A4: A Catalogue of Reconstructions of the Dodo (*Raphus cucullatus*)

Stresemann (1958) remarked that "none of the well-known reconstructions of the dodo known to me, which are displayed in the exhibition collections of the grand zoological museums, seem to me to correspond to reality" (p.455).

According to Krumbiegel (1940), the first museum reconstruction was produced in 1940. This was a life-size reconstruction of wood supplemented with plastic and covered with feathers coloured to match colours of the dodo, made with reference to Savery's illustrations (Krumbiegel 1940). At that time there was no method to easily colour the feathers and the technician had to dye feathers individually before inseritng them into the plaster body (Krumbiegel & Sehm 1986).

Mentioning the dodo reconstructions in London and Edinburgh, Renshaw (1921) stated that "the beaks, legs and feet being accurately rendered in plaster, while the curious grey plumage has apparently been borrowed from the crested screamer (*Chauna chavaria*)" (p.64).

Jenssen

At Hamel's request, Mr. Jenssen, a sculptor and pupil of Bertel Thorwaldsen, created a life-size plaster model of the dodo, based on material collected by Hamel and coloured according to Savery's paintings (Hamel 1846, 1847c, 1848, 1854).[1] It was intended for coloured casts to be made from this.

In the report of new acquisitions to the zoological collections of the Académie Impériale des Sciences de S^{t}-Pétersbourg during 1863, the director of the zoological and comparative anatomy museum, F. Brandt (1864) listed a plaster model of a dodo: "das Gypsmodell eines Dodo" (col.323). Whether this model was the same as that mentioned above is not known.

Abraham Dee Bartlett

The earliest mention of Bartlett's dodo reconstruction is evidently in a letter from him to Hugh Strickland (Bartlett 1899; D-146):

> "16A, *Great College Street*, *Camden Town*,
> "*September* 25, 1848.
> "Sir, – I beg respectfully to inform you that I have just completed what appears to me a perfect restoration of the long-lost Dodo, and am anxious that you should be the first person to see it. I shall feel much obliged if you will have the kindness by return of post to let me know if there is any hope of your calling at my house for that purpose. You may feel some surprise at the suddenness of this announcement and my not having shown it to any one, or allowed any person to know it was in progress. My reason for this was having long studied the subject, carefully examined all the parts, the paintings, etc. (I visited the Hague last year for the purpose of examining the picture in that collection), and formed my opinion respecting the bird, I commenced it at once, taking care no part should be seen until it was complete, for fear the views of others might differ from my own and I might be confused; again, the work being attended with much difficulty, requiring considerable skill, much time and perseverance, I was fearful of being annoyed by the impatience of my friends had they known it was in progress. As you already know, Dr. Melville lived in my house several months and wrote the second part of the Dodo book here, yet, to this hour, has no idea that I had it in hand. You will see that I possessed peculiar advantages during the time Dr. Melville lived here, having the head and foot from Oxford for his use, and he kindly allowed me to examine these parts whenever I pleased. I thus had the opportunity of examining the head more than once in a *wet* state, an advantage that may never occur again to any one (it was soaked in water by Dr. Melville for the purpose of turning the skin over the skull to display the bony structure). In this state it was of the greatest use to me, and enabled me to form a more

[1] *Contra* Renshaw (1931), who stated that Jenssen created the model in 1848 in Copenhagen.

> correct idea of the bird's head than I could gain by any other means, and I finished my model of the head before the real head left my house, so that I had an opportunity of comparing them.
>
> "I had an equally good chance with the Didunculus, which Dr. Melville placed in my hands for the purpose of obtaining the *skull* and *leg-bones*, which I did and afterwards replaced them. This added much to my knowledge respecting what I might expect was the natural size, *form* and condition of the *horny* part of the bill of the Dodo, and I finished it accordingly, quite to my own satisfaction; and I hope when seen by you and others competent to judge, it will be considered sufficiently perfect and complete to justify the great amount of time I have devoted to it.
>
> "I should feel much obliged if you would have the kindness to obtain for me a cast of the Dodo's head and foot to put by the side of the model" (quoted in Bartlett 1899, pp.3-4).

It was recorded in *Appletons' Journal* for 1874 that "Mr. Bartlett, of the Zoological Gardens, constructed a very perfect model of the dodo from a picture in the British Museum, aided by the descriptions of older naturalists" (Anon. 1874e, p.222).

In a letter to Strickland dated 9th November 1848 (D-147), Bartlett (from the same address as above) writes that he had shown his dodo reconstruction to Richard Owen, John Edward Gray and David William Mitchell (Secretary of the ZSL). He added that Mitchell wanted to exhibit it at the ZSL the following Tuesday (Rookmaaker 2010), which was duly done:

> At the meeting of the Zoological Society in Hanover Square, a model of the *Dodo* was exhibited, constructed by Mr. A. D. Bartlett, of Great College-street, Camden Town, and excited great interest. Among the gentlemen present we noticed the Dean of Westminster, Professor Owen, Mr. Yarrell, Dr. Melville, Mr. Gray, Mr. Gould, &c.: they all expressed great satisfaction at the scientific accuracy displayed by the artist in so perfect a restoration of this extinct but interesting bird. It may be necessary to state that the last living specimen was exhibited in Holborn 200 years since, and the only preserved skin was destroyed by fire 90 years ago, the head and foot of which alone were saved, and are now at Oxford The model may still be seen at the residence of Mr. Bartlett (Anon. 1849f, p.72).

Bartlett's dodo was exhibited at the Great Exhibition of 1851, in "Class 29.–Miscellaneous Manufactures and Small Wares", North Transept Gallery: "291 BARTLETT, ABRAHAM DEE, 16 *Great College Street, Camden Town*–Preserver. A life-sized model of the dodo" (Ellis 1851, p.816). Bartlett won a prize medal for his reconstruction. In the "Reports by the Juries on the Subjects in the Thirty Classes into which the Exhibition was Divided" it was reported that:

> A. D. BARTLETT exhibits an ingenious example of the art in the constructed figure of the Dodo [...] The drawings of Savery, preserved in the Belvedere at Vienna, and in the Royal Gallery at Berlin, and some remains of a skeleton formerly in the collection already alluded to, of Elias Ashmole, consisting now but of the head and one foot–are the data from which the figure has been compiled. The process is of course very different from that of preserving a real animal, the skeleton and skin of which are entire: an artificial body has to be constructed, and then covered, feather by feather, with such plumage as is most in accordance with our knowledge of the bird. This has been very skilfully executed; and the result, by the testimony of Mr. Strickland, and of Mr. Gray of the British Museum, "represents with great accuracy the form, dimensions, and the colour of the Dodo, as far as these characteristics can be ascertained from the evidences which exist," whilst it "does great credit to Mr. Bartlett's skill, and to his practical acquaintance with the structure of birds" (Anon. 1852, pp.1440-1441).
>
> List of Awards: "BARTLETT, A. D., Great College Street, Camden Town, (Class XXIX, No. 291). Prize Medal, for a model of the Dodo, and several excellent examples in the higher branches of Taxidermy" (*ibid*., p.1443).

In a letter to Strickland, dated 7th September 1852 (E-0093), Bartlett (10 Little Street, Covent Garden) wrote to Strickland that he was making specimens for the New Crystal Palace and that "the Dodo no doubt will be there" (quoted in Rookmaaker 2010, p.46).

Bartlett's dodo was moved to the Crystal Palace at Sydenham and destroyed in a fire there in 1866 (Bartlett 1899).

Richard Owen intended to have models of dodos at the Crystal Palace exhibition, but these were never completed (D. W. Naish, 16th August 1995: http://www.cmnh.org/fun/dinosaur-archive/1995Aug/0216.html [Accessed 13 June 2007]).

Graham Renshaw

Graham Renshaw created two reconstructions: a "White Dodo, Adult Male" and a "White Dodo, Sub-Adult Male". These were "Restorations after Holsteyn, Goeimare and Hofnagel". Figured: Renshaw (1938, plate opposite p.86 [reproduced: Parish 2013, fig.4.27]).

In the list of donations to the Natural History Museum, Bristol Museum, it was noted that Graham Renshaw gave a "Photograph of restored model of Dodo" (Bolton 1911, p.22).

Natural History Museum, London and Tring

The Natural History Museum, Cromwell Road, London SW7 5BD

The Natural History Museum (formerly the Walter Rothschild Zoological Museum), Akeman Street, Tring, Hertfordshire, HP23 6AP

Model of the Mauritius dodo, and of the White (Réunion) dodo. Made of plaster and polyester with duck and goose feathers added (Kruyfhooft 1986). The dodo reconstruction was acquired in 1915 as a gift from the Trustees of the Rowland Ward Bequest (Fletcher 1916). Harmer (1916) noted that: "Among the more noteworthy additions to the Gallery may be mentioned [...] a model of the Dodo (*Didus ineptus*) presented by the Trustees of the late James Rowland Ward" (p.67). Regan (1921) recorded the acquisition in 1920 of: "A restoration of the Bourbon Dodo or White Dodo (*Didus borbonicus*); *presented by the Trustees of the Rowland Ward Bequest*" (p.114). This was obtained for the Bird-Room (Sclater 1922). Ogilvie-Grant (1921) noted that the reconstructions of the dodo (*Didus ineptus*) and Réunion dodo (*Didus borbonicus*) were then on display. They were formerly housed in the sixth bay, along with the remains of the dodo (Monro 1931). There are two photographs, dating from 1946, of the BM Rowland Ward dodo reconstruction, in the NHMUK Archives (PH/308/5, PH/308/6). PH/308/6 shows the following label at the base of the reconstruction:

> Life-size restoration of the Dodo.
> The name Dodo is believed to be derived from the Portuguese *Doudo*,
> "a simpleton". The Dutch called it *Walghvogel*, "nauseous bird",
> claiming that no amount of cooking made it palatable.

NHMUK dodo reconstruction. (*Left*: courtesy of Jan den Hengst. *Right*: © Jolyon C. Parish).

The dodo and Réunion dodo reconstructions are currently in a display case along with other extinct birds in the Bird gallery (pers. obs. 1993, 2008).

Fortey (2008), however, gives a different origin for the NHMUK dodo reconstruction:

> Halfway along the gallery is a fine dodo, the famous extinct bird, all decked out in whitish feathers. It is, of course, a bogus bird, since no perfect specimens survive in the collections. In fact, it was largely based upon a painting, which may or may not have been painted from life. The feathers are stuck on. The talented modelmaker Arthur Hayward[2] was asked to make the life-size replica in the early 1950s – and swan feathers were just what was needed. to make the thing convincing. The trouble is that Thames swans belong to the Guild of Lightermen or to the Queen. One is simply not allowed to go and grab a swan. This didn't deter Barney Newman,[3] another of the Museum's distinguished topers. He and an accomplice went down to Hammersmith Bridge and grabbed a large cygnet from under the bridge where nobody could see what they were doing. It was stuffed into a bag and thence into the back of an unmarked van. One version of the story has it that they were stopped by a policeman while speeding back to the Museum, and that Barney had to do creative coughing every time the bagged bird struggled in the back of the van (pp.279-280).

If correct, this could perhaps refer to repairs made to the NHMUK reconstruction(s), as the NHMUK models themselves have an early twentieth-century provenance (see above).

Figured: Bellamy (1978, p.180); Geeraerts (1982); Kruyfhooft (1986, p.22); Fuller (2002, p.30); Den Hengst (2003, p.102); Fuller (2003, p.40); Van Oppen (2003); Davis (2005, p.23); Grihault (2005, p.77); Thomas (2006, p.22); Fortey (2008, p.280); Stoelinga (2008); Hume (2009a, p.53); Hume (2009b, p.29). • Zoological Museum, Tring. Reconstruction of a dodo (postcard: British Museum (Natural History). Card DPA 47). • *Raphus cucullatus*, dodo. Mounted specimen of the flightless dodo, now extinct (postcard: NHMPL, Natural History Museum 2004). • Photograph in the BM(NH) "Birds: General Series (No. 1)" (*c*.1945) postcards. • "DODO (*Didus ineptus*) 1/10 natural size BRITISH MUSEUM (NATURAL HISTORY) C22 Printed by Waterlow & Sons Limited" (NHM postcard C22,

[2] Arthur George Hayward (early 20th century-1999). Model maker and taxidermist at the British Museum (Natural History). He began working at Tring in June 1947 as assistant to A. H. Bishop and transferred from Tring to South Kensington in mid December 1947, where he worked in the Exhibition Section.

[3] Barney Newman. British palaeontologist, Worked in the Palaeontology Department, British Museum (Natural History)

*c.*1960). • NHM Picture Library Images 30917, 47300-47313. Figured (illustration): Luna de Carvalho (1989, fig.1h).

NHM dodo reconstruction (© Jolyon C. Parish).

The reconstruction of the "Bourbon Dodo or White Dodo (*Didus borbonicus*)" was presented by the Trustees of the Rowland Ward Bequest. The accompanying notice reads:

> Reunion Island Dodo
> *Raphus solitarius*
> Reunion Island
> (Model / life-size reconstruction)
> (Extinct)
> A close relative of the Mauritius Dodo, the
> Reunion Island Dodo is known only from pictorial
> records. This is not a real specimen, only a
> modelled reconstruction.

NHM Reunion Island Dodo reconstruction (© Jolyon C. Parish).

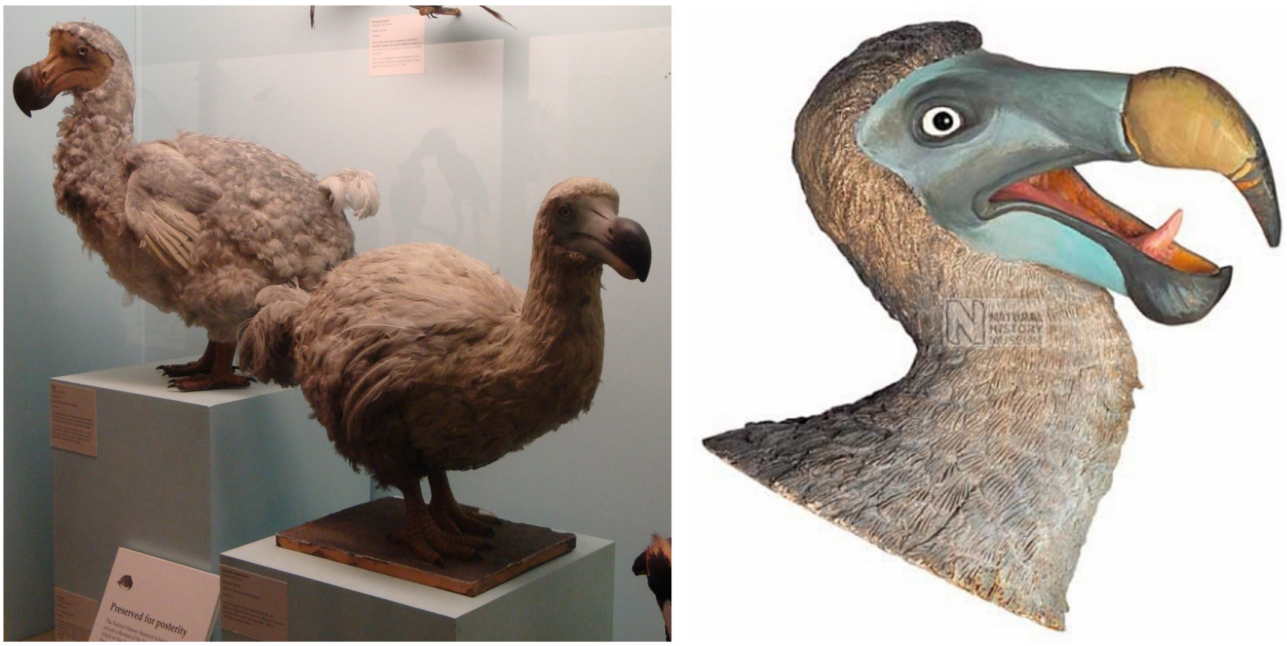
The Zoological Museum, Tring, also has feathered reconstructions of the "White Dodo or Solitaire" and the dodo on display. The "White Dodo" has white plumage, pale yellowish wing, pale blue-grey face and yellowish rhamphotheca and tarsi. The dodo has whitish and greyish plumage, pale brown face, dark brown rhamphotheca and yellowish-brown tarsi. Both are "natural size". Krumbiegel &

Sehm (1986) remarked that the dodo "reconstruction, in gray tone, is rather insipid, it is reproduced in the guide of this museum (1979)" (p.24); it was mentioned by Lambrecht (1933). The two reconstructions, along with the dodo skeleton, were part of a small temporary exhibition "The Secret World of Museum Science", held at the museum from 16th May to 6th November 2011. Figured: Gore (1989, p.699 – with several other stuffed extinct species, and Iain Bishop, curator at Tring; photograph by Jonathan Blair). NHM Picture Library Image 31220. White dodo figured (illustration): Luna de Carvalho (1989, fig.1f).

Tring dodo reconstructions (*left and middle*: NHM Picture Library. *Right*: © Sarah Hartwell).

Walter Rothschild exhibited a reconstruction of the female White Dodo based on a picture by Withoos (presumably Withoos-NHM) and information given by Oudemans, at the 234th Meeting of the British Ornithologists' Club, held at Pagani's Restaurant, 42-48 Great Portland Street, W., on 13th November 1918. The colour of the basal half of the bill and the naked face were based on a picture by Holsteyn, as it is "on a larger scale" and the other birds are depicted accurately (Anon. 1919, p.17). The reconstruction was made by Messrs. Rowland Ward Ltd., under Rothschild's supervision (*ibid*.).

There is also a coloured model of a dodo's head and neck by Julian Pender Hume. NHM Picture Library Image 39876



Left: NHM dodo reconstructions (5th June 2009. © Chris Freeland). *Right*: NHM coloured model of a dodo's head and neck (Natural History Museum Picture Library).

Reconstruction of the dodo, displayed in the "Extinction: Not the End of the World?" exhibition in the Jerwood Gallery from 8th February until 8th September 2013. The model closely resembles Kitchener's and has grey facial skin, white iris, brown rhamphothecae, brown plumage and yellowish tarsi. http://www.bbc.co.uk/news/magazine-21351017 [accessed 7 February 2013]

Oxford University Museum

Oxford University Museum, Parks Road, Oxford OX1 3PW

OUM no.21640 life-size reconstruction of the dodo made by Derek Frampton, taxidermist and modelmaker of Kings Langley, near Hemel Hempstead, Hertfordshire, 1998. The reconstruction is reasonably accurate and has grey plumage, darker on the crown, dorsal parts and lower tarsus. The feet are yellowish orange-brown, with black nails. The feet resemble the BM specimen. The primaries, secondaries, and primary coverts are white. The skin of the face is bluish-grey; the fold of skin around the rim of the face (forming the hood) is darker, and the rim of the mouth is yellowish. The irides are white. The upper rhamphotheca is brown, passing into black near its tip and lower part. The reconstruction measures 31 inches (78.7cm) long, 30 inches (76.2cm) high and 16 inches (40.6cm) wide (OUM records). Figured: Fleet (1999, p.6); Gill & West (2001, p.154); Dissanayake (2004, p.165); Lucas (2007a, p.83); Pickering (2010, p.29).

OUM dodo reconstruction (*Left*: © Ballista, from the English language Wikipedia. *Right*: © E. C. Parish, 31st August 1999).

OUM dodo reconstruction (© Jolyon C. Parish).

Oxford dodo display (© BazzaDaRambler, 9th January 2009).

Grant Museum of Zoology and Comparative Anatomy, University College London

Grant Museum of Zoology and Comparative Anatomy, University College London, Rockefeller Building, University Street, London

Small model of the dodo, created by Tom Payne. It has black rhamphothecae, grey plumage with pale grey breast and brown-orange tarsi and feet and was designed to be handled by students. It was created for one of three 'Hero' specimens on display (the dodo bones, the others being the quagga and thylacine): "Before the museum moved, [see Catalogue of Specimens] model maker Tom Payne came into the museum and asked if there were any models he could make for the museum. After some discussion we decided that we'd like to have little life models made of three of our highlight specimens, the quagga, thylacine and dodo" (Carnall 2011). The specimens were acquired by the museum in 2011 and accessioned. Figured: Payne (2010, 2011), Carnall (2011).

Royal Museum of Scotland, Edinburgh

Royal Museum of Scotland, Chambers Street, Edinburgh EH1 1JF

Life-sized dodo reconstructions (**NMSZ 1991.022**, **NMSZ 1993.048**) (Kitchener 1993a). "In 1990, the late Marquis of Bute [John Crichton-Stuart (1933-1993)], then chairman of the Board of Trustees of the National Museums of Scotland, asked me to come up with a new reconstruction of this famous extinct bird [the dodo]. He saw a golden export opportunity in selling life-size models of the dodo as patio novelties to wealthy Americans, though in the event only a few cuddly toy dodos were ever produced" (Kitchener 1993b, p.24). The reconstruction was placed on display in an exhibition on nature conservation, "World in Our Hands", at the Royal Museum of Scotland. It was created by Derek Frampton: "I handed everything over to a brilliant taxidermist, Derek Frampton, and after eight weeks of meticulous and skilled modelling, a new dodo was 'hatched' in a barn near Hemel Hempstead" (Kitchener 1990, p.514). Figured: Kitchener (1990, p.513; 1993b, p.27). Figured: Gee (1990, p.513 ["Christopher Fransella/Raymond Fortt Studios"]); Kitchener (1990, p.513); *The Times* (23rd January 1992, p.5); Kitchener (1993b, p.27); Ziswiler (1996, p.65); Fuller (2002, p.151); Den Hengst (2003, p.102); Fuller (2003, p.21); Van Oppen (2003); Seymour (2003, p.41); Parish (2013, fig.5.50).

Kitchener's dodo reconstruction (courtesy of Jan den Hengst).

Edinburgh also possesses an early twentieth-century dodo reconstruction (NMSZ 1915.53), made by Rowland Ward and bought for £15 (Kitchener 1993a). It is similar to the BMNH dodo reconstruction and has greyish plumage, a brown face, and blackish-brown rhamphothecae. It was mentioned by Renshaw (1921) and was formerly placed in the "Extinct Animal Hall" (Department of Natural History) (Muirhead 1953). Figured: Renshaw (1931 [reproduced: Parish 2013, fig.Intro.6]).

In order to determine the body-mass of the dodo, Andrew Kitchener created a one-fifth-scale wire, cardboard and plasticine model (Kitchner 1993a). Figured: Kitchener (1993a, fig.3a).

Hancock Museum, Newcastle upon Tyne

Natural History Society of Northumbria, The Hancock Museum, Barras Bridge, Newcastle upon Tyne NE2 4PT

A dodo reconstruction made by Eric Morton, an assistant curator at the Hancock Museum, based on a skeleton, a cast of the Tradescant head and foot and contemporary illustrations. Morton made the dodo reconstruction as the centrepiece for a permanent display entitled the "Living Planet" which opened at the Hancock Museum on 2nd February 1996 (June Holmes, pers. comm., 27th March 2012). In the exhibition, which concerned the extinction of species, a bell tolled every half-hour to mourn the continuing extinction of species (Scott 1996). The reconstruction was constructed using a swan feathers and skin (*ibid*.). Figured: Scott (1996, p.27).

NEWHM: AX7686 reconstruction of the dodo made by Messrs. Rowland Ward in *c*.1919. It was presented by William George Armstrong[4] in April 1919 (June Holmes, pers. comm., 27th March 2012). In his "Report on Museum Work 1918-1919" E. Leornard Gill (1921) mentioned that Armstrong donated a "reproduction of the dodo" (p.lxiii). It is recorded in the "List of Donations for the Year Ending June 30th, 1919" in the same volume (p.lxiii). The model itself has a brown face, black rhamphothecae, bill ridges, grey plumage with white tail (probably ostrich feathers) and primaries, and brown tarsi and toes. Figured: Gordon (2010); Morton (2005).

NHSN Annual Report 1918-19, p.10:

[4] William George Armstrong (1810-1900), a benefactor of the Natural History Society of Northumbria and friend of John Hancock (June Holmes, pers. comm., 27th March 2012).

> A gift from Lord Armstrong which has attracted a good deal of attention is a clever reproduction of the dodo made by Messrs. Rowland Ward.
>
> RIGHT HON. LORD ARMSTRONG. – Reproduction of the dodo (Didus ineptus), the work of Messrs. Rowland Ward.

……

Archive Collection NEWHM:1996.H305.3. Curator's Manuscript Report, 9th April 1919 by E. Leonard Gill:

> The most striking acquisition of the month – in fact one of the most interesting of recent years – is a reproduction of the dodo presented by Lord Armstrong. It was made by the firm of Rowland Ward and is an excellent piece of work.

Hancock Museum dodo reconstruction (© Tyne & Wear Archives & Museums 2010).

Horniman Museum

Horniman Museum & Gardens, 100 London Rd, Forest Hill, London SE23 3PQ

NH.38.34 Dodo reconstruction made by the firm of Rowland Ward. It was bought for the museum in 1938 and is currently on display in the Worldwide Extinctions exhibit of the Natural History Gallery. Measurements: without mount: 725 mm x 700 mm x 400 mm.

[http://www.horniman.ac.uk/object/NH.38.34 Accessed 25 October 2011]

Horniman dodo reconstruction (© Horniman Museum).

Leicester Arts and Museum Service

New Walk Museum & Art Gallery, 53 New Walk, Leicester LE1 7EA
Reconstruction of the dodo. Exhibited at the Booth Museum of Natural History, 3rd November 2001 to 27th January 2002. Figured: Dodo (*Raphus cucullatus*) (postcard published by Leicester City Museums 1999).

Leicester dodo reconstruction (© Jolyon C. Parish, 3rd November 2001).

Bristol City Museum

Bristol City Museum & Art Gallery, Queen's Road, Bristol BS8 1RL
Reconstruction of the dodo, currently exhibited in the World Wildlife Gallery (Trebilcock 2007) on the first floor. The mount bears the following information: "Rowland Ward. 167, Piccadilly, London", but no further details are known (Rhian Rowson, pers. comm., 14th March 2012).

Bristol dodo reconstruction (*left*, *right*: © Nick Pope (NRJP), 27th February 2010; middle: © Rupert Nye, 12th October 2010).

Bristol dodo reconstruction (© Nick Pope (NRJP), 27th February 2010).

Kendal Museum

Kendal Museum, Station Road, Kendal, Cumbria LA9 6BT
Modern reconstruction of the dodo made by taxidermist Carl Church of Pickering, North Yorkshire. The following is Carl Church's description of the making of the model:

> The high head carriage is an artistic interpretation and many skeletons are built this way. The bird would be able to lift it's [*sic*] head correctly to a similar height as a pheasant, but a more comfortable height carriage is shown in the recreation, being similar to what looks natural and comfortable for a pheasant.
>
> Many recreations have been made in the last century showing fully developed primary feathers which seem incorrect for a flightless bird and old paintings from the 17th and 18th centuries show more of an undeveloped wing. The conclusion, therefore, is a lighter

> framed recreation, but not too dissimilar from the iconic image; a lower, comfortable life like head carriage showing a more inquisitive bird with the undeveloped wing referred to earlier.
>
> Using all the information I had gathered and my knowledge of bird anatomy, a scale model of a Plasticine dodo was sculpted. Once the overall shape was achieved the pose was chosen. Many recreation dodos are made standing, whereas I believe a walking pose would give movement and interest.
>
> Happy with the finished manikin the head and feet were removed and remodelled separately. Slight alterations were made to the body to make the casting easier and a fibre glass jacket was used to produce foam blanks.
>
> The feet were made initially by moulding turkey's feet in a walking pose then using an expanding process to increase the size and produce large life-like feet and these were finally cast in a two part plastic. The head was sculpted with apoxy over a cast skull and modelled with the eyes removed. Once moulded this was cast in a two part plastic using a swilling technique to produce a hollow head and the eyes were fitted from the inside.
>
> Now all the main components were put together, the feet were attached to the body and the head added to achieve the correct angle. Large sections of feathers were placed on the manikin and working from back to front, using taxidermy techniques and feather placement, the model was finally covered. Using historical descriptions and colour shading from birds of a similar feathering, the head and feet were painted (http://www.birdtaxidermy.co.uk/dodo_project.html [accessed 24 November 2011]).

Carl Church began working on the concept for a dodo reconstruction in 2002, but it was not until 2007 that he considered that he had sufficient information to begin making it. The first reconstruction was placed in a large private collection for the first six months before subsequently being put on public exhibition at Kendal Museum. It was displayed at the book launch of "The Kendal Museum Collection of Fine Art Taxidermy by Henry Murray and Son", Volume 2, held on 23rd October 2009, and was subsequently sold to Kendal Museum. A second model was commissioned by the television channel 'Dave' for the programme "Alexander Armstrong's Big Ask", first broadcast on 6th February 2012. It was subsequently purchased by a private collector. Another was made for a private collection. Church is currently working on four further dodo models, all in different poses and all for different destinations. Church created new reconstructions of the dodo, including adult birds, a chick, and a dead hanging dodo, which were exhibited for the first time in the "Great Dodo Exhibition" at Kendal Museum from 4th July 2013 (Anon. 2013). The exhibition ran until the end of October 2013. Bronze casts of Nick Bibby's dodo sculptures (Pangolin Bronzes; see below) were also lent for the launch of the Kendal Museum exhibition. In addition, a skeleton cast and a real bone were also displayed (see Catalogue of Specimens).
http://www.kendalmuseum.org.uk/what's_on_130502_great_dodo_exhibition.php [Accessed 11 July 2013]

A limited number of dodo reconstructions are to be made each year (Carl Church, pers. comm., 17th March 2012). Additional information from: http://www.birdtaxidermy.co.uk/dodo-project/ [accessed 18 September 2012] Figured:

> http://www.birdtaxidermy.co.uk/dodo_project.html
> http://www.birdtaxidermy.co.uk/dodo_project2.html
> http://www.birdtaxidermy.co.uk/dodo_project3.html
> http://www.birdtaxidermy.co.uk/dodo_project4.html
> [Accessed 24 November 2011]

Stages in the construction of Carl Church's dodo reconstruction (© Carl Church).

Carl Church's first dodo reconstruction (© Carl Church).

Carl Church's first dodo reconstruction (© Carl Church).

Another of Carl Church's dodos (© Carl Church).

Carl Church's dodos (© Carl Church).

Gallery Pangolin

Extinct Species, Gallery Pangolin, 9 Chalford Ind. Estate, Chalford, Gloucestershire GL6 8NT
Life-size dodo sculpted by Nick Bibby (Pangolin Bronzes) in bronze. Carl Jones, together with Rungwe Kingdon and Claude Koenig (directors of Pangolin Editions), engaged Nick Arnold, Errol Fuller and Julian Hume in order to gather information for the construction of a model of the dodo and other extinct Mascarene species. Nick Bibby, sculptor, then created the reconstruction, which was cast in bronze. A bronze cast was placed on Île aux Aigrettes (see below). The bronze cast sculptures are in limited editions of ten. Its height is 78cm (Koenig *et al*. 2004). Figured: Koenig *et al*. (2004); Grihault (2005, p.28).

Nick Bibby also sculpted the head of a dodo in bronze, 35cm high (Koenig *et al*. 2004). The reconstructions were completed in 2003 (Jane Buck, pers. comm., 15th March 2012). A cast is on Île aux Aigrettes Reserve (Mauritius Wildlife Foundation) and another is on long-term loan to the Ashmolean Museum, Oxford. Figured: Fuller (2002, p.27); Fuller (2003, p.24); Koenig *et al*. (2004); Grihault (2005, pp.6, 26, 142); Lucas (2007a, p.86); Whistler (2010, p.49).

Bibby's reconstructions of the dodo are probably amongst the most accurate.

Nick Bibby's dodo reconstruction in preparation (© Gallery Pangolin).

Nick Bibby's dodo reconstructions (© Gallery Pangolin).

Nick Bibby's dodo reconstruction (© Gallery Pangolin).

Ashmolean Museum, Oxford

Ashmolean Museum, Beaumont Street, Oxford OX1 2PH

A bronze cast of Nick Bibby's dodo (Pangolin Bronzes; see above) is on long-term loan to the Ashmolean Museum of Art and Archaeology and has been placed on exhibition.

National Museum of Wales (NMW)

National Museum and Gallery Cardiff, Cathays Park, Cardiff, CF10 3NP

NMW 15.12 (accession number). The Council of the National Museum of Wales purchased a model of the dodo prepared by Messrs. Rowland Ward of London, "from published descriptions of the birds, and from an oil painting now in the British Museum, by Roland Savery" (Proger & Paterson 1915, p.47), in 1915 (Peter Howlett, pers. comm., 22nd March 2012). Hallett (1916) noted that on 8th March 1915 an

exhibit of the "preparations of this bird [the dodo] and the Greak Auk as they appeared in the flesh" was made and commented on by William Evans Hoyle (p.98). The reconstruction is grey, with bright yellow feet.

Hunterian Museum, Glasgow

The Zoology Museum, Hunterian Museum, University of Glasgow, University Avenue, Glasgow G12 8QQ

Small plaster plaque of a dodo. Housed in the Geology collection of the Hunterian Museum, Glasgow (Maggie Reilly, pers. comm., 24th April 2012).

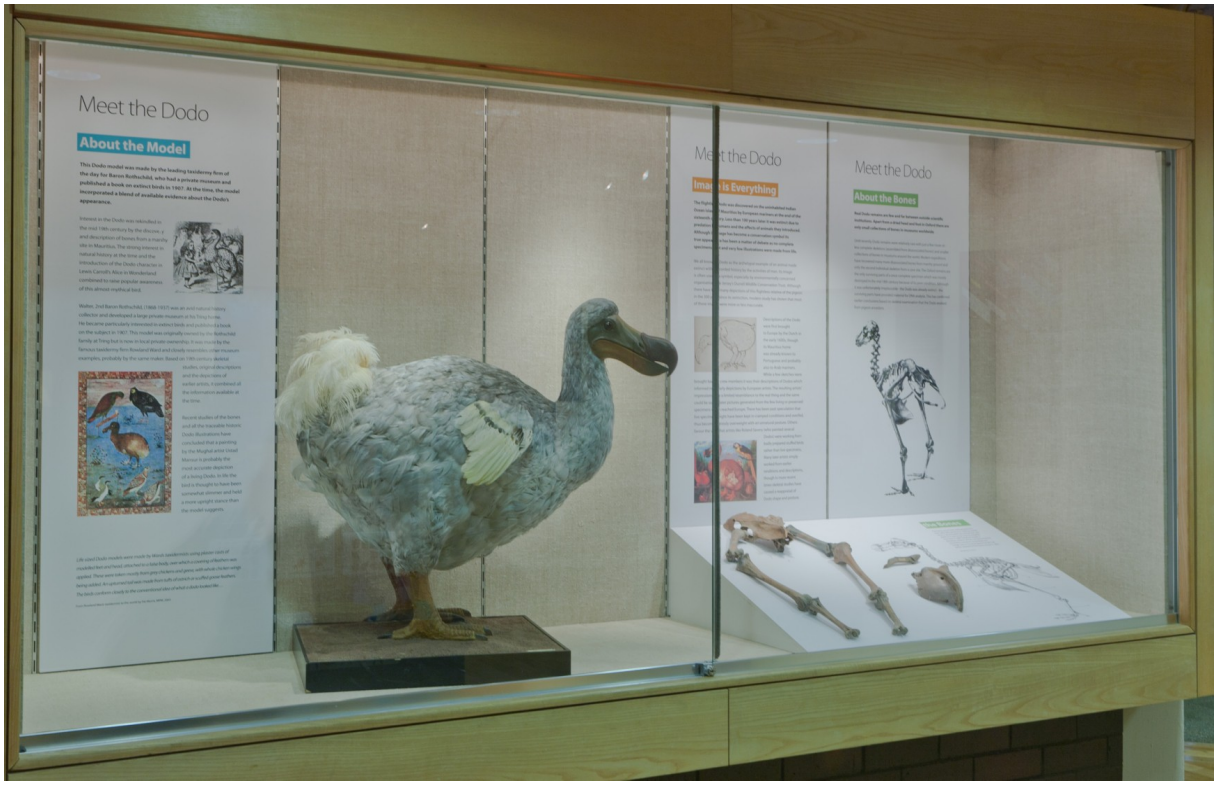
Kelvingrove Art Gallery and Museum, Glasgow Museums

Kelvingrove Art Gallery and Museum, Argyle Street, Glasgow G3 8AG

Z.1928.6.a Plasticine model of the dodo, on display, purchased from F. Munro, Cambridge Street, Glasgow, in 1928. 290 x 260 x 180mm (one-third life-size). It was purchased with other models of extinct birds (Richard Sutcliffe, pers. comm., 20th July 2012).

Guernsey

A Guernsey resident and collector possesses an early model of the dodo by Rowland Ward (Alan Howell, pers. comm., 8th May 2008), which came from a member of the Rothschild family (presumably Walter Rothschild), which was presented to him in the bar of a London hotel (Alan Howell, pers. comm., 25th January 2011). It was exhibited in a temporary display at the Guernsey Museum & Art Gallery, along with the dodo bones belonging to that museum. The exhibition opened on 29th January 2011.



Guernsey dodo reconstruction (© Alan Howell).

Guernsey dodo reconstruction (© Alan Howell).

Natural History Museum, Dublin

Natural History Museum, Merrion Street, Dublin 2, Republic of Ireland
NMINH:2000.41.1 reconstruction of a dodo in fibreglass, purchased from the German taxidermy firm of Schlüter & Sons (ceased trading about 2006) (Nigel T. Monaghan, pers. comm., 19th August 2010). Currently housed in the lower gallery on the second floor. Figured: Monaghan (2005).

Dublin dodo reconstruction (© Nigel Monaghan, 19th August 2010).

Ulster Museum

Ulster Museum, Botanic Gardens, Belfast BT9 5AB
Lg7374 (accession number) reconstruction of the dodo on display (Alan Howell, pers. comm., 13th January 2011). Purchased in 1934 for £35 from Rowland Ward (Angela Ross, pers. comm., 20th March 2012; 26th March 2012).

Ulster Museum dodo reconstruction (© Alan Howell).

Malmö Museum, Sweden

Malmö Museer, Malmöhusvägen 6, Malmö, Sweden
Model of a dodo, in the Naturhistoriska Samlingarna, modelled with reference to Roelandt Savery's paintings. The dodo was modelled in plasticine by Tore Körner and cast by preparator Lutz Pagel with Tore Körner as co-worker. The background painting for the display was done by Ewa Schandersson (Hansen-Melander 1976). Figured: Hansen-Melander (1976: photographer Edgar Eriksson).

Munich

Zoologische Staatssammlung Munich, Münchhausenstrasse 21, 81247 München, Germany
In the museum there is a life-size reconstruction of the dodo, made using goose feathers, exhibited in the Zoologische Staatssammlung (H. F. Moeller, pers. comm., 26th January 2001).

Hof-Apotheke, Erlangen

Hof-Apotheke, Susanne Dorner e.Kfr., Neustädter Kirchenplatz 2, 91054 Erlangen, Germany
Reconstruction of the dodo. Possibly a storefront decoration displayed by the apothecary (Edgar Hellfritsch, pers. comm., 17th February, 2011).

Erlangen dodo reconstruction (© Edgar Hellfritsch 2002 http://dronten.de).

Museum der Westlausitz Kamenz

Museum der Westlausitz Kamenz, Macherstraße 140, 01917 Kamenz, Germany. Fachbereich Zoologie. **MWK I 13607 A1** (accession number) Dodo reconstruction (cf. Kitchener's), displayed in an exhibition, "Tot wie die Dronte – vom Schicksal ausgerotteter Tierarten" ["Dead as the Dodo – of the fate of exterminated animals"], in 2006. The exhibition, prepared by museum zoologist Olaf Zinke, opened on 20th January 2006 and ran until 20th August 2006. The dodo was made according to Zinke's instruction by taxidermist Andreas Kleefeldt in 2005 and was based on a wire model and filled with wood and gypsum. The reconstruction was based on a life-size photograph of the skeleton and a cast of the Tradescant head (Olaf Zinke, pers. comm., 2nd May 2012). The plumage, comprising dyed chicken feathers, was coloured in accordance with historical pictorial sources (Anon. 2006; Zinke *op cit*.).

Kamenz dodo reconstruction (© Museum der Westlausitz Kamenz. Courtesy of Olaf Zinke).

Naturhistorische Museum Wien (NHMW)

Das Naturhistorische Museum Wien, Burgring 7, A - 1010 Wien, Österreich

NMW 95.555 reconstruction of the dodo, created in 2011 by Iris Rubin, of the museum's taxidermy group, using feathers of the following species: white domestic goose (*Anser anser* f. dom.): breast, belly and wing; ostrich (*Struthio camelus*): face, neck, feet; swan (*Cygnus olor*): back; white-eared pheasant (*Crossoptilon crossoptilon*): parts of the breast, tail (Hans-Martin Berg, pers. comm., 8th October 2012). In 2011 the reconstruction was installed in a showcase in Hall 31, displayed alongside the skeleton of the dodo (NHMW 1.471) (Hans-Martin Berg, 9th August 2012).

Vienna reconstruction (Bird Collection/Natural History Museum Vienna, phot. H.-M. Berg).

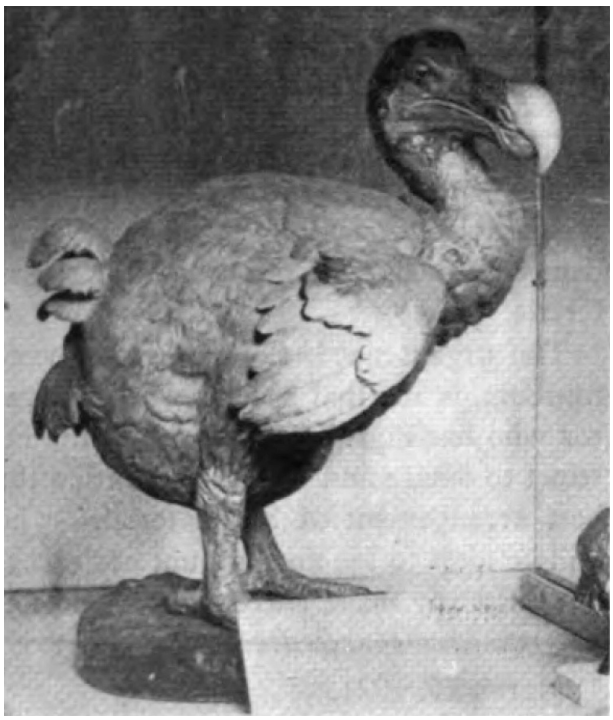
Vienna reconstruction (Bird Collection/Natural History Museum Vienna, phot. H.-M. Berg).

Haus der Natur, Salzburg

Verein Haus der Natur – Museum für Natur und Technik, Museumsplatz 5, 5020 Salzburg, Österreich
Tratz (1953, p.34) noted that the display "Dodo oder Dronte, die flugunfähige Riesentaube" ["Dodo or Dronte, the flightless giant pigeon"], including a dodo reconstruction, was set up again in a showcase in Hall 12. The current whereabouts of the reconstruction are unknown (Robert Lindner, pers. comm., 2nd September 2010).

Muséum national d'Histoire naturelle, Paris

Muséum national d'Histoire naturelle, 57 rue Cuvier, 5th Arrondissement, Paris, France
A model of the dodo in plaster and wax (although Renshaw (1921) stated that it was made entirely from plaster), "approximately life size" (*ibid*., p.64). The plumage is slate-grey, the wing is pink, the legs yellow, the breast brown, the head bluish and the tip of the beak yellow (Killermann 1915, p.370). Killermann (1915) regarded the colour of the wings inaccurate. In 1901 the MNHN asked its taxidermy laboratory to make a model of the dodo (Balouet & Alibert 1990).[5] The restoration of the dodo was made by Jules Terrier, chief taxidermist of the Muséum, in the taxidermy laboratory of the MNHN, based on the Paris dodo skeleton, engravings and Savery's paintings (Anon. 1903). Shufeldt (1901b) reported that Terrier had 'recently' modelled a life-size dodo based on "bones of that bird and drawings in possession of the Museum" (p.266).[6] Terrier's work was on exhibtion at the museum, at 31 Rue de Buffon. Oustalet displayed the restoration of the dodo at the 67th meeting of the naturalists of the Muséum on 31st March 1903 (*ibid*.). Four plaster casts of the sculpture were made, one of which was given to the Société d'histoire naturelle de Blois (see below; see also La Rochelle). It was mentioned by Renshaw (1921, who noted that it was displayed in a case in the main bird gallery alongside the skeleton and a cast of the Tradescant head) and Lambrecht (1933) and is currently displayed on the first floor room, the Salle des Espèces Disparues of the Grande Galerie de l'Evolution, along with Pierre-Yves Renkin's dodo reconstruction (see below), a skeleton and some femora in a side case. Figured: Renshaw (1921, p.64); Dissanayake (2004, p.165).



The MNHN dodo reconstruction (Renshaw 1921, p.64).

[5] Although Balouet & Alibert (1990) mistakenly gave the date as 1801.

[6] "coloured from the old painting by Roelandt Savery" (Renshaw 1921, p.64).

A painting (oil on canvas) by Henry Coeylas[7] entitled *The Reconstruction of the Dodo in the Studio of Professor Oustalet*, 1903, Muséum National d'Histoire Naturelle, Paris, depicts the model. It was exhibited at the Grand Palais on 1st May 1903: "417 COEYLAS (H.), rue Guy-de-la-Brosse, 9. – *At the museum; laboratory of taxidermy; reconstitution of the* "*dronte*"" (Anon. 1903). Anon. (1904): "By letter of 10 February 1904, M. the Minister for the State Education allots to the museum the tableau of the painter Coeylas, entitled: *At the museum. Laboratory of Taxidermy. Reconstitution of the Dronte*" (p.30). Figured: Ziswiler (1996, pp.60, 86); Fuller (2000, p.10); Fuller (2002, p.2).

Graham Renshaw presented a photograph of the Paris dodo reconstruction by Terrier to the Lord Derby Museum, Liverpool, in 1910 (Anon. 1911). He also sent one to Robert Wilson Shufeldt (Shufeldt 1919).

MNHN dodo reconstruction. (*Left*: © Liné1, 13th January 2008. *Right*: © Jebulon, 28th November 2010).

Painting by Henry Coeylas, 1903.

[7] Henry Coeylas (1844-*c*.1906).

MNHN dodo models on display (© Charlie Meecham, 22nd November 2012).

Muséum d'Histoire Naturelle, Orléans

Muséum d'Histoire naturelle, 6 rue Marcel Proust, 45000 Orléans, France

Dodo reconstruction. A coloured copy of that in the Muséum d'histoire naturelle, Ville de Blois (see below; Philippe Guillet, pers. comm., 22nd May 2012). It is displayed alongside the dodo skeleton. See La Rochelle (below).

The Muséum d'Orléans dodo model (© Muséum d'Orléans).

Muséum d'histoire naturelle, Ville de Blois

Muséum d'histoire naturelle "Les Jacobins", 6 rue des Jacobins, Ville de Blois, France
A plaster cast of the Paris (Terrier 1901) dodo reconstruction (without catalogue number), donated to the Société d'histoire naturelle de Blois in 1904 (Anne-Laure Paul, pers. comm., 6th June 2012).

Citadelle de Saint Martin de Re

Musée Ernest Cognacq, Ave. V. Bouthillier, 17410 - Saint-Martin-de-Ré, Ile de Ré, France

Citadelle de Saint Martin de Re dodo reconstruction (© Charlie Meecham, 12th July 2012).

Muséum d'Histoire Naturelle, La Rochelle

Muséum d'Histoire Naturelle, 28 rue Albert 1er, 17000 La Rochelle, France
Coloured copy (counterpart) of the Paris dodo model, a gift from the Muséum d'histoire naturelle d'Orléans in 2002. On display in the entrance area to the museum.

Musée National Africain, Île d'Aix

Musée National Africain, 30, rue Napoléon, 17123 Île d'Aix, France
The museum possesses a dodo reconstruction, collected by Baron Napoléon Gourgaud (1891-1944). Between 1913 and 1931 Gourgaud brought back many animals from Africa, which he had stuffed by the firm of Rowland Ward (Bergeron, *et al*. 2009). The dodo may have also been a Rowland Ward specimen. The museum opened in 1933. Figured: postcard dating from the period 1918-1939: "ILE D'AIX (Ch.-Inf.) – Muséum Africain. (Fondé par le Baron Gourgaud)" "Dodo (Scopus Ineptus)".

Musée National Africain dodo reconstruction (*Left*: © Ji-Elle, 8th May 2009). *Right*: postcard from the period 1918-1939.

Musée l'Espace Pierres Folles

Musée l'Espace Pierres Folles de Saint-Jean-des-Vignes, 116 chemin du Pinay 69380, Saint-Jean-des-Vignes, Rhône, France

The dodo reconstruction was created for the Musée des Pierres Folles by Robert Berthodin, technician at the Musée des Confluences, Lyon. It was made in 2008 for an exhibition on the great crises in the history of the Earth at the Espace Pierres Folles museum in 2009-2010 and was given to the museum in March 2009. However, in the next few months or years it may be moved to the Musée des Confluences, Lyon, currently under construction (Bruno Rousselle, pers. comm., 21st March 2012).

Musée l'Espace Pierres Folles dodo reconstruction (© Bruno Rouselle).

Mr. and Mrs. Yves Walter gave Berthodin a mould of the head and legs of the dodo, attached to a block of polyurethane foam. Berthodin carved the body, added the eyes and attached the piece onto a base. He acquired the skins and feathers from two turkeys from the farm bio Uniferme. The skins were treated in the workshop of his taxidermist brother, Claude Berthodin, using disinfectant and antifungal chemicals. The feathers were washed and dried and attached to the thighs and back of the dodo using transleucent adhesive. Feathers were attached, one by one, to the belly, the underside of the neck and the sides, finishing on the head and back. White goose feathers were used for the wings. At least 400 hours' work were required to create the reconstruction (Berthodin 2010). A label attached to the base of the display case reads: "Realisation et Donation Robert Berthodin Mars 2009". Figured: Berthodin (2010, pp.15, 16).

Bruno Martin

The taxidermist Bruno Martin is currently working on a reconstruction of the dodo for a French museum (François Meurgey, pers. comm., 6th September 2012). His first reconstruction used copies of an actual beak and feet (Bruno Martin, pers. comm., 20th September 2012).

Bruno Martin's first dodo reconstruction (© Bruno Martin, 10th August 2012).

Muséum de Genève. Histoire Naturelle

1 route de Malagnou, CH-1208 Genève, Switzerland

Reconstruction of the dodo (no registration number), made in the 1970s by the museum taxidermist Thierry Jaccoud. It is displayed in the bird section of the first floor gallery, at the foot of the staircase (Muséum de Genève. Histoire Naturelle: Fiches Thématiques de la Bibliothèque du MHNG N°2 Le dodo: http://www.ville-ge.ch/mhng/divers/bib-dodo.pdf [Accessed 17 March 2006]) and comprises a mounted specimen made with chicken and goose feathers with plastic modeling for the head and feet (Manuel Ruedi, pers. comm., 24th January 2008; Alice Cibois, pers. comm., 26th March 2012) and has greyish plumage, yellow facial skin, tarsi and toes, reddish irides and black rhampmothecae.

Christian Schneiter's dodo reconstruction

"La Filature", 2824 Vicques, Jura, Switzerland

Christian Schneiter, a taxidermist, created a dodo reconstruction, based on measurements of the Amsterdam dodo skeleton and information from documents. He was aided by Ewold Horn, a Dutch bird taxidermist. Schneiter used casts of the Amsterdam dodo skeleton elements. The musculature was reconstructed around the bones. Schneiter and Horn then made a mould using expanding foam. They reconstructed the head and legs from sketches of the remains in England and then made silicone moulds. Wood straw was used for the neck. The body was covered with the skins of two unnamed bird species (Packiry 2000). The reconstruction has black feathers. The model was completed in August 2000 and exhibited in the 8th exhibition at Schneiter's workplace, "La Filature", along with more than 2000 taxidermied animals (http://www.arche-noe.ch Accessed 10 February 2011), where it is still on display.

Zoölogisch Museum, Universiteit van Amsterdam, The Netherlands

Zoological Museum Amsterdam, University of Amsterdam, Mauritskade 61, P.O. Box 94766, 1090 GT Amsterdam, The Netherlands. Bird Department.

Information from the ZMA website [http://ip30.eti.uva.nl/zma3d/index.html Accessed 11 July 2005] and Tineke G. Prins (pers. comm., 12th March 2008).

ZMA nr. 8229: plaster cast of a dodo head made "in natural colours" with reference to the Tradescant head by Gerardus Alfred Louis Bisseling (1901-1972), Den Haag, for Anthonie Cornelis Oudemans. Received from the heirs of the latter on 18th July 1932. Grey plumage and lighter grey facial skin, yellowish iris, brown rhamphothecae, two bill wrinkles.

ZMA nr. 53381: life-size plaster cast of a naked model of the dodo

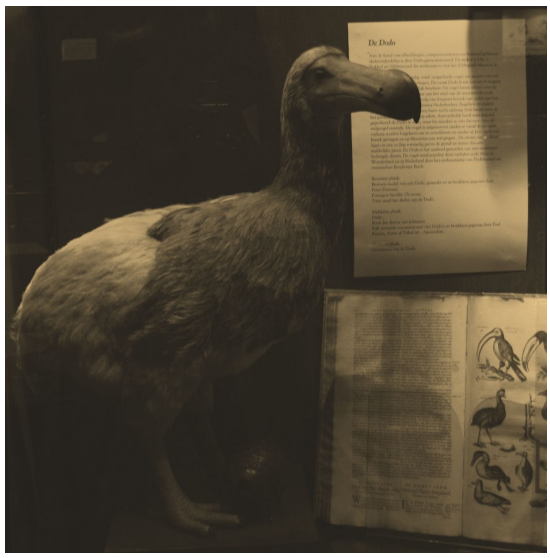
Model of the dodo (natural size) in the Museum v. h. Onderwijs, The Hague, 1935. Made by G. A. L. Bisseling (Iconographia Zoologica: een papieren dierenrijk, Artis Bibliotheek, Universiteit van Amsterdam).

ZMA nr. 55625: reconstruction of the dodo made of the feathers of *Rhea americana*. Based on the Delft dodo skeleton. Made by the museum taxidermist Jan Hakhof from Nibbixwoud in 1994. Figured: Van Wissen (1995, back cover [photograph: Mary Brommer], p.40), Ziswiler (1996, pp.62, 63); Aan de Brugh (1997, p.3); Moree (1998, fig.4); Den Hengst (2003, p.102); Van Oppen (2003); Lucas (2007a, pp.83, 86 [labelled as Kitchener's]).

Dodo model made according to information from of Dick Hillenius by Arend Soerink, 1967. Figured: Den Hengst (2003, p.102); Van Oppen (2003).

ZMA 53381 and 55625 were made by the museum exhibition taxidermist Jan Hakhof for the 1995 exhibition "The Fate of the Dodo" (arranged by Ben van Wissen) at the ZMA (ZMA website; Tineke G. Prins, pers. comm., 12th March 2008).

Left: Arend Soerink's dodo model. *Right*: the Amsterdam dodo reconstruction (courtesy of Jan den Hengst).



Dodo reconstruction on display, Westfries Museum (© Philip Menke, 4th November 2005).

Westfries Museum, Hoorn

Westfries Museum, Achterom 2-4, Hoorn, Nederland 1621 KV
Dodo reconstruction featured in a permanent exhibition, from 1999 to around 2008, accompanied by a Dutch edition of Jonstonus' work. The reconstruction, the same as the Amsterdam model, was loaned to the museum by its creator, Jan Hakhof, for the display (Cees Bakker, pers. comm., 29th June 2012; 5th July 2012). Hakhof is currently creating a new reconstruction, which it is hoped will be exhibited at the museum in 2013 (Cees Bakker, pers. comm., 5th July 2012).

Museon, Den Haag

Museon, Stadhouderslaan 37, 2517 HV, Den Haag, The Netherlands
54790 (accession number). Reconstruction of the dodo (Arno van Berge Henegouwen, pers. comm., 21st March 2013).

Dodo reconstruction, Museon (*Left*: © Museon, Den Haag, 2005. *Right*: © Naturalis: dichter bij de natuur, 15th April 2009).

Pierre-Yves Renkin's Reconstructions

Reconstruction of the dodo by Pierre-Yves Renkin (b.1960), Belgian animal scupltor, collector and taxidermist, based on old engravings. The feathers, skin and feet were from bird specimens, the latter from an emu. In 2006 Renkin received first prize at the European championship of taxidermists at Langarone, Italy, with his dodo reconstruction, which is currently on display at the Grand Galerie of the MNHN. This model is displayed in a room devoted to rare, endangered and extinct species ("Les espèces en danger, rares ou éteintes"). It has a grey face, yellow iris, dark brown-grey feathering on the head and neck, grey plumage on the back, wing and tail grey and white, body and abdomen white, breast and under-foreparts brown-grey, tarsi yellowish (http://natureliberte.skynetblogs.be/archive/2012/01/26/paris-3.html Accessed 8 March 2012).

One of Renkin's dodo reconstructions was displayed in a glass case in the exhibition "Le Monde de Pierre-Yves Renkin", January to 22nd March 2011, Gemeentelijk Museum, Karrestraat 40, Sint-Lambrechts-Woluwe (Museum of Woluwé-Saint-Lambert, Rue de la Charrette, 40), Belgium.

A Renkin dodo reconstruction was exhibited alongside a collection of Roelandt Savery's paintings at the Broelmuseum Kortrijk, 21st April to 11th September 2011. It was similar to Rowland Ward's reconstructions (Jan den Hengst, pers. comm., 2nd June 2011) and was made especially for the exhibition by Renkin, who had made several in the past. It is currently back in Renkin's workshop (Sylvie De Coster, pers. comm., 22nd March 2012).

Pierre-Yves Renkin's dodo (left: © Sylvie De Coster, in the Broelmuseum Kortrijk; right: © Charlie Meecham, in the MNHN, 22nd November 2012).

Zoological Museum of the University of Heidelberg

The Zoological Museum, Neuenheimer Feld 230, Heidelberg, Germany
The Zoological Museum of the University of Heidelberg possesses a life-size copy (made of chicken or goose feathers) of the dodo exhibited in the Zoologische Staatssammlung in Munich (Heinz F. Moeller, pers. comm., 26th January 2001). It was given as a loan to Heinz Moeller of the Zoological Museum of the University of Heidelberg by Josef H. Reichholf of the Zoologische Staatssammlung in Munich. Unfortunately any potential documents relating to the reconstruction were destroyed during the bombing of World War II (Josef H. Reichholf, pers. comm., 25th February 2008).

Humboldt University Zoological Museum, Berlin

Museum für Naturkunde Berlin, Invalidenstr. 43, D-10115 Berlin, Germany
ZMB 2000.26372 white unfeathered model of dodo. Coloured model of the dodo with green-grey facial skin, umber rhamphothecae, yellow iris, whitish plumage, mustard-coloured remiges and rectrices and yellowish tarsi and toes. It is shown standing on a rock. It is displayed along with casts of *Hesperornis* in an exhibit: "Fast so schön wie damals" "Die Rekonstruktion ausgestorbener Tiere". The model was created by preparator Karl Kästner in 1949, based on skeleton illustrations, casts of the Tradescant head and artistic representations (Freydank & Haese (n.d.); text currently accompanying the display). He created an unfeathered plastic body on which he stuck feathers of swan, duck, chicken and ostrich (text currently accompanying the display). It is curated by the exhibition department (Sylke Frahnert, pers. comm., 27th April 2012). Figured: Freydank & Haese (n.d., p.78).

Berlin dodo reconstruction (*Left*: © Thomas Quine, 29th August 2009. *Middle and right*: © Bianca Bueno, 5th October 2010).

Naturhistorisches Museum Basel

Naturhistorisches Museum, Augustinergasse 2, CH-4001 Basel, Switzerland
NMB 9-123 Dodo reconstruction, displayed alongside dodo skeleton (exhibition "Quagga & Dodo"). It is a cast of that from the MNHN (Raffael Winkler, pers. comm., 16th May 2008; 15th March 2012) and was provided to the museum in 1992 (http://www.nmb.bs.ch/13_ausgewaehlte_steckbriefe_aus_der_ausstellung_quagga_und_dodo_bedroht_und_ausgestorben.pdf).

Národní Museum, Prague

Národní Muzeum (National Museum), Václavské nám. 68, CZ-115 79 Praha 1, Praag, Czech Republic
P6V-041251 Reconstruction of the dodo made by Rowland Ward, donated by Czech hunter and traveller Alexe Taxise.[8] In an article in the *Národní Listy. Večerník-Národ* of 27th December 1927, Anon. (1927) reported that "[a] few weeks ago" the directorate of the Národní Museum received a letter from Alex Taxis, landowner at Loučeni, in London at the time, stating that he wished to give to Prague a reconstruction of the dodo. The gift arrived on 27th December and was provisionally placed on the second floor of the museum, in room no.13, case no.20. The reconstruction was made using pigeon and chicken feathers (Obenberger 1935). It is currently on display with the Prague beak and *Pezophaps* leg bones. It was exhibited (on loan from the Národní Museum) with Savery-Berlin at the National Gallery in Prague – Collection of the Old Masters, Schwarzenberg Palace (2nd floor), 8th December 2010 to 20th March 2011.

Prague dodo reconstruction (*Left*: © Zdeněk Chalupa, 2008. *Right*: © Kent Wang, 30th July 2008).

Prague dodo reconstruction (© Zdeněk Chalupa).

[8] Alexander Johann Vincenz Rudolf Hugo Karl Lamoral Eligius von Thurn und Taxis (1851-1939). Landowner of Lautschin (Loucen in Czech) and hunter, who donated animal specimens to the Národní Museum.

Museo Civico di Storia Naturale, Milan

Museo Civico di Storia Naturale, Corso Venezia 55, 20121 Milano, Italy
MSNM Av 27995 Reconstruction of the dodo, similar to the Tring dodo, made by Rowland Ward of London and acquired in the 1950s (Moltoni 1960; Giorgio Chiozzi, pers. comm., 17th April 2008). It was kept in showcase 8 in Room VIII – Birds 2 of the Museo Civico di Storia Naturale di Milano (Guida del Museo Civico di Storia Naturale di Milano, 1977, p.94). Figured (illustration): Luna de Carvalho (1989, fig.1j).

University Museum, Bergen, Norway

University Museum of Bergen, Universitetet i Bergen, Postboks 7800, 5020 Bergen, Norway
BM5180 Reconstruction of the dodo in the University Museum, Bergen. Made by Rowland Ward and based on a Roelandt Savery painting of 1626 and the surviving head and leg remains. It arrived at the museum on 16th April 1918 (Terje Lislevand, pers. comm., 22nd March 2012).

Bergen dodo reconstruction (© Shyamal, 9th August 2008).

Zoological Institute of the Russian of Academy of Sciences, St. Petersburg

Zoological Institute of the Russian Academy of Sciences, Universitetskaya embankment 1, Saint Petersburg, 199034, Russia

Model (scuplted, not taxidermy) of the dodo (on display). Greyish plumage, pale brown underneath, greyish facial skin, brown rhamphothecae, pale brown or yellowish remiges and rectrices.

Natural History Museum, Mauritius Institute, Port Louis

Natural History Museum, Ground Floor, Mauritius Institute Building, Chaussée, Port Louis, Mauritius. Dodo Gallery.

Dodo model on display. The plumage was recreated using goose down (Marshall 1982). The dodo reconstruction was "executed at the British Museum" (Tirvengadum 1980, p.11). Figured: Maurel (1995, p.12); photograph: Alain Proust); Clarke (1990); Keynes (1956, p.91).

The museum also possesses a dodo reconstruction by Andrew Kitchener, obtained sometime between 1985 and 1996 (Cheke 2003).

Reconstruction of the dodo in the Museum of Port Louis, based on information from skeletal remains and old illustrations. Figured: D'Unienville (1949, p.50 [photo: Halbwachs]). Figured (illustration): Luna de Carvalho (1989, fig.1g).

Île aux Aigrettes, Mauritius

A bronze cast of Nick Bibby's dodo (Pangolin Bronzes; see above) has been placed on permanent exhibition on the Île aux Aigrettes Reserve (Mauritius Wildlife Foundation).

Nick Bibby's dodo reconstruction (© Gallery Pangolin).

La Vanille Crocodile Park, Mauritius

La Vanille Crocodile Park, Riviére des Anguilles, Savanne district

A bronze cast of Nick Bibby's dodo (Pangolin Bronzes; see above) was placed on exhibition at La Vanille Crocodile Park. Whether this model was the same as that at Île aux Aigrettes is not known.

Muséum d'Histoire Naturelle, Saint-Denis, Réunion

Muséum d'Histoire Naturelle, Rue Poivre, 97400 Saint-Denis, Ile de la Réunion

Raphus cucullatus
Uncoloured (white) model of the dodo – a reproduction of the MNHN reconstruction – on display alongside the dodo skeleton. Figured at http://www.cg974.fr/mhns3v05.html [Accessed 10 November 2004].

In a letter from Paul Charles Émile Hugot to R. Chauvancy, chief taxidermist at the Muséum National d'Histore Naturelle, dated 31st May 1960, it was noted that Jean Perreau-Pradier wanted a reconstruction of the Réunion dodo made. Hugot stated that "the Dodo of Bourbon was similar to that of Mauritius, except with regard to the plumage, where the white dominated" (quoted in Brial 2006, p.40).

Threskiornis solitarius
The Muséum also possesses a reconstruction of the Réunion solitaire (*Threskiornis solitarius*) (Brial 2006). Figured: Brial (2006, p.46 [photo JIR 1999]).

Saint-Denis reconstruction of *Threskiornis solitarius* (© Matthieu Sontag, 7th October 2011).

Durban Museum

Natural Science Museum, 1st Floor, City Hall, Smith Street, Durban, South Africa
Life-size. Bought by Chubb from Rowland Ward for £35. He had seen it in Ward's Naturalist Shop, when he visited England from May to September 1920 (he mentions this in his monthly report of September 1920). Once purchased, he had it shipped to Durban in October 1920 (Quickelberge 1987). Figured: Chubb (1948, p.189); Quickelberge (1987, p.86); Durban Natural Science Museum postcard.

It was installed alongside the dodo skeleton after being in storage "for many years" (Anon. 1985). No catalogue or accession number (being a display specimen) (David Allan, pers. comm., 10th April 2012).

Durban dodo reconstruction (© Jan den Hengst).

Durban dodo reconstruction (© Jan den Hengst).

East London Museum

319 Oxford Street, Southernwood, East London, South Africa
Dodo reconstruction on display alongside a model dodo egg. The Board of Trustees of the East London Museum provided funds for the creation of a dodo reconstruction, to be displayed alongside a cast of the supposed dodo egg (see Catalogue of Specimens). Figured: Shales (2011).

East London Museum dodo reconstruction (© Frode Inge Helland, 18th March 2007).

Cape Town

[probably: South African Museum, 25 Queen Victoria Street, PO Box 61, 8000 Cape Town, South Africa]

Adèle M. Fielde recalled a voyage she made in 1866: "I am tenacious of an inpression that I inspected a stuffed specimen of the long extinct dodo in the local museum [at Cape Town]" (Fielde 1915, p.526). However, given the early date, this was most likely a misidentification or misremembrance of a stuffed specimen of another bird.

Phil Fraley Reproductions, Inc.

Phil Fraley Reproductions, Inc. Paterson Studio: 270 Marshall Street, Paterson, NJ 07503 USA. Pittsburgh Studio: 614 Braddock Avenue, Turle Creek, PA 15145 USA

In winter 2005 the Raffles Museum of Biodiversity Research, Singapore, commissioned Phil Fraley Reproductions, Inc. to construct a reconstruction of the dodo (Lucas 2007a), with three copies to be made (Lucas 2007b). The model was made by taxidermist George Dante.

A half-size maquette was created by Dante prior to creation of the full-size work. The head of the reconstruction was based on a cast of the Tradescant head. The tarsi and feet were modelled after those of a rhea and are thus not accurate. Julian Hume, Anwar Janoo and Patrick Rummans provided information for the work. The Fraley model was nicknamed 'Clarence' after Clarence Sirisena of the Singapore Science Centre (Lucas 2007a).

A six part composite mould made by Brian Reneski. Room Temperature Vulcanizing rubber was used for the inner mould and fibreglass cloth soaked in epoxy was used for the mother mould. Each section was cast separately and then assembled. The assembled cast was subsequently chased by Reneski and Joani Turbeck. Due to the casting process the original clay model was damaged. Dante took measurements of the eyes and eyelids from a cast of the Tradescant head. The eyes used were Tohickson clear flint glass eyes, which were painted bluish-white, from reference to Mansūr. The model was also coloured with reference to Mansūr, the colours being supplied by Chuck Brunner at Smith Paints, and was painted by Dante over a period of two days. Reneski made a crate for the model. After a period of nine weeks since the placement of their order, the Raffles Museum of Biodiversity Research model was put on public display (Lucas 2007a, b).

Three identical dodo reconstructions were created. One went to the Raffles Museum, one to Jurong Bird Park (see below) and a third to the Singapore Science Centre, being placed on display there in late 2006 (Lucas 2007b). Another copy was also made for the AMNH (see below). Figured: Lucas (2007a, pp.82, 86, 88, 90; 2007b, pp.75-82).

Phil Fraley Reproductions, Inc. dodo reconstruction (© Phil Fraley Productions).

Phil Fraley Reproductions, Inc. dodo reconstruction (© Phil Fraley Productions).

George Dante's dodo maquette: figured: Lucas (2007a, p.87).
Julian Hume's correction to George Dante's dodo maquette: figured: Lucas (2007a, p.87).
George Dante's dodo sketches: figured: Lucas (2007a, p.87).

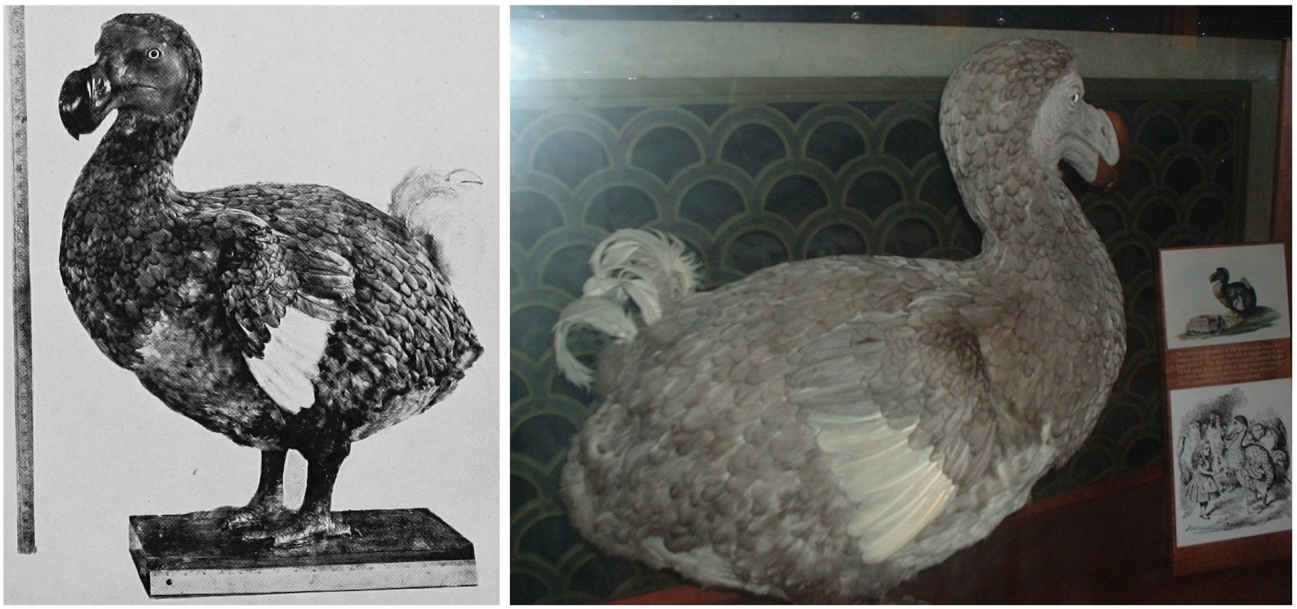
Jurong Bird Park

Jurong Bird Park, 2 Jurong Hill, Singapore 628925, Singapore (run by Wildlife Reserves Singapore)
Reconstruction of the dodo made by Phil Fraley Reproductions, Inc. (Lucas 2007a). The Jurong Bird Park model went on display six weeks after the Raffles Museum model (Lucas 2007b); it was possibly acquired in August 2008 when the Dino Descendant project was carried out (Jing Yu, pers. comm., 4th May 2012). The reconstruction is currently on display at the ratites exhibit (Kelvin Lim Kok Peng, pers. comm., 21st March 2012).

American Museum of Natural History, New York

American Museum of Natural History, New York, New York, USA
Dodo reconstruction made by the studios of Rowland Ward in London and presented to the AMNH by Walter W. Winans (1852-1920). Dr. Goode[9] had previously planned to create a reconstruction of the dodo, but died before this could be carried out (Lucas 1918).

According to The National Encyclopædia of American Biography (Anon. 1958), the American ornithologist, Leonard Cutler Sanford (1868-1950), "collected many rare specimens for the American Museum of Natural History, among which were [...] a reconstruction of the dodo" (p.151). Dickerson (1915) noted: "A Restoration of the dodo has been presented to the Museum by Walter Winans, of Surrenden Park, [Pluckley, Kent] England, and is now on exhibition in the bird hall of the second floor. It has been suggested that this bird should properly find a place in the Metropolitan Museum of Art, among the representations of figures of ancient mythology; but although there appertains to the restoration no actual relic of any dodo, it is not a work of imagination only, having been prepared in the taxidermy studio of Rowland Ward in London, from existing paintings of an actual dodo, the skull and legs of the restoration being cast from relics in the British and Oxford museums. The accuracy of the representation of the dodo presented by Mr. Winans is vouched for by Ogilvie Grant of the Zoological Society of London" (p.373).



AMNH dodo reconstruction (*Left*: Dixon 1917. *Right*: © Jolyon C. Parish, 2nd February 2002).

An article in *The Evening Post: New York* (18th October 1915, p.9) reads:

> IF YOU SHOULD MEET A DODO
> It Would Be Much Less Awkward Now that the Museum Has Life-Like Restoration of Him.

[9] "Dr. Goode" may have been George Brown Goode (1851-1896), who worked at the USNM on some of their displays.

> Dodos, which are now extinct, were almost so rare in their day as not to exist at all. This fact gives more than ordinary interest to the gift to the Museum of Natural History of a restoration of the dodo by Walter Winans, of Surrenden Park, England. The Museum already possessed an articulated skeleton of this giant pigeon [...]
>
> The skull and legs of the restoration presented by Mr Winans are cast from an actual specimen, and the feathers are those of various birds of the same color (French gray and white) as the dodo.

In 1917 it was exhibited in the South Central Wing (Birds of the World) of the museum (Pindar *et al*. 1917). In 1935 it was exhibited in the Flying Bird Hall, along with the reconstructed skeleton (Edwards 1935). In 1956 it was displayed in the Leonard C. Sanford Hall of the Biology of Birds (which opened in 1948) on the first (ground) floor (Anon. 1956), and was still there in 1968 (the Biology of Birds Hall being on the first floor of Section 19: Shuttlesworth 1968) and in the 1980s. It was subsequently on display in the Theodore Roosevelt Memorial Hall, Level 1 (pers. obs. 2002), but is currently in storage in the Ornithology Department (Paul Sweet, pers. comm., 27th March 2012).

It was restored in the 1970s by Stephen C. Quinn of the AMNH, who cleaned and rebuilt its bill and face, which had become damaged. It was constructed with feathers including those of pigeon and gull (Stephen Quinn, pers. comm., 21st March 2012).

The sign accompanying the reconstruction reads:

> This model made by Rowland Ward, a well-known British taxidermist of the early 1900s, also closely resembles Savery's Dodo painting. The head and feet are casts, probably derived from a head and foot preserved at Oxford. The feathers mostly from pigeons, probably differ from Dodo feathers. Early accounts of the Dodo report loose or downy feathers and do not agree on their color.

Figured: Dixon (1917); Pindar *et al*. (1917, p.51); Zimmerman (1918, p.330); Lucas (1920, p.50); Edwards (1935, p.249: front and side views); Romer (1954, pl.33); Ley (1957a, fig.3); Shuttlesworth (1968, p.13); Fuller (2003, title page); Dissanayake (2004, p.165); Lucas (2007a, p.86). • Actual skeleton and life-size model of the flightless Dodo, first sighted around 1600 on Mauritius, and island in the Indan Ocean (postcard: American Museum of Natural History. Photographs Jackie Beckett. AMNH, New York, 1996). Figured (illustration): Luna de Carvalho (1989, fig.1e).

AMNH dodo reconstruction (© Jolyon C. Parish, 2nd February 2002).

AMNH dodo reconstruction (© Jolyon C. Parish, 2nd February 2002).

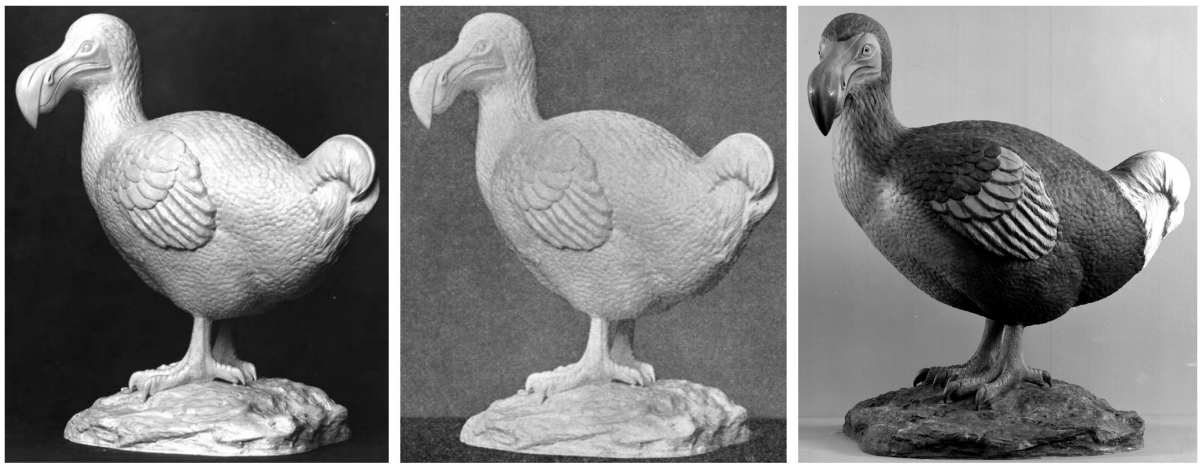
The AMNH also possesses a copy of the "Singapore Dodo", made by Phil Fraley Reproductions (Paul Sweet, pers. comm., 21st March 2012). This is not one of the three mentioned by Lucas (2007a) (Paul Sweet, pers. comm., 27th March 2012). The two dodo reconstrctions do not have catalogue numbers, as they are not specimens (*ibid*.).

Field Museum of Natural History, Chicago

The Field Museum of Natural History, 1400 S. Lake Shore Dr, Chicago, Illinois 60605-2496, USA
Wooden model of the dodo. Boulton (1939) stated: "A restoration of the Mauritius dodo has been completed by the writer and recently was installed in Hall 21. Mr. Frank Gino has ably modeled and constructed the restoration, and Miss Laura Brey has executed drawings and paintings to supplement the exhibit" (p.1). The reconstruction was made with reference to the illustrations of the dodo by Roelandt Savery (Boulton 1939). Anon. (1939) noted:

> A life size model of the dodo, which became extinct in 1681, was made by Mr. Frank Gino, WPA sculptor, under the supervision of Curator [of Birds] Rudyerd Boulton. Dodos and their relative, the solitaire, comprise a unique family of birds related to pigeons. Since there are no complete specimens in existence, it is only by resorting to a reconstruction such as this that it is possible to make available in the Museum's exhibition halls a representation of this bird (p.398).
>
> Mr. Rudyerd Boulton, Curator of Birds [...] completed a new restoration of the dodo from a fresh examination of pertinent data (p.389).
>
> An important addition to the systematic bird collection in Hall 21 is a life-size model of the extinct dodo, of which no complete specimen, or even skeleton, remains in existence (p.328).

The Niagara Falls Gazette (28th February 1939, p.11) noted that "The Field museum's new sculptured model of a dodo is based mainly on paintings by a seventeenth century artist who painted birds very carefully." The model has grey plumage, a pale grey face, a red and black maxillary rhamphotheca, pale orange-brown breast, pale orange-brown remiges edged in darker brown, white tail and yellowish tarsi. Figured in Boulton (1939, p.1).



FMNH dodo model. *Left*: *c*.1938. *Middle*: Boulton (1939, p.1). *Right*: *c*.1948. (*Left and right*: Courtesy, The Field Museum).

FMNH dodo model. *Left*: *c*.1960. *Right*: *c*.1990. (Courtesy, The Field Museum).

FMNH dodo model, *c*.1990, before and after. (Courtesy, The Field Museum).

FMNH dodo model (© Chris Freeland, 25th June 2007).

Carnegie Museum, Pittsburgh

Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, PA 15213, USA
Reconstruction of the dodo, purchased from the firm of Rowland Ward in the early twentieth century. In the report of the Division of Birds is mentioned: "From the firm of Rowland Ward we secured two reproductions, one of the Dodo and the other of the Great Auk" (Holland 1916, p.96). Figured in the "Founders Day Report" of the Carnegie Institution.

The reconstruction is listed in the "Permanent Accessions to the Carnegie Museum. April 1, 1915, to April 1, 1916" as having been purchased by the Trustees: "Ward, Rowland, 18 Piccadilly, London, W., England. Reproduction of Dodo (*Didus ineptus*), and Great Auk (*Plautus impennis*) . (5568)" (Stewart 1916, p.165). The reconstruction has grey plumage, a greyish face, pale yellowish remiges, curled tail feathers and orange-brown tarsi. It is currently on display next to the California Condor exhibit.

Peabody Museum, Connecticut

Peabody Museum of Natural History, Yale University, 170-210 Whitney Avenue, New Haven, Connecticut 06511, USA
[no catalogue number] Reconstruction of the dodo, purchased from Rowland Ward of London in 1961 by the Peabody Museum Associates. It was later 'remodeled' by the museum's taxidermist / exhibit developer, David Parsons, apparently using chicken contour feathers, duck wings and, for the tail, curled egret breeding plumes (Kristof Zyskowski, pers. comm., 20th September 2010). An old exhibition label reads: "Left: Reconstructed Appearance of the Dodo. [...] a number of paintings of living specimens were done in Europe [...]. These illustrations made possible the fine reconstruction exhibited here prepared by the Rowland Ward Company of London. This mount was remodelled by David Parsons [with turkey feathers (handwritten annotation)], and purchased and presented to Yale by the Peabody Museum Associates in 1961" (Peabody Archives on YPM dodo specimens; the dodo skeleton was displayed to the right of the reconstruction).

YPM dodo reconstruction (Jolyon C. Parish, May 2001).

Museum of Comparative Zoology, Harvard University

Museum of Comparative Zoology, 26 Oxford Street, Cambridge, Massachusetts 02138-2902, USA
MCZ 336771 Dodo reconstruction with grey plumage and whitish remiges. It was made by the firm of Rowland Ward Ltd., London, *c*.1900 and presented to the Museum of Comparative Zoology by Walter Winans (Douglas Causey, pers. comm., 3rd February 2001). The plumage is composed of chicken, duck and egret feathers (Jeremiah Trimble, pers. comm., 22nd October 2010). The accompanying notice reads:

> **Model of Dodo**
> **Rowland Ward Ltd.**
> England, ca. 1900
>
> This Dodo is a model made in Victorian England by Rowland Ward, Ltd, probably the most famous taxidermy studio of its time. Lacking real specimens, the studio based this reconstruction on written accounts and crude sketches made by 16th and 17th century explorers. Made of chicken feathers, duck wings, and curled egret feathers for the tail, this model is one of very few still remaining in museums around the world.

Natural History Museum, University of Iowa

Pentacrest Museums: Museum of Natural History and Old Capitol Museum, 11 Macbride Hall, The University of Iowa, Iowa City IA 52242, USA
36155 Reconstruction of the dodo with pale brown facial skin, darker brown rhamphothecae, white irides and white-grey plumage, remiges and rectrices. It has a semi-moulted appearance. The reconstruction was made by Walter C. Thietje in 1931 in the museum's taxidermy laboratory, under the supervision of the director, Homer R. Dill.[10] It was considered to be the only dodo reconstruction ever made in the USA (Anon. 1931a). Dill thought that Rowland Ward's models (see below) were inaccurate and undertook three years of data collection (Anon. 1941).

[10] Thietje, who became Dill's assistant in 1929, later became director of UIMNH himself, in 1949.

"I recall Walter telling me that the head and bill are carved from balsa wood,[11] the feet are from a golden eagle, and the wings are from a domesticated chicken. Most of the downy body feathers are also from the golden eagle (the main body feathers of the eagle were plucked to reveal the inner down). After grinding down the talons, Walter built up the feet with beeswax to make them appear bulky" (e-mail from George D. Schrimper to Terry Brown, Museum Professionals Inc., 4875 Sunset Lane, 12/7/2006). The skin was glued with dextrin paste, acquired from Van Dykes (*ibid*.). The neck feathers were from an ostrich (Anon. 1931a). Measurements from the FMNH and AMNH were used in the construction of a plaster body (*ibid*.). Dill also acquired an old French print of the dodo (Anon. 1941).

According to the August 1931 *University of Iowa News Bulletin* (Anon. 1931a), "The University men found in their quest for data that, among all museums in the United States, only the Field Museum of Chicago and the American Museum in New York were able to furnish authentic facts" (p.5). Dill remarked that "the restoration [...] resembles more closely the bird as it actually existed, as near as he can tell by the facts he was able to gather, than any previous restorations" (Anon. 1941).

An article in the *Lockport (N.Y.) Union-Sun and Journal* (6th August 1931 (evening), p.15) reads:

> Dodo's Relatives Aid His "Revival"
>
> IOWA CITY, Ia., Aug. 6 (AP)–The dodo may be extinct, but the famous bird has been restored in all its glory.
>
> What is believed to be the only restoration of the dodo made in the United States has been completed in the taxidermy laboratory of the University of Iowa museum.
>
> The taxidermists used neck feathers from an ostrich, close relative of the dodo, and the down from a North American eagle for the body covering.

The model was removed from display in 2007 for refurbishment and installation in a new display and is currently placed in the entrance to the Biosphere Discovery Hub (Cindy Opitz, pers. comm., 14th February 2008). Figured: Anon. (1931b, p.66), Anon. (1941).

Correspondence between UIMNH and Rowland Ward Ltd. records the proposed purchase of a dodo reconstruction from the latter establishment.

UIMNH archives, Box 08: Rowland Ward Ltd. to Homer R. Dill, 27th March 1931 (on Rowland Ward Ltd. headed notepaper):

"THE JUNGLE",
167, PICCADILLY,
LONDON, W. 1.

27th., March 1931.

The State University of Iowa,
Museum of Natural History,
Iowa City,
U.S.A.

Dr.Homer R.Dill.

Dear Sir,

We thank you for your letter of the 16th., inst., and are pleased to hear the Great Auk replica attracts a good deal of favourable comment.

Enclosed please find a photograph of a Dodo replica, similar to the specimen modelled for the British Museum, Natural History Section, South Kensington, London.

We can supply a similar specimen for £37/10/- (thirty seven pounds, ten shillings).

We ~~enclose~~ also enclose a photograph of a life-size replica of a Moa (Dinornis) which is ready modelled, and subject to being unsold we offer it at £100 (one hundred pounds).

[11] There appears to be some confusion regarding the head of the dodo: Anon. (1931a) remarked that the "restoration bears a plaster cast of the head, obtained from the American Museum [of Natural History]", whereas Anon. (1941) stated that Dill acquired a copy of a plaster of paris head made in Amsterdam.

We supplied similar replicas of the Moa to the Royal Scottish Museum, Edinburgh, and to Lord Rothschild for his Museum at Tring, Herts,
The replica of the Moa offered above is a very striking exhibit and we hope will interest you; it is a difficult specimen to reproduce.
Yours faithfully,
Encs., [signed Rowland Ward Ltd.]
JBB/IR.

UIMNH archives, Box 08: Rowland Ward Ltd. to Homer R. Dill, 7th July 1931 (on Rowland Ward Ltd. headed notepaper):

"THE JUNGLE",
167, PICCADILLY,
LONDON, W. 1.

7th., July 1931.

The State University of Iowa,
Museum of Natural History,
Iowa City,
U.S.A.

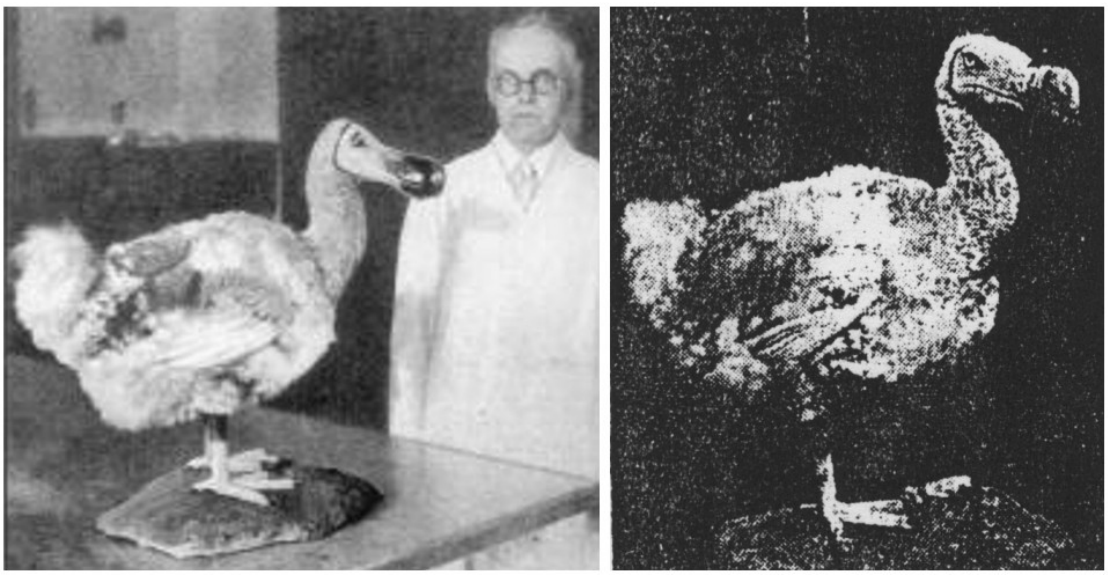
Dr. Homer R. Dill.

Dear Sir,
We had the pleasure of quoting you in March last for supplying a replica of a Moa and a Dodo.
The former we have ready for delivery and the latter is partly finished, and as it is the end of our financial year very shortly we are prepared to supply the 2 specimens for the specially low price of £120 (one hundred and twenty pounds), subject to your reply before September.
A repeat of either or both specimens would cost the price originally quoted.
Yours faithfully,
[signed Rowland Ward Ltd.]
JBB/IR.

Iowa dodo reconstruction (http://plantsarethestrangestpeople.blogspot.com/2011/03/other-dodo-raphus-cucullatus.html).

In a letter dated 3rd September 1974 (Box 75-01 041a),[12] Tony Whitaker of Georgetown, Indiana, wrote to the "Director of Natural History Museum", enquiring as to how the Iowa dodo reconstruction was made, as he was interested in creating one himself, having mounted animals for the Floyd Central High School, New Albany, Indiana. George D. Schrimper, Curator of the Museum of Natural History, replied in a letter dated 16th September 1974 (Box 75-01 041b), giving details of the materials used in the reconstruction, but advising Whitaker that the "restoration of extinct species is a very tedious process and probably should not even be attempted unless one has a great amount of time plus the necessary materials and skill to do the best possible job".

Joan Kent, of Cincinnati, Ohio, painted a picture of the dodo based on the reconstruction in 1979 (letter from Joan Kent to George D. Schrimper, 30th July 1979; Box 75-02 059a).



Iowa dodo reconstruction (*Left*: Anon. 1931b, p.66; *right*: Anon. 1941).

University of Nebraska State Museum

University of Nebraska State Museum, W-436 Nebraska Hall, 900 N. 16th St., Lincoln, Nebraska 68588-0514, USA. Division of Zoology and Division of Botany.

1-3-37 (accession number only). The dodo reconstruction is currently housed in the northeast corner of the first floor of the Morrill Hall (Thomas E. Labedz, pers. comm., 4th October 2010; 25th April 2012). The following information is from Thomas E. Labedz (pers. comm., 4th October 2010). The glass manufacturer's buttons, one one each side of the upper face of the base, indicated that it was made by Rowland Ward of Piccadilly (one reads "Rowland Ward London", the other "Rowland Ward [...] Piccadilly"). Erwin H. Barbour, the museum's director, wrote to Rowland Ward in late 1936, asking about the availability and price of a dodo reconstruction (University of Nebraska State Museum Archives). The accessions book records that the reconstruction was accessioned into the University of Nebraska State Museum on 1st March 1937 and cost $150.00 plus $22.67 for charges. Figured: Wolcott (1940, fig.314).

Bays Mountain

Bays Mountain is a nature preserve owned and operated by the city of Kingsport, Tennessee. The dodo model can be seen at: http://www.baysmountain.com/exhibitdept/photos/dodo.jpg [Accessed 2 December 2001]

[12] Registration numbers refer to articles in the UIMNH archives.

Western Australian Museum, Perth

Model of the dodo made by the museum taxidermist Kenneth Gordon Buller (1915-1995) in the late 1950s. When casts of the head and foot of the dodo arrived in Perth Buller attempted to reconstruct the bird (Ron Johnstone, pers. comm., 16th May 2008). Photo: K. G. Buller, Western Australian Museum taxidermist, with a dodo, 2nd October 1967, by Ken Hotchkin [State Library of Western Australia 281244PD].

Museum of New Zealand, Wellington

Museum of New Zealand (Te Papa Tongarewa), PO Box 467, Wellington, New Zealand
Dodo reconstruction (NMNZ S.35520) with grey plumage, dark grey face, yellow rhamphotheca, white primaries and yellowish-brown tarsi. It was made by Andrew Kitchener, Royal Museum of Scotland in August 1997 (Alan Tennyson, pers. comm., 5th March 2008). There is also a model of a dodo egg. Figured: Farrar (1999, p.5); Shuker (1999, p.46); McGourty (2001, pp.16-17); *The Times*, 26th June 2006, p.31.

Harri Kallio

Harri Kallio created one male and and one female life-size dodo reconstruction. These were mechanical and could be put into different poses. Kallio used contemporary illustrations, literature and physical remains (NHM, OUM, UMZC, Copenhagen and Prague collections) for information. He used the four skeletons in the NHM, NHM Tring and UMZC collections for reference and Livezey's (1993) data for bone dimensions. The head was based on the Tradescant head and the feet on the BM foot (cast BMNH A.3509).

Harri Kallio's dodo reconstructions. *Left*: Les Gris Gris #3, Mauritius 2004. *Right*: Mont Blanc #2, Mauritius 2001 (© Harri Kallio).

The reconstructions were constructed with an aluminium framework with stainless steel nuts, bolts and springs. Soft parts were made from dacron fibre, fibreglass, chicken wire, cotton thread and latex rubber. "Using the mechanical skeleton as a base, I sculpted the body shape onto it with chicken wire and covering the resulting body with fibreglass. When the fibreglass had cured, I sliced the cast open and removed the chicken wire from the inside. The leg and neck muscles were formed with dacron fibre and cotton thread, after which they were covered with a latex rubber layer" (Kallio 2005, p.49).

The head was sculpted in clay and then emended via several casting and moulding phases using plaster, polyurethane foam and three types of synthetic rubber. The head and lower jaw were separate. The end product was cast in silicon rubber. The eyes were glass. The feet were sculpted is a similar method to the head. The claws were cast in black-pigmented polyester resin. The plumage was composed of dyed swan feathers and the wings were made of goose feathers. The tail plumes comprised ostrich feathers. The bird skins were taxidermied. The swan feathers were extracted and glued onto the reconstructions one by one, with down filling in the spaces. The feathers and down were dyed.

Harri Kallio's dodo reconstructions. *Left*: Mare Longue Reservoir #1, Mauritius 2002. *Right*: Benares #8, Mauritius 2004 (© Harri Kallio).

Harri Kallio's dodo reconstructions. *Left*: Riviere des Anguilles #6, Mauritius 2002. *Right*: Benares #4, Mauritius 2004 (© Harri Kallio).

Harri Kallio's dodo reconstructions. Riviere des Anguilles #8, Mauritius 2004 (© Harri Kallio).

Upper rhamphotheca orange, blackish caudally; mandibular rhamphotheca blackish; face pale grey to pale blue-grey; irides white; plumage grey, more brownish on head, neck and thighs; remiges pale yellowish white; rectrices yellow or greyish yellow; tarsi orange; nails black. Male with three bill ridges, female with one. The back of head is perhaps too close to the skull, the inside of the mouth is grey (it should probably be red), the crop is only small, the leg feathering extends below or to the ankle (not above it), the tail feathers are without barbules.

Kallio took two of his dodo models to several locations in Mauritius to photograph them in a naturalistic environment.

Figured: Kallio (2005, front and back of of dust jacket, pp.8, 18, 45, 46, 48, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 61, 66, 67, 69, 70, 71, 78-79, 80, 83, 84, 85, 86, 87, 89, 90, 91, 92-93, 95, 96, 97, 98, 99, 100, 101, 103, 105, 107, 108-109, 110-111, 112-113, 115).
Online images at: http://www.harrikallio.com/dodo_index.html

Bill Munns

Bill Munns' dodo reconstruction was constructed using a cast of a skull as a sculpting armature and with reference to Fuller's "Extinct Birds". The skull cast was acquired from Henry Galiano, owner of the shop "Maxilla and Mandible" in New York. Munns sculpted a head (in order to cast multiple copies), opened the eyes and inserted taxidermy eyes. He sculpted and moulded the feet and inserted a half inch rod into each leg, through the foot, for mounting on a base. "[E]ach body was sculpted in white styrofoam and then the head and feet added, and feathers applied. The short fuzz-like surface of the cap and neck is actually a furcloth, not feathers" (Bill Munns, pers. comm., 20th March 2012). Six models were made and sold to museums and private collectors (http://www.billmunnscreaturegallery.com/bmcgsite_009.htm [Accessed 31 July 2008]).[13]

Bill Munn's dodo reconstruction (© Bill Munns).

[13] However, Munns (pers. comm., 20th March 2012) only recalls making two (or three), which were sold to private individuals.

Chester Zoo

Dodo sculpture. Figured: Shuker (2010, p.278).

Geomodel

Geomodel, via Abate Tommaso, 78, 30020 Quarto d'Altino, Venice, Italy
The dodo reconstruction was made by the team of illustrators, artists and artisans of Geomodel in 2009, under the scientific supervision of vertebrate palaeontologist Simone Maganuco (Museo di Storia Naturale di Milano). The original model was made entirely in clay and the finished product was made of fibreglass and hand-painted. All available anatomical data were used for reference. It is part of the permanent exhibit of the Extinction Park section of the Parco Natura Viva di Bussolengo (Figara, 40 – 37012 Bussolengo, Verona), and a temporary exhibit, "Dinosauri in Carne e Ossa" ["Dinosaurs in the Flesh"], Museo di Storia Naturale, Florence, 1st March to 2nd September 2012 (Simone Maganuco, pers. comm., 14th March 2012).

Geomodel staff: Mauro Scaggiante (creative director), Davide Bonadonna (palaeoartist), Andrea Leanza (sculptor, palaeoartist), Simone Maganuco (palaeontologist), Antonio Massari (scenographer).
http://www.geomodel.it/en/paleontology/Raphus-cucullatus/ [Accessed: 8 March 2012]

Geomodel dodo reconstruction (© Geomodel).

The reconstruction is available from the company DinoCasts.[14] The webpage states: "The model, made by fiberglass and mounting artificial eyes, are easy to assemble. Each step in the manufacturing process, from anatomical drawings to the finished 1:1 sculpture, are documented and made under strict supervision of palaeontologists". Product ID: 884.
[http://www.dinocasts.com/prod_productDetails.asp?ProductId=884 Accessed 10 August 2011]

EoFauna

EoFauna Investigación Científca, Easo, 27, 20006 Donostia - San Sebastián, Spain
Sculpture of the dodo, 1:8 scale (100 x 100mm on a wooden base 85 x 100 x 15mm), "based on the latest studies made on its body appearance", including Hume (2006). Sculptor and painter: David Zhou, scientific adviser: Asier Larramendi (http://eofauna.com/en/esculturas/el-dodo Accessed 23 January 2014).

The Eofauna dodo model (© Eofauna).

BBC nature programmes dodo model

Reconstruction of the dodo which can be seen at:
http://www.bbc.co.uk/nature/programmes/tv/state_planet/picpops/images/prog3.jpg

Channel 4 dodo reconstructions

Recreations were made for the television programme on the dodo in the series 'Extinct' (UK television Channel 4). Dodos were recreated using computer-generated imagery (CGI) and animatronic and static models, the latter including a partial dodo carcass. The CGI was conducted by the hive animation Ltd (VTR Plc.). The models were created by the company Artem. Kate Dart was the production zoological researcher. Information was derived from bones and reconstructions. The reconstructions were filmed on location in Mauritius. See Gill & West (2001).
Figured: Gill & West (2001, front and back of dust jacket, pp.64, 65, 96, 97, 134-135, 140-141, 147, 150, 153, 156-157, 162, 168); Alleyne (2009, p.10).

Ray Holmes' Dodo

An e-mail from Ray Holmes printed by James Breese in the "Treasure Hunters" column of the *Sunday Mirror* (16th March 2008) stated that Holmes possessed an almost perfect stuffed dodo in a glass-domed case. He added that it had been obtained by one of his ancestors sometime in the mid seventeenth century and asked what its value might be (Shuker 2010). Breese noted that many dodo reproductions had been made by taxidermists, but that because of the alleged provenance of the specimen, Holmes should take it to a museum to be examined. Shuker (2010) and Cheke (*vide* Shuker

[14] DinoCasts, Rua Francisco Sá Carneiro, nº6 R/c esq. Cod Postal: 2530 -108 Lourinhã, Portugal.

2010) concluded that the specimen was most likely a reproduction. An alternative explanation is that it was a case of mistaken identity (cf. Parish 2013, p.177).

Model of dodo egg

Figured: Grihault (2005, p.89).

Reconstruction of dodo footprints

Figured: Fuller (2002).

Rowland Ward

Rowland Ward's dodo reconstructions were made using plaster casts of modelled head and feet and a body covered with feathers, mostly from grey chickens and geese. Complete wings of chickens were used for the wings and the tail was composed of ostrich or abraded goose feathers. In 1914 the firm Rowland Ward (Limited) was based at "The Jungle", 167, Piccadilly, London.

Morris, P. A. 2003 Rowland Ward: taxidermist to the world, *Ascot: MPM*.

Model of the dodo

Photograph by John Ellison, 3rd December 1963, of John Robert Russell and Nicole Russell (the Duke and Duchess of Bedford), with a model of the dodo and copies of the magazine *Animals*, at Sydney (Kingsford Smith) Airport.

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