. The genus Terebra, known from the long pointed form of the shell as the "Augur Shell," will attract attention by their singular long drawn-out whorls, as also Purpura, a mollusc of wide distribution, one species of which is common on the British coast at low water, and is very destructive to mussel-beds; it produces a dull crimson dye, which may be obtained
by pressing on the operculum. The "Helmet Shells" (Cassis) are well-known ornamental shells, and are much used in the manufacture of cameos. *C. tessellata* is a very pretty example. There are also some beautiful examples of the "Harp Shells" (*Harpa*); and of the Olives, known as "Rice Shell," a good series of which, as well as of the Cones, will be found in the Taylor collection; of these latter there are many from which the epidermis has not been removed, as well as others polished and showing the most lovely and intricate markings. The *Volutes* are also finely-marked shells, one known as *V. musica*, is so called from its having lines similar to the musical staff upon its shell.

The Cowries (*Cypræa*) are well-known ornaments, conspicuous for the beauty of their markings and for their high polish, the shell being always covered by the two lobes of the mantle; they inhabit nearly all the warm seas of the world, but are most abundant in the Pacific. *C. moneta*, the Money Cowry, is used as a medium of exchange; in British India about 4,000 are said to pass for a shilling, and Mr. Cooke* quotes a case in which a gentleman residing at Calcutta paid for the erection of his bungalow in these shells, of which it required over sixteen millions to discharge the debt of about £400. Formerly large numbers of Cowries were imported into Liverpool for exportation to West Africa, in payment for native product, a trade, however, which appears to be much on the decrease. Large sums have been given for rare shells or those of exceptional beauty; an Orange Cowry, *Conus gloria-maris*, in the British Museum, is said to have cost a former proprietor £30, and passed to the museum for £50; for the rare *Pluotomaria*

adamsoniana I believe the same institution gave £75; and for a rare Wentletrap, Scalaria pretiosa, no less than £40.

The “Weaver’s Shuttle” is the trivial name of Ovulum volva (and some of the vernacular names of shells appear to be very trivial); it has the aperture of the shell drawn out into a long canal at each end. It is a West Indian species and feeds on the coral animal. The “Wentletrap,” or as it is sometimes called, the Ladder Shell, belongs to the large genus Scalaria, most of which are tropical species; S. pretiosa is a typical and beautiful example, pure white and lustrous; the animal is said to exude a purple fluid. A singular form, known as Siliquaria, in which the tube is at first spiral and afterwards irregular, has the additional interest of having been brought from Australia by Capt. Owen Stanley, to whom the various collections in the museum are so much indebted. Solarium perspectivum is known as the “Staircase Shell” from the fancied resemblance of its whorls seen in the umbilicus, to a spiral staircase; it is a handsome shell, the species are mostly natives of the tropical seas.

The next two families, Turbinidæ and Trochidæ, are very extensive ones; the shells of both are beautifully pearly within, and highly ornamented exteriorly. There are many species in the collection, some quite in the rough as when captured, others cleaned, and others still, from which the outer coating of shell has been removed, showing the pearly structure below. The operculum of an Indio-Pacific species of Top Shell (Turbo petholatus) is frequently mounted as a brooch or scarf-pin.

The Ormers or Ear Shells (Haliotis), so called from their ear-shaped shells, are found attached to rocks like limpets in most of the tropical and temperate regions of the world except South America. One species is found in the
Channel Islands. They are beautifully iridescent and much valued for the manufacture of pearl ornaments and inlaid work. The shell is pierced with a series of holes. The front notch or perforation is occupied by the anal siphon, the others are successively closed, or through them the animal protrudes a point or fringe of its mantle. *Haliotis iris*, a New Zealand species, is among the most beautiful. Some lovely examples are in the Taylor collection. The Violet Snails (*Janthina*) are extremely pretty, deep violet at the base shading off to white in the spiral. They frequent the open Atlantic, sometimes drifting to our shores, and are remarkable for constructing a float or raft attached to the foot, on the under surface of which the eggs of the female are secured; they thus float in a helpless condition on the surface of the sea, and in rough weather are quite at the mercy of the waves.

We now come to the Limpets, some of which (*Fissurellidae*), perforated at the apex, are known as the “Keyhole” Limpets. They spend their time attached to rocks in the Tidal Zone. Various descriptions, named from the form of the shell, are known as “Duck Bill,” “Bonnet,” “Cup-and-Saucer,” and “Sandal” Limpets. One species, *Patella vulgata*, is common on our coast.

Case II.

The *Chitons* are singular armoured Sea-Slugs. The plates, eight in number, being fixed transversely on the back of the animal like the bands of the Armadillo; they move on a broad foot or base, and have the power to roll themselves up like a Hedgehog. There are about 200 species found in all climates throughout the world, frequenting rocks at low water; those inhabiting our seas are small, but some of the
tropical species are several inches in length, as will be seen in the specimens exhibited, more especially in the series contained in the Taylor collection.

We now come to the Land and Freshwater Air-breathing Mollusca (Pulmonata), the first family of which, Helicidæ, contains many individuals with which we are familiar, such as the common Garden Snail. It sometimes, though rarely happens, that the whorls of these shells are reversed, such specimens will be noticed in the collections. As many of these shells will be referred to when we come to the British section, it will only be necessary here to mention some few of the more remarkable examples.

The extensive genus, Bulimus, contains some very fine sub-tropical snails; the shell of B. ovatus, a South American species, being as much as six inches long; but even this is exceeded by the great African Achatinæ, or Agate shells, one of which, A. bicarinata, is the largest of all known land shells, and attains a length of eight inches; examples of this fine species, with the thick calcareous shelled egg, will be seen. A. zebra is also a fine species, very beautifully marked. A fine series of Helices, many of them from the Philippine Islands, will be found in the Taylor collection.

The Slugs, although not attractive in appearance, are very interesting animals. They possess only a slight internal shell, which assumes the form of a thin plate protecting the breathing organs; these rudimentary shields in the genus Arion, to which our great Black Slug belongs, have reached the minimum, being reduced to few calcareous grains. There is a remarkable gradation between the shell of Helix pomatia, which is a perfect helix, and the Black Slug just mentioned; the intermediate stages being Helicophanta brevipes, in which the whorled shell of the embryo is persistent in the adult, whereas in Testacella haliotidea the shell is still further
reduced to a mere shield, and in Arion are found the last remnants.

There are other very remarkable species, which it would be desirable to mention did space permit, such as the *Cyclostomidae*, which have a spiral shelly operculum; the Bubble Shells (*Buîla*); and the curious Limpet-like Chinese-umbrella shells (*Umbrella*). The numerous section, *Nudibranchiata*, or Sea-Slugs, objects of great beauty, are without shells, and therefore not represented in the collection. They are found under stones and sea-weeds in tide pools on every shore. We must pass on to the genus, *Hyalea*, one of the *Pteropoda*, the doubtful position of which has already been mentioned. *Hyalea tricuspidata*, the only species in the collection, is a curious globular shell with a terminal spur, on either side of which is a smaller spur, each of the latter being supplemented by a long tooth-like projection; the animal protrudes two large wing-like fins from its apex, which correspond with the foot of the Gasteropod. These creatures occasionally swarm in the open seas, propelling themselves with their wing-like appendages. Nor can we do more than simply refer to the *Brachiopoda* (now separated from the Mollusca by modern Biologists), a very ancient family, fossil-forms of which are distributed through all the rocks of marine origin, but are most abundant in the Devonian age. Some 1,000 fossil species are recognised, but the recent representatives, so far as they are known, do not exceed seventy. From their peculiar form they are known as "Lamp Shells." They are really bivalves, but the valves are so articulated that they cannot be separated without injury; the animal attaches itself to some submarine object through an aperture, which in the lamp would serve for the wick to pass. There are several examples of these shells belonging to the family
Terebratulidae. There is one more species to which we must call attention before quitting this branch of the subject, namely, the remarkable tongue-shaped shell of Lingula anatina. The shell itself is horny and flexible, of a greenish colour, broad and flattened, and is found, sometimes abundantly, on the shores of tropical seas. The animal constructs for itself a tube in the sand, in which it lives moored by a long retractible stalk, by which it raises itself to the surface to feed or withdraws to the bottom of its tube at pleasure.

The third class, or main division of the Mollusca, is that of Scaphopoda, consisting of only one family, Dentalidae, with a simple genus, Dentalium, or "Tooth Shell," so called from the resemblance of the shell to the tusk of an elephant. There are some thirty species known, which are inhabitants of the temperate and warmer seas, being almost cosmopolitan in their distribution; the inhabitant is attached near the smaller end of the tubular shell, which is open at both ends, and burrows into the sand with its pointed foot seeking its food, which consists of minute forms of animal life. The shells of these creatures are prized as ornaments, and like the Cowry are used as a medium of exchange by the Indians of the Northern Pacific, to whom it is known as the Toqua.

The fourth class, or main division of the Mollusca, is known as Pelecypoda, from the form of the "foot," which is more or less that of a hatchet. Its members are possessed of no true head or eyes; do not wander in search of their food, although some kinds possess limited powers of locomotion by means of the foot, or are able to swim, propelled through the water by the opening and closing of their valves. The body is enclosed in two valves or shells hinged at the posterior margin; they are all aquatic, most of them marine, and many species burrow into the sand or
mud; others attach themselves to rocks, and some even perforate stones, wood, or other substances, in which they take up their abode.

One of the best known bivalves is the Oyster, which needs no description. A remarkable form is *Malleus vulgaris*, the “Hammer Shell,” so called from the peculiar shape the shell assumes with age. The Pearl Oyster is another interesting member of this family, some fine specimens of which will be noticed; it is known as *Meleagrina margaritifera*. The most important fisheries are in N. West Australia and Ceylon. A curious oyster, of the genus *Placuna*, is known as the “Window Shell,” from the pearly translucence of its substance. The “Fan Mussel,” or “Pinna,” is another remarkable form; it is somewhat wedge-shaped, and attains a length of two feet. The Pinna is found embedded in the sand the pointed end downwards, where it moors itself by a long silky byssus. The “silk” of the byssus of the great Pinna is mixed with that of the silkworm and woven into gloves, etc., by the Italians.

The Pectens, of which family our well-known Scallop is a member, are a numerous and widely-distributed race, all of them very handsome shells, some of great beauty and delicacy. A fine series will be found in the Taylor collection.

The family *Mytilidæ*, or Mussels, is an important one, and is known to us chiefly by the genus *Mytilus*, enormous quantities of which are used for food or bait. The Horse-Mussels (*Modiola*) are very large; one fine species will be noticed, which is a native of California. Unlike the true Mussels, the Horse-Mussels have a habit of burrowing; *Lithodorus lithophagus* makes its abode in the solid stone, and it is by a species of *Lithodorus* that the pillars of the Temple of Serapis are bored. The family *Arcadæ* contains
some fine very solid-looking shells. *Trigonia lamarcki*, an Australian species, will attract attention in consequence of the beautiful pearly lining to its shells. The valves of the family *Unionidae* are also remarkable for their lustrous interiors; the Chinese avail themselves of the power possessed by these animals of thickening the interior of the shell by the deposit of coatings of nacre, and introduce foreign substances into the shells of the genus *Hyria*, which soon become covered with the pearly material; some little images of Buddha will be noticed in one of the shells thus coated. A beautiful series of Unios and Anodons will be found in the Taylor collection.

*Tridacna gigas*, the Giant Clam, found in the Indian Ocean, is a well-known ornamental shell, and exceeds all others in magnitude; the single valve under the case, although not quite perfect, measures thirty-six inches in length, and weighs 76 lbs. Darwin, when observing this giant Mollusc on Keeling Atoll, remarks that should a man put his hand between the valves of one of these monsters he would not be able to withdraw it so long as the animal lived; it would certainly be difficult to extricate him from such an unfortunate position with a weight of some 500 lbs. which it is said sometimes to attain, attached to his limb. Our common Cockle is an illustration of the next family, *Cardiidae*. There are several varieties of *C. edule*, which will be seen in the British collection. Some of the tropical species have very ornamental and beautifully-coloured shells. Passing by many handsome shells, Cyprina, Venus, and Cytherea—one species of the latter, *C. maculata*, marked in squares like a chess-board—we must notice in passing the curious boring Mollusc, *Petricola lithophaga*, some specimens of which will be observed *in situ* in the hardened clay wherein they had taken up their abode. A little further on are the
Tellinidae, a numerous family of very delicate and beautiful shells, some examples of which may be found in the littoral zone of almost every sea in the world. The Taylor collection has a beautiful series. The next remarkable form is the Solen, or Razor Shell, a common object on our sandy shores. They inhabit the low water-line of temperate and tropical seas, burrowing into the sand in a vertical position, and are said to be excellent eating; about twenty-five species are known. The Myas, consisting of several genera, have similar habits to those of the Solens, but do not possess such remarkable shells, and much the same may be said of the Lantern-Shells of the family Anatinidae.

A very remarkable shell is that known as the Watering-pot Shell, Aspergillum vaginiferum, a long white calcareous tube, closed at the lower end and very unlike a bivalve in appearance; but a closer examination will show the minute valves embedded in the lower portion of the shelly tube, which has grown as the animal increased in age, leaving the embryo valves cemented in its walls. One more family remains, that of Pholadidae, containing a number of boring animals, which make their home in various substances, wood, clay, chalk, or even sandstone. Some species are found in abundance in the clay and chalk on our own coast, but we can show nothing like the giant Californian Pholas bisulcata, which will be seen with other smaller species in the collection. The Ship Worm, Teredo navalis, belongs to this destructive family, and there are some fourteen species in all.
British Land, Freshwater, and Marine Shells, &c.

Passing from the inspection of a general representative collection of any section of the animal or vegetable kingdom to that inhabiting a restricted area, such as the British Isles, one cannot fail to be struck at first with the poverty of the display, both as to the number and variety of forms, and the absence of many beautiful types derived from more favoured latitudes. But there are advantages in proceeding thus from the greater to the lesser, for whereas the families and genera in the more comprehensive collection must of necessity be poorly represented, here we may see some, at least, of them illustrated much more in detail, and having so recently studied the scheme of the arrangement of the whole group, we shall be better able to understand the position relatively to the whole of the necessarily scattered and imperfect sections represented in the more limited region. We have learned the place in the whole scheme of each of its component parts, and are the better able to study them more in detail when they are presented to us separately. The time is past when naturalists were content to restrict themselves to the study of the organisms immediately surrounding them, and juster and more comprehensive views have resulted as to the laws which govern the geographical distribution, both of animals and plants, and of the nature of those affinities on which it is to be hoped that accumulated experience may lead to more reasonable systems of classification.

But there are many of us who, from various causes, have to place a limit to our researches, and to such the study of the Molluscan Fauna of his own county or district seems
to offer peculiar attractions; there is not a wood, heath, or garden, which does not invite his attention; the sand of the sea shore, the rocks, tide pools, and deep waters, the brooks and ponds, all abound with treasures. There is much to be learned with regard to the habits, mode of growth, nourishment, and reproduction of even our commonest species, and the pleasure to be derived from such studies, is known only to those who have pursued them. Let those who have never developed the faculty of admiration for even the humblest of Nature's works take to heart Wordsworth's admonition:

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Know
that he who feels contempt
For any living thing, hath faculties
Which he hath never used, and thought with him
Is in its infancy.
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The collection of British Shells has been arranged in accordance with the *British Conchology* of Gwyn Jeffreys, which will be found to differ considerably from that we have been following; it may be that some day we shall arrive at something like a uniform system, but until that time the student must do his best under the circumstances and console himself with the thought that it is not only in this particular branch of Natural Science that the inconvenience exists. This want of an uniform system of classification, and the multiplication of synonyms are the two greatest stumbling-blocks in the way of the beginner.

Mr. Gwyn Jeffreys commences Class I. with the Bivalves of the family *Sphæridæ*, the first of these is the typical genus *Sphærium*, Scopoli (*Cyclas*), the members of which are found in ponds and streams, burrowing in the mud or floating among the aquatic vegetation. *S. corneum* is a
common species, and forms a very interesting addition to an aquarium, where it readily breeds. The members of the genus *Pisidium* (pea-shaped) are much smaller than the preceding, but are found in the same localities and their habits are similar. *P. amnicum* may be taken as a type. The *Unionidae*, or freshwater mussels, also inhabit lakes and running water. They are a well-known family, some of them, as *U. pictorum*—the shells of which were formerly used to hold artists' colours—are beautifully tinted in the interior; *U. margaritifera*, the pearl mussel, often five inches long, secretes a thick coating of "Mother of Pearl" on the inside of its valves, as well as sometimes contains detached pearls of some value, and is perhaps the most interesting. The Swan Mussel, *Anodonta cygnea*, is the largest of the freshwater mussels; it reaches a length of six or eight inches in suitable localities, thriving best where the water is nearly stagnant and food therefore abundant. The next and last family of the freshwater Bivalves is that of *Dreissenidae*, containing the single genus *Dreissena*, and one species, *D. polymorpha*, known as the Freshwater or Zebra Mussel. The claim of this species to be indigenous to Great Britain is by some considered doubtful, its first-known habitat being the rivers of Russia and the Caspian Sea. This belief is strengthened by its having been first noticed in this country in 1824, in the Commercial Docks on the Thames, where it proved to be abundant; but it was found nine years after in widely distant localities. Some of the specimens in the collection are from the Thames, others possess additional interest from having been found in Whittlesea Mere, a freshwater lake long since drained. In common with the Sea Mussels it has the habit of mooring itself by a "byssus," an example of which will be seen—it is also equally gregarious.
Class II., GASTEROPODA, is devoted to the "Univalves," the first family contains the single genus *Neritina*, and only one British species, *N. fluviatilis*, a small globular, banded shell, with a shelly operculum, found in all parts of the kingdom, from the Orkneys to Cornwall; then follow two fine species of *Paludina* and two minute *Bythiniae*, and two others belonging to the genus *Hydrobia*, equally small but very abundant. The genus *Planorbis* is a peculiar one, the shells of its members are coiled so as to form a flat or even concave surface like an Ammonite, and their inhabitants seem too small for their habitation. When irritated they emit a purple coloured fluid, and if left dry, as not unfrequently happens (they often inhabit shallow water), they close the mouth of the shell with an epiphragm, and retiring into its recesses wait for better times. There are several species, and *P. corneus*, well known in this neighbourhood, may be regarded as typical of the genus. The pretty delicate shells of *Physa fontinalis* should be noticed. The species is common and very interesting. It may frequently be seen floating at the surface of the water, foot upwards, and is said to spin a filament to lower itself to the bottom should no leaf or stalk be near. *Limnea* is another pond genus, containing some beautifully-formed shells, notably *L. palustris* and *L. stagnalis*, the latter the largest of the family, whilst *L. auricularia* is remarkable for its rounded form and expanded ear-shaped aperture. They are all inhabitants of marshes and ponds. *Ancylus fluviatilis*, known as the freshwater Limpet, is a curious form widely distributed, dwelling in brooks and shallow waters, attaching itself to stones and shells. Though undoubtedly air-breathing, it is still believed to be capable of extracting the air in some degree from the water for the purpose of respiration, this, from the length of time it remains sub-
merged, must be necessary. There is a second species known as *A. lacustris*, which attaches itself to the under sides of the leaves of water plants.

Case II.

We now arrive at the Terrestrial Univalves. The first family is that of *Limacidæ*, or the Slugs, sufficiently well-known objects, and one of the best known, at least in the flesh, is the Great Black Slug (*Arion ater*), although, in consequence of the shell with which these creatures are generally provided, being in this species reduced to merely a number of loose calcareous grains, covered by the hinder part of the shield, it is not sufficiently substantial for its remains to find a place in this collection. It is, nevertheless, a very interesting animal, and possessed of peculiarities which do not exist in the other genera; one of these is the practical absence of the calcareous shell already mentioned, the respiratory orifice is placed in front instead of near the hinder part of the shield, and it possesses a slime-gland at the end of the tail. There is a second species, *A. hortensis*, much smaller, of an orange colour, and possessing a slightly more compact shell. Both species are common in woods and damp places, hiding under stones and logs, and coming abroad after rain or in the dewy evening, feeding on almost any decaying substance, animal or vegetable.

Of the genus *Limax*, containing the chief pests of our gardens and cultivated lands, may be mentioned *L. flavus*, a great yellow slug, whose slimy tracks may so frequently be seen in cellars and damp buildings, where it prowls at night in search of kitchen refuse; *L. maximus*, a giant, five or six inches long, intruding itself almost everywhere; and
L. agrestis, our common garden pest. All these possess a fairly-developed shell, to be found situated under the shield. One species, L. arborum, possesses the power of letting itself down to the ground by forming a thread from its own slime, up which it can again climb should it desire to do so. This power is possessed, in a less degree, by some of the other species of this genus.

Testacella haliotidea, is a remarkable species, the only member of the genus found in this country; and a doubtful native; preserved examples are in the collection, and a small external shell will be noticed near the tail which serves to protect its vital organs. This species appears to be a connecting link between the Slugs and the Snails, with both of which it has affinities. It is found in gardens, and its natural food is earth worms. The habits of this slug are so curious and interesting, that they will well repay a reference to such authorities as Gwyn Jeffreys and others, especially as the species may be found at Norwich, where it frequents gardens, and being a night-feeder, should be looked for in the early morning.

We have now arrived at the great family of Helicidæ, a very extensive one, containing the true Snails, and for convenience, broken up into eleven genera. The first genus is that of Succinea, of the three species of which examples will be seen; the largest is S. putris, the Amber Snail, the large body of this species and the oval shape of the shell, seemingly too small for its body, shows its affinity to the Slugs. Vitrina pellucida is a pretty little species, from its colour known as the Green Glassy Snail. The genus Zonites contains a number of small shells, some of them, when disturbed, give out an odour like garlic.

The genus Helix, which follows, is the typical one of the family, and contains many interesting species. The two
first, *H. lamellata* and *aculeata*, are very small, this is atoned for by the next species, the giant *H. pomatia*, the Apple Snail, which tradition says, but apparently with no confirmatory evidence, was introduced into this country by the Romans. Here the esculent properties of this fine species are neglected; but on some parts of the continent it is much prized as an article of diet. Of *H. aspersa*, the Common Snail, and *H. nemoralis*, the Garden Snail, many varieties are shown; both species are very numerous. Other interesting species are *H. cantiana*, *rufescens*, *carthusiana*, *hispida*, *pygmea*, and others. In several instances the specimens are accompanied by their “darts,” these differ in form with the species to which they belong; the use of these organs is not fully understood, but they doubtless perform some function with regard to reproduction. The dart is almost confined to the *Helicidae*, only about one-third of the British species, of this genus, when fully adult, are devoid of them at one particular season. Three species of *Bulimus* are small but pretty elongated shells, and *Pupa*, so named from the resemblance of the various species to a chrysalis, is a genus of small shells, the inhabitants of which are gregarious, living on walls, under stones, and at the roots of plants. The genus *Vertigo*, Whorl Snails, consists, according to Gwyn Jeffreys, of nine species of minute molluscs, much resembling in form and habits the preceding genus; and the same may be said of the tiny *Balia perversa*; also of the species of *Clausilia*, *Cochlicopa*, *Achatina*, *Carychium*, *Cyclostoma* (found on nettles growing on the chalk at Wittingham), and *Achme*, which complete the contents of the case.

**Case III.—Marine Shells.**

**Class BRACHIOPODA.** When describing the shells in
the Foreign Collection, we have already had occasion (p. 191) to speak of the members of this remarkable Order. According to Mr. Gwyn Jeffreys, it comprises two families, containing three genera and six species.

With reference to the first family, Teredrulidae, Mr. Jeffreys remarks, "This family is very numerous and diversified in its character, and is also widely dispersed both in space and time. Some of its members occur in every sea, from the Arctic to the Antarctic Pole; and its geological range appears to include all the known strata, from the Silurian to those which are now in course of formation." The Brachiopoda, as a rule, are found attached to objects on a rocky bottom at considerable depths; but Mr. Jeffreys considers that the nature of the sea-bottom, more than the depth of the water, determines the limit of their habitability. Some good specimens of Terebratula caput-serpentis are in the collection, from Loch Fyne. Of the second genus, argiope, we have no example. The second family, Craniadae, contains one genus only, and one species, Crania anomala, of which specimens will be seen.

We now arrive at the true marine Bivalves, Mr. Gwyn Jeffreys' Class CONCHIFERA, Order LAMELLIBRANCHIATA, the first family of which contains one genus and two British species, Anomia ephippium and A. patelliformis, both of these are in the collection, dredged in Loch Fyne. From their appearance, these shells are known as "silver shells"; the animal inhabits the littoral zone from low water to eighty or ninety fathoms, and is generally dispersed on our shores, anchoring itself to rocks and shells by a plug, passing through an orifice in the lower valve.

The next family, that of ostridae, is monopolised by the most delicious of Molluscs, our common (?) Oyster, Ostrea
edulis. This species is too well known to need description, and good specimens are in the collection, some of them showing the beautiful pearly deposit which covers the inside of the valves sometimes to a considerable thickness. Some specimens of detached pearls are also exhibited. Nearly related to the Oysters are the Pectens or Scallops, Mr. Jeffreys enumerates nine species, most of them, with many varieties, are in the collection. Some are very elegant and delicately coloured. *Pecten maximus*, the largest of the genus, is found on the Norfolk coast. When the Scallop is young it swims very freely and is extremely active. The second genus of this family, namely *Lima*, resembles the Pectens in some respects, but the shell is always white. Some of them dwell in an artificial burrow; others spin a byssus. Mr. Jeffreys enumerates five species. Examples will be found in the collection. The next genus, *Avicula*, contains only one species, known as *A. hirundo*, from the fancied resemblance of its curiously-shaped shell to a swallow on the wing. It attaches itself by a byssus to objects at the bottom of the sea, and in the British seas has only been found off Plymouth. The inner surface of the shells is lined with pearly substance, and is beautifully iridescent, like its near relatives the "Pearl" and "Hammer" Oysters. Of the giant Pinna and its beautiful silken byssus, we have spoken before (p. 193) and now pass to the *Mytilidæ*, the type of which is *Mytilus edulis*, our well-known Mussel, which abounds in some localities on the Norfolk coast, and constitutes a valuable fishery, both for human consumption and as bait. There are several species and varieties, one of these, *M. barbatus*, is noticeable for the shaggy beard with which its shell is adorned. Of the family *Arcadæ*, or Arks, we have several representatives in each genus. They are all distinguished by the peculiar arrange-
ment of the hinge of the valves, instead of having from one to four teeth, it is furnished with a symmetrical row, occupying the whole of the hinge in each valve. They shelter themselves in crevices of rocks, and are secured by a strong byssus. These are followed by a number of small bivalves, none of which call for special notice, until we arrive at the Fish Room, where, in

**NORWICH CASTLE MUSEUM.**

We begin with the important family **Cardiadae**, consisting of the shells known as Cockles, with some of which we are very familiar. They are a well-defined family, inhabiting soft and sandy ground, widely distributed in almost all the seas of the world, occurring from low-water mark to considerable depths. Only members of the typical genus *Cardium* are found in British waters; but there are several other genera, both tropical and arctic. Some of the species have very handsome strongly-marked shells; but perhaps the most interesting to us is *Cardium edule*, the highly-gregarious species, found so abundantly on our own coast, and which furnishes not only an agreeable esculent, but also helps materially in the livelihood of very many persons, not only on our own, but on all the sandy shores of the kingdom. The common Cockle is a very interesting inhabitant of the aquarium, and its habits worthy of study. The species is subject to considerable variation.

The family **Cyprinidae** contains four genera and six species. They are all inhabitants of sandy and muddy tracts of the sea bed, and with the exception of the first, *Isocardia*, the "Heart Cockle," so called from the globular and cordate form of its very handsome shell, all bear a strong family likeness. *Cyprina islandica* is a handsome species, oval in
outline; in *Astarte* the shell is more compressed, and *Circe* has a thick compressed orbicular shell, with diverging striae. The shells of the next family *Veneridae*, which is a numerous one, much resemble those of the preceding in form, and are noted for the beauty of their colours and markings. *V. lineta* and *chione* may be pointed out. Many species of the family *Tellinidae* follow, some of them extremely pretty and delicate shells. Of the family *Mactridae*, *Mactra solida* and *glauca* are fine species, as also *Lutraria elliptica*, and the various species of *Scrobicularia*.

The next family brings us to a very different form of shell, although the animals still have the same habit of burrowing in the sandy shore, but a few which prefer a muddy bottom, are found at greater depth. These are the *Solenidae*; the members of the typical genus, *Solen*, are known, from their form, as Razor Shells, there are several species of very unequal size; *S. siligua* is very common on some parts of the coast of Norfolk. There are a number of other Families and Genera (*Pandora*, *Lyonsia*, *Thracia*, *Neaea*, *Corbula*, etc.), all possessing the same description of shell and of like habits, to which space will not allow of further reference; and we must pass on to the family of *Myidae*, known as “Gapers,” from the valves not closing at the ends. Some of the species are used for food, especially *Mya arenaria*, which is common on the Norfolk coast; they all burrow in the sand within the littoral zone. Other genera are *Panopea* and *Saxicava*, in which latter genus we first find a tendency to excavate a home in solid rock. *Saxicava rugosa* inhabits the lowest verge of spring tides, and makes its home in limestone, chalk, or even sandstone. The next genus, *Venerupis*, has the same habit, and specimens of *V. irus* will be seen embedded in the rock. *Gastrochaena dubia*, of which specimens from Weymouth
will be seen, is said to penetrate not only limestone but even granite.

We now come to the family Pholadidæ, the members of which inhabit a thin, white brittle shell, rasp-like on the exterior, and open at both ends. They excavate holes in rock and sand, maintaining a vertical position; here they permanently remain, extruding their siphons to secure passing food. Several species will be noticed, some *in situ*. Pholadidea papyracea is a singular form, in which the front gape of the shells is "closed by a shelly dome, or convex plate, and the posterior end is furnished with a cup-shaped appendage, which has a texture between shell and membrane." It is found in the south of England and Ireland. *Teredo* is the dreaded "worm," so destructive to any wooden structure exposed to the action of the sea. The shell is globose, and the burrow, which may be a foot, or perhaps two feet long, is lined with shell. These animals, like the boring *Pholas*, however thickly they may inhabit the same piece of timber, never cross the burrows of their own kind, but by some means always avoid them. There are four British species, but *T. navalis* is that which causes the greatest destruction in this country. The curious little *Dentalium* has already been described, p. 192.

Case II.

We now return to the GASTEROPODA, the freshwater section of which we have already described; the first order which presents itself is that of CYCLOBRANCHIATA, in which the gills are arranged in two separate rows, and are covered by the mantle; this order contains the single family Chitonidæ, known as Chitons. They form a very singular group somewhat resembling the limpet in structure, but
elongated in form, and covered by a buckler composed of eight plates fixed transversely on the back of the animal. They frequent the line of low water, hiding under stones and seaweed; Gwyn Jeffreys enumerates ten British species, two or three of which are found on our own coast. Following the Chitons are the Patellidae, or Limpets, comprising several genera, some of which are well-known to us. They are largely collected on the rocky coasts for bait, and have even been used by the poorer classes for food in hard seasons. These in turn are succeeded by the Fissurellidae, distinguished by their cap-shaped shells, having either a slit in front or a hole in the centre, hence known as "Keyhole" Limpets. There are several species, some of which are very pretty shells. *Capulus hungaricus* is an elegant shell limpet-like, but the apex turned to the rear, somewhat resembling a widely-opened cornucopia. Their habits are much the same as those of the Limpets. *Calyptre* is a somewhat similar form of shell. The next family is that of Haliotidae, the only member of which inhabiting our seas is *Haliotis tuberculata*, the Ormer, or Ear-shell, found abundantly in the Channel Islands; we have already had occasion to refer to this genus when speaking of the beautiful exotic examples to be found in the collection of Foreign shells (p. 188), with which this, although a very pretty shell, will not compare. The animal lives on rocks and stones at the margin of low water.

*Scissurella*, a minute genus of Northern habitat is not represented in the collection, and we pass to the family of Trochidae, which is a very extensive one universally distributed, and extending from low water to a depth of upwards of 100 fathoms. The shells are for the most part nearly flat on the base, pyramidal in shape, pearly inside, with a horny operculum, and many of them, as will be seen, very prettily
coloured. The first genus, Cyclostrema, which was established by Capt. Marryat, a Norfolk man, is represented in our collection by C. nitens and C. serpuloides; its three members are extremely minute, and none of them are known to occur on the Norfolk coast; of the genus Trochus there is a good representative collection. Phasianella pulla, the Pheasant Shell, the only member of the family Turbinidae, found in our seas, belongs to an essentially southern genus, and is represented by some very pretty specimens from the Channel Islands. Of the family Littorinidae we have a fair collection, including of course our common "periwinkle," very abundant on some parts of the coast, and the collecting of which for sale forms a considerable industry; these are succeeded by some very minute shells belonging to the genus Rissoa. Passing over a number of other species equally small, we come to the genus Turritella, or "Screws," the shell of which is a slender elongated pyramid; this is followed by Truncatella, having the appearance of a truncated form of the preceding species; and some very pretty little shells of the genera Scalaria and Odostomia, the latter, as arranged by Mr. Jeffreys, a very extensive genus of exceedingly minute shells.

Of Ianthina rotundata, the beautiful violet-coloured raft-building shell, an oceanic species occasionally cast ashore on the southern portions of England and Ireland, we have already spoken at p. 189, and glancing at the pretty spiral shells of Eulima, Natica, and Trichotropis, we notice the dilated lip and wing-like processes of the handsome genus Aporrhaüs, known as "Spout Shells," and arrive at the family Buccinidae, the first genus of which is Purpura, P. lapillus, being our well-known Dog Whelk, the deadly enemy of the mussel and other bivalves, from which after
perforating the valve with its spiny tongue, it extracts the soft parts; it also yields a coloured fluid on pressing the operculum, at first white, but afterwards becoming blue, which was formerly used by the Irish as a dye. The eggs of this species may frequently be noticed on rocks and dead shells, pear-shaped and standing erect on stalks in clusters. *Buccinum undatum*, the Common Whelk, which has much the habits of the preceding species, and is equally destructive to the shell fishery of the coast, is itself the object of a considerable industry; at the small fishing ports on the Norfolk coast many tons are annually caught in traps baited by offal and sunk in the sea; these are visited daily by the fishermen, the whelks taken on shore, boiled and sent to London and to the large towns of the Midland Counties. At Sheringham as many as fifty boats employing one hundred men are engaged, for the most part in this fishery, all the year round; the whelks prefer a muddy bottom, and some of the boats go as far as six or seven miles to lay out their whelk traps in ten or twelve fathoms water. The egg cases of this species form one of the "common objects of the sea-shore," they are aggregated together in rounded masses, and have been compared to the nests of the Humble bee.

There are several other genera of strongly-marked shells which we cannot stop to particularise, as *Triton*, *Murex*, *Fusus*, *Nassa*, etc., till we come to the pretty little *Marginella lævis*, the still prettier *Cypraea europaea*, the only British cowry, followed by *Ovula patula*, a near relative.

The family *Bullidae* contains several genera of singular shells. *Cylichna cylindracea* is a cylinder of nearly the same breadth throughout, a prettily-marked *Acteon*, *Bulla hydatus*, one of the Bubble shells, *Scaphander lignarius*, and *Philene aperta*, a species in which the shell is wholly internal and
concealed under the mantle, brings us to the end of the family and at the same time to that of the case.

Passing through the Mammalian Room we come to the corridor devoted to Osteology, on the left-hand side of which are four small table cases; in

Case I.

of which will be found the remainder of the Mollusca.

The extensive Fifth Order, NUDIBRANCHIATA, known as the naked-gilled Molluscs, or Sea Slugs, being shell-less except in a very early stage of their existence, are not represented here; there are many strange and beautiful forms of these creatures both varied and graceful. After death it has hitherto been found impossible to preserve the lovely colours of these animals, spirit specimens therefore present anything but an attractive appearance, but in their native tide-pools they are very charming objects. There are more than a hundred British species, generally distributed and for the most part inhabiting shallow waters, their food consisting of other marine animals.

Owing to the extremely artificial arrangement adopted by Mr. Gwyn Jeffreys, namely, land, freshwater, and marine shells, there are four families of air-breathing Mollusca (Pulmonobranchiata), inhabiting estuaries where the water is neither fresh nor salt, which have been left out in the cold. The first family (Oncidiadæ) is not represented in our collection, but of the second family (Assimineidæ) we have both species, A. grayana, found only on the banks of the Thames, between Greenwich and Gravesend, and A. littorina, which makes its home inside the Chesil Bank at Weymouth, and in a few other places. Woodward places both these in the family LITORINIDÆ. In the third family
(Carychiadæ), we have also both species of the only genus *Melampus*, *M. bidentatus* and *M. myosotus*; they are spindle-shaped shells, the former frequenting ground between tidemarks, and the latter mud-flats and salt-marshes. These Woodward places in the family *Auriculidæ*. Of the fourth family (Otinidæ) we have no representative.

Of the class PTEROPODA, the small wing-footed Molluscs, inhabiting the open sea, we have already spoken at p. 183, as also of the CEPHALOPODA, the Squids and Cuttle-fish at p. 183; but the "pen," or internal skeleton of *Loligo vulgaris*, the common Cuttle-fish, as well as the hard internal shell of *Sepia officinalis*, with specimens of the parrot-shaped beak, also of the peculiar grape-shaped ova, will be seen in this case.

A number of British Cirripedia, formerly classed by old authors as "multivalve molluscs," but now rightly regarded as crustaceans, are also here exhibited. Of these will be noticed *Lepas anatifera*, the common Goose Barnacle, which like *Pollicipes* spends the sedentary period of its existence fixed to floating substances and ships' bottoms in the tropical and temperate seas; to these the curious species known as *Conchoderma aurita* is often found attached, as well as to the fine Acorn Barnacle, *Coronula diadema*, which is only found parasitic on the skin of certain species of Whales inhabiting the temperate seas of the North Atlantic; these and several other species of *Balanus* will be seen in the case before us. In

Case II.

are a number of Crustaceans, many species of Crabs, Lobsters, etc., and specimens of *Serpula*. 
Case III.

contains a collection of Foreign Crustacea; among the Crabs will be noticed the giant *Cancer gigas* from Tasmania, and the curious King Crabs (*Limulus*), natives of tropical seas.

Case IV.

is devoted to a collection of Star fishes, of which there are some remarkable specimens; and the three small wall cases contain (1) a number of exotic sponges, among which are beautiful specimens of *Euplectella aspergillum*, and the glass-rope sponge *Hyalonema mirabilis*; (2) and (3) a number of fine Corals, etc., from the tropical seas.

*Euplectella aspergillum*—known as "Venus’s Flower-Basket"—the silicious skeleton of a species of sponge, is, owing to the exquisitely beautiful and fairy-like tracery of its frame work, one of the most lovely objects in nature. The spicules are so arranged as to weave together a thin-walled vase of delicate lattice-work with square meshes; this in life is covered with the living substance of the sponge, and is either attached to rocks at the bottom of the deep sea, or anchored in the mud by a tuft of lengthened silicious spicules. The top is covered by a lace-work of the same material, and when found, the interior invariably holds a number of crustaceans, whether voluntary or involuntary prisoners it is not known. This beautiful sponge was first obtained off Zebu, one of the Philippines. *Hyalonema mirabilis* is another wonderful form of sponge found in the Japanese seas. It is known as the "Glass-rope" sponge, from the arrangement of its anchoring spicules, which are twisted together into a spiral wisp or rope, sometimes reaching a length of eighteen inches; the sponge is at the upper
end supported by a stalk, overgrown with an incrustation of *Palythoa*, and the bare glassy portion is embedded in the mud of the ocean bed. Specimens are usually seen, with the twisted rope-like portion turned upwards, as prepared by the Japanese.

After leaving the Picture Gallery, we enter the corridor devoted to the

**FISHES.**

No group of the animal kingdom offers greater diversity of form than that of the great class PISCES. I need only call attention to the Eel, the Ray, the Hammer-headed Shark, the Sword-fish, and the Hippocampus, or Sea-horse, examples of each of which will be seen in the collection before us, to illustrate these extremes of form; but others even more remarkable still could be adduced, and what has been said with regard to form applies equally to colour. Some species, even in our own seas, are very beautifully and harmoniously coloured; but many of those found in the seas of the tropics, are adorned with a richness and variety of hues, probably unsurpassed even by the bright-plumaged birds inhabiting the sunny lands whose shores are laved by the waves breaking over coral reefs, in the recesses of which are found these gems of the ocean. But all this profusion of colour is doomed to fade, and no group of animals suffers more detriment at the hands of the "preserver" than the fishes. If immersed in spirits they are unsightly, and indeed many of them are too large to readily admit of this mode of treatment, and if the skins are "stuffed," the result is eminently unsatisfactory; the colour departs, and any attempt to restore their faded hues clogs the scales with the pigment, and renders the fish not only unsightly, but also useless for scientific study. It appears to the writer that two distinct modes of treatment should be employed for two distinct purposes. Those intended for study should be
preserved in spirits; but for public exhibition plaister casts taken from the fishes themselves and coloured by hand while the specimen is still in a fresh condition, would not only be the most attractive, but also convey the best impression (if I may use the word) of the originals. In this way very accurate representations might be made; but it should be remembered that the colouration, to be a success, must be the work of an artist. Another advantage of this plan is that a mould once taken of a rare fish, is capable of producing any number of casts, and thus by exchange with kindred institutions, much more complete collections might be made than at present.

The fishes in the wall cases are all British, and almost entirely of local origin. They are not sufficiently numerous to treat systematically, and I shall only call attention to the most remarkable. In

Case I.

will be noticed a fine specimen of the Maigre (*Sciæna aquila*), which was taken off Sheringham in 1841. The two large Breams, respectively 7 lbs. 5 ozs. and 8 lbs. 6 ozs. in weight, were captured in the River Wensum, above Hellesdon Mills. There are also specimens of the Spanish and Pomeranian Breams, and of Ray's Bream, from Yarmouth; a fine Suffolk Tunny (*Orcynus thynnus*); various Gurnards; three and fifteen-spined Sticklebacks; and a very remarkable fish, known as the Deal-Fish (*Trachypterus arcticus*), taken in Holkham Bay, in October, 1879; also the head of a large Sword-Fish (*Xhipius gladius*), which was caught at Mundesley in October, 1861.

Case II.

contains, amongst other specimens, an Opah, or King-Fish (*Lampris luna*), a very beautifully-coloured fish when
in a fresh condition; it was taken at Eccles in July, 1844; a 
FISHING FROG (Lophius piscatorius), and a WOLF-FISH 
(Anarrhichas lupus) from Yarmouth; also various species 
of Wrasse, some of them finely-coloured fish when living, 
followed by CHUBS, TENCH, CARP—both common and 
crucian—and DACE, the silvery beauty of which has quite 
departed.

**Case III.**

In this case is a monster PIKE, which weighed 24 lbs. 
when it was taken from the River Bure; a SALMON, now 
a very rare fish in the rivers of Norfolk, captured on the 
flooded meadows at Lakenham, in 1872; also ALICE SHAD, 
CODLING, EEL-POUT, or BURBOT (Lota vulgaris), a fresh-
water relative of the Cod-fish, and ROCKLINGS, both three 
and five-bearded.

**Case IV.**

The various members of the Cod family, GADIDÆ, are 
continued in this case. There are the COAL-FISH, HAD-
DOCK, HAKE, WHITING, etc., which are succeeded by the 
Pleuronectidæ, comprising the PLAICE, HALIBUT, TURBOT, 
etc.; also a specimen of MÜLLER'S TOPKNOT, taken at 
Yarmouth in 1890, and the LONG ROUGH DAB, from the 
same place, both rare fishes on our coast. A fine FLOUN-
der, taken in the fresh water at Sandling's Ferry, will also be 
noticed.

**Cases V. and VI.**

One of the most conspicuous objects in these cases is a 
fine specimen of the SUN-FISH (Orthagoriscus mola), taken 
at Overstrand in 1843, one of the most singularly-formed 
of any of the fishes; a STURGEON; DOG-FISHES of various 
species; the head of a HAMMER-HEADED SHARK, which
Norwich Castle Museum.

was killed at Yarmouth in 1829; a fine Porbeagle; an Angel-fish (Rhina squatina) and young; some large freshwater Eels and Lampreys; and specimens of the various Pipe-fishes, small marine fishes of singular appearance belonging to the Order Lophobranchi; they are bad swimmers, and generally maintain a vertical position by means of a very rapid vibration of the dorsal fin. Another peculiarity is that the males of most species receive the eggs of the female in a sac at the base of the tail, or attached to the abdomen. We have the Broad-nosed Pipe-fish (Siphonostoma typhle), the Great Pipe-fish (Syngnathus acus), the Ocean or Snake Pipe-fish (Nerophis æquoreus), and the still more curious Sea-horse (Hippocampus antiquorum).

Above wall cases 3 and 4 will be seen a fine specimen of the Tarpon, or Silver-fish (Megalops thrissoides), an immense herring-like fish, found in the Western Atlantic and in the Gulf of Mexico. It attains a length of five or six feet, and when alive presents a brilliant appearance. The scales of this fish, which are very large, are much prized by curiosity hunters in Florida, where they sell for ten to twenty-five cents each. Some specimens of these will be seen in the case opposite. The Tarpon feeds on the young of other fishes, in pursuit of which it often ascends freshwater rivers. It will take a baited hook, and Tarpon fishing is a favourite amusement in Florida, where the specimen here shown was taken in April, 1894, by the present Earl of Orford, who has also presented with it the rod and tackle by which it was caught. The length of this example is five feet seven inches, and its weight was 140 lbs. The flesh is said to be palatable, but is seldom eaten.

In the three small wall cases in this corridor are some interesting specimens, chiefly foreign. No. 1 contains
Flying-fish and Hammer-headed Sharks, both from St. Helena, with young of the latter; a number of Australian fishes; the Porcupine-fish (*Diodon hystrix*) and *Tetrodon patoca* from the East Indies, both of which latter possess the power of inflating their bodies till they assume an almost globular shape. In No. 2 will be found a number of fish in spirits, amongst which should be noticed *Cottus grænlandicus*, from Yarmouth, and near it *C. scorpius*; also a very rare fish, taken on the Norfolk coast, *Scorpaena dactyloptera* (Delaroche), known to the American Ichthyologists as the Rose Perch. And in No. 3 are some spirit specimens of *Octopus*, *Loligo*, etc.

Under Case 2 is a specimen of the Bony Pike, *Lepidosteus osseus*, belonging to the GANOIDEI, an Order of fishes which, though very abundant in the palæozoic and mesozoic age, is very scantily represented in the recent fauna, and evidently verging towards total extinction. Dr. Günther, writing of the genus *Lepidosteus*, to which this fish belongs, states that "fishes of this genus existed already in Tertiary time; their remains have been found in Europe as well as North America. In our period they are limited to the temperate parts of North America, Central America, and Cuba. Three species can be distinguished, which attain to a length of about six feet. They feed on other fishes, and their general resemblance to a Pike has given them the vernacular names of Gar-pike, or Bony-pike." (Günther's *Study of Fishes*, p. 367.)

From the Fish Corridor we enter a room devoted first to a small collection of

**REPTILIA,**

next to which are British Mammals, the remainder of the cases being occupied by a general collection of Mammals,
Case I.

commences with the OPHIDIA. Among others will be noticed specimens of the INDIAN BOA with skeleton of the same, the PUFF ADDER (*Vipera arietans*), a deadly African species from Natal, near to which is our harmless RINGED SNAKE (*Natrix torquata*). There are many Ophidians in spirits, which it has not yet been possible to name and arrange, and, in fact, the whole of this collection is at present in a very chaotic condition, which must account for our so early making the acquaintance of the AMPHIBIA, as represented by the BULL FROG, the COMMON FROG (*Rana temporaria*), and the EDIBLE FROG (*R. esculenta*), the latter acclimatised in this county. The COMMON TOAD is sufficiently well-known, and the NATTERJACK (*Bufo calamita*), found in many parts of this county, where it is more local than rare, and generally distinguished as the Creeping Toad. In

Case II.

we make the acquaintance of the Order LACERTILIA, or Lizards, some of which present a very striking appearance. The EGYPTIAN MONITOR (*Varanus niloticus*) is not, as its name implies, confined to the neighbourhood of the River Nile, but is also found on the banks of the great Rivers of the West and in South Africa. It is said to reach six feet in length, one-half of which is made up of the tail. A species of *Anolis* will be noticed for the expansion of the skin under the throat in the form of a pouch. There is also a small Lizard with a remarkably long and slender tail, known as the Tachydrome (*Tachydromus sexlineatus*), a native of China, Borneo, and Sumatra. *Scincus pachyurus* is a singular creature, with a remarkably abrupt caudal
termination, and another species of Scincus (S. whitii), obtained in New Holland, is next to it. The three-horned Chamaelon oweni, possessing a long horn over each eye and another at the end of the muzzle, is a sufficiently singular animal; but it is cast completely into the shade by the Thorn-Devil, or Horrible Moloch (Moloch horridus), one of the most repulsive creatures living, a member of the extraordinary fauna of Australia. Another species, the Horned Lizard of California, is almost as hideous a creature. And the chapter of horrors may be closed by the Winged Dragon, or Flying Lizard (Draco volans), all of which remarkable forms are members of the same Order, represented in this country by our pretty little Viviparous Lizard (Lacerta vivipara).

Case III.

The upper portion of this case is occupied by some Indian Monitors of the genus Calotes, and the remainder contains some very good specimens of the genus Crocodilus, from various localities, and a skull only of the Gavial, a species mostly frequenting the River Ganges.

Case IV.

is devoted to the members of the Order Testudinata, the Tortoises and Turtles. The most interesting specimen is one of the Great Galapagos Tortoises, now becoming so extremely rare. This fine Tortoise was presented alive to the Museum in 1842. There are, or were, several species on the various islands of the Galapagos Group. There are also young specimens of the Angulated Tortoise (Testudo angulata), a South African species; Testudo elegans, the Indian-Starred Tortoise; T. græca, the Common Greek Tortoise, and others. Of the Turtles, Chelone imbricata, the
Hawk's-billed Turtle, an East Indian species, may be mentioned; and a monster Green Turtle (*Chelone viridis*) from the West Indies, which, when living, weighed 497½ lbs. This is, however, by no means the limit of their growth, for they are said to reach a length of seven feet, and to weigh 800 to 900 lbs.

The next four cases are devoted to a small collection of **British Mammals**.

They are not at present arranged systematically, and we will notice them in the order in which they occur.

**Cases V. and VI.**

contain representatives of the **Rodents**, amongst which are

- the **Hare** (*Lepus timidus*) and **Rabbits** (*L. cuniculus*), both wild and tame, with several varieties. The **Guinea-pig** is also awarded a position in this case, for although not even indigenous to Europe, it has been so long domesticated, that its origin is uncertain. The probability, however, seems to be in favour of its Peruvian descent from a species known as Cutler's Cavy (*Cavia cutleri*). The too well-known **Brown Rat** is even more fully acclimatised than the Guinea-pig, but is equally of foreign origin. Popularly it is known as the "Norwegian" Rat, but its true home, so far as can be ascertained, is Western China, whence it is believed to have been
transported to our shores early in the second quarter of the eighteenth century. This Asiatic intruder is now master of the situation, following in the wake of commerce in every quarter of the world. Here it is believed to have exterminated the Rat which it found in possession, the so-called Old English Black Rat (*Mus rattus*), itself an Eastern adventurer, but of a much earlier date. *Mus rattus* lingers in a few isolated localities in Great Britain, and the stock is probably sometimes replenished by importations from the Continent. The domestic Mouse (*M. musculus*) needs no mention, and with it are the pretty long-tailed Field Mouse and the elegant little Harvest Mouse (*M. minutus*). The Voles are represented by the so-called Water Rat, a vegetable feeder of most engaging habits; the common Field Vole, a terrible pest when too numerous; and the Red Field Vole, or Bank Vole, a much rarer species. These are followed by the well-known Squirrel, and its miniature the Dormouse, a rare animal in Norfolk. In the centre of the room is a very interesting object which ought to be referred to before we quit the Rodents, for although the work of an animal long since extinct in Britain, the Beaver was formerly indigenous to these Isles. Some years ago a number of Canadian Beavers were liberated in Sotterley Park, Suffolk, and made themselves quite at home, felling trees to construct a dam after their manner, and the tree stool in the case referred to is their work. They proved very destructive, and eventually strayed away and were killed, which, I believe, was not regarded as an unmixed evil by their introducers. Passing to the Chiroptera, several species of Bat will be noticed; but there is by no means a complete collection of British Bats. The Hedgehog, by far the largest of our British Insectivora, is well known; so also is the Mole, although it is most frequently seen gibbeted on a thorn as
Norwich Castle Museum. 227

left by the mole-catcher. There is a singular white race of Moles, anything but uncommon in some parts of this county. The remaining Insectivores are the Shrews, of which there are three, the Oared Shrew not now being considered a good species. These curious long-snouted animals are more numerous than is generally supposed, their small size and the close herbage which they frequent rendering them difficult of observation, and they are more often seen dead on the path than encountered alive. The cause of this singular mortality does not seem to be very well understood. Of the CARNIVORA, the Badger is a very interesting example. Formerly, doubtless, it was very numerous, of which there are frequent indications in local names derived from this species; but in the present day haunts suitable to its retired mode of life are much less common, and the “Brock” suffers accordingly. Notwithstanding its harmless nature, it has fallen under the ban of the game preserver, and although in some few suitable localities in Britain it cannot be said to be rare, it is probable that it will gradually disappear. The Fox stands upon an altogether different footing from the Badger, which is no longer a sporting animal; but even this Huntsman’s favourite leads a precarious existence; the race has again and again been supplemented by foreign imports, and it is probably to this foreign admixture that a curious habit of taking up their abode in trees indulged in by some of the Norfolk Foxes, is owing. In

Case VII.

will be seen specimens of the Otter, an animal still common in the fastnesses of the Broads, where perhaps it is as numerous as in any part of England. The Common Seal (Phoca vitulina), which is met with all round the British
shore, is frequently found on the Norfolk coast, whence that exhibited here was obtained. There is also in this case a much finer species of Seal, known as the Grey Seal. It formerly bred on the Farne Islands, but I fear has ceased to do so, and is now only met with in an irregular manner south of Scotland, where it still holds its own on some of the remote islands. The young animal here exhibited is one of several which have been met with on the Norfolk coast. A few skulls of Seals will also be noticed, one of them belonging to a small Seal, Phoca hispida, an Arctic species, the only known British example of which was procured on our coast. In

**Case VIII.**

will be seen other examples of the Badger and Fox, with skeletons of each, as well as Wild Cats (Felis catus), and Polecats (Mustela putorius), the former long extinct and the latter now very scarce in this county. There are also examples of the Stoat (Mustela erminea), both in its summer coat, and also in the white dress it often assumes in winter; in either state it may be recognised by its black-tipped tail. In Norfolk this species is known as the "lobster," probably a corruption of the word "leapster," in allusion to its mode of progression by leaps and bounds. The Weasel (M. vulgaris) is much smaller than the Stoat, and the female, which is even smaller than the male, is called the "Mouse-hunter." All these are blood-thirsty little creatures, but of incalculable value in keeping down the rats and mice which form their favourite food. The Marten (Martes foina), formerly common enough, is now a rare British animal, only surviving in woodland districts where the gamekeeper is not so much abroad as in this part of England.
We must hope in time to receive specimens of the British RUMINANTIA, which are conspicuously absent, as also of the CETACEA, especially as the seas and estuaries of the Norfolk coast have proved exceptionally rich in species of the latter order.

Cases IX. and X.

The general collection of the animals forming the great class MAMMALIA, or those which give suck to their young, is so exceedingly fragmentary, that many very important sections are here quite unrepresented, but we shall still be able to point out sufficient examples to give some idea of the broad principles on which the modern classification of this, the most important section of the animal kingdom, is based. Without going too much into detail, it may be said that the whole class can be divided primarily into three well-marked divisions, having no intermediate or transitional forms;* these have been designated by Professor Huxley (1) Prototheria, (2) Metatheria, and (3) Eutheria, corresponding to the old divisions of Ornithodelphia, Didelphia, and Monodelphia. The former terms are considered by Messrs. Flower and Lydekker less open to objection than those of Blainville, and have therefore been adopted by them in their Introduction to the Study of Mammals. The first of these divisions, the sub-class PROTOTHERIA, comprises one order only, MONOTREMATA, consisting of two families, (1) ORNITHORHYNCHIDÆ, the Duck-bill, and (2) ECHIDNIIDÆ, the Spiny Ant-eater. These two families—between which there are no known

* The arrangement is that adopted in Flower and Lydekker's Introduction to the Study of Mammals, Living and Extinct.
extinct intermediate forms, and which although agreeing in many important characters, differ very considerably in others—it is still thought desirable by the authorities just named to retain in one order.

The sub-class, **METATHERIA**, too, contains but one order, that of MARSUPIALIA, the pouched animals, Opossums, Wombats, Kangaroos, etc.

The third sub-class, **EUTHERIA, PLACENTALIA**, or **MONODELPHIA**, is a very comprehensive one, consisting of nine orders and many sub-orders and families. The orders are as follows, (1) **EDENTATA**, the Sloths, Ant-eaters, etc.; (2) **SIRENIA**, Manatees and Dugong; (3) **CETACEA**, Whales; (4) **UNGULATA**, hoofed animals; (5) **RODENTIA**, gnawing animals; (6) **CARNIVORA**, flesh-eating animals; (7) **INSECTIVORA**. Shrews, Moles, Hedgehogs; (8) **CHIROPTERA**, Bats, Flying Foxes; and (9) **PRIMATES**, Lemurs, Monkeys, Man.

Of the remarkable forms constituting the two families of the Order MONOTREMATA (so called from its members possessing a single excretory passage), we have good examples; they are all confined to the Australian region. The single member of the first family is the Duck-billed Platypus (*Ornithorhynchus anatinus*), or as it is sometimes called by the colonists, the Water-Mole, although of course it has no affinity with the latter animal, its nearest relatives perhaps being the Amphibia. The Duck-bill leads an aquatic life, and forms its home in burrows excavated in the banks of streams. It is exceedingly shy, and being nocturnal in its habits, seldom comes under the notice of the natives; no wonder then that its exceptional mode of reproduction should so long have been unknown. It has, however, at length been fully established both by observation and by dissection that the MONOTREMES are
oviparous; and it is from the fact of the female organs of reproduction resembling those of birds, that the name *Ornithodelphia* was given to the division, but in other respects they bear no resemblance to birds. The female Duck-bill lays two white eggs about three-quarters of an inch in their longest diameter, and the young ones are subsequently nourished with their mother’s milk. The food of these animals consists of aquatic insects, worms, and crustaceans.

The Echidna, the only member of the second family, is a totally different animal in appearance to the Duck-bill; in structure of the head, as well as in its habits, it resembles the Ant-eaters, but the back is covered with spines, varying in length in different races, of which there are three well-marked types. The first occurs at Port Moresby, New Guinea, and is distinguished by its small size; the typical variety which is found on the Australian mainland, is of medium size, and the spines of the back are long and straight, often reaching two inches; the third and largest form is confined to Tasmania, and the spines of the back are very short, often quite concealed by the hair. We have specimens of the second and third varieties. Echidnas prefer rocky districts, they burrow rapidly, are nocturnal in their habits, and their food consists mainly of ants. A species known as the three-toed Echidna (*Proechidna bruijnii*), inhabits North-Western New Guinea, and appears to be as variable as those already referred to.

The next division is that of *Metatheria*, and consists of the Order Marsupialia, represented by many species, presenting great diversity both of form, structure, and habits, but all possessing certain characters in common, which are essentially distinctive. It may be mentioned that they are all implacental, the young are born in a very
rudimentary condition, and are transferred by the parent to the marsupium or pouch (which, however, is developed in varying degrees, and in some few is not present), where they become attached to the nipple. The milk is injected into the mouth by muscular action on the part of the parent, the respiratory organs of the young one being temporarily modified to avoid the danger of choking. The Opossums are the only group belonging to this order which are found beyond the limits of the Australian region and the adjacent islands.

The Dasyuridæ, of which we have *D. maculatus* and the pretty little *D. viverrinus*, are inhabitants of Australia and Tasmania. They are small Civet-like animals, nocturnal, hiding in holes among rocks and hollow trees by daytime, and wandering forth at night to feed on small animals and birds. The next of the order is a squirrel-like animal known as the Banded Myrmecobius or Ant-eater (*M. fasciatus*). It is remarkable among its order for possessing the largest number of teeth of any Marsupial; the female has no pouch, but the young, when attached to the nipple, are hidden by the long hair of the abdomen. It is a ground animal, feeding on ants, which it captures with its long cylindrical tongue; and is found in Western and Southern Australia. The Tasmanian Wombat has a singularly ursine appearance, and its habits are somewhat similar to those of that family. It is entirely a vegetable feeder of nocturnal habits. The various species, three in number, are all confined to Australia and Tasmania.

We now come to the family of the Phalangeridæ, of which we have four species. Flower and Lydekker thus describe them. "Phalangers are small woolly-coated animals, with long, powerful, and often prehensile tails, large claws, and, as in the American Opossums, with opposite nailless
great toes. Their expression seems in the day to be dull and sleepy, but by night they appear to decidedly greater advantage. They live mostly upon fruit, leaves, and blossoms, although some few feed habitually upon insects, and all relish, when in confinement, an occasional bird or other small animal. Several of the Phalangers possess flying membranes stretched between their fore and hind limbs, by the help of which they can make long and sustained leaps through the air, like the Flying Squirrels . . . . The Gray Cuscus (P. orientalis) was the first of the Marsupials of the eastern hemisphere brought to the notice of Europeans . . . in 1611." In the collection will be noticed the Vulpine Phalanger (Trichosurus vulpecula); Cook's Phalanger (Pseudochirus peregrinus), which was discovered by Captain Cook at Endeavour River on his first voyage; and two of the Flying Phalangers (Petaurus sciureus), and the pretty little Short-headed Phalanger (Petaurus breviceps).

The last family of this remarkable order is that of Macropodidæ, the Kangaroos, a well-marked and numerous group, consisting of a large number of species, the great majority of which are found in Australia and Tasmania, but they also occur in New Guinea and the adjacent Islands. They vary greatly in size from that of a rabbit to the height of a man, and are all vegetable feeders. In the female the pouch is highly developed, and the young one seeks its shelter long after it has become able to run or rather bound by the side of its mother. The pretty little head, peeping out of its warm and soft retreat, is a very interesting sight, and one often to be witnessed in the gardens of the Zoological Society, where several species have bred.

The third sub-class, EUTHERIA, contains the whole of
the remaining groups of Mammals, which greatly as they may differ from each other in appearance, mode of life, and other respects, all possess one feature in common, viz., "the presence of an allantoic placenta, by means of which the foetus is nourished within the uterus of the mother," and hence they have been called Placentalia. The nine orders into which this great sub-class is divided have already been enumerated at p. 226, and will only be again referred to as the specimens illustrating them are passed in review.

The first order is that of EDENTATA, comprising the Sloths, Ant-eaters, Armadillos, Pangolins or Scaly Ant-eaters, and the Ard-varks or African Ant-eaters. Of these five families the first three are inhabitants of the New and the last two of the Old World. Speaking of this order Messrs. Flower and Lydekker observe "that the great diversity of structure in the existing families, the high degree of specialisation to which many have attained, the paucity of species and even of individuals, their limited area of distribution, and their small size compared with known ancestral forms, all show that this is an ancient and a waning group, the members of which seem still to hold their own, either by the remoteness and seclusion of their dwelling-places, by their remarkable adaptation of structure to special conditions of life, or by aid of the peculiar defensive armature with which they are invested."

Of the Sloths and Great Ant-eaters we have no representatives, but of the Dasypodidæ or Armadillos, and the Manidæ, Pangolins or Scaly Ant-eaters, we possess several specimens.

Some twenty species of Armadillo are recognised. They are found only in the warmer parts of America, the former home of their gigantic predecessors, the extinct Glyptodon. Their food is very variable, consisting of both animal and
vegetable substances; they burrow with great rapidity, and are mainly diurnal, but vary somewhat in their habits. We have four species, the Weasel-headed Armadillo (Dasypus sexcinctus) found in Brazil and Paraguay; the Pichi, or Little Armadillo (D. minutus), found in the Pampas, south of Buenos Ayres; the Peba Armadillo (Tatusia novemcincta), which inhabits South America from Texas to Paraguay; and the southern form of the same genus, the Mule Armadillo (T. hybrida), the latter so-called from its elongated ears.

Still more singular animals are the members of the Family Manidæ, known as the Pangolins or Scaly Ant-eaters. There is only one genus, Manis, and all the species belong to the Old World, ranging from Africa, south of the Sahara, to South-eastern Asia. They are, as a rule, burrowing animals, but some partially arboreal, of nocturnal habits, and their food consists mainly of ants. When at rest they roll themselves into a ball, and are perfectly secure from the attacks of enemies. In appearance they have, not inaptly, been likened to "an animated spruce-fir cone furnished with a head and legs." There are two groups of these animals, corresponding with the geographical distribution of each genus. The Asiatic form only is represented in the Museum collection. Of this there are three species, the Indian Pangolin (Manis pentadactyla), found in India and Ceylon; the Chinese Pangolin (M. aurita), inhabiting Nipal, Assam, and China; and the Malay Pangolin (M. javanica), a small long-tailed species found eastward of the Bay of Bengal, in Celebes and North-eastern India.

Thus far our collection has been a very fairly representative one, but henceforth it will be of a very meagre character. We have to pass over the whole of the two orders SIRENIA and CETACEA, both of which, however, contribute to the Osteological Collection. In
Cases XI. and XII.

begin the important order UNGULATA, which is made up of the hoofed animals. Of these we have at present a very poor selection. There is a fairly good WILD BOAR, and a prettily-striped young one. This is a very interesting little animal for the following reason. The young of all the wild pigs so far as is known are born marked with longitudinal stripes, as shown in this example. The stripes, however, disappear in a few months. This marking is never apparent in the young of any of our domestic breed, but it is stated by Darwin that pigs introduced into the New World which have become feral, have resumed their aboriginal character, and produce striped young. The heads of some South African species of Antelope will be found in the next corridor, but here we can only show one small species of Deer and a little MUSK DEER, a SYRIAN GOAT (C. hircus) and a MOUFLON (Ovis musimon). Of the RODENTIA, or gnawing animals, a well-defined order, we have some FLYING FOXES and numerous species of Squirrels, the smallest of which is a pretty little Palm Squirrel known as Sciurus palmarum, also the Scandinavian LEMMING (Myodes lemmus), which at uncertain intervals makes such marvellous migrations, passing in a direct line over mountains and through rivers and lakes, till they reach the sea, into which the remnant of the great army, which started never to return, perishes. Another interesting Rodent is the South American COYPU (Myopotamus coypu), one of the largest of the order which lives in burrows near the water, feeding on aquatic plants. There are also some good examples of the PORCUPINE (Hystrix cristata), which is found throughout Southern Europe and North and West Africa. There are several species, all of similar habits, hiding by day and
Norwich Castle Museum.

coming out to feed on an entirely vegetable diet, by night. Of course their remarkable armature of spines is well-known to all. The South American Golden Aguti (Dasyprocta aguti), a very pretty but destructive animal, is the last of the Rodents in the foreign collection.

Cases XIII. to XVII.

It will be convenient to treat these five cases as one, as it is difficult in some instances to separate the contents. The orders which they illustrate are those of the Carnivora, the more typical forms of which are highly predaceous, and their food consists as a rule (not without exceptions, however), of warm-blooded animals; the Insectivora, which as their name implies, subsist as a rule on insects; and third the Chiroptera or Bats, one section of which (the Flying Foxes), is frugivorous, the remainder being insect feeders.

Of the first of these three orders, Carnivora, a very juvenile example will be seen in a small case in the middle of the room; it is a pretty little Lion cub, three months old, which was born in Mr. Bostock's Menagerie; in the Wall Case is a Leopard (Felis pardus) derived from the same source; a European Lynx (F. lynx) and a very pretty Ocelot (F. pardalis). Further on are Indian Civets, Ichneumons, and Mongoose, the Striped Hyæna (Hyæna striata) an inhabitant of Northern Africa and Southern Asia, a nocturnal beast, and a foul feeder. A fine specimen of the European Wolf (Canis lupus), accompanied by a hybrid between a Wolf and a Dog, bred in a Menagerie; near to which is a Jackal (Canis aureus), an animal of very wide geographical distribution, which, like the Wolf, readily interbreeds with its near relative the Dog, an example of this
cross bred at Melton Constable is in the same case. A beautiful white Esquimaux Dog is in a separate case, and of the Foxes there are examples of the Arctic Fox (Canis lagopus) and the Bengal Fox (C. bengalensis).

The Ursidae, or Bears, are not strictly carnivorous, but indulge in a mixed diet, even the Polar Bear adding grass to its menu of seals and fishes when opportunity offers; we have two good specimens of the Himalayan Black Bear (Ursus torquatus), an inhabitant of Northern India and China, and a vegetable feeder. The next family is represented by the Racoon (Procyon lotor), a common North American species found as far north as Alaska, and southward into Central America; it is strictly nocturnal, making its home in hollows of trees, whence it sallies forth to gratify its omnivorous appetite. A near relative to the Racoon is the Coati, or as it is often called, the Coati-Mundi, of which we have the Brown or White-nosed Coati (Nasua narica), found in Mexico and Central America; there are two species, both of which are abundant where found, gregarious and mainly arboreal, hunting their prey, which consists of lizards, birds, eggs, and fruit, in parties of eight to twenty. The next family is that of Mustelidae, to which belong the Otters, the American Skunks; and the typical genus Mustela, represented by the well-known Martens, Polecats, and Weasels, all British, and all blood-thirsty little animals. The Martens, one species of which, Mustela martio, the Pine Marten, of which a specimen is here shown, was frequent in this county when woodlands were more extensive; it is now rare in England, but still found in Northern Europe and Asia.

We must now pass over a whole sub-order, Pinnipedia, the aquatic carnivora, consisting of the Eared Seals, Walrusses, and True Seals (some representatives of which will be
found in the British section and in the Osteological Collection, but have no place here), and call attention to some few members of the order INSECTIVORA, consisting of the Hedgehogs, Shrews, Moles, etc., better represented in the British collection than here. Most of the members of the order are small terrestrial animals, and are found throughout the temperate and tropical parts of both hemispheres, with the exception of South America and Australia. One very aberrant family, Galeopithecidae, consisting of two species erroneously known as Cobegos or “Flying Lemurs,” launch themselves into the air, and supported by an extended fold of the skin glide from tree to tree, often traversing distances of many yards. Their food consists principally of leaves.

There is one more order, that of CHIROPTERA, the Bats, which must be mentioned; it is divided into two sub-orders, the first of which is devoted to the Frugivorous Bats and Flying Foxes, both of which are fruit eaters, and the second to the Bats and Vampires. Of the Fruit-bats we have several species, chiefly Australian, collected by Captain Stanley, and also a number of the true Bats; some of which, known as the Leaf-nosed Bats, possess the most marvellous nasal appendages it is possible to conceive, composed of most complex and extensive foliations; the structure presenting a very extended and highly-nerved surface, the whole may be regarded as “performing the offices of an organ of a very exalted sense of touch,” which “receives impressions arising from vibrations communicated to the air by approaching objects.” (Flower and Lydekker, p. 646.)
of animal life, is that of PRIMATES, consisting of two sub-orders, LEMUROIDEA, of which the Lemurs are the type; and ANTHROPOIDEA, containing the higher apes. The LEMURS, to use the anglicised form of the Latin name applied to them by Linnaeus from their ghost-like appearance and nocturnal habits, are not a numerous family; they are all strictly arboreal, living on fruit, eggs, small birds, reptiles, and insects, and are for the most part nocturnal. The true Lemurs are restricted to Madagascar, where they are very abundant, but a few species, less typical in character, extend through the African continent westward as far as Senegambia, and others are found in the oriental region as far east as the Philippine Islands and Celebes. (Flower and Lydekker.) The only species we possess is the Ring-tailed Lemur (Lemur catta), which has its long furry tail marked with alternate rings of black and white.

The second sub-order, ANTHROPOIDEA, includes the remaining members of the order Primates, commencing with the Marmots, through the Monkeys, Baboons, and Apes it leads up to Man. The latter, I think, we may here leave out of consideration, although there are many characters which he possesses in common with the higher apes. The variety of forms presented by these animals is simply astonishing, and yet the same general type will be found to characterise the whole.

In the present day with the one exception to be mentioned hereafter, no Anthropoids are found in Europe or in the Australian region, but are widely distributed in the warmer regions both of the Old and New World, those inhabiting each of these divisions are, however, widely different. Some species are mainly terrestrial, but the bulk are essentially arboreal; in some the tail is eminently prehensile, and practically constitutes a fifth limb, and in
none is this more conspicuously the case than in the South American Spider Monkeys. These creatures spend their whole time in the tree tops, travelling from bough to bough, a mode of existence for which they are pre-eminently fitted. They are found in abundance in the forests of Guiana and Brazil, and although apparently endowed with all the requirements for an active life, are said to be of very sluggish habits. The Black-handed Spider Monkey (Ateles geoffroyi) and the Red-faced Spider Monkey (A. paniscus) are good representatives of this long-limbed race.

A very singular New World form is the Black Sarki (Pithecia satanas) a native of Brazil, its long hair and singularly diabolical appearance render it very conspicuous.

The next family are the Baboons, of which there are several species, all confined to Africa; they are fierce animals, incapable of being tamed, frequenting mountain districts and usually associating in large troops. The South African Chacma (Cynocepalus porcarius) is one of the typical Baboons, the structure of which it will be observed is adapted rather for a terrestrial life than for climbing. Another species is the Anubis Baboon (C. anubis), a representative of the West African group. The Black Ape (Cynopithecus niger), confined to the Island of Celebes, forms a connecting link between the Baboons and the next genus Macacus, of which we have three examples, the most noticeable is the celebrated Bartary Ape (M. inuus); a colony of this species inhabits the rock of Gibraltar, and is the only quadrumanous animal found in Europe; the other two are M. nemestrinus, the Pig-tailed Monkey of Java, and the Indian Wanderoo (M. silenus). With the exception of the first named the members of this genus are exclusively Asiatic; they are sociable in their habits, often
associating in considerable flocks, omnivorous in their appetites, feeding on fruits, seeds, and occasionally lizards and frogs, whilst one species displays a liking for crustacea. The genus *Cercopithecus*, strictly confined to Africa, is a numerous one, we have three representatives, namely, the *Vervet* (*C. lalandi*), *Syke's Monkey* (*C. albigularis*), and the *Patas Monkey* (*C. patas*). The "Guenons," or grinning monkeys, as they are designated by the French, are well-known inhabitants of menageries, very tractable, quick at learning tricks, and of hardy constitution, hence they are great favourites with the organ men, and may frequently be seen in such company.

Of the crowning family *Simiidae*, or tailless Old World Apes, embracing the Gibbons, Orangs, Chimpanzees, and Gorillas, we at present possess no examples.

**Osteology.**

It only remains, in the Natural History portion of the Museum, to say a few words with regard to the collection of skeletons which will be found in the next corridor. Throughout the various collections skeletons will frequently be noticed introduced into the cases where it was thought they would be useful in illustrating the structure or habits of the mammals, birds, or reptiles exhibited; but there are many which could not be so placed, and will be found arranged in the cases in the corridor devoted to their reception. Not sufficient material was available to permit of an attempt at even a representative collection of the chief forms of the skeleton in the various types of animals; but there are sufficient examples to be of considerable service to the student, and many animals are represented.
which are not otherwise to be found in the collections, the Marmoset (Hapale jacchus) for instance in

**Case I.**

is one of these. In this case will also be seen skeletons of the Lioness (2), Dog, Striped Hyæna, Polar Bear, Cat, Otter, Hedgehog, Squirrel, Hare, and Rabbit.

**Case II.**

contains skeletons of the Leopard, Bloodhound, Wild Pig, and several skulls of Dogs and Pigs.

**Case III.**

has skulls of the Dugong and Walrus, and some extremely
fine Walrus tusks; two very large tusks of the African Elephant, as well as a skull of the same species; also teeth of both the African and the Indian Elephants, and a good skeleton of a Camel. In

Case IV.
are a number of skulls of various species of Dolphins and Seals, some of them of considerable interest, a fine Narwhal's tusk, and three skulls of Hippopotami, one of which is a remarkably fine one from the River Niger.

Case V.

In this case are skeletons of a Hindoo Cow, and of the Zebra (*Equus zebra*), an animal rapidly becoming very rare, as well as several skulls of Horses, etc.

Case VI.

A skeleton of the Fallow Deer will be noticed in this case, as well as those of several birds, the Turkey, Pelican, Albatross, Mute Swan, and Canada Goose. Skulls of many species of Dolphin and jaws of Sharks, with beaks of the Saw-fish. The fishes of the genus *Pristis*, armed with these formidable weapons, are abundant in the seas of the tropics. The "saw" is an enormous development of the rostrum found in the Rays, to which family these creatures are related. It is used as a weapon of attack, and the teeth, implanted in deep sockets in each margin of the bony substance of the beak, are used for "tearing pieces off an animal's body, or ripping open its abdomen, the detached fragments or protruding soft parts are then seized by the Saw-fish and swallowed." A stuffed specimen of a juvenile Saw-fish is placed in the case to show by what manner of animal this strange appendage is possessed. The adults
reaches a length of more than twelve feet. There are also skulls of Chelonians and of the Indian Crocodile (*Crocodilus palustris*). One of the latter, which belonged to an enormous animal thirty feet in length, has a sufficiently gruesome history. In life it frequented a river in the island of Borneo, where it had long been a terror to the inhabitants. A few weeks previous to its capture it attacked two men upon a raft—father and son. It caught the son by the arm and took him under water. The father jumped into the river to rescue him, when the crocodile left the son and devoured the father. The son reached the shore much injured. It soon after upset a canoe and devoured the chief of a Malay village, whose relations, after long watching, succeeded in destroying the reptile. This terrible story was related to Captain Henderson (who gave the relic to Captain Glasspoole), by the Dutch resident, De Groote. The events occurred in 1827.

Near the entrance to the corridor is the skull of an Indian Elephant, from Ceylon, a recent acquisition. A curious malformation will be noticed in the teeth on the left side. The dentition of the Elephant is very peculiar, and is thus described by Messrs. Flower and Lydekker. There are seven molar teeth on each side, the first of which is a milk tooth and is soon shed. The other six are arranged in such a way that they gradually move forward in the jaw, and as they become worn away, their remnants are cast out in front, while the development of the others proceeds behind. The individual teeth are so large, and the processes of growth and destruction by wear take place so slowly, that not more than one, or portions of two, teeth are ever in place and in use on either side of each jaw at one time, and the whole series of changes coincides with the usual duration of the animal's life. It will be seen in
this skull that the teeth in the left side of the lower jaw having been lost or destroyed by some means, the first upper molar (the milk tooth has been shed) found no opposing grinding surface to wear it away, and has grown downward till the anterior portion has become pointed and fits into a corresponding pit, caused by the absorption of the alveolus, in the toothless lower jaw.

Above the cases are arranged a number of heads of South African Buffaloes and Antelopes, and in the next room, devoted to Geology, is a handsome head of the African Elephant, which was too large to find a place here.

Geology: Mineral and Fossil Remains,

From the Recent Natural History Department to that of Geology is here only a few steps, and no real interval of time has elapsed between the age when the latest of the fossil life-forms, we have now to inspect, existed on the earth, and our current historical era represented by the beasts, birds, fishes, and shells, which have been generally described in the preceding pages. The Natural History department covers a period of time which, though of as long duration as the history of man, is very short compared with that covered by the successive epochs represented by the different groups of extinct forms of life exhibited in the geological section. We are, therefore, here among the débris and wreck of the forms of life which animated the globe at different stages, the earlier types being succeeded by higher and still higher life-forms that have had their consummation and crown in man.

The extinct life-forms preserved to us in this collection as fossils, have mostly been derived from rocks that have been deposited in water and have since become dry land.
Thus we find that the life history of the earth has been written as it were in the rocks or strata which form its solid crust. The interior of the earth is supposed to be in a more or less heated state, and the molten material occasionally bursts through apertures or safety valves, known as volcanoes, in the form of lava and scoriæ. Specimens of Lava and Scoriae are to be seen in Table Case 2. There also are shown specimens of other igneous rocks, all of crystalline structure, such as granite, syenite, and basalt. Next to them come the metamorphic rocks, whose structure has been changed through the action thereon of the heat of the intruded igneous rocks.

Minerals are classified as Earthy Metalliferous and Earthy Alkaline in Table Cases 1 and 2. Much uncertainty exists as to the formation of the metallic minerals. Heated water is known to convey the soluble salts of some of the metals that are not so readily taken up by cold water. Both chemical and electrical action may have been instrumental in producing mineral veins. Iron, lead, copper, tin, manganese ores, etc., are here represented, obtained from the fissures or joints of different strata, or from the layers themselves. Metals are rarely found in a native or pure state. Gold is the only metal found in any quantity in this condition, and next to it comes silver, and occasionally platinum and copper. The variety of forms of the earthy-alkaline minerals is very great because of the diversity of their composition and crystallisation. Lime with its compounds gives 800 distinct forms. The particles have been dissolved in water so as to be free to rearrange themselves in these beautiful forms according to certain laws. All these innumerable forms of crystallisation are reducible to six primary ones. The student of mineralogy will here find specimens illustrative of the best text-books.
The most ancient forms of life are found, as the name indicates, in the Palæozoic or Primary Rocks, which comprise the Archæan, the Cambrian, the Silurian, the Old Red Sandstone, the Devonian, and Carboniferous periods. The earliest life-forms here represented are trilobites from the Cambrian rocks. The older rocks, which come to the surface in the mountainous region of Wales, have for their most characteristic fossil the trilobite, which survives till the Carboniferous era, when it dies out. In Wall Case 1 there is a fine example of the trilobite, Calymene Blumenbachii. The body of the trilobite consisted of three lobes, formed by successive rings or segments, and had an armoured shield on its head; most of them were furnished with a pair of crescentric eyes composed of many separate divisions or lenses. Many were able to roll up into a ball. The Silurian formation, which like the Cambrian runs to an enormous thickness in Wales, is represented by examples of the Spirifer, a large brachiopod, and a sessile spreading coral called Favosites, and another named Cyathophyllum. In Table Case 3 will be observed some Silurian fossils, including Terebratula, Atrypa, Lituites, etc.

The first true fishes are met with at the close of the Silurian period, but they become so numerous in the Old Red Sandstone that this has been called "The Age of Fishes." These early forms of fishes, having an imperfect skeleton, were panoplied in shining armoured plates, and have therefore been called "ganoids." Plant life comes in with the Silurian and Devonian formations. The vegetation became profuse in the Carboniferous or Coal-bearing era. What these early forms of plants were like we see in Wall Cases 1 and 2 in the specimens of Sphenopteris, Calamites, Lepidodendron, and Sigillaria. The two last named exhibit the scars left by the scale-like outer covering
of this extinct family of trees that grew so luxuriantly at this period. These trees were, in fact, gigantic club-mosses, many of them fifty or sixty feet high. Calamites were among the commonest forms of vegetation, being nothing more nor less than a huge Equisetum or "horse's tail," similar to those growing in our ditches and on waste land. But they were of great height, some twenty or thirty feet. The ferns of this period were numerous, and the fronds of Sphenopteris, Neuropteris, etc., are well preserved.

The Permian beds are to some extent represented by specimens from the Magnesian Limestone in Table Case 3. To the Permian formation belongs the fossil fish Palæoniscus comptus, and from the Trias came the flagstones impressed with the hand-like footprints of Labyrinthodon or Cheirotherium.

We now come to fossil remains from another series of rocks in Wall Cases 3, 4, and 5. The rocks from which most of these remains have come are known as Mesozoic or Secondary. They comprise the Trias, Lias, Oolite, and Chalk formations. Enormous in duration as was this secondary age, it was not one-third that of the Primary, if the comparative thickness of the two series be any criterion. This Secondary Age is specially that of Reptiles. The Lias, which is prolific in fossils, has furnished the Museum with an abundance of remarkable examples. The most noticeable of these is the Ichthyosaurus, discovered at Lyme Regis in 1811, and mounted in a frame in Wall Case 4. This is one of the marine Lizards, which, with paddles like a whale and a jaw like that of a crocodile, was sometimes twenty feet long. There are also portions of the remains of these reptiles. One specimen is that of the head and jaws almost perfect. The fish of the Liassic period are represented by the Dapedius (Wall
Case 3), a broad form covered with bony enamelled plates instead of horny scales. A survival of these enamelled plates among existing fishes is found in the North American Bony Pike, in the Polypterus of the Nile, and in the Sturgeon. The *Lepidotus* from the Lias, is another good example of a different form of fish with bony enamelled plates. Near these is a beautiful specimen of the “Stone Lily” of the Lias, called *Extracrinus briareus*, from the number of its arms. Many of the reptiles of this period were winged and known as *Pterodactyles*, from *pteron*, a wing, and *dactylos*, a finger. Remains of small specimens of these creatures are in the collection. They had a bird-like head, with reptilian teeth, fore feet to which the wings were attached but not adapted for walking, and hind legs. There is a large series of vertebral bones of the monster saurians of this period.

Turn to Table Case 3, and there will be seen vegetable remains, chiefly ferns, from the Lower Oolite, and a number of Mollusca, including the *Terebratula* or Lamp Shell, which originated in the Primary period, and has continued to the present day; and *Modiola*, a kind of mussel, as well as *Apiocrinus*, a form of the family of the Stone Lily, which was very abundant in the Carboniferous Seas. The Inferior and Great Oolites, Cornbrash, Oxford Clay, Coral Rag, and Portland beds are members of the Oolite. Among the specimens from these formations will be found *Gryphaea*, *Pecten*, *Cidaris*, *Trigonia*, *Ammonites*, teeth of fishes, etc. The Coral Rag is very rich in corals. From the Portland Stone are examples of shells, including *Mya*, *Pinna*, *Buccinum*, and *Turritella*. Ammonites, some of them of great size, constitute a striking feature of the Oolite formation, and some of those from the Portland beds are very large, as is shown by the specimen in the Wall Case 6.
Norwich Castle Museum.

The living ally of the Ammonite is the Nautilus, the Ammonite differing from it in the folding of its septa or chambers. How largely some of these fossil forms of shell-fish enter into the composition of rocks which, on account of their variegated colours, and being capable of taking a high polish, may be used for ornamental purposes, is shown by some specimens of Paludina marble, from the Purbeck beds of the Upper Oolite, exhibited in Table Case 3.

The Cretaceous series of the Secondary Rocks is strongly represented. From the Wealden, formed in the delta of a great river, are remains of a huge land Lizard, the Megalosaurus, often thirty feet long, and a few land plants. There is also in this Table Case 3 a collection of fossils from the Greensand, including Sponges, Oysters, Pectens, etc. The Cambridge Greensand has yielded bones and teeth of lizards, beside their exuviae or coprolites, which have been used for manure. From the Gault, which occurs at the northwest of Norfolk with the Greensand, we have specimens of Polythechia, Spongia paradoxa, Teretrabula, etc., some of them of a deep-red colour, obtained from the well-known Red chalk of Hunstanton. Table Case 4 is devoted to a grand collection of fossils from the Lower Chalk, made by the late Mr. C. B. Rose. The chalk itself contains numerous remains of minute organisms called Globigerina, and in the fine calcareous deposit, formed of their remains, shells of various descriptions, with corals and sponges (Ventriculites), have been preserved. The period of duration of the ocean, in whose bed the chalk fossils were buried till it was augmented to a thickness of hundreds of feet, must have been enormous. From the Upper Chalk are shown, in Table Case 4, besides numerous shells, remains of Pterodactyles, Plesiosaurus, and Mososaurus, some obtained from the Chalk Pit at St. James' Hill, Norwich. The Mososaurus
was a large saurian; an entire skeleton, fourteen feet long, was once dug out of the Chalk of St. James' Hill. The teeth and bones of the same species of saurian are frequently found. The Upper Chalk is banded at intervals with flints in which, as many examples show, are preserved in a solidified state some of the life forms that are only procurable in a fragile state from the Chalk. In the Wall Cases 7 and 8, and in Table Case 4 are exhibited representative fossils of the Upper Chalk and Chalk Marl, including teeth of fishes, cephalopods, sea urchins, and a specimen of *Inoceramus digitatus*, covered with marine worm tubes (*Serpulae*), presenting just the same appearance as we often see on the shells of large oysters of the present day.

We now come to the Tertiary or Kainozoic Life period, which comprises the Eocene, Oligocene, and Pliocene formations. The Eocene strata occupy in England two distinct tracts, termed the London and Hampshire Basins. Among the organic remains of the London clay are species of mammals, birds, turtles, crocodiles, fishes, mollusca, crustacea, protozoa, and plants. The climate of the period was rather tropical. Flower and fruit-producing plants are now found with the birds and mammalia. There are shown in End Wall Case 9, fossil specimens of Chelonia or turtles, as well as the humerus and part of the jaw of the *Glyptodon*, a great Armadillo-like mammal, which flourished in the last geological age in the region of South America, where there is still a fauna different in character from that of other parts of the world. Some of the birds of the earlier Tertiary period were of enormous size, and similarly large birds have been found in a semi-fossilized condition in the Southern hemisphere. The bones of the *Dinornis* from New Zealand belonged to a
remarkably large wingless bird. Judging from the vast number of remains of this bird found in New Zealand, and from the extraordinary diversity in size of their skeletons, the *Dinornis*, or gigantic Moa, must have enjoyed for long ages complete immunity from the attacks of wild beasts and man. The Moa varied in height from three to upwards of ten feet. The bones here shown are portions of those of *Dinornis casuarinus*, and *D. elephantopus*. The latter was undoubtedly a bird of great strength and heavy-footed, as the name (elephant-footed) indicates. In the same case are shown cast of the bones and models of the eggs of another extinct bird, the *Æpyornis*, found in superficial deposits on the Island of Madagascar.

The most important collection in the geological department is that which very fairly and fully illustrates the geology of the Eastern Counties, the Pliocene deposits, which extend far and wide, in varying thickness, over the Eocene and Cretaceous Series. The Pliocene comprises beds of Crag—Coralline Crag, Red Crag, Norwich Crag—Chillesford Sands and Clays, and the Forest Bed Series. In Table Cases 5 and 6 will be found fossils from the Suffolk or Coralline Crag, which consists of a series of calcareous shelly sands, sometimes marly, having a thickness of from forty to sixty feet. The Coralline Crag was so called because it was supposed to be rich in fossil corals, which, however, proved to be *Polyzoa*, organisms allied in character to our common sea mats. This formation is remarkable, not only for its large percentage of extinct shells, but also for the presence of Southern forms, such as are now found in the Mediterranean area. Below the Red Crag formation there occurs a bed with rounded phosphatic nodules, septaria, water-worn teeth, bones of land animals, and also parts of whales and of the enormous shark
called *Carcharodon megalodon*. Specimens of these are shown in Table Case 5. The Red Crag, a dark-red shelly sand, sometimes yellow, brown, or grey; it is well shown at Walton-on-the-Naze, Sutton, Bawdsey, etc. The Red Crag contains fewer shells of species now living in the Mediterranean and warmer latitudes. The fossils of the Red Crag include *Fusus, Pecten, Mactra, Tellina, Cardium, Mytilus, Nassa, Buccinum, Natica, Purpura, Turritella*, etc.

The Norwich Crag (Table Case 6) which is to be well seen at Bramerton and Thorpe just above the Chalk, represents a formation of about thirty feet, consisting of laminated clays and shingle, with in places seams of shells. The story told by these fossil shells is that the climate was gradually getting colder, till at last we have many shells only to be found in the northern or Arctic seas. There are no fewer than a hundred species of shells found in the Norwich Crag.

The Forest Bed Series forms one of the most remarkable deposits of East Anglia. This bed, so noted for the mammalian remains which it has yielded, maintains a remarkable persistence wherever it has been observed, at about the same level, along the shore or foreshore between Runton, Norfolk, and Kessingland, Suffolk. It overlies the Norwich Crag Series. The late Mr. John Gunn, of Irstead, who made the Forest Bed his special study, and who formed this grand collection of Mammalian remains, states that the soil of the Forest Bed appears to consist of an argillaceous sand and gravel (pan) or a compound of both, and to have been deposited in an Estuary. Bones of *Elephas meridionalis*, together with those of a great variety of deer and other mammals, are found in it, especially in the gravel, which, on that account, is called the "Elephant Bed." The bones are sharply fractured, but not rolled, and are associated with those
of whales and fragments of wood, indicating that the Estuary was open to the sea, most probably northward, for the admission of the whales; while it appears to have been closed at the Straits of Dover and Calais to afford a passage for the mammals into this country. This deposit of the soil may be regarded as the first phase of the Forest Bed; and here, we may observe, a long interval may have intervened between this and the second phase, which dates from the raising of the soil to the surface of the waters and the growth of the forest upon it. In this the remains of the *Elephas antiquus* are most abundant; other varieties of the elephant are found here, together with *Rhinoceros etruscus* and *Trogontherium Cuvieri*. This may be regarded as the True Forest Bed; the stools of the trees (see specimen under table case No. 3), belonging to it are visible along the coast at various places from Kessingland to Cromer. When there is a high tide, which scours away the beach at the base of the cliffs, this Forest Bed is exposed, and there are found in it the scattered cones of Scotch and spruce firs, with seeds of recent plants, and bones of at least twenty species of mammalia. These include elephants, hippopotami, rhinoceros, bison, bear, deer, and a gigantic beaver (*Trogontherium*).

In Wall Case 10 are displayed the vertebrae and bones of whales, and teeth and horns of animals, from that portion of the Forest Bed Series which was estuarine. As the visitor passes before the case there will be seen remains of these ancient and huge forms of animal life that lived in these latitudes when there was a different distribution of land and water, and when the land was covered with a dense arboreal vegetation. We have, in Wall Case 11, bones of deer and the musk ox, and teeth of the *Trogontherium*. One of the finest objects in the collection is the almost entire antler of an extinct species of deer, *Cervus Sedgwickii*, so named
after the venerable Canon Sedgwick, the well-known professor of geology. This specimen came from "the iron pan" at Bacton, on the coast. From the crown or ridge of the antler to the summit of the tip is at least four feet, whilst the lateral extension cannot have been less than six feet. The extinct Irish Elk hardly exceeded this deer in size. Close to this fine relic is a collection of teeth and other bones of the *Elephas meridionalis*; and in Wall Case 12 is the jaw of *Hippopotamus major*, from Cromer, presented by Miss Anna Gurney, alongside the scapula of a *Rhinoceros* from Mundesley. In the next Case (13) are parts of the pelvis of an elephant from the cliff at Mundesley, with metatarsal and other bones, including that of the ball and socket joint of the humerus. Most striking objects below are the pelvis and sacrum of another elephant from Mundesley. There is a fine humerus or upper part of the fore leg of an elephant, found in 1836, after a very high tide, exposed in the cliff near Bacton (Wall Case 14). Several specimens of the femur, thigh bone, and of the humerus or fore leg of elephants, from the same neighbourhood, with many teeth, and the lower jaw of *Elephas meridionalis*, found near Mundesley, help to supply evidence as to the character of the fauna of the Forest Bed period. The gigantic height and size of the elephants of the Forest Bed period may be judged from an inspection of these bones in conjunction with the monster tusk (Wall Cases 15 and 16) found at Runton, immediately under the Forest Bed, presented to the Museum by Sir T. F. Buxton. This tusk is nearly ten feet in length and two feet eight inches in girth. Dr. Falconer was of opinion that the animal to which this tusk belonged must have stood between sixteen and seventeen feet high.

The concluding Wall Cases represent the fossil remains
of the Quaternary or Post-Tertiary formation, which include beds of drift sand, gravel, and clay, deposited by glacier, ice-sheet, and iceberg action, during a period of intense cold. As a consequence, the Forest Bed period was succeeded by one of Arctic temperature, when the area was overspread by enormous masses of sands, gravels, and clays that now form for a great thickness the agricultural and brickearth-bearing soils of East Anglia. The Quaternary deposits consist of boulder clays and gravels, of raised beaches, of valley gravels and brickearths, and lastly of blown sand, tufa, cavern deposits, submarine forests, and peat. When the more intense portion of the Great Ice Age had passed away the animals which roamed the land were more nearly allied to those now existing. They, however, included *Elephas primigenius* or mammoth, *Bos primigenius*, *Cervus tarandus*, *Cervus elaphus*, *Hippopotamus*, *Hyæna*, *Rhinoceros*, *Sus*, etc. Examples of the remains of some of these animals are shown in Wall Cases 19 and 20. The climate in which the mammoth, etc., lived was still exceedingly rigorous, for that beast was covered with long woolly hair to protect it from the cold. The mammoth has been found entire, its flesh even preserved, in the ice of Northern Siberia, and in that country there is a considerable trade done in fossil or mammoth ivory. Man was a contemporary of this old fauna of the Quaternary period, for on fragments of tusks of the mammoth rudely-executed drawings of animal forms indicate that he was present, and had then reached the point when arts were introduced.

Belonging to a still later portion of the Quaternary period the Alluvial deposits of our rivers have yielded remains of the Wolf and other animals that have become extinct within historic times. A fine skull of the Gigantic Ox, from a valley deposit near Aylsham, illustrates this group
of animals. These serve to connect the past with the present.

The Fitch Collection.

The flight of stairs in the Geological Gallery leads to a small handsomely-fitted-up room, specially constructed to receive the valuable antiquarian collection given to the Museum just before his death by Mr. R. Fitch, F.S.A., whose miniature portrait is to be seen in the case in the centre of the apartment, and one taken at a later date hangs on the wall. Mr. Fitch, who died in 1895, at the advanced age of 92, had, throughout his long life, been a collector of all kinds of local antiquities, and in this work a deep interest was taken by his wife, who was born in the Castle, of which her father, Mr. Johnson, was for some time Governor.

Palæolithic man, or man who was contemporaneous with the Post-pliocene fauna, the mammoth, the cave bear, etc., is here represented by specimens of his rude and rough handiwork in the form of flint implements fashioned out of lumps of flint chipped into the form of a celt or adze. There is a large collection of these rude implements, fashioned by Palæolithic man, found at Melford, Lakenheath, Thetford, Santon Downham, Broom Hill, and other places, on the slopes of what was a broad river when, in Post-pliocene times, Britain stood 600 feet above its present level, and the streams now discharging themselves on the Eastern coast joined with those of the continent to form one vast river flowing through the Valley of the German Ocean (see Boyd Dawkins’ Early Man in Britain). The rude weapons found on ancient river terraces, on the banks of the Ouse in Norfolk and Suffolk, are those of River Drift
man, who “was a hunter of a very low order, but not lower than the modern Australian, and from his wide range over the Old World was probably of vastly greater antiquity than his successors in Europe,” the Cave men; for while “there is no reason for the belief that the River Drift man possessed any artistic skill,” the Cave man “possessed a singular talent for representing the animals he hunted.”

A wide interval separates the River Drift or Palæolithic man from the Neolithic man, whose productions, even at an early stage of the period, indicate a decided advance upon those of his predecessors; but at a later stage the polished implements and skillfully-fashioned arrow-heads show that he had made even greater advances in useful arts. Specimens of the tools and weapons of this period, found at Heckingham, Martlesham, Diss, Tasburgh, Grundisburgh, Belton, Ipswich, Dunham, etc., are interesting relics of the pre-historic farmer and herdsman, who everywhere commenced the story of civilization. These people co-existed with such wild animals as the beaver, Alpine hare, brown bear, grisly bear, elk, urus, and wild boar, and had domesticated the dog, horse, sheep, goat, shorthorn, and hog. They had so far advanced in the manual arts that they fashioned a rude kind of pottery, spun and wove coarse fabrics, and cultivated cereals. At Weeting, near Brandon, there are some hundreds of hollows which have been proved to be filled-in shafts leading to galleries in the chalk, from which these Neolithic folk obtained a specially fine pure form of flint, readily workable into weapons and implements. In a wall case may be seen an example, illustrating how these implements were fitted to a handle.

The age of Bronze, succeeding that of Stone, is illustrated by some admirable examples of bronze weapons and
implements found at Thetford, Methwold, Stibbard, etc. This bronze age dates back to a period long preceding the Roman occupation of Britain, though it is probable it extended, with a continued partial use of polished stone weapons, far into the historic era.

The cases containing these ancient relics of the dawn of civilization, showing that the fighting man and the hunter always precedes the cultivator and the cattle raiser, are arranged in proper sequence, so that the visitor has no difficulty in discerning at a glance the characteristic works of the successive stages of early human progress, anterior to the invention or introduction of letters.

A fine collection of Roman antiquities, found principally in Norfolk, shows that a high civilization was introduced into Britain by force of arms among a people who had not advanced beyond the bronze age stage. This collection includes a variety of articles that would only be known to a people indulging in many luxuries, and having considerable acquaintance with the fine arts. There will be found among them buckles, rings, brooches, tweezers, pendants, figures of gods, men, and animals. Very many of these antiquities were found at Caister Camp four miles from Norwich, close by the railway running from the city via Ipswich to London. This camp, thirty acres in extent, is still intact in form, parts of the walls being visible, where the earth has not been piled up upon them. Among these Caister antiquities are a bust of Geta, a Roman Speculum or mirror, a figure of Bacchus, a terra cotta relief of a head of Diana, etc. The bust of Geta has at the back a stump of a pin with which to fasten it to some object. The mirror is one of a few examples which have been found by antiquarians. There is one at Copenhagen like that in this collection. Both have perforated rims, and an extremely brittle reflecting surface, the
ROMAN ANTIQUITIES FROM CAISTER.

metallic compound of which the reflecting disc is composed is known as speculum metal, and "the disc of a reflecting telescope is apparently identical in its combination with the face of the Caister mirror." The figure of Bacchus is easily recognisable from its holding a bunch of grapes. There will also be seen in this collection a Roman iron key of a common type; a phallus in bronze, like those found in France; a cock in bronze; and various descriptions of fibula or brooch. The coins found at Caister in association with these antiquities cover a period extending from the first to the fourth century. Geta, whose bust in bronze is here produced, was the younger son of the Emperor Severus, who, with his brother Caracalla visited Britain, and who was subsequently poniarded by Caracalla in the arms of his mother.

In the wall case is arranged a series of Romano-British Urns, a class of antiquities which has obtained more or less attention in Norfolk since the days of Sir Thomas Browne,
Norwich Castle Museum.

who wrote his celebrated treatise on Urn Burial upon some urns discovered at Walsingham and Brampton. These urns witness to the Roman practice of cremation. The Romans paid great attention to funeral solemnities, believing them to be necessary for the peace and happiness of the deceased. Burning and burying the dead equally prevailed. If the corpse was designed to be burned it was carried to the place appointed, and there laid on the rogus or pyra, built in the shape of an altar, differing in height according to the quality

of the deceased. When the pile was burned down, the bones and ashes were gathered up and put into an urn, which was placed in a sepulchre and sprinkled with holy water.

In a case below, alongside the Roman antiquities, is a collection of antiquities for the most part Saxon, some of them from Felixstowe, where Felix, the first Bishop of East Anglia, landed in the seventh century. Among them are two torque rings, of beautiful workmanship, encrusted with a fine green patina, believed to have been enclosed with the
skeleton of a Roman lady found enveloped in a rude coffin of lead at Stone Hills, near Norwich.

A number of miscellaneous objects of interest will be found in the glass cases in the centre of the room. The contents of the central case, visible from any point, comprise some fine specimens of Oriental China, an example of Lowestoft China, a series of beautiful filigree silver-work

dessert plates, some elegant tape stem glasses, an old silver two-handled posset cup, bearing the Norwich hall mark, small sepulchral figures from Egypt, a Burmese idol, Battersea enamels, and other curios. The small ivory casket is a reliquary, or receptacle for sacred relics; and the curved pieces of ivory on either side, one carved with a
representation of the Annunciation, and the other of the Nativity, are what are called Pax-bords. At the Christian agape, or love-feasts, the "Kiss of peace" was given, following the words, "The peace of the Lord be with you." Of course the Church prohibited this promiscuous osculation, substituting for it the Kissing of the Gospel, with the image of the Virgin Mary on the cover. A similar ceremony ensued after the Agnus Dei, with the Pax-bord, a piece of ivory or board, carved with a sacred object.

In the centre one of the table cases is displayed a handsome silk and gold lace embroidered and trimmed bag, as large as a lady's satchel. This is an Elizabethan purse, which was worn outside at the girdle, like a wallet. In
Nichol’s Progress, mention is made of “a purse, such as factors do carry with them when they go to receive money.” Doubtless to safeguard it from the “cutpurses” of the day, this purse has brass fittings, with which it was fastened to the girdle of the wearer, who had embroidered on the under side of the purse, not visible to the outer world, some scriptural commands in relation to wealth, “The merciful shall obtain mercy,” Matt. v. 7; “But lay up treasure in heaven,” Matt. vi. 20; “He which soweth sparingly shall,” 2 Cor. ix. 6; “We have lily hands and angels’ faces, but read, O

ye flowers of England,” two verses, 1 Cor. i. 3, i. 13. The purse rests on a case, in which it was kept in the house. The vellum-bound volume alongside the purse is an ancient manual of devotion, in an Eastern tongue. Two ancient deeds, with parts of seals attached, are of the thirteenth century, and appertain to Norwich affairs. One has relation to the quit claim of a messuage in the parish of St. Giles’.
Norwich, belonging to Katharine, wife of Wido, the cordwainer. The date of it is 44 Henry III. The larger one is an indenture dated 1285, between the Prior and Convent of Holy Trinity, Norwich, and the Master and Brethren of St. Giles’ Hospital, Norwich.

The letters exhibited below are of interest, more for their autographs than for their contents. They commence with one bearing the autograph of Queen Mary, and end with one of William III. One of the two letters of the reign of Charles II. has relation to the examination of the Earl of Tweeddale, being signed by a number of Scotch peers, and the other to the granting of a pension to the Countess of Balcarres. To show how the memory of Charles I. was enshrined in the hearts of the Royalists, we have here a memorial of the ill-fated king, fashioned in the form of a small bust of gold, kept in a locket of the shape of a heart. This was worn by some fervent adherent of the Royalist cause. It was found in the Castle Gardens a good many years ago.

Mr. Fitch was a great collector of seals and rings, and in the table cases will be seen a good representative collection of these, all briefly described. It will be seen that many of the seals are those of Norfolk religious houses and families, they being used as the authoritative signatures of individuals when, if written, they could not have been generally read. All kinds of rings are included in this collection, many of them bear mottoes, which are inscribed on the labels. Some are lovers’ and others memorial rings. The large damaged seal in the corner of the case devoted to seals is that of the Prior and Convent of the Church of the Holy Trinity, Norwich Cathedral. It was found in the Wensum by a man employed in dredging the river, and got into the possession of F. W. Cotman, son of the artist.
In the case which contains the miniature portraits of Mr. Fitch, of his father, and of Mr. William Stevenson, a Norwich author and antiquary, there is exhibited, with some curios and very remarkable rarities, memorial medals, etc., a gold Niello, found at Matlaske, Norfolk. It is a representation of the crucified Saviour, with the Baptist on one side, pointing with his right hand to the Lamb, the Agnus Dei, recumbent on the Book or Written Word, which he holds in his left hand; and with a Bishop, mitred, on the other side, bearing his pastoral crook, but with no attribute of any kind to designate him. The figures are surrounded by flowers and foliage of the most delicate and graceful workmanship. The only other gold Niello, of which there seems to be any knowledge, is one found at Devizes. The name "Niello" is applied to this description of ornamental engraving because of the black (niger) background, but the object of the design is to represent symbolically the Golden Light of Truth revealed in the Darkness.

Very interesting is the series of table mats or roundles for cups, chalices, etc., displayed in the same table case. Each has painted on it a device of floriated design, and contains a motto, most of them being in rhyme. In the centre of one roundle is the text, "Swear not at all," and it is surrounded with the words, "A man that useth swearinge shall be filled with wickedness, and the plague shall never go from his house." Among the other mottoes are:

(1.) "With masking play and dancing,
    February doth begin;
Souse thy sport and pleasure,
    Without intent of synn."
(2.) "Hard is thy hope, yff thou dooste not thrive,
Thy fortune is to have wives fye;
And every one better than other,
God send the good luck, I wishe the noo other."

(3.) "Receive thie happ as fortune sendeth,
But God it is that fortune lendeth;
Wherefore if thou a shrew hast gott,
Thinke with thiself it is thie lott."

(4.) "Let every soule submit himself unto the auctoryte of the higher
powers. Pray for Kings and rulers. Keep the Kyng's commandment.
Keep the lords and ye Kings. Fear ye Lord and ye Kinge."

(5.) "As himself hee loveth his wife,
Never to change during his life;
Dysire is good of word and deede,
Whie mynaist yee or yee have neede."

A case in the corner contains a miscellaneous collection
of curios, including two excellent examples of small Roman
lamps, a torque, crucifix, beads, silver shoe buckles, casket
for perfume, and ladies' etuis for light articles of personal
use. On the wall hangs a circular carved wooden cheese
press, the central monogram being surrounded with the
following marginal inscription, "An harte that is wyse will
obstene from sinnes, and increas in works of God." The
beautiful carved piece over the door is a representation of
the story of Abraham offering up Isaac. The library cases
are fitted with rare books on Norfolk history and topography,
MSS. of Kirkpatrick and others, and the drawers contain
additional specimens of flint implements, and a collection
of local geological fossils, for Mr. Fitch was also a geologist.
The Keep, Antiquities, and Ethnology.

Here we have the nucleus for a collection, to which additions are being frequently made, and the arrangement of which has not yet been completed. The objects on the floor of the Keep that first claim attention are two mummies from Egypt, one from Sakkara, presented by James Morrison, Esq., and the other from Ekhmim, presented by Colonel Haggard, the brother of the novelist. The mummy from Sakkara is of the greater antiquity. The hieroglyphics on the sarcophagus of this mummy, both within and without, include some figures which tell of the story of the resurrection from the dead. The embalming of the human body, to ensure its preservation, was a practice adopted by the Egyptians, who believed it to be necessary for the return of the soul to the human form after it had completed a cycle of existence of some thousands of years. The body of Osiris, destroyed by Typhon, was found by Isis, and embalmed by his son Anubis. The figure of Anubis, with the symbols of generation, or renewal of life, in his right hand, is shown in the facsimile of the inscription on the interior of the coffin. In the British Museum are several sarcophagii, having on the exterior various hieroglyphics, and within the signs of the Zodiac and twenty-four human figures. The mummy presented by Colonel Haggard is not so old by several hundreds of years, and was probably embalmed only a century or two before the Christian era. The design on the coffin is a repetition of that on the wrappings of the body, and it will be noticed that while on the breast there are figures similar to the winged cherubim, under the feet are pictures of serpents. At the foot of the more ancient mummy is a portion of the sacred cake which was usually
placed with the body after the process of embalmment had been completed, as a symbol of the provision of food for the double, or soul, supposed to revisit the body.

Beneath the north part of the East Gallery is a series of four painted panels from the roof of the Jesus Chapel, in the Church of St. John Maddermarket, Norwich. They bear representations of angels holding scrolls, inscribed with portions of the Te Deum. These are specimens of the kind of ornamentation employed in Norfolk Churches from Edward III. to Henry VIII., when there was a great deal of intercourse between East Anglia and Flanders. The brass below is to Robert Brown and Alice his wife. Brown was Mayor of Norwich in 1522, and died in 1530. The long table in front of these antiquities is a shovel-board, originally the property of the Pastons, and came from Oxnead Hall. At the beginning of the present century it was purchased from Oxnead and removed to the Black Lion Inn, at Buxton, where the game was played by the villagers. An account of the game, as given in Strutt's Sports and Pastimes, is affixed to the side of the board.

Under the North Gallery is a handsome piece of tapestry, said to be of the time of Henry VIII., from St. Luke's Chapel, one of the apsidal chapels at the east end of Norwich Cathedral. The subject is unknown, but it appears to be historical, the seated figures being not unlike Henry VII. and his queen. It may be a piece of work to commemorate the restoration of national unity on the accession and marriage of the first king of the House of Tudor. Alongside it is a banner, displayed at the coronation of George II., by John Harvey, then Mayor of Norwich. The border is richly embroidered with the star of the sovereign order, and with the floral emblems of the United Kingdom, while in each corner is the royal monogram. In the centre are
the royal arms, the white horse of Hanover being in one of the quarterings. This was presented by Major F. Astley Cubitt.

Under the West Gallery there hang on the wall two cases, casts of engraved stones and electrotype copies of ancient coins from the British Museum. The engraved stones bear many of the mythological figures and emblems of ancient Greece and Rome. The coins and medals are those of Asia Minor, Phoenicia, Syria, and Egypt; of Northern and Central Greece, the Peloponnesus, etc.; of Italy, Sicily, the southern shores of the Mediterranean, and Western Europe, at different representative periods. Suspended from the Gallery is the wicker-work Snap Dragon, which was carried in the Guild processions of the Corporation prior to the Municipal Reform Act of 1835, when the Mayor, the two Sheriffs, the Court of Aldermen, the Common Council and their Speaker, with standard bearers, whiffpers and mace-bearers, made an imposing parade in their robes. In the wall case are the banners which the standard bearers carried, the staves of the beades, and the costumes and swords of the whiffers, who, wildly flourishing their blades, opened a way for the procession through the streets. Snap Dragon was originally the property of the Guild of St. George, founded in the time of the Lancaster kings. It was a religious fraternity, to which many distinguished county folk as well as the principal citizens belonged, and as the members of the Corporation always joined it, the customs and feasts it imposed by its arbitrary authority became burdensome and onerous. At the institution of the pageant of the Guild, a St. George rode on horseback, the protector of a fair Margaret, whom he had released from the jaws of the dragon. In 1731-2 the Guild of St. George delivered up all their charters, books, regalia, goods,
etc., to the Corporation, which continued their pageantry on the Guild day when the Mayor and Sheriffs were elected. Between two flying screens, for photographs, on the eastern side, in a beautifully-carved wainscot case presented by Mr. J. J. Colman, when Mayor in 1868, are exhibited some very rare books. Among them is a Wycliffe translation of the Bible in manuscript, each book commencing with an illuminated letter. This Bible has special interest, because it belonged to Sir James Boleyn, of Blickling Hall, the uncle of Anne Boleyn, the second wife of Henry VIII., whose life was so intimately bound up with the Reformation movement in England. James Boleyn was buried with great pomp at Blickling, in December, 1501. Below is a missal, according to the use of Sarum, printed at Paris, by William Morton, in 1555, and supposed to have belonged to John Still, Bishop of Bath, 1582-1607. Another Mass Book, according to the Sarum use, was printed at Paris, by Jehan de Pres. Alongside an illuminated MS. Book of Hours there is a MS. copy of the “Brut” Chronicle, a legendary chronicle that was written in the twelfth century, as may be seen from Wharton's History of English Poetry. A beautiful MS. copy of the Koran of Mahomet, from Constantine in Algeria, is also exhibited in this case. Below is a St. Alban's Book, from the St. Alban's Press of the fifteenth century. There were eight volumes issued from that press, including Dame Julian Berner's Book of Hunting and Hawking; but this is the only perfect copy yet found of the Antonii Andreæ Questiones Super Logica, A.D. 1481-2. Underneath is a Book of Legal Precedents of the time of Henry VIII. Several of these volumes come from the City Library, a large collection of ancient works belonging to the Corporation, and kept apart in special cases at the Free Library. The Opus Sphericum, 1510, and other tracts, by
Wynkyn de Worde, Richard Pinson, etc., are interesting examples of early printing.

The table cases alongside contain some objects of special interest. The portrait and medals of an old soldier are preserved as memorials of one of the Balaclava Six Hundred. Besides a rosary and cross of arbutus wood, from Killarney, a model of the temple of Neptune and a wooden door-lock from Egypt, there are in this case several good examples of phylacteries for the forehead and arms, and of the taleth, a kind of shawl with fringes, used by the Jews who are strict observers of the law. A central case will be of interest to all who care for fine weapons. There are examples of the old Enfield rifles, a fine French gun-barrel of 1633, a gun and bayonet taken at the Redan, a fine Sikh musket with gold mountings, Moorish swords and daggers richly ornamented, a Spanish inlaid rifle, and a very elegant example of the sixteenth century Italian crossbow. The third case has an interesting representative collection of many articles worn or used by the Chinese and Japanese, with some Caffre tobacco pipes. The Hawaiian canoe, with outriggers and paddles, given by Mr. and Mrs. Armstrong, and the Canadian birch-bark canoe, with six paddles, presented by Mr. Wyrley-Wyrley Birch, represent somewhat primitive means of travelling by water surviving in modern times. In the wall case on the south side is displayed a collection of dresses of different semi-civilized races, principally of the western hemisphere. Some of the costumes or dresses are from South America and the Fiji Islands. The Arctic costumes, etc., are represented by a cloak made of the intestines of a walrus, Esquimaux harpoons, and snow shoes from Vancouver’s Island. An interesting collection of garments, made of fibrous grass, and a helmet of feathers, with specimens of the weapons and fishing hooks
used by the native Maories, now almost extinct in New Zealand, were presented by Mr. S. Culley, the City Accountant, who was in his young days an agent for the New Zealand Government. South African native weapons are represented by a shield, presented by Dr. Colenzo, Bishop of Natal, sometime rector of Forncett, Norfolk, and by calabashes, a bag, a bow with poisoned arrows, etc. Specimens of manufactured goods sent from Madagascar and from the Mauritius to the great exhibition of 1862, illustrate the transition stage from barbarism to civilization.

On the wall are four photographs of the interior of the Keep, when it was in process of being cleared of the remains of the old seventeenth century prison buildings to be converted into an ethnological museum. The cases below contain various articles used for domestic, hunting, and fishing purposes in Tahiti, the South Sea Islands, New Guinea, etc. Further on, in another wall case, are examples of the painted punchas or fans from China, with finger-plate for the door, a Chinese signboard, Chinese pipes, Buddhist idols, and models of Chinese boats and catamarans. The centre compartment of this wall case has an interesting collection of models, illustrating the different castes and costumes of Southern India, and, above, a fan of feathers, quilted armour, and other objects from India and Travancore. The other compartment contains specimens of Chinese garments, umbrella, and models of Chinese junks. In the case in the corner on the west wall there are some relics of the Franco-German war from Metz, a Russian helmet from Sebastopol, a model of the trophy at Inkermann, a Turkoman saddle, a Malay creese, and other articles. Beyond the staircase, on the west wall, is a case with costumes, which illustrate how uncultivated savage methods of manufacturing clothing survive in civilizations.
that have become somewhat decadent. Notable among these is a cloak of grass worn by peasants of Oporto, and a straw cloak worn in Northern Portugal. On one side of these is a Moorish lady's hat with an amplitude of brim, and the gala head-dress of a Russian peasant, and on the other a specimen of the shepherd's smock, worn in East Anglia in the first half of this century.

There are three table cases yet to be noticed, standing almost on a level with the staircase. One contains a fine collection of richly-carved war clubs from the Islands of Samoa, New Caledonia, and the Solomon group; another a beautiful collection of articles of apparel, made of brilliant feathers, from Natal, New Guinea, New Zealand, the banks of the Amazon, and Travancore; and the third another assortment of war clubs and weapons from the Fiji Islands and the Friendly Islands.

Ascending the staircase to the Gallery there will be seen behind an angle at the northern end of the west wall an ancient cannon, supposed to have been made not many years after the invention of gunpowder. It is similar to one described in the Register of Arts, found near Calais, and concluded by a French engineer to have been employed at the Battle of Cressy, and afterwards at the siege of Calais. This curious gun is supposed to have been cast in the fourteenth century. On a ledge, in the northern wall, stand some leaden jars that came from Langley Priory, near Loddon, Norfolk. The large circular-hollowed stones form the upper portions of a series of querns or handmills for grinding corn. A quern consisted of two circular stones, the upper one pierced in the centre with a narrow funnel, and revolving on a wooden or metal pin inserted in the lower. The grain was dropped with one hand into the central opening, while with the other the upper stone was revolved by means of a stick inserted
in a small opening near the edge. A fine old cauldron stands in an opening in the wall. On the walls of the Keep is a somewhat varied collection of armour, representing a period extending from the fifteenth to the seventeenth century. These are all well-mounted and so clearly labelled that they need no description.

The cases below the armour, on the north wall, contain, the upper, a grand series of sepulchral urns and ancient stone ware, and the lower an interesting collection of antiquities, ranging from the rude Celt of the Palæolithic man,
who obtained his fire by friction, to the tinder-box which our grandsires used to strike a light. The urns are fine representatives of Roman, Romano-British, and Saxon sepulchral urns, some of them adorned with the chevron pattern. One was dug up beneath the shop of Messrs. Chamberlin, in Norwich Market Place, along with some coins of the Emperors Claudius and Aurelius. The green glass urn found at Geldeston, near Beccles, in 1849, with a fragment of a bulla and some of the calcined bones of a child, is remarkable because of the character of the material. Special attention should be given to the Anglo-Saxon urns, as the collection is regarded as one of the best of the kind in the provinces. Most of these were found in East Anglia, where there were many barrows and tumuli to mark the sites of places of interment of the remains of notable Saxons. The long two-handled vessel of reddish clay, ending in a sharp point to be stuck in the ground, is a fine specimen of the Roman Amphora, generally used for the storage of wine, though they were sometimes utilised as cinerary urns. A few specimens of broken Samian ware, tesselated pavement, tiles, etc., show the kind of pottery and flooring used in what few Roman villas there were in Icenia, which was held in subjection under a stern military rule. The urns found at Ashill, and presented by Mr. T. Barton, were discovered in making a cutting for the Swaffham and Thetford Railway, within a wooden shaft or well, three-and-a-half feet square and forty feet deep, formed of oak plank four or five inches thick, and put together like an Oxford frame, many antiquities were discovered at various depths—fragments of pottery, bones of oxen and deer, wickerwork, Samian ware, stamped with the maker's name, an iron knife, a whetstone, staves of an oak bucket, and a good many urns, three and four being found together with their mouths towards the angles
of the shaft. Some of the urns were deposited at a depth of thirty-four feet. Over the urns were placed stones, which had undergone the action of fire. Some had twisted bands of sedge round the neck, evidently used for the purpose of lowering them, and some were encased in basket-work. The bottom of the shaft was paved with flints. The total number of urns found was 120, of which more than fifty were exhumed entire. Mr. Barton contributed a long account of this discovery to the *Norfolk and Norwich Archæological Society's Proceedings*, Vol. VIII., p. 224.

An interesting collection of ancient drinking vessels is begun in the end wall case on the north side, and continued in the wall cases on the east side. These include many examples of early stone ware, including the curious two-handed drinking cups called Tigs, Bellarmines, gourd-shaped bottles, and the Pilgrim's bottle; besides leathern black-jacks, leather bottles, leather mugs, Flemish jugs, and wine bottles, or “decanters,” of Lambeth ware. Heywood, writing in 1635, in his *Drunkard Opened, Dissected, and Anatomised*, says, “Bottles we have of leather, but they were most used amongst the shepheards and harvest people of the country; small jacks we have in many alehouses of the citie and suburbs, tipt with silver; besides the great black jacks and bombards at the court, which, when the Frenchmen first saw, they reported, at their returne to their country, that the Englishmen used to drink out of their bootes.” The wall cases, in continuation of the Bow and Fulham ware, contain some Etruscan, Pompeian, Peruvian, and Egyptian pottery.

But to return to the table cases. There is here, as in the Fitch Room, a fine representative collection of implements and weapons of the Palæolithic, Neolithic, and the Bronze Ages. In the case containing Neolithic implements, there are shown some obsidian cores and flakes from Mexico, to
ANGLO-SAXON URNS.—p. 282.
further illustrate the universality of the stone weapon at an early stage of civilization. With the bronze celts and implements are associated two fine bronze swords, one found at Runimedé. Following these prehistoric antiquities, there is a collection of Roman fibulae, rings, etc., and another of Saxon antiquities, including beads and other articles used for personal adornment. A crystal ball, which was used as a kind of talisman in Saxon times, and even later, is placed near an enamelled gilt copper dish of Limoges of thirteenth-century work. Etruscan and Grecian Pottery, bronze lamps and figures from Pompeii, a mould for casting Pilgrim’s badges, found at Walsingham, which was famous for its shrine, and a large collection of ancient keys, including a gilt key, the badge of office of the Lord Chamberlain, and some quaint locks, are arranged in the succeeding cases, with old stirrups, spear heads, and a sword of the time of Edward I., dredged up in the Wensum, at Thorpe. The ball-like hollow ornamented pieces of metal, one of which and dug up in St. Augustine’s Parish, Norwich, are supposed to have been the weights of a mediæval steelyard. Two objects are worthy of special attention, and require some notes of explanation. One of these is the Clog Almanac, and the other the Exchequer Tally. In Brady’s Clavis Calendaria, the Clog Almanac, is described, according to Dr. Plott, as a piece of wood squared into four planed sides, with a ring on the upper end, to hang it on a nail. On each of the four sides are three months, the number of days being represented by notches. That which begins a month has a spreading stroke turned up from it. Every seventh notch of larger size means Sunday, and seems to show that the cycle of the sun or dominical letters are committed to memory. Over against many of the notches are placed on the left hand several marks or symbols,
denoting the golden number or the cycle of the moon. On the right hand from the notches are several hieroglyphics, representing festival and saints' days. In Chambers' Book of Days a condensed account of Dr. Plott's detailed description of the Clog Almanac will be found. The Exchequer Tally alongside it is the earliest form of a cheque with counterfoil. The amount this particular tally represented was £350 7s. 6d. When the money was advanced as a loan, a piece of wood was notched across in a particular way, to signify the amount of money passing from the individual to the chancellor. The piece of wood was then split into two, the person advancing retaining one piece and the person receiving the other. On the repayment of the money, the person who had advanced, or his representatives, had to produce the notched piece of wood, and as it would "tally" with that in the exchequer, he would receive what was due. Associated with these curiosities is a gun-barrel inlaid with silver, of the time of James I., found in a ditch in Norfolk.

Seals and rings are further represented in these cases. In that at the end is a badge with cross and garter of Sir Robert Walpole, of Houghton Hall, Norfolk; a glove found at Paston Hall, the seat of the Paston family, whose "letters" are historically famous; and an interesting miniature portrait of Oliver Cromwell, said to be by Cooper, lent by the Carter Trustees. This is one of the finest known portraits of the Great Lord Protector, and belonged to his grand-daughter, whose husband, Nathaniel Carter, left a sum of money to his poorer relations. This portrait was handed down, with the money, which went to the Carter branch. Not the least interesting objects in this case are a tinder-box, with sulphur-tipped pieces of wood, used previous to the introduction of the lucifer match, Battersca enamel
boxes, and a huge tortoiseshell comb, worn by ladies early in the nineteenth century. The fragment of bunting, in a small special case, is a portion of the flag of Nelson’s ship, the *Victory*. There hangs on the wall the facsimile of a brass from St. Clement’s Church, Norwich, put up there to Margaret Pattwode, widow, 1514.

In the table cases, on the east side, will be found a curious alabaster basso-relievo, representing the martyrdom of St. Erasmus, much defaced, but bearing some significant features. The Saint is represented as being disembowelled in the presence of the Emperor and his attendants. The second figure engaged in the torture is turning away his head as if sickened with his task. Associated with this piece, when found beneath the floor of Buckenham Church, Norfolk, was the early gilt and enamelled double cross and crucifix, contained in a case above. Close by is a moulinet or windlass, for stringing the cross-bow, some Russian icos, a portion of a triptych, in the Byzantine style of art, together with an example of Faenza ware of the sixteenth century. The Holkham sheep-shearing cup is one that was given in 1805 to a farmer, a tenant on the Holkham Estate, by Thomas William Coke, for improving the breed of sheep. Thomas William Coke, first Earl of Leicester, gave an extraordinary stimulus to Norfolk agriculture. The electrotype rose-water dish is a replica of the silver-gilt salver presented to the Norwich Corporation by the Hon. Henry Howard, in 1663. In these cases are also some interesting examples of engraved copperplates, several ancient carvings, and some specimens of Buddhist and Pali literature, written on leaves of plants, and held together in long narrow wooden covers. On the floor beneath these cases will be noticed a standard Winchester bushel measure of the Tudor period, and in the wall
cases are smaller standard measures of a like date, that belonged to the Norwich Corporation.

A very fine and early example of a large beautifully proportioned Etruscan vase is given a prominent position in this gallery and under its stand is a collection of early Romano-Christian textile fabrics. In some cases, further along under the wall, is a series of casts of Roman and Early Christian medallions and cameos. A model of a Burmese priest's house occupies a stand, and beneath are other models, one of a Bernese Chalet and the other of a handsome monument to the Marquis of Ormond. Another case contains casts of beautiful examples of classical friezes.

A curious vase or urn, reminding one of the simile that man is like a potter's vessel, is the Igacaba of the Muros Indians, from Manaos, South America. Human features and limbs are being developed, as it were, out of this urn, that was used for sepulchral purposes. The cases on the south side contain a collection of india-rubber toys from South America, a quiver and poisoned arrows from Mandingo, articles from the South Sea Islands, rude Indian ornaments, composed of the vertebrae of fishes, shells, etc., gourds, and some richly-ornamented calabashes adorned with the Brazilian Imperial and Republican Arms, made by Indians on the Amazon, with other objects from South America.

The Dungeons.

The architectural features and structural arrangement of the basement of the Keep have already been referred to (p. 40), but it is necessary to say a few words here as to its present contents. In the centre division of the basement
of the keep will be found a relic of the past in the form of a "Yarmouth cart." The peculiar "grid-iron" plan on which the Town of Yarmouth is laid out rendered it necessary, in order to carry on traffic through its narrow "Rows," that some special vehicle should be designed, and the "Yarmouth Cart" was the result. It is thus described in Palmer's *Perlustration of Great Yarmouth*, Vol. I., p. 22:—"The long, narrow vehicle has a low sledge about twelve feet long,

![Yarmouth Trolley Cart](image)

YARMOUTH TROLLEY CART.—p. 288.

*From Palmer's "Perlustration of Great Yarmouth."*

and about three feet six inches in breadth, just sufficient to allow the carriage to pass up and down an ordinary row, and its two small wheels, which revolve on a low axle, are, for economy of space, placed beneath the body of the cart. It is drawn by one horse, and the driver, when the cart is empty, stands upright on it like a Roman charioteer, and when laden, if he cannot sit upon the load, he walks by the side of the cart." Similar carriages of a better sort, having
a seat arranged above the wheels instead of the usual platform, were used by the better classes for pleasure. They were gaudily painted, and dignified by the name of "Yarmouth Coaches." Defoe says that "people are carried all over the town and from the seaside for sixpence, in what they call a coach; but it is only a wheelbarrow drawn by one horse, without any covering." Truly as has been said they were "the most whimsical carriages in the kingdom." Palmer states that the cart for the carriage of goods is said to have first come into use in the reign of Henry VII., and was hence called a *Harry-carry*. It was also called a Troll-cart or Trolly, a name retained to the last, for they are no longer used. It will be seen from the structure of the Troll-cart that it was extremely well-suited for carrying fish from the shore; the cart was run backwards into the surf where the large boat, which formerly brought the fish from the smacks lying anchored off the shore, lay grounded, and the "swills" of fish were piled on the back staging and transported to the town. Now all the fish is landed at the fish-wharf and loaded into the railway-trucks waiting on the siding. The Troll-cart and its uses have alike passed away.

In the glass cases round the walls are a large number of fossils from the pre and post-glacial formations, the bulk of them consisting of Mammalian remains from the Forest-bed; but there is one case of chalk fossils, part of the Rose collection. The contents of other cases are of a miscellaneous character. In September, 1839, the minute book of the Museum states that "Mr. Stark had most handsomely offered to present to the Museum his Phrenological collection" comprising, amongst others, "original casts of Oliver Cromwell, Pitt, Voltaire, Sir Isaac Newton, The Right Hon. Edward Burke, besides those of many other illustrious men; also casts of the heads of several murderers, idiots, etc."
This ill-assorted group will be found in one of the wall cases. The chief additions which have since been made appear to be the effigies of those who have attained an unenviable celebrity by (to use a significant expression) dying in their shoes.

The old well, 115 ft. deep, which supplied the Castle with water, will be noticed in close proximity. There is still a good supply of water, and it was used during the alterations in the Castle. When discovered it was quite filled with débris, but nothing of interest was found in clearing it out.

Passing through an opening in the party wall by the side of this ghastly-looking collection, we enter a square room, which was probably used as a dungeon, and has most appropriately been selected for the exhibition of a large
number of manacles and fetters of various description, which were handed over by the Prison Commissioners to the City authorities when the transfer of the Castle took place. These consist of chains of various weights and

patterns, some very heavy, intended for the legs and arms of prisoners; waist-belts, some of them with short chains attached, ending in handcuffs for confining the hands as well (Fig. 7); handcuffs of various patterns, some designed
to hold both wrists; manacles formerly used in the prison (Fig. 2); terrible iron bars, jointed at one end like the legs of a pair of compasses, which when closed, left three circles, one to hold the neck, the other two designed to confine the wrists as in a Pillory (Figs. 1 and 3), the arms in one being held in an elevated position level with the shoulders. These

fearful fetters weigh 32 lbs., and their use must have been attended with extreme torture to the wearers. There is also a short-leg fetter (Fig. 5), consisting of only the two anklets and eleven links, which weighs 17 lbs. These and many others bear witness to the severity of the discipline
inflicted in the prisons of this country, almost within the lifetime of the present generation. The late Mr Haggard, who, when chairman of the Visiting Justices, was applied to for the loan of these instruments of punishment for exhibition, accompanied his consent with an expression of the hope that the borrower would "improve the occasion" by "making it understood by the public that the utility of their exhibition is to exemplify the more humane system of punishment existing now to what then used to be." "It can hardly be conceived," added Mr. Haggard, "that within this present century, such a thing should have occurred, as a man being left to hang in chains on a village common, as occurred here [East Bradenham], and last year [1882] we found in the ground, near the stump of the gibbet now remaining, the cage in which he was suspended, and part of the skull remaining in it." The ghastly object to which Mr. Haggard refers will be seen in a glass case in this chamber of horrors, and in the same case is also the head portion of a similar gibbet-iron, used in suspending the murderer Cliffen on Badley Moor, March 26th, 1785. The last time this disgusting practice was carried into effect was in 1834; but in the same year it was abolished by Act of Parliament. Previous to that time the country was studded over by these human scarecrows.

Indications of weary hours passed by prisoners in this dismal dungeon will be seen in the rude scratchings and sculptures on the stones where apparently the scanty light which alone illumined this dreary abode was admitted.

The Murderers' Graves.

From the prison to the grave in former times was too frequently the last short journey of many whom now we
should consider as by no means past the hope of reform. Accordingly just outside the Castle, but within the enclosure, embedded in the west wall, will be observed fifteen tablets, bearing the initials of seventeen murderers of both sexes, with the dates of their executions, marking the spots in which they were interred, and with this melancholy exhibition, we will end our description of the Castle Museum and its contents.

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