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Historic evidence of the use of storm-petrels *Hydrobates* sp. as candles

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Abstract

Many recent accounts of storm-petrel biology and conservation, particularly in the North Atlantic Ocean, refer to chicks of Leach's Storm-petrels *Hydrobates leucorhous* and European Storm-petrels *H. pelagicus* being used as candles, particularly in Ireland, Scotland, and the Faroe Islands. Here, we examine the historical, ethnographical, and museum evidence for this practice. Most accounts are second-hand, and only a handful of examples exist and can be verified either as photographs, first-person accounts, or museum specimens. We conclude that the practice was not likely to be widespread, and its perception was perpetuated by reproductions and exaggerations by visiting naturalists in the eighteenth to twentieth centuries.

Introduction

On islands in the North Atlantic Ocean, there is a long history of seabird hunting noted as early as the ninth century (Tierney 1967), a practice which continues today in some areas (Olsen & Nørrevang 2005; Petersen 2005; Chardine *et al*. 2008; Merkel & Barry 2008; Shrubb 2013). Seabirds and their eggs would be harvested primarily for food, but also for feathers, oil, decorative objects and clothing (Baldwin 2005; Shrubb 2013). Many recent species accounts refer to the historical practice of using storm-petrel chicks as candles, particularly Leach's Storm-petrels *Hydrobates leucorhous* at Scottish colonies and the Faroe Islands (e.g. Huntington *et al*. 1996; Pollet *et al*. 2020), but it is seldom attributed and poorly documented leading some to doubt its veracity.

Leach's Storm-petrel and European Storm-petrels *H. pelagicus* breed in earthen burrows and rock crevices on islands and headlands throughout the temperate and boreal North Atlantic Ocean, from Maine to Labrador in North America, and from the Mediterranean to northern Norway in Europe. Chicks are nest-bound for around six weeks, making them readily available and a predictable resource. The chicks are also fed lipid-rich meals and can exceed adult body mass by as much as a factor of two, mostly through fat reserves (Brooke 2004; Pollet *et al*. 2020; Carboneras *et al*. 2021).

Just how widespread was the practice of using storm-petrel chicks as a light source, and what historical evidence exists? Here, we review the historic literature in northwestern Europe and summarise specimens of 'petrel candles' in ethnographic collections. We also discuss the extent of this practice with a particular focus on the Faroe Islands.

Historical accounts (in chronological order)

There are several notes on the fatness and oil content of various seabirds in the Faroe Islands. Norwegian clergyman Peter Clausøn Friis (1545–1614) described, in very general terms, birds including the Manx Shearwater *Puffinus puffinus*:

> 'Blant mange Slags Fugle ere der to Slags besynderligen, den ene kaldis Lier eller Lir, oc er ofuermaade feed, det andet Slags kaldis Skrab, oc hafuer haardt oc tørt Kiød.'
>
> *[= Among many different birds, there are two unique types, one is called Lier or Lir, and is exceptionally fat, the other is Skrab, which has a hard and dry meat]* (Storm 1881)

Although Friis incorrectly split the adult Manx Shearwater ('Skrab' in Faroese) and its fledgling ('Líri') into two separate taxa, he was the first to note how fatty the Manx Shearwater fledglings are.

A notable record is from the seventeenth century Danish priest Lucas Jacobsøn Debes (1623–75). Though he makes no mention of storm-petrels in his monograph of the people and nature of the Faroe Islands (Debes 1673), about Manx Shearwater fledglings he wrote:

> 'Disse Unger formedelst deres Fedhed fortære de ikke straks, men nedsalte dennem og bruge dennem om Vinteren; Isteren smelte de og bruge i Lamper.'
>
> *[= These young, by virtue of their obesity, [the Faroese] do not consume immediately, but salt it and use it in the winter; the fat they melt and use in lamps.]*

This differs only marginally from the English translation produced three years later (Debes 1676):

> *...and they call those young ones lyers, they do not by reason of their fatness make present use of these young ones, but salt them to eat them in Winter; melting their fat, which they burn in Lamps.*

A contemporary clergyman to Debes, Norwegian Thomas Tarnovius (1644–84), mentions only six different birds in his description on the Faroe Islands. About the Northern Gannet *Morus bassanus* (hereafter 'Gannet') on Mykines he wrote (Hamre 1950):

> 'huor de oc fangis, oc for deres fædme brugis af Bynderne til tran.'
>
> *[= where they are caught, and for their fatness the farmers use them for tran.]*

'Tran' refers to the fats and oils from seabirds. There may have been different uses for tran collected from young Gannets and Manx Shearwaters in the Faroe Islands, but one possible and likely use would be for lighting, and this is what both Debes and Tarnovius mention. However, none of these seventeenth century accounts mention storm-petrels.

As Manx Shearwater chicks are considerably larger than storm-petrel chicks, it is perhaps not surprising that they were more likely an important food resource and their fat perhaps used for lighting. But considering the detail which Debes (1673) describes Manx Shearwaters (such as their burrow nesting and nocturnal activity) it is curious that there is no mention of storm-petrels whatsoever in his writings.

Perhaps the earliest definitive reference to the use of storm-petrels as candles comes from Morten Thrane Brünnich's (1737–1827) *Ornithologia borealis* (Brünnich 1764). It is cited for this very point by other notable early ornithological works (Pennant 1776; Latham 1824), which may have greatly assisted the spread of this practice. Of the European Storm-petrel, Brünnich writes:

> 'Avis foetida; per anum & os trahitur ellychnium, quod accenſum alitur pinguidine corporis, & loco candela Feroenſibus inſervit.'
>
> *[= A pungent bird; a wick is drawn out through the anus and the mouth, the wick is nourished by the abundance of the body, whatever is ignited, and takes the place of the candle in the Faroe Islands.]*

The source of Brünnich's information is unclear, to the point of being uncertain whether he observed the practice himself or was reporting second-hand information. Brünnich did evidently have contacts in the Faroe Islands, as he described the Great Skua *Stercorarius skua*, which has a type locality of Skúvoy (Brünnich 1764).

Jens-Christian Svabo (1746–1824), the Faroese ethnographer, folklorist, and linguist, wrote in 1781 (Svabo 1976):

> 'Der fortælles, at man i Mygenæs i gamle dage har brændt Ungen til Lysning.'
>
> *[= It is told that in Mykines in the olden days the chick was burnt for lighting.]*

Like Debes before him, Svabo may be misattributing this practice to Manx Shearwaters or Gannets, or incorrectly inferring that Debes himself was referring to European or Leach's Storm-petrels, all of which breed on Mykines (Hammer *et al.* 2014).

About Gannets, Svabo (1976) writes:

> 'De have begge tranet Kjød, og dog Ungen mere, som kan være omgiven med en feed Hinde af en Tommes Tykkelse, af hvilken man kan brænde Tran. De saltes begge og Ungen bruges til Suul, men dens Ister (Smoltur) legges i Maven og forvares til Vinteren, da det kommes i Lampen og nyttes, som god Tran.'

[= They have both oily meat, and the chick more, which can be surrounded by a fatty membrane a whole inch in thickness, which one can burn as tran. They can both be salted and the chick is used for seasoning in soup or porridge, while the fat is stored in stomachs and preserved for the winter, where it is used in the lamp and is used as good tran.]

George Montagu (1751–1815) and James Rennie (1787–1867) wrote in their *Ornithological Dictionary* (Montagu & Rennie 1833) entry for European Storm-petrel:

The body is of so oily a nature, that if a wick is drawn through from the mouth to the vent and lighted, it will burn as a lamp; and it is said to be actually used for that purpose in the Ferroe [= Faroe] Islands

As with sources we have previously described, by whom 'it is said to be actually used for that purpose' is not provided.

The clergyman and author Jørgen Landt (1753–1804) wrote about storm-petrels (Landt 1800):

'Fuglen spises ikke; thi den stinker ilde som Havhesten eller Ravnen. Hvat der fortælles om dens Fedme, nemlig, at naar man trækker en Væge igjennem den, skal den kunne brænde som et Lys, indtil den er ganske fortæret, kan gjerne tilforn have fundet Sted med Ungen, skjønt jeg ikke veed at dette nu meere er i Brug'

[= The bird is not eaten as it stinks like the Fulmar or Raven. What is said about its fatness, is that when a wick is pulled through it, it is supposedly able to burn like a candle until it completely burns out, this can probably have been done to the chick although I don't know for sure that this is still being used].

Hans-Christian Müller was a Faroese naturalist, who wrote many interesting notes on Faroese bird life, fish, and whales. About the storm-petrel he writes (Müller 1863):

'Forhen skal den have været benyttet som Lampe, idet man har trukket en Væge igjennem den, men den giver ikke nogen god eller behagelig Belysning, hvad jeg veed af egen Erfaring, thi jeg har selv anstillet Forsøget.'

[= In the past, it has been used as a lamp, as a wick has been pulled through it, but it does not give any good or pleasant lighting, as far as I know from my own experience, for I have undertaken the experiment myself.]

Edward Stanley, Bishop of Norwich (1779–1849), and the fourth President of the Linnean Society from 1837–49 produced a book on birds for the general public (Stanley 1890), which was only published 40 years after his death. In the section on European Storm-petrels, he refers to their use as candles in the Hebrides:

Their [European Storm-petrels'] whole bodies seem to be filled and impregnated with oil to such a degree, that in some of the most remote islands of the Hebrides,

Plate 1. European Storm-petrel *Hydrobates pelagicus* at sea, Gulf of Cádiz, December 2022. © *Clive Finlayson*

Plate 2. European Storm-petrel *Hydrobates pelagicus* captured for bird ringing, Algarve, June 2002. © *Rob Thomas*

> *the inhabitants actually form them into candles, by merely passing a rush through the body and out at the beak, which is found to burn as well as if dipped in tallow or any other grease.*

The source of Stanley's information is unclear, as many of the pieces of information in his book were not first-hand (such as the immediately preceding account of the Wandering Albatross *Diomedea exulans*, which Stanley would never have seen in person in the wild, though he may have seen museum specimens). The Hebrides are home to numerous seabirds, including several colonies of European Storm-petrels (Mitchell *et al.* 2004).

Similarly, in his account of the European Storm-petrel, Richard Bowdler Sharpe (1847–1909) (Sharpe 1897) refers to an account by W. H. Turle who visited the Blasket Islands (Na Blascaodaí) in Co. Kerry, Ireland, and in his narrative Turle (1891), wrote:

> *On reaching the cabin we were greeted by two rather savage dogs; but they recognized by voice, and I soon received a warm welcome from the inmates, who immediately lighted their only candle, a rush drawn through the oily body of a Stormy Petrel.*

The Blasket Islands are home to numerous seabirds, including several tens of thousands of European Storm-petrel, and were inhabited by up to 175 people until the population moved to mainland Ireland in 1953 (Alexander 1954; Brazier & Merne 1989). This seems to be the first reliable first-hand evidence of the use of storm-petrel chicks as candles.

In his summary of tubenoses (Procellariiformes) (Bent 1922), Arthur Cleveland Bent (1866–1954) quotes a passage detailing the practice in vague terms and concerning White-faced Storm-petrel *Pelagodroma marina*, and without providing further references, from Campbell & Mattingley (1907) who also do not make clear if this was information gained first-hand, or through other sources:

> *With this meal the young one has to be content until next night, but as it lives an indolent life, quietly ensconced in the cool shade of its burrow, it waxes exceeding fat, so much so that in some parts of the South Sea Islands, where these birds also nest, the natives, passing a dry rush through a dead young one's body, form thereby an excellent candle.*

Finn Salomonsen (1909–83), the Danish ornithology curator at the Zoology Museum of the University of Copenhagen wrote extensively about the ornithology of the Faroe Islands and Greenland. In *Zoology of the Faroes: Aves* (1935) he writes:

> *Hydrobates pelagicus: In the 17th century the very oily young were used as "lamps" in Myggenæs [=Mykines] and possibly in other places. They were dried and lit in winter. This practice was abandoned already in the 18th century.*

Salomonsen made no similar remark of the fat of young Gannets or Manx Shearwaters being rendered and used for lighting, which older accounts of Debes (1673), Tarnovius (Hamre 1950) and Svabo (1976) suggested.

More recently, ethnographic and folklore studies of the Faroe Islands have mentioned the historic use of storm-petrels as candles. For example, British ornithologist Kenneth Williamson (1914–77) who was stationed in the Faroe Islands during the Second World War summarised the practice (Williamson 1948):

> *Certainly the storm-petrel must have been a far commoner species at one time than it is now, for until the middle of the seventeenth century the Mykines folk collected a considerable number of the very fat and oily young, plucked, decapitated and dried them, and by the simple expedient of threading a wick through their bodies used them as candles in the wintertime. It is said that the nightly kvøldseta in the roykstova lasted just so long as it took a fresh storm petrel candle to burn out.*

The school teacher and Faroese local naturalist Mikkjal á Ryggi (1879–1955) however cast doubt on the historical accuracy of the use of storm-petrel as candles in his book *Fuglabókin* (á Ryggi 1951).

> 'Ungin er óføra feitur; men søgnin um, at Føroyingar áður turkaðu kropparnar, drógu veik ígjøgnum teir og so brendu teir sum ljós, er lítið trúlig.'
>
> *[= The chick is very fat, but the legend that the Faroese in old times dried their bodies, pulled a wick through them and lit them as candles is unlikely.]*

There are several references to the practice and existence of candles in the anthropological and folklore literature (Hough 1926; O'Dea 1951). The practice of using storm-petrel chicks as candles as late as the nineteenth century is referred to by O'Dea (1951), who also includes a photograph of two European Storm-petrels mounted upright with wicks from the Shetland Islands (O'Dea 1951; plate XVII).

More recent summaries of seabird harvesting in the Faroe Islands and north-western Atlantic more broadly do not refer to the practice (Nørrevang 1986; Olsen & Nørrevang 2005; Merkel & Barry 2008; Shrubb 2013). On Lundy, England, auks were rendered for oil to make into candles (Bristowe 1969), but the use of storm-petrels on islands in Wales, on Lundy and Scilly are not mentioned (Baldwin 2009).

Physical specimens

The most definitive evidence would, of course, be a physical specimen. There is one that exists in the Pitt Rivers Museum, Oxford (registration number PRM 1932.88.160, Figure 1) which was part of the collection of folklorist Edward Lovett (1852–1933), which he acquired in 1892 and which was donated to the museum by Henry Balfour (1863–1939), the museum's first curator, in 1932. The origin is given as variously St Kilda or Shetland.

A second example, also from Lovett and attributed to Shetland, was in the US National Museum-Smithsonian Institution (USNM Anthropology 153887), which was photographed for plate 4a by Hough (1928), who also refers to the practice on the 'Blanket' [= Blasket] Islands, Ireland. The account by Turle (1891) is also referenced by Hough (1926). Unfortunately, USNM 153887 could not be presently located in either the Anthropology or Bird collections.

Figure 1. European Storm-petrel *Hydrobates pelagicus* used as a candle in the collection of the Pitt Rivers Museum, Oxford (PRM 1932.88.160). Photo © *Pitt Rivers Museum, used with permission*

A similar object, USNM 178160, is registered as a 'Petrel torch (model)', but the US National Museum register is annotated 'Blackbird model', and also cannot be located, so it is unclear whether this was a genuine candle, a reproduction, or even a storm-petrel.

It should be noted that some examples may exist where the point was not practical, but experimental and intended to be a model. Both Müller (1863), and Orcadian naturalist James Tomison (1905) write of attempts to make candles using storm-petrels, though both found it rather difficult.

Discussion

The use of the seabird fat for lighting was described a century before Brünnich (1764) first writes about storm-petrels and storm-petrel candles on the Faroe Islands. A contemporary to Brünnich, Svabo (1976) writes with less confidence and detail than Brünnich that "It is told that in Mykines in the olden days the chick was burnt for lighting". It is interesting to note, even though it may well be a coincidence, that the only specific location in the Faroe Islands that mentions storm-petrel candles is Mykines, the same location where other writers have noted the use of seabird fat for burning oil. Storm-petrel candles have never been

mentioned on Nólsoy, Sandoy, Skúvoy or Suðuroy where significant storm-petrel colonies also exist. That we could find no Faroese written or oral account from other notable storm-petrel islands in the Faroe Islands casts some doubt on the historical accuracy of the claim. It is quite interesting that Williamson and Ryggi, two more or less contemporary ornithologists in the Faroe Islands, have very differing opinions about the reliability of the practice of storm-petrel candles.

It is worth mentioning that the practice may have occurred on vessels at sea. Storm-petrels, like many seabirds, are attracted to lights (Miles *et al*. 2010; Marangoni *et al*. 2022) and so birds grounded aboard ships may have been used as a light source, though we have no direct evidence of this.

On many remote islands, storm-petrels were taken as food, particularly by children as they are comparatively accessible and easy to catch compared to other seabirds (Jensen & Thomsen 2022), so there is the potential for their use as candles to be confused with such harvests. Based on the historical evidence presented here, it could be said that generally Ryggi's scepticism is the more common opinion found in the Faroe Islands today, while it is not uncommon for visitors to the Faroe Islands to ask about storm-petrel candles.

Conclusions

There is clearly some evidence of the use of storm-petrel chicks as candles based on the existence of physical specimens and at least one historic account from Ireland, however the number of first-hand accounts of examples in museum collections is much lower than might be expected given the ubiquity of the assertion. We believe that the practice was not likely widespread, and its persistence in the literature is the result of, at best, exaggerated second-hand accounts by early naturalists and reproductions, which contributed to the idea that it was a common practice, particularly on remote islands.

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