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Rediscovery of the holotype of the American Goshawk, *Accipiter gentilis atricapillus* (Wilson, 1812), and a commentary about Alexander Wilson’s contributions to the Peale Museum

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ABSTRACT.—Alexander Wilson (1766–1813) based his description of the “Slate-colored Hawk / *Falco atricapillus*” (=*Accipiter gentilis atricapillus*) on a single specimen collected near Philadelphia, Pennsylvania, which he deposited for posterity in the Philadelphia (Peale) Museum. Wilson’s illustration of the specimen was engraved and hand-colored prints were published in *American Ornithology* vol. 6 (1812b, Pl. 52) to accompany his scientific description of the species. However, the path of Wilson’s type specimens became difficult to trace after the Peale Museum closed in 1846 and its collections were sold and dispersed. Wilson’s holotype of *F. atricapillus* was presumed lost or destroyed until November 2020, when I rediscovered it in the collection of the Academy of Natural Sciences of Drexel University (ANSP), thanks to a penciled note made by the late Rodolphe Meyer de Schauensee, former ANSP curator of birds. This research also sheds new light on the history of the Peale Museum bird collection, exposing a basic misunderstanding about the “Peale numbers” cited by Wilson, which has broad implications for the history of American ornithology. In short, “Peale numbers” were assigned to species (not specimens) held in the Peale Museum.

Key words: Accipitridae, *American Ornithology*, History of Science, John Cassin, Northern Goshawk.

INTRODUCTION

Few individuals made more lasting contributions to American ornithology than Alexander Wilson (1766–1813; Fig. 1), the Scottish poet-naturalist who authored and co-published *American Ornithology* volumes 1–9 (1808–14). Nevertheless, despite his importance to the development of the science, only three provenanced specimens (study skins) from Wilson’s collection were previously known to exist (Halley, 2020). All three are type specimens of hawks (Family Accipitridae) preserved in the collection of the Academy of Natural Sciences of Drexel University (ANSP): (1) ANSP 2032, holotype of Mississippi Kite *Ictinia mississippiensis* (Wilson, 1811, Pl. 25); (2) ANSP 1551, holotype of Broad-winged Hawk *Falco pennsylvanicus* Wilson, 1812b, Pl. 54 (=*Buteo platypterus* Vieillot, 1823); and (3) ANSP 1157, syntype of Rough-legged Hawk *Falco niger* Wilson, 1812b, Pl. 53 (=*Buteo lagopus* Pontoppidan, 1763). One of these names (*I. mississippiensis*) is currently in use; the others are junior synonyms (Halley, 2020).

Only two of these specimens were known in the ANSP collection prior to 2018, when I rediscovered the *F. niger* syntype, which had been presumed lost or destroyed for more than 150 years (Halley, 2020). Here, I describe another serendipitous rediscovery: ANSP 1208, the holotype of the “Ash-colored, or Black-cap Hawk” *Falco atricapillus* Wilson, 1812b, which was depicted in Pl. 52 of *American Ornithology* (Fig. 2). This specimen shares a Peale Museum provenance with the other Wilson hawk types in the ANSP collection and was likely acquired at the same time.

MATERIAL & METHODS

In this paper, I review the history of the *F. atricapillus* holotype and the mounted bird collection at the Peale Museum, where it was deposited. My research is based on multiple years of intensive study of unpublished primary sources in the collections of the ANSP, American Philosophical Society (APS), and Historical Society of Pennsylvania (HSP), and published transcripts of primary sources in the Peale family papers (e.g., Miller, 1988). Of note, some of the most important sources relating to Wilson’s ornithology and the history of the Peale Museum bird collection, including the original accessions ledger (HSP, coll. 0481), were overlooked or misinterpreted by Wilson’s recent biographers (e.g., Burtt and Davis, 2013; Burtt, 2016) and earlier historians (e.g., Allen, 1951; but see Burns, 1932). Consequently, scholars have incorrectly assumed that all or most of the “Peale numbers” cited by Wilson were unique numbers assigned to Wilson’s own specimens. In most cases, however, Wilson was citing numbers that predated his own work, to give credit to Charles Willson Peale (1741–1827), founder and proprietor of the Peale Museum, for having collected and displayed those species before him.
A comprehensive review of specimens purported to have been collected and/or illustrated by Wilson is warranted, but beyond the scope of this paper. Faxon's (1915) claim that numerous data-deficient specimens in the Museum of Comparative Zoology (MCZ) at Harvard University were the models for Wilson's illustrations has been generally accepted by scholars. However, the MCZ specimens lack data and cannot be assumed to have a Wilsonian provenance simply because they were originally displayed in the Peale Museum. For example, Faxon (1915) and Bangs (1930) promoted MCZ 67854, from the Boston Museum collection, as “the type” of Lewis’s Woodpecker Picus torquatus Wilson, 1811, on which the replacement name Melanerpes lewis (Gray, GR, 1849) was based. However, as Faxon (1915) himself noted, Titian R. Peale (1799–1885) deposited two specimens of M. lewis in the Peale Museum on March 23, 1821, which he collected in 1820 on the Long Expedition, after Wilson’s death (HSP, coll. 0481). Thus, we cannot safely assume that MCZ 67854 was part of Wilson’s type series. This is a typical quandary for MCZ specimens that Faxon (1915) claimed were Wilson’s types and/or models for his illustrations.

**WILSON’S HAWKS AND THE “PEALE NUMBERS”**

In the early months of 1812, when the founders of the ANSP were holding their inaugural meetings, Wilson “removed [himself] from the noise, bustle, and interruption of the metropolis [Philadelphia]” and took up residence at Bartram’s Garden, on the west bank of the Schuylkill River (Ord in Wilson, 1828: clix). The fifth volume of *American Ornithology* (1812a) was in press, “submitted to the public with all due deference and respect”, and Wilson was working at a feverish pace on the sixth volume, which would be published later that year (Wilson 1812b). It was during this productive period when he acquired the holotype of *F. atricapillus* and three other specimens of apparently undescribed American hawks. They were in Wilson’s possession by January 14, 1812, according to a dated letter he wrote to Samuel L. Mitchell (1764–1831), naturalist and U.S. congressman:

> “I have lately shot a number of Fine Hawks, 4 of which are altogether new to me and I believe to Europeans. One is almost entirely black and of great strength and fierceness [Falco niger, see Halley, 2020] … The United States will exhibit such a display of noble Eagles and Hawks in the 5th & 6th vols. of [American Ornithology] as I think no other country can produce.” (Hunter, 1983: 396)
Wilson deposited his specimens in the Philadelphia (Peale) Museum, which was then located in the Pennsylvania State House, now known as Independence Hall. The history of the Peale Museum bird collection is not well known, but it is critical to understanding and evaluating Wilson’s work in context. At the Peale Museum, Wilson gained access to the first systematically arranged collection of American birds, with specimens of closely related European and American species displayed side-by-side, and numerous species that had not yet been described to science, or assigned Linnaean binomials. Charles W. Peale, who assembled and arranged the impressive collection, had recently retired and the museum had come under the management of his son, Rubens Peale (1784–1865). Wilson’s first visit to the Peale Museum was precipitated by a serendipitous meeting with Rubens in the spring or summer of 1804, according to a retrospective passage in the diary of Rubens’s daughter:

“Father [Rubens]… was one day out shooting and sat down … to eat his dinner … when Mr. Wilson then a young man teaching school … came by and looking at the birds said that Father had shot a favorite bird that often beguiled him in his leisure hours by its warblings—and to which he had addressed some verses entitled the “Wood Robin” [=Wood Thrush Hylocichla mustelina, see Halley, 2018: 253] which he shows Father … In conversing with Father he showed so much fondness for birds that he invited him to visit the museum to see his collection there which he did and from that time [Wilson] devoted himself to the study of that branch of natural history and wrote a very celebrated work on ornithology.” (from Mss.B.P31, APS Library; transcribed by Soltis, 2017: 204)

Since the 1780s, by actively collecting in the field, the Peale family had been gradually building their bird collection. It was initially composed mostly of American specimens, then supplemented by foreign specimens acquired via exchange with European naturalists. By the time Wilson visited the museum, apparently in 1804 at Ruben’s invitation, the collection was already comprised of “760 [species] without the admission of any duplicates, contained in 140 cases” (Miller, 1988: 761–762). Intending to publish a catalog of Peale’s collection, Palisot de Beauvois (1752–1820), the French naturalist, had assigned a number to each species (not each specimen, unless he mistook them for different species) during multiple visits to Philadelphia from 1794–1802. These were the “Peale numbers” later cited by Wilson, from a catalog that Peale and Beauvois intended to co-publish, but never secured the funding to complete. In 1798, Peale wrote to Beauvois, who had returned to Paris; “as soon as [pecuniary] circumstances will enable me, [I] will have the Catalogue completed, since there is nothing I can do that will be of so much importance to the Museum.” However, the yellow fever epidemic returned to Philadelphia, crippling the museum business. Peale “[hoped] to save a sufficient sum to pay for the printing of [his] Catalogue”, but he was admittedly “sick of the subscription business” and envious of Beauvois and his French colleagues at the Académie des sciences in Paris, who enjoyed government support for their collecting activities and research (Miller, 1988: 246–250).

By 1803, dissuaded by the cost of publication, and seeking a compromise, Peale decided to forego the print catalog and instead to display Beauvois’s catalog numbers and the corresponding names (Latin, English, and French) on wooden frames, attached to the glass display cases in the museum. The frames were painted and installed by Rubens’s sister, Sophonisba Peale (1786–1859), during the summer of 1803, while the museum was closed to visitors on account of the epidemic. She also assisted her father in the field, collecting and preserving study skins of local birds to be used as currency for foreign exchanges. On May 31, 1803, the elder Peale wrote with pride to Rubens and his brother Rembrandt, who were in London: “I am now amidst my hurry of preserving birds—Sophonisba not only preserving them well but she also accompanies me in my hunting excursions and is now fond of Shooting with the little Fuzee [shotgun]” (Miller, 1988: 531). To my knowledge, Sophonisba, whose contributions to American ornithology have been largely forgotten, was the first American woman to collect and preserve specimens for scientific study. On August 7, 1803, Peale sent an important update to Rubens and Rembrandt: “The Museum will now in a short time have the Catalogue in frames over each Box—Sophonisba has advanced so far, that I have now Taken out of the Room the Book Catalogue” (Miller, 1988: 593). This “Book Catalogue” has not been located by historians and is possibly destroyed.

That same summer (1803), while Sophonisba was busy collecting and preparing study skins with her father, and copying Beauvois’s catalog onto wooden frames, Wilson famously declared his intention to “make a collection of all our finest birds” in a private letter (Hunter, 1983: 203). Burtt and Davis (2013) and Burtt (2016), who (after misunderstanding the Peale numbers) believed that Wilson was, “unquestionably, the first American ornithologist”, promoted this letter as the “founding document of American ornithology” and further claimed that Wilson deposited “study skins of 255 of 283 species he described” in the Peale Museum collection (i.e., nearly all
the Peale numbers cited by Wilson). However, as explained above, the Peale numbers predated Wilson (i.e., except those assigned to his novelties) and Sophonisba painted them on the frames by August 1803, before Wilson visited the museum. Furthermore, the Peale numbers evidently referred to species (see quote below), not specimens as assumed by Faxon (1915) and Burtt and Davis (2013). Only novel species (like Wilson’s multiple hawks) warranted the addition of new catalog numbers, and the Peales were generally not interested in adding duplicate specimens of species already in the collection (Miller, 1988: 761–762). According to the accessions ledger, contrary to popular accounts, Wilson deposited relatively few study skins (n < 30, not 255 as claimed by Burtt and Davis, 2013) in the Peale Museum (HSP, coll. 0481).

The Peale numbers cited by Wilson, most of which referred to species that were already mounted in the Peale Museum when Wilson arrived, range from No. 11 (Turkey Vulture) to No. 7789 (Nashville Warbler, one of Wilson’s novelties). When arranged sequentially, the numbers have an underlying taxonomic structure; they are clustered in blocks corresponding to the nine Linnaean Orders (Class Aves), and clustered by genus within each Order. That the Linnaean taxonomy is reflected in the Peale number sequence has a simple explanation. Peale’s collection was arranged according to the Linnaean system and Beauvois simply walked the length of the room, visiting each cabinet in order and applying a number to each species. In a pamphlet printed for visitors the same year of Wilson’s first visit, Guide to the Philadelphia Museum (1804), Peale wrote (my italics for emphasis):

“...The Linnaean Classification is generally adopted throughout the Animal department ... [in the] Long Room / Linnaeus’s classification of Birds, with the characters of each order and genus, is (for want of space to display it better) exhibited in a gilt frame at the entrance of the Long Room. All the birds are in glass cases, the insides of which are painted to represent appropriate scenery; Mountains, Plains, or Waters, the Birds being placed on branches or artificial rocks, &c. These cases, rising 12 feet from the floor, extend the whole length of this room, which is 100 feet, producing an uncommonly elegant display ... in frames over each case, the genus is first noted, then their species and names in Latin, English, and French, referring to the numbers which are attached to each species [i.e., not specimens]. / There are now in this collection, perhaps all the birds belonging to the Middle, many of which likewise belong to the Northern and Southern States, and a considerable number from South America, Europe, Africa, Asia, New Holland, and the recently discovered islands of the South Seas. The number exceeds 760 [species] without the admission of any duplicates, contained in 140 cases” (Miller, 1988: 761–762)

When a new species was acquired by the museum, it was assigned a new Peale number within the appropriate taxonomic block. This was a straightforward procedure because large gaps of unused numbers had apparently been inserted by Beauvois, in anticipation of future discoveries and foreign acquisitions. Wilson’s hawk specimens, each of which was assumed to be a new species, were assigned a consecutive series of numbers (Peale Nos. 404–407) in the Accipitres number block (i.e., corresponding to the first Linnaean Order: Peale Nos. 11–522 in Wilson’s citations). The new series was immediately preceded by one of Wilson’s earlier discoveries, the holotype of *I. mississippiensis* (Peale No. 403), which was presumably included in the “considerable number of nondescript bird skins, discovered and presented by Mr. Alexr. Wilson” on December 25, 1810, as recorded in the accessions ledger (HSP, coll. 0481). After depositing the specimens, Wilson decided that Peale Nos. 404 and 405 were merely the immature and adult plumages of a single undescribed species, which he subsequently called *F. niger* Wilson, 1812b (see Halley, 2020). Incidentally, this introduced a minor inconsistency into the Peale catalog (i.e., two numbers applied to separate specimens of the same species). The third specimen Wilson deposited (Peale No. 406) was the holotype specimen of *Falco atricapillus* Wilson, 1812b, depicted on Pl. 52 of *American Ornithology* (Fig. 2), of which he wrote:

“...Of this beautiful species I can find no precise description ... The individual from which the drawing was made is faithfully represented in the plate, reduced to one half its natural dimensions. This bird was shot within a few miles of Philadelphia, and is now preserved, in good order, in Mr. Peale’s museum.” (Wilson 1812b: 80)

The fourth specimen (Peale No. 407) was the holotype of *F. pennsylvanicus* Wilson, 1812b, collected in “Bartram’s Woods”, which was later identified in the ANSP collection by Stone (1899). The accounts of these three new species appeared in *American Ornithology* vol. 6 (Wilson, 1812b), which was published in Philadelphia in August 1812, and Wilson deposited a copy of the work at the Peale Museum on September 22, 1812, according to the accessions ledger (HSP, coll. 0481).
FATE OF WILSON’S TYPES

Wilson died unexpectedly the following summer, on August 23, 1813, and was buried at the Gloria Dei (Old Swedes) cemetery, about 1.6 km (1 mi.) from the site of the Peale Museum (Halley, 2018: 258). His specimens were stored at the Peale Museum for the next three decades, where they were studied by his ornithological successors. However, in 1846 and 1848, respectively, the museum closed and its collections were divided into lots and sold at a sheriff’s sale in Philadelphia (Fig. 3). Most of the specimens were purchased by P. T. Barnum (1810–91), who displayed his acquisitions at his American Museum in New York City, where they were tragically destroyed by fire on July 13, 1865 (Anon., 1865); and by Moses Kimball (1809–95), who displayed his portion at the Boston Museum, which later passed to the Boston Society of Natural History (Faxon, 1915). Some of Kimball’s specimens were thereafter destroyed, and others were sold to Charles J. Maynard (1845–1929), who stored them in his barn in Newtonville, Massachusetts, from whence they were transferred to the Museum of Comparative Zoology, Harvard University (MCZ). However, by the time they reached the MCZ, any original Peale Museum data that may have existed were lost. Therefore, although the idea that some of Wilson’s types survive in the MCZ collection is a tantalizing one, it cannot be verified (see Material & Methods herein).

John Cassin (1813–69), longtime ANSP curator of birds, apparently arranged to purchase (or exchange) a few choice specimens from the Peale Museum collection, either during or prior to the sheriff’s sale (Stone, 1899). However, I have been unable to locate any primary source that documents this important transaction. After Cassin’s death in 1869, the ANSP collection was neglected for approximately 20 years, until 1888, when Witmer Stone (1866–1939), who was a child when Cassin died, initiated its restoration. In an unpublished memorandum, in one of Stone’s official ANSP specimen ledgers, he wrote that the “mounted collection of birds in the museum [comprised] about 25,000 specimens (counted Dec. 1888). Some of the families were systematically catalogued in several volumes but no numbers were placed on the specimens to fix their identity” (ANSP Archives, coll. 54, box 4).

After completing the monumental, multi-year task of dismounting a large portion of the historic collection, for long-term storage in drawers, Stone (1899) published a catalog of the type specimens he had identified during this work. Among them were only two of Wilson’s types, *I. mississippiensis* and *F. pennsylvanicus*, of which he wrote: “The collections [contained at the Peale Museum] were dispersed at auction upon the breaking up of the museum and such Wilson specimens as may have been there are...
probably lost. Two of the types were, however, obtained in exchange by the Academy before the Peale collection was scattered” (Stone, 1899: 11). A third type (F. niger) was hidden in plain sight in the ANSP collection for more than a century before it was rediscovered (Halley, 2020). The rediscovery of a fourth specimen, the type of F. atricapillus, is described herein.

**REDISCOVERY OF THE HOLOTYPE**

On November 19, 2020, while working in the ANSP bird collection, I noticed a handwritten note (“From the Peale Mus. / R. M. de. Sch.”) on the back of the label of ANSP 1208, a specimen of the North American subspecies of Northern Goshawk Accipiter gentilis atricapillus (Wilson), known colloquially as the “American Goshawk” (Figs. 4, 5). In 2018, when I found the type of F. niger (ANSP 1157), there was a similar note (“from Peale’s Museum”) scrawled in pencil on the underside of a wooden pedestal attached to the specimen, initialed by John Cassin. This was evidently the original pedestal on which the specimen was mounted in the Peale Museum (see Halley, 2020). It seems that Rodolphe Meyer de Schauensee (1901–84), a former ANSP curator, copied the original data from the ANSP 1208 pedestal onto its modern label, before discarding the burdensome wooden pedestal, probably to save precious space in the drawers of the study skin collection.

Stone’s specimen ledger (ANSP Archives, coll. 54) is the oldest available source now that the pedestal of ANSP 1208 is missing (i.e., older than the extant label, which has data copied from the pedestal). The ledger entry was presumably written by Stone when he dismounted ANSP 1208, probably during the early 1890s, at which time the pedestal and specimen were still together. In the ledger, the specimen is attributed to “Cassin’s coll.” (i.e., it was in his collection, but he was apparently not the collector) and it states that it was “[bought] in the New Jersey market”. This provenance is plausible because Wilson’s (1812b: 80) brief account of the specimen’s origin was written in passive voice, as if he had acquired the specimen from a third party (“This bird was shot within a few miles of Philadelphia…”).

If Cassin acquired all of Wilson’s extant hawk specimens from the same source (i.e., probably the 1848 sheriff’s sale), it seems likely that he would have made similar notes on the wooden pedestals of each specimen.

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**Fig. 4.** Digital photograph of ANSP 1208, holotype of Accipiter gentilis atricapillus (Wilson, 1812b). Photo by Matthew R. Halley, courtesy of the ANSP Ornithology Department.
If so, Cassin’s faint penciled note may simply have been overlooked by Stone (1899). Meyer de Schauensee, who preserved the original data before discarding the pedestal, apparently did not realize that there was only one specimen of *A. g. atricapillus* in the Peale Museum—Wilson’s holotype. I have identified primary sources for more than 600 specimens in the Peale Museum bird collection, by systematically searching the holdings of Philadelphia-based archives, but am aware of only one specimen of *A. g. atricapillus* (Halley, in press). Therefore, it seems probable that ANSP 1208 was indeed the holotype of *A. g. atricapillus* (Peale No. 406), and that it was rescued by Cassin along with Wilson’s other hawks now preserved in the ANSP collection.

**NOMENCLATURE**

The Northern Goshawk *A. gentilis* (Linnaeus), type locality in the Dalecarlian Alps, Sweden, is currently classified as a polytypic species with a widespread distribution; the name *A. g. atricapillus* (Wilson, 1812b) is used for the North American subspecies (Chesser et al., 2018). However, a taxonomic review of this complex is warranted. Recent phylogenomic research by ANSP ornithologists has revealed cryptic species-level diversity in the *A. striatus* Vieillot, 1808 complex, type locality Hispaniola; the name *A. velox* (Wilson, 1811) holds priority for the migratory populations of *A. [striatus]* that inhabit continental North America, which are deserving of species rank (Catanach et al., 2021). If further research demonstrates a similar pattern among populations of *A. gentilis*, such that the North American subspecies is elevated to species rank, the name *Falco atricapillus* Wilson, 1812b will have nomenclatural priority. Notwithstanding, the precise type locality of *A. g. atricapillus*, “within a few miles of Philadelphia” (Wilson, 1812b), remains ambiguous. Although the specimen was evidently purchased in a market in New Jersey (ANSP Archives, coll. 54), it may have been collected on the Pennsylvania side of the Delaware River.

![Digital photographs of the front (top) and back (bottom) of the label of ANSP 1208, holotype of *Accipiter gentilis atricapillus* (Wilson, 1812b). The front attributes the specimen to “[John] Cassin” and states that it is a male from “New Jersey”. The backside of the label bears a penciled note by Rodolphe Meyer de Schauensee that reads: “From the Peale [Museum]”. Photos by Matthew R. Halley, courtesy of the ANSP Ornithology Department.](https://bioone.org/journals/Proceedings-of-the-Academy-of-Natural-Sciences-of-Philadelphia)
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