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**RESEARCH ARTICLE**

# Duplicates under the hammer: natural-history auctions in Berlin's early nineteenth-century collection landscape

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## Abstract

The nineteenth-century museum and auction house are seemingly distinct spaces with opposing functions: while the former represents a contemplative space that accumulates objects of art and science, the latter provides a forum for lively sales events that disperse wares to the highest bidders. This contribution blurs the border between museums and marketplaces by studying the Berlin Zoological Museum's duplicate specimen auctions between 1818 and the 1840s. It attends to the operations and tools involved in commodifying specimens as duplicates, particularly the auction catalogue. The paper furthermore contextualizes the museum's sales in a broader history of duplicate auctions across Berlin's collection landscape.

Since assuming leadership of the Berlin University's fledgling Zoological Museum in 1813, it had been Martin Hinrich Lichtenstein's goal to fulfil the 'fundamental law' established three years prior by the museum's founders: that the director must 'always see to expanding [the collection] and filling its holes', so that it achieves the utmost possible degree of 'completeness'.[1] At the time of Lichtenstein's appointment, the museum – pieced together with material from the Berlin Academy of Sciences and the Royal Kunst- und Naturalienkabinett – barely managed to fill three rooms of the university's eastern wing.[2] The museum's initial reliance on donations from professors joining the university faculty or from local naturalists yielded disappointingly insufficient returns, totalling only around eighty new specimens over the course of its first five years.[3] Yet before the end of the decade, Lichtenstein dramatically accelerated the museum's growth by recruiting university students and other willing volunteers to undertake collection voyages to the British Cape Colony, the South Pacific, Russia's North American colonies and Brazil (among other destinations).[4] In the autumn of 1818 the museum director reported to

1 Karl Illiger to Section for Culture and Public Education, Brunswick, 21 August 1810, Geheimes Staatsarchiv Preußischer Kulturbesitz (hereafter GStA PK), I. HA Rep. 76 Va Sekt. 2 Tit. X Bd. 1, fol. 24. Unless otherwise noted, all translations are my own.

2 Erwin Stresemann, 'Hinrich Lichtenstein: Lebensbild des ersten Zoologen der Berliner Universität', in Willi Göber and Friedrich Herneck (eds.), *Forschen und Wirken: Festschrift zur 150-Jahr-Feier der Humboldt-Universität zu Berlin, 1810–1960*, Berlin: Deutscher Verlag der Wissenschaften, 1960, pp. 73–96, 76.

3 See Lichtenstein to Section for Culture and Public Education, Berlin, 3 April 1815, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 2, fol. 126. See also the museum's accession journal, Museum für Naturkunde Berlin, Historische Bild- und Schriftgutsammlungen (hereafter MfN HBSB), Zool. Mus., S I Eingangsjournal 1811–1857.

4 See Anne MacKinney and Matthias Glaubrecht, 'Academic practice *par excellence*: Martin Hinrich Lichtenstein's role in Adelbert von Chamisso's career as a naturalist', *Internationales Archiv für Sozialgeschichte der deutschen Literatur* (2017) 42(2), pp. 322–47.

his supervisors at the Prussian Ministry of Culture, 'I am beginning … to find myself in a quandary due the excessive diligence of our collectors … We have now once again become richer with over 1,000 birds and 11,000 insects'.[5] A year later he announced that for the first time the museum 'premises are becoming too cramped' to house all the specimens now flowing into Berlin.[6] Something had to give.

Rather than stem the tide of incoming specimens, Lichtenstein had an alternative solution to this unexpected crisis of surplus: the museum, he proposed to his supervisors, would vend its 'duplicate' material at public auction – 'duplicate' being a category of object for which he offered no defining criteria, but simply characterized as 'quasi dead capital' that the museum would be better off 'liquidating' rather than stockpiling.[7] His plan to transform an institution designed to accumulate specimens in service of natural science and education into one involved in the business dispersing specimens for profit is striking. It collapses into a single space two domains, whose practices, missions and social dynamics are seemingly opposed and whose histories have thus far largely been told separately:[8] the nineteenth-century European model of public museum, according to both contemporary institutional ideals and subsequent historiographical accounts, was supposed to be a permanent repository of objects, subject to study by select experts in pursuit of knowledge as well as to the reverent gaze of a strictly disciplined, quantitatively limited and, ideally, well-educated public body in pursuit of civic and moral self-improvement.[9] The auction hall, by contrast, represents a commercial node through which objects flowed in and out again. In its nineteenth-century form, it constituted a dynamic space, where professional auctioneers, skilled in the art of galvanizing consumers, sought to draw in large crowds from across social strata and encourage competitive bidding to drive profits.[10] In his 1926 history of the British auction house Christie's, H.C. Marillier drew out this contrast between the stasis of the museum and the liveliness of the auction:

5 Lichtenstein to Ministry of Culture, Berlin, 20 October 1818, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 4, fol. 91.

6 Lichtenstein to Ministry of Culture, Berlin, 6 December 1819, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 5, fols. 205–6.

7 Lichtenstein to Ministry of Culture, Berlin, 7 March 1820, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 5, fol. 262; Lichtenstein, op. cit. (5), fols. 92–3.

8 Bettina Dietz and Daniela Bleichmar have undertaken excellent studies on the interconnections between eighteenth-century *collections curieuses* and the budding commercial auction market that might serve as models for integrating a history of museums into a history of the auctions. See Bettina Dietz, 'Mobile objects: the space of shells in eighteenth-century France', *BJHS* (2006) 39(3), pp. 363–82; Daniela Bleichmar, 'Learning to look: visual expertise across art and science in eighteenth-century France', *Eighteenth-Century Studies* (2012) 46(1), pp. 85–111. But the cabinet culture of the eighteenth century, as both authors themselves point out, is not identical with that of public, institutional museums in the eighteenth and nineteenth centuries, whose relations to the auction market have yet to be comprehensively explored. More typically, when early institutional museums and their keepers are discussed in the context of auctions, they are presented almost exclusively as bidders and buyers, leaving out other ways in which they have historically participated in and shaped the commercial market. See, for instance, Dietz, op. cit., p. 382.

9 On the nineteenth-century origins of the ideal of museal permanence see Steven Lubar, Lukas Rieppel, Ann Daly and Kathrinne Duffy, 'Lost museums', *Museum History Journal* (2017) 10(1), pp. 1–14. See also Tony Bennett, 'The exhibitionary complex', *New Formations* (1988) 4, pp. 73–102. Haidy Geismar's research on twentieth- and twenty-first-century Māori museologies that emphasize relational guardianship over collection objects rather than inalienable institutional ownership underscores not only the temporal, but also the cultural, specificity of European ideals of collection permanence. See Haidy Geismar, *Treasured Possessions: Indigenous Interventions into Cultural and Intellectual Property*, Durham, NC: Duke University Press, 2013, esp. pp. 121–50.

10 Beth Fowkes Tobin, *The Duchess's Shells: Natural History Collecting in the Age of Cook's Voyages*, New Haven, CT: Yale University Press, 2014, p. 4; Brian Learmount, *A History of the Auction*, London: Barnard & Learmount, 1985, pp. 47–80.

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> In the realm of material things there is no such liberal education to be found anywhere else, unless it be in the less invigorating atmosphere of a museum, where everything is dead and laid to rest. In the sale-room things are alive and changing hands; sometimes, in the case of great sales, with an intensity of suspense and subdued excitement which is quite sensational.[11]

Though intent on highlighting the differences between these two spaces, Marillier simultaneously pointed out a kinship: museums and sale rooms can both function as sites of learning and tools of knowledge.

Indeed, it is this very overlap which Lichtenstein attempted to capitalize on over a century earlier. Reassuring his ministry supervisors (and perhaps hoping to dismiss presumptions of museums' and auctions' mutual incompatibility) that the sales would be conducted in a manner 'worthy of a royal institution' and 'truly beneficial to science', Lichtenstein framed the duplicate auction as a business venture that would promote, rather than detract from, the museum's responsibilities towards scientific research and public education.[12] For one thing, as Lichtenstein elaborated in the preface to his first auction catalogue in 1818, the sales would generate funds that the museum could reinvest into the maintenance of its existing holdings as well as in the acquisition of rare specimens not yet represented in an otherwise overabundant collection.[13] Second, and more importantly, by selling authoritatively classified specimens directly to customers (thus circumventing intermediary commercial dealers more interested in profits than in science), the museum could 'rapidly disseminate good and rigorous knowledge' amongst the 'citizens of the state and the scholarly world'.[14] This kind of circulation of objects and knowledge beyond the walls of the collection, Lichtenstein insisted, and not simply the 'accumulation of a horde of rarities for the admiration of the crowds' or the 'equipment of scholars with the space and material for study', was the chief purpose of a well-endowed natural-history museum.[15]

This article examines how Lichtenstein's vision of conducting commercial duplicate trade in harmony with the museum's scholarly and educational mission functioned in practice. Starting by contextualizing the museum's sales within a broader history of duplicate auctions between the late eighteenth and early nineteenth centuries, it then focuses on the procedures and media involved in commodifying Berlin's natural-historical specimens as 'duplicates' that could legitimately be deaccessioned from the museum and sold to the highest bidder. It attends particularly to the making of the auction catalogue, a crucial site upon which both tensions and productive harmonies between selling commodities and advancing knowledge played out. Ultimately, as this article demonstrates, an analysis of duplicate sales can blur the border between museal institutions and sites of commerce, paving a path for an entangled history of these two spaces.

## Defining the duplicate

Defining duplicate specimens is as much a question of what as it is of when and where. In nineteenth-century natural history, a specimen's 'duplicate' status did not necessarily first emerge in the museum upon comparison with other items in the collection, but

11 H.C. Marillier, *'Christie's' 1766 to 1925*, London: Constable & Company Ltd, 1926, p. xii.

12 Lichtenstein, op. cit. (5), fol. 93.

13 [Martin Hinrich Lichtenstein], *Verzeichniss von ausgestopften Säugethieren und Vögeln welche am 12ten October 1818 u. folg. Tage im zoologischen Museum der Königl. Universität zu Berlin durch den Königl. Auctionscommissarius Bratring dem Meistbietenden öffentlich verkauft werden sollen*, Berlin: s.n., 1818, p. iv.

14 [Lichtenstein], op. cit. (13), p. iv.

15 [Lichtenstein], op. cit. (13), p. iv.

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sometimes formed during fieldwork conducted by travelling naturalists, or while en route from the field to an institutional collection. Shipping natural-historical specimens across the globe in the early 1800s was a complicated, risky affair: moisture in ships' cabins could rot carefully dried herbarium sheets; entire ships could sink, taking specimens with them; glass vials of alcohol-preserved specimens could burst on bumpy land roads; and nosy customs agents were known to open up collectors' crates and disturb the fragile contents.[16] Aware of the abundant hazards that could befall their painstakingly accumulated objects, collectors frequently distributed several specimens of what they judged to be the same species across their shipments, hoping thereby to increase the chances of at least one making it to its destination intact.[17] Without access to extensive reference material for comparison, travellers also erred on the side of caution, sending multiples of similar specimens and relying on collection-based naturalists to determine whether they represented identical or discrete species.[18] At the Berlin Zoological Museum in the early nineteenth century, for every specimen accessioned into the main collection, one or more specimens apparently of the same species – usually regardless of geographic origin or small morphological variations – were relegated to a separate duplicate repository.[19] These specimens typically were of lesser quality than their counterparts in the main collection: those whose feathers were bent, shells fractured or pelts gnawed away by pests during transit, or those that had once belonged to the main collection but had been replaced with a newer, better-conserved and hence more 'instructive' version of themselves.[20] Some specimens on the duplicate shelf no doubt matched the high quality of main-collection equivalents; indeed, this was increasingly the case as Berlin's collections grew exponentially in the 1820s and 1830s.[21] Still, in an institution with limited space and abundant pretension to comprise the entirety of the world's fauna, priority was given to taxa not yet represented in the collection.

By no means was this attitude limited to Berlin. Before Charles Darwin's seminal *Origin of Species* (1859), minimal variations within members of a single species were not widely considered to be a worthy object of research. Long series of specimens classified under the same species were more likely to be seen as material to be bartered, magnanimously donated to less endowed collections or, simply, purged in the interests of good housekeeping.[22] Though few other public natural-history collections seem to have participated in duplicate trade in the same commercial form or with the same frequency as the Berlin Zoological Museum, it was not out of a principled objection to the practice.[23] Indeed,

16 Christopher M. Parsons and Kathleen S. Murphy, 'Ecosystems under sail: specimen transport in the eighteenth-century French and British Atlantics', *Early American Studies: An Interdisciplinary Journal* (2012) 10(3), pp. 503–29.

17 Parsons and Murphy, op. cit. (16), p. 531.

18 See, for example, traveller Wilhelm Hemprich's letter to Lichtenstein, in which he explains that many specimens he sent to Berlin from North Africa still required closer examination by museum staff to determine if they represented new species or items 'useless to the museum'. Hemprich to Lichtenstein, 15 January 1821, in Erwin Stresemann, *Reisen zweier naturforschender Freunde im Orient, geschildert in ihren Briefen aus den Jahren 1819–1826*, Berlin: Akademie-Verlag, 1954, p. 24.

19 Lichtenstein, op. cit. (3), fol. 126.

20 Lichtenstein to Ministry of Culture, Berlin, 22 March 1822, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 7, fol. 244.

21 See MfN HBSB, op. cit. (3). In 1818, the museum entered at least 410 new specimens into the collection (specimens considered duplicates were omitted from the journal); in 1820, 707 specimens. In 1822, the numbers reached four digits with 3,689 specimens. After 1828, which saw 18,484 new specimens, annual accessions remained steadily in five-digit territory into the 1830s.

22 Kristin Johnson, *Ordering Life: Karl Jordan and the Naturalist Tradition*, Baltimore: Johns Hopkins University Press, 2012, pp. 63–7.

23 The British Museum is a rare early example of a state or national museum auctioning its duplicate holdings, though it evidently organized only two natural-historical (mineralogical) sales, in 1803 and 1816. See John

in the 1830s, amidst a parliamentary inquiry aimed towards improving the public accessibility and utility of the British Museum, the zoological keeper John Edward Gray cited the Berlin model of auctioning specimens as one of the 'best ways of disposing of duplicates', but one requiring significant logistical planning.[24] At Leiden's natural-history museum, Gray observed during his parliamentary interview, the director Coenraad Temminck opted for a slightly different dispersal mode, whereby duplicates were given a symbolic price but exchanged – exclusively among other museum directors – for specimens of equivalent monetary value, rather than for actual cash.[25] While no money changed hands in the Dutch model of duplicate disposal, Gray reported that he 'more than once heard [Temminck] complain of the extreme difficulty' of the process.[26] Furthermore, with exchange parties frequently dissatisfied by the lack of parity between the duplicates they gave and those they received, Gray declared Temminck's practice to be a 'continual source of heart-burning between naturalists, who would otherwise be good friends'.[27] Even into the late 1850s, the Treasury and Trustees of the British Museum still favoured publicly selling the collection's duplicates, in order to avoid the 'jealousies, discontent and complaints' that might arise from distributing surplus through less transparent institutional channels.[28] By this point, however, Gray evidently was more inclined to avoid the strenuous business of duplicate exchange altogether by deflecting shipments with duplicates to needier institutions before they could even enter his collection.[29]

The concept of the duplicate as an essentially identical, yet often sub-par, version of another specimen was not only prevalent in early nineteenth-century natural-history collections, but also in libraries. In the bibliographic context, at least until the mid-1800s, the term was broadly applied to multiple copies of a printed work; whether copy-specific details (e.g. binding, pagination, paper, book format) were considered relevant criteria for determining difference and identity was ultimately left to the discretion of the librarian.[30] Particularly when entire private collections were incorporated – either through purchase or compulsion – into courtly and state libraries, the problem of duplicates and their strain on perennially insufficient resources of time, personnel and space became acute.[31] Hence, in the case of both natural-historical objects and books, the 'duplicate' was less a stable, precisely defined category of thing with broad disciplinary consensus than

Michael Chalmers-Hunt (ed.), *Natural History Auctions, 1700–1972: A Register of Sales in the British Isles*, London: Sotheby Parke Bernet, 1976, pp. 68, 76. In 1698, the Ashmolean Museum, Britain's first public university museum, held an auction of fossil and geological duplicates. See Martin Gammon, *Deaccessioning and Its Discontents: A Critical History*, Cambridge, MA: MIT Press, 2018, pp. 275–7.

24 John Edward Gray, in *Report from the Select Committee on British Museum; Together with the Minutes of Evidence, Appendix and Index* (14 July 1836), Parliamentary Papers, p. 214 (§ 2691).

25 Gray, op. cit. (24), p. 213 (§§2683, 2688). See also Nichols, in this issue, for practices of establishing value equivalencies in ethnographic duplicate exchange in the late nineteenth and early twentieth centuries. Mauuarin's and Buschmann's contributions in this special issue, moreover, show that, in the case of ethnographic duplicates, exchanges were not only limited to either equivalent objects or to cash, but also to photographs of objects or to other forms of capital, such as official state medals honouring civil achievement.

26 Gray, op. cit. (24), p. 213 (§2687).

27 Gray, op. cit. (24), p. 214 (§2689).

28 HM Treasury to secretary of the Trustees of the British Museum, 10 June 1859, in A.E. Gunther, 'The miscellaneous autobiographical manuscripts of John Edward Gray (1800–1875)', *Bulletin of the British Museum (Natural History) Historical Series* (1980) 6(6), pp. 199–244, 221.

29 Gray to [Richard Owens, superintendent of natural history collections at the British Museum], [*c.* July 1859], in Gunther, op. cit. (28), p. 221.

30 Evelyn Hanisch, *Der Umgang mit Inkunabelndubletten: Kauf, Verkauf und Tausch von Wiegendrucken der Königlichen Bibliothek/Preußischen Staatsbibliothek (1904–1905)*, Berlin: Institut für Bibliotheks- und Informationswissenschaft der Humboldt-Universität zu Berlin, 2019, pp. 11–13.

31 Hanisch, op. cit. (30), pp. 9–11.

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something that often became visible and nameable to individual collection keepers when storage and management capacities became overwhelmed.

The similarities between natural-history collections and book collections in their shared predicament of 'duplicate overload' do not end here: in fact, the solution of some prominent libraries to realize much-needed funds for restructuring their holdings by discarding their surplus via auction seems to be the very model Lichtenstein applied to his museum. The Royal Library in Berlin, incidentally, is one example of a public collection that began auctioning off its duplicate material in the late eighteenth century. As diagnosed in 1828 by the librarian and historian Friedrich Wilken, the lack of a consistent acquisition policy throughout nearly 150 years of the library's existence had resulted by the 1790s in an extensive but poorly assorted collection of books – hardly worthy of the 'capital of German scholarship' that Berlin strove to be at the turn of the nineteenth century.[32] While not a single subject area could boast comprehensive representation of the most important canonical works, many individual books existed in duplicate and triplicate.[33] To raise funds that could help fill collection gaps and sustain rising operational costs, the library held its first public duplicate auction in 1797. The sale's unexpectedly high returns, together with budgetary cutbacks during the Napoleonic occupation in 1806 and the sharp rise in library users following the 1810 establishment of the university, compelled the library to continue this enterprise. The institution could no longer afford not to raise money via auctions.[34]

The Berlin Royal Library was not alone in its approach towards duplicates: the Royal Court and Central Library in Munich also maintained a successful business in the first half of the nineteenth century of systematically auctioning off its 220,000-strong surplus of duplicates.[35] In the wake of the 1803 secularization of Bavaria's ecclesiastical estates, the holdings of nearly 150 monastic libraries were merged into the Central Library. With the library's cataloguing and storage capacities pushed to the brink by the collection's sudden exponential growth, keepers began liberally applying the category 'duplicate' to their holdings – including many incunabula, rare woodblock prints and vellum prints – and selling these at public auction from 1815.[36] 'A large library need not own two copies of works, whose only value lies in their rarity, and which go decades without anyone desiring to consult a single copy', the Munich librarian Karl Felix Halm explained in 1859.[37] Justifying his curatorial strategy, he continued, 'Just as no library indulges in the luxury of buying a second copy of a rare work already in its possession, so too should it dispense of duplicate copies insofar as it can retain an appropriate equivalent'.[38] His approach also found sympathy in the press, with one article praising the library's divestment of 'worm-eaten "old treasures"', provided the funds were put towards acquiring 'missing books' and 'liberally' making these 'accessible to the public'.[39] Yet around the

32 Friedrich Wilken, *Geschichte der königlichen Bibliothek zu Berlin*, Leipzig: Dunker & Humblodt, 1828, p. 127.

33 Wilken, op. cit. (32), pp. 127–8, 160–1.

34 Wilken, op. cit. (32), pp. 130–4.

35 Eberhard Dünninger (ed.), *Handbuch der historischen Buchbestände in Deutschland*, 27 vols., Hildesheim: Olms-Weidmann, 1992–2000, vol. 10: *Bayern, München*, pp. 27–112. The British Museum and Dresden Royal Library also held duplicate book auctions in the eighteenth century. See Gammon, op. cit. (23), p. 276; and Torsten Sander, *Die Auktion der Dubletten der kurfürstlichen Bibliothek Dresden 1775 bis 1777: Ein Beitrag zur Geschichte des Buchauktionswesens*, Dresden: Sächsische Landesbibliothek – Staats- und Univ.-Bibliothek, 2006.

36 Bettina Wagner, '"Duplum Bibliothecae regiae Monacensis": the Munich Court Library and its book auctions in the nineteenth century', *Papers of the Bibliographical Society of America* (2017) 111(3), pp. 345–77, 347–57.

37 Karl Felix Halm, *Erläuterungen zu den Verhandlungen der bayerischen Kammer der Abgeordneten vom 10. März 1859, die k. Hof- und Staatsbibliothek in München betreffend*, Munich: Palm, 1859, p. 7.

38 Halm, op. cit. (37), p. 7.

39 [Anonymous], 'Ein Stechapfel für Herrn Oberbibliothekar Dr. Ruland', *Würzburger Stechäpfel: Ein satyrisches Originalblatt mit Illustrationen* (25 November 1859) 22, pp. 90–1, 91.

same time as Darwin's evolutionary framework gradually rendered the traditional concept of the natural-historical duplicate scientifically dubious (albeit not obsolete), the notion of a 'duplicate' incunabulum, free to be dispensed with or exchanged for money at public auction, became the target of vehement rebuke. Arguing that even the slightest variations between copies in the page material, binding, decoration, rubrication, traces of previous usage and geographical origin 'granted significant insights into the way of thinking and custom, indeed into the spirit of the time', the librarian and Bavarian parliamentary member Anton Ruland waged a highly public protest against the library's auctions, effectively bringing them to a halt by 1860.[40] Yet until the mid-1800s liquidating the value of duplicates to achieve a more balanced collection – whether of books representing branches of human knowledge or specimens representing taxa of a natural system – was broadly considered a legitimate, even socially beneficial, way for a public institution to deal with surfeit.

## Preparing specimens, publishing catalogues

Turning specimens into cash required a series of operations not only on the specimens themselves, but also on paper. The first step involved selecting the specimens to be sold. For strategic and pragmatic reasons, the Berlin museum did not make the entire contents of its duplicate repository available for purchase at once. For one thing, uncertain in 1818 of how strong or widespread the demand for the museum's duplicates would be among a German – or even Berlin – public, museum director Lichtenstein was cautious to begin with only a portion of the museum's extensive duplicate stocks: namely with birds and mammals. Should the first auction proved to be a success, Lichtenstein planned to continue with the museum's fish, amphibian, crustacean and conch duplicates.[41] But not even all the museum's birds and mammal duplicates were chosen for sale. Justifying his decision to reduce the supply at auction to 'as few duplicates as possible', Lichtenstein assured his ministry supervisors that the collective demand for specimens would thereby remain high, resulting in greater profits for the museum over a longer period of time.[42] Additionally, while Lichtenstein hoped to use the profits of the sales towards acquiring the museum's *desiderata*, he also was aware that not every specimen circulating in the natural historical community could be acquired for cash. Lichtenstein hence insisted on reserving a small collection of particularly rare and valuable duplicates that could be traded when an opportunity presented itself – as it often did when he embarked on official trips to visit private and public collections throughout Europe.[43] Finally, duplicates were not only useful to the museum as capital assets to be liquidated or exchanged, but also as teaching material for university students, one of Lichtenstein's target audiences in his dual role as museum director and as professor at the Berlin University.[44] A former student of the university in the 1820s, entomologist Julius Ratzeburg, in fact

40 Anton Ruland, *Die in der Schrift des Herrn Oberbibliothekars und Directors Dr. Karl Halm 'Erläuterungen zu den Verhandlungen der bayerischen Kammer der Abgeordneten vom 10. März 1859, die k. Hof- und Staatsbibliothek in München betreffend' gegen die Kammerverhandlungen vom selben Tage gemachten Angriffe zurückgewiesen*, Würzburg: Becker, 1859, p. 65. The end of duplicate auctions in this case should not imply that the practice was fully obliterated. As Hanisch shows, public libraries have continued to sell and exchange items categorized as duplicates, indeed even 'duplicate incunabula', well into the twentieth century. Hanisch, op. cit. (30), pp. 44–60.

41 [Lichtenstein], op. cit. (13), p. vii.

42 Lichtenstein, op. cit. (5), fol. 97.

43 Lichtenstein, op. cit. (5), fols. 99–100; Lichtenstein to Ministry of Culture, Berlin, 3 January 1819, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 4, fol. 148.

44 Like the *professeur-administrateurs* at the Paris Muséum d'histoire naturelle, the directors of Berlin's natural-historical collections were simultaneously university professors with teaching responsibilities. See Richard

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recalled Lichtenstein as one of the few professors at the time who incorporated practical lessons into his lectures by allowing students to handle and inspect specimens from the duplicate repository.[45]

Once Lichtenstein made a selection under these economic, strategic and pedagogical considerations, he then gave the duplicates to the museum's preparator August Rammelsberg, who conserved them with insecticide; repaired any damages to feathers, fur, scales or skin; outfitted them with glass eyes; and stuffed and mounted them on pedestals.[46] As the demand for the museum's duplicates increased in the years following the first auction in 1818, Lichtenstein was even able to hire two more assistant preparators at a monthly salary of fourteen taler each.[47] Lichtenstein rationalized to the ministry this investment of time and personnel resources into preparation by asserting that 'exceedingly few enthusiasts … understand how to process our raw natural products' and that many often 'abstain from purchasing for this sole reason'.[48] Collectors who did know how to prepare animals skins for display, he continued, 'desire at the very least specimens that are completely free of defects and do not require great effort in mounting'.[49]

Equally important to the 'mechanical labour' of preparing specimens was the work of assembling and circulating the sales catalogue.[50] Lichtenstein's first attempt at a sales catalogue in 1818 was a simple, pragmatic affair – both compared to the lavish antecedents of the eighteenth century, which often featured allegorical frontispieces and illustrations of the finer lots, and compared to those Lichtenstein would later publish.[51] His 1818 catalogue consists of a title page announcing the date, location, institutional organizer and acting auctioneer of the sale; a preface detailing the conditions of the sale; and thirty-nine pages of lots destined for sale. Each entry for a duplicate specimen had the same pattern: first, a lot number and the specimen's Latin binomial name; an abbreviated name of the author to first describe the taxon; the sex of the specimen, if known; occasionally Latin, German or French synonyms; the region where it was collected, which could be as general as 'Europe' or as specific as the 'Cape of Good Hope'; and sometimes a brief comment on its condition.[52] Finally, an initial indicating the quality of the specimen as excellent, good, mediocre or bad, and the starting bid for a specimen in taler and groschen, concluded an entry (Figure 1).

The catalogue makes no mention – either in the preface, or in the entries themselves – of the individuals responsible for collecting the specimens, thus marking a further distinction from auction catalogues of the eighteenth century. Typically comprising only one person's collection, older catalogues often featured a preface celebrating the life and connoisseurship of the collector, which effectively served to attract more potential buyers and increase bidding competition.[53] Lichtenstein's catalogue severs the tie between

W. Burkhardt, 'The leopard in the garden: life in close quarters at the Muséum d'Histoire Naturelle', *Isis* (2007) 98 (4), pp. 675–94.

45 J.T.C. Ratzeburg, *Forstwissenschaftliches Schriftsteller-Lexikon*, Berlin: Fr. Nicolaische Verlagsbuchhandlung, 1872, p. 311.

46 The museum's preparation methods are described in [Martin Hinrich Lichtenstein], *Preis-Verzeichnisse der Säugethier- und Vögel-Doubletten des Zoologischen Museums der Universität zu Berlin*, Berlin: s.n., 1819, pp. 45–54.

47 Lichtenstein, op. cit. (7), fols. 267–8.

48 Lichtenstein, op. cit. (7), fols. 264–5.

49 Lichtenstein, op. cit. (7), fol. 265.

50 Lichtenstein to Ministry of Culture, Berlin, 13 September 1818, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 4, fol. 61.

51 Bleichmar, op. cit. (8), pp. 96–106; Dietz, op. cit. (8), pp. 376–7.

52 [Lichtenstein], op. cit. (13), p. 3, p. 15.

53 Bleichmar, op. cit. (8), p. 97; Dietz, op. cit. (8), pp. 376–7; Pierre-Yves Lacour, *La republique naturaliste: Collections d'histoire naturelle et Révolution française (1789–1804)*, Paris: Muséum national d'histoire naturelle, 2014, p. 376.

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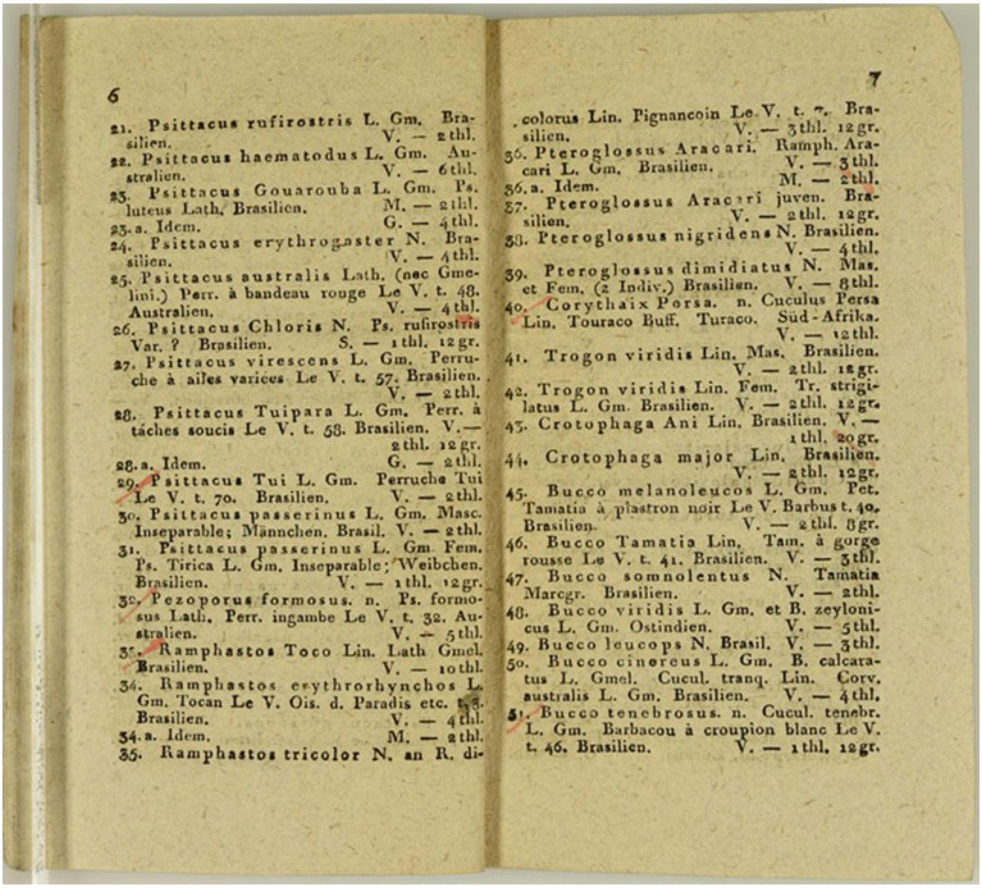


6

21. Psittacus rufirostris L. Gm. Brasilien. V. — 2 thl.
22. Psittacus haematodus L. Gm. Australien. V. — 6 thl.
23. Psittacus Gouarouba L. Gm. Ps. luteus Lath. Brasilien. M. — 2 thl.
23. a. Idem. G. — 4 thl.
24. Psittacus erythrogaster N. Brasilien. V. — 4 thl.
25. Psittacus australis Lath. (nec Gmelini.) Perr. à bandeau rouge Le V. t. 48. Australien. V. — 4 thl.
26. Psittacus Chloris N. Ps. rufirostris Var. ? Brasilien. S. — 1 thl. 12 gr.
27. Psittacus virescens L. Gm. Perruche à ailes variées Le V. t. 57. Brasilien. V. — 2 thl.
28. Psittacus Tuipara L. Gm. Perr. à táches soucis Le V. t. 58. Brasilien. V. — 2 thl. 12 gr.
28. a. Idem. G. — 2 thl.
29. Psittacus Tui L. Gm. Perruche Tui Le V. t. 70. Brasilien. V. — 2 thl.
30. Psittacus passerinus L. Gm. Masc. Inseparable; Männchen. Brasil. V. — 2 thl.
31. Psittacus passerinus L. Gm. Fem. Ps. Tirica L. Gm. Inseparable; Weibchen. Brasilien. V. — 1 thl. 12 gr.
32. Pezoporus formosus. n. Ps. formosus Lath. Perr. ingambe Le V. t. 32. Australien. V. — 5 thl.
33. Ramphastos Toco Lin. Lath Gmel. Brasilien. V. — 10 thl.
34. Ramphastos erythrorhynchos L. Gm. Tocan Le V. Ois. d. Paradis etc. t. 3. Brasilien. V. — 4 thl.
34. a. Idem. M. — 2 thl.
35. Ramphastos tricolor N. an R. dicolorus Lin. Pignancoin Le V. t. 7. Brasilien. V. — 3 thl. 12 gr.

7

36. Pteroglossus Aracari. Ramph. Aracari L. Gm. Brasilien. V. — 3 thl.
36. a. Idem. M. — 2 thl.
37. Pteroglossus Aracari juven. Brasilien. V. — 2 thl. 12 gr.
38. Pteroglossus nigridens N. Brasilien. V. — 4 thl.
39. Pteroglossus dimidiatus N. Mas. et Fem. (2 Indiv.) Brasilien. V. — 8 thl.
40. Corythaix Persa. n. Cuculus Persa Lin. Touraco Buff. Turaco. Süd-Afrika. V. — 12 thl.
41. Trogon viridis Lin. Mas. Brasilien. V. — 2 thl. 12 gr.
42. Trogon viridis Lin. Fem. Tr. strigilatus L. Gm. Brasilien. V. — 2 thl. 12 gr.
43. Crotophaga Ani Lin. Brasilien. V. — 1 thl. 20 gr.
44. Crotophaga major Lin. Brasilien. V. — 2 thl. 12 gr.
45. Bucco melanoleucos L. Gm. Pet. Tamatia à plastron noir Le V. Barbus t. 40. Brasilien. V. — 2 thl. 8 gr.
46. Bucco Tamatia Lin. Tam. à gorge rousse Le V. t. 41. Brasilien. V. — 3 thl.
47. Bucco somnolentus N. Tamatia Marcgr. Brasilien. V. — 2 thl.
48. Bucco viridis L. Gm. et B. zeylonicus L. Gm. Ostindien. V. — 5 thl.
49. Bucco leucops N. Brasil. V. — 3 thl.
50. Bucco cinereus L. Gm. B. calcaratus L. Gmel. Cucul. tranq. Lin. Corv. australis L. Gm. Brasilien. V. — 4 thl.
51. Bucco tenebrosus. n. Cucul. tenebr. L. Gm. Barbacou à croupion blanc Le V. t. 46. Brasilien. V. — 1 thl. 12 gr.

**Figure 1.** Lichtenstein's first auction catalogue printed in octavo (11 × 18 cm). [Martin Hinrich Lichtenstein], *Verzeichniss von ausgestopften Säugethieren und Vögeln welche am 12ten October 1818 u. folg. Tage im zoologischen Museum der Königl. Universität zu Berlin durch den Königl. Auctionscommissarius Bratring dem Meistbietenden öffentlich verkauft werden sollen*, Berlin: s.n., 1818, pp. 6–7. Reproduced with permission of the Museum für Naturkunde Berlin, Historische Bild- und Schriftgutsammlungen.

collector and specimen; in the place of the former is now the institution of the museum, whose authority in preparing, naming and classifying the specimens is promoted as the chief purchasing incentive.[54] Though Lichtenstein does not call attention to the order of entries in his catalogue, all lots are arranged according to the taxonomy developed by the Zoological Museum's founder, Karl Illiger.[55] This was in fact an uncommon choice at the time for an auction catalogue – even one advertising natural-history specimens. Since the order of the catalogue entries dictated the order in which the lots could be sold, cataloguers usually tried to strategically arrange entries to correspond with or promote buyers' enthusiasm: highly anticipated lots were placed at the beginning, when crowd energy was high, while those likely to fetch lower values at auction were listed

54 [Lichtenstein], op. cit. (13), p. vi.

55 Karl Illiger, *Prodromus systematis mammalium et avium, additis terminis zoographicis utriusque classis, eorumque versione germanica*, Berlin: C. Salfeld, 1811.

https://doi.org/10.1017/S0007087422000036 Published online by Cambridge University Press

towards the end.[56] Similar lots were broken up and dispersed throughout the catalogue to diversify the presentation of wares and avoid tedious stretches, during which the same kind of items were placed under the hammer.[57] For naturalists charged with compiling entries on lots – such as Daniel Solander, a Linnaean disciple who helped prepare the 1786 catalogue for the auction of the late Margaret Cavendish Bentick's private Portland Museum – the demand to generate profit often meant sacrificing the systematic order that 'would have proved extremely satisfactory to every true Lover of Science'.[58] Lichtenstein, by contrast, seemed intent on satisfying both the museum's pecuniary needs and natural-history enthusiasts' desire for an instructive arrangement in his catalogue.

While no manuscript drafts of the catalogue or correspondence relating to its compilation have survived in the archives, the museum's financial records help fill in some gaps of information on how the final print version came about. Lichtenstein likely relied on various scribes, paid at three groschen per written sheet, to transfer specimen information from the museum's collection records and commit dictations to manuscript auction catalogues.[59] The final draft was then taken to the local printer, Ernst Jacob Vogt.[60] The print runs for the catalogues are not disclosed in the museum's account books, though they are likely to have been high, judging from Lichtenstein's intention to circulate them throughout Berlin, as well as other German and European cities.[61] The relatively modest commissions for the print jobs – ranging from thirteen to twenty taler in the early 1820s – hence suggest that the early sales catalogues were not intended to be high-quality publications, but rather quickly and affordably produced ephemera. The typographical inconsistencies riddled throughout the catalogue, perhaps due to hasty proofreading, and the cramped, difficult-to-read octavo-format pages, likely a means to save space and paper, bolster this interpretation (Figures 1, 2). The fact that later museum sales catalogues were printed on finer paper, in a larger, easier-to-read layout, indicates that Lichtenstein eventually recognized the aesthetic weaknesses of his earliest catalogues and sought to enhance their legibility and instructive character (Figures 3, 4). Experimenting with hybrid scientific and commercial forms in subsequent duplicate catalogues, Lichtenstein would further add brief formal descriptions of new species in Latin, German-language commentary on choice specimens' beauty and quality of preservation, and diagrams illustrating zoological terminology (Figure 5).[62] But in 1818, it seems that Lichtenstein, prioritizing fast, low-budget production, did not yet conceive of the

56 Koenraad Jonckheere, *The Auction of King William's Paintings 1713: Elite International Art Trade at the End of the Dutch Golden Age*, Amsterdam: John Benjamins Publishing, 2008, p. 66.

57 Jonckheere, op. cit. (56), p. 66; Tobin, op. cit. (10), pp. 223–5.

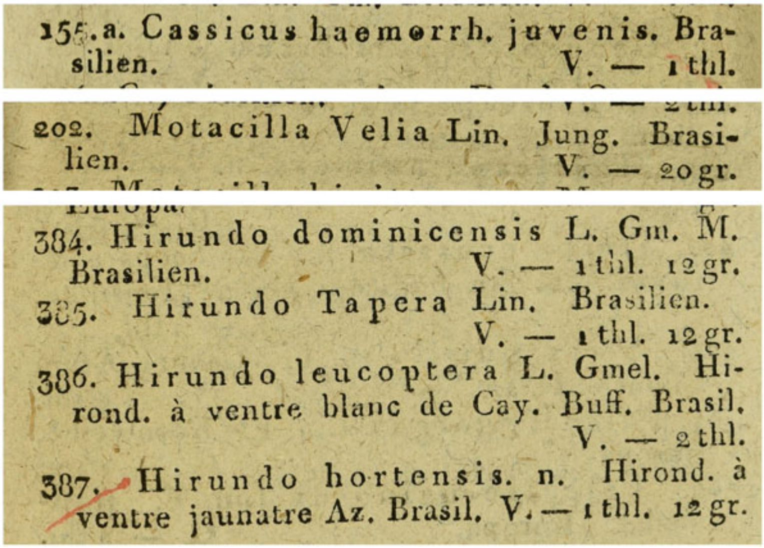
58 Quoted in *A Catalogue of the Portland Museum*, London: s.n., 1786, p. iv. Other auction catalogues that do not, or do not strictly, follow natural-historical taxonomy include [Edward Donovan], *Catalogue of the Leverian Museum: Part I–IV*, London: Hayden's Printing-Office, 1806; and [William Bullock], *Catalogue (Without which no Person can be admitted either to View or Sale) of the Roman Gallery, of Antiquities and Works of Art, and the London Museum of Natural History (unquestionably the most extensive and valuable in Europe) at the Egyptian Hall, in Piccadilly*, London: s.n., 1819.

59 MfN HBSB, Zool. Mus., S I Verwaltungsakten, Einnahmen und Ausgaben 1813–1822, fols. 15–22v, 31v.

60 MfN HBSB, op. cit. (59), fols. 66v, 81v.

61 Lichtenstein, op. cit. (5), fols. 93–4.

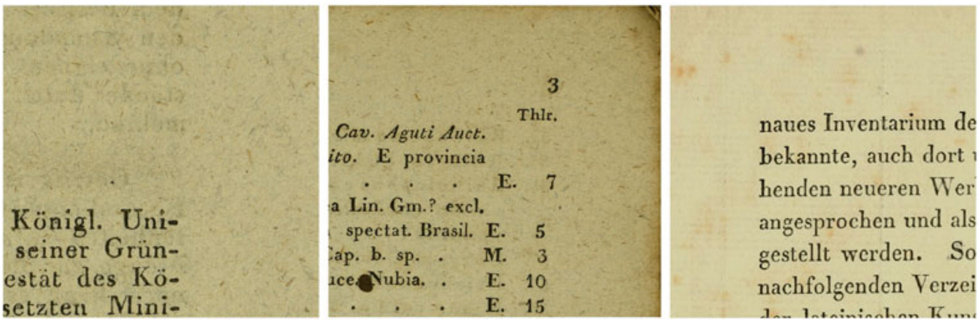
62 See Martin Hinrich Lichtenstein (ed.), *Verzeichniss der Doubletten des zoologischen Museums der Königl. Universität zu Berlin nebst Beschreibung vieler bisher unbekannter Arten von Säugethieren, Vögeln, Amphibien und Fischen*, Berlin: T. Trautwein, 1823, at https://doi.org/10.5962/bhl.title.40281 (accessed 1 April 2021); see also [Martin Hinrich Lichtenstein], *Verzeichniss einer Sammlung von Säugethieren und Vögeln aus dem Kaffernlande, nebst einer Käfer-Sammlung*, Berlin: Druckerei der Königlichen Akademie der Wissenschaften, 1842, at https://doi.org/10.5962/bhl.title.42230 (accessed 1 April 2021).


155.a. Cassicus haemorrh. juvenis. Brasilien. V. — 1 thl.

202. Motacilla Velia Lin. Jung. Brasilien. V. — 20 gr.

384. Hirundo dominicensis L. Gm. M. Brasilien. V. — 1 thl. 12 gr.
385. Hirundo Tapera Lin. Brasilien. V. — 1 thl. 12 gr.
386. Hirundo leucoptera L. Gmel. Hirond. à ventre blanc de Cay. Buff. Brasil. V. — 2 thl.
387. Hirundo hortensis. n. Hirond. à ventre jaunatre Az. Brasil. V. — 1 thl. 12 gr.

**Figure 2.** Top and middle: age of specimen 155a is given in Latin (*juvenis*) while age of specimen 202 is described in German (*Jung*, or 'juvenile'). Bottom: lots 384 and 386 bear inconsistent abbreviations for Linnaeus Gmelin and for locality Brazil. [Lichtenstein], *Verzeichniss von ausgestopften Säugethieren und Vögeln*, op. cit., pp. 14, 17, 27. Reproduced with permission of the Museum für Naturkunde, historische Bild- und Schriftgutsammlungen.


Königl. Uni-
seiner Grün-
estät des Kö-
setzten Mini-

3
Thlr.
Cav. Aguti Auct.
ito. E provincia
. . . . E. 7
a Lin. Gm.? excl.
spectat. Brasil. E. 5
ap. b. sp. . M. 3
ice Nubia. . E. 10
. . . . E. 15

naues Inventarium de
bekannte, auch dort
henden neueren Wer
angesprochen und als
gestellt werden. So
nachfolgenden Verzei

**Figure 3.** Paper quality across sales catalogues in 1818, 1823 and 1842. [Lichtenstein], *Verzeichniss von ausgestopften Säugethieren und Vögeln*, op. cit., p. i; Martin Hinrich Lichtenstein (ed.), *Verzeichniss der Doubletten des zoologischen Museums der Königl. Universität zu Berlin nebst Beschreibung vieler bisher unbekannter Arten von Säugethieren, Vögeln, Amphibien und Fischen*, Berlin: T. Trautwein, 1823, pp. 3, 4. Left image reproduced with permission of the Museum für Naturkunde, historische Bild- und Schriftgutsammlungen. Middle and right images in public domain from the Biodiversity Heritage Library. Contributed by the Smithsonian Libraries.

catalogue itself as a commodity with its own epistemic and aesthetic value, but rather more as a tool to commodify specimens.[63]

Once printed, the catalogues were circulated among various networks, travelling widely at least three months before the auction took place. Beyond advertising the

63 See Dániel Margócsy's exploration of print media that are used as tools for commodifying specimens and other objects of curiosity culture: Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age*, Chicago: The University of Chicago Press, 2014, pp. 110–34.

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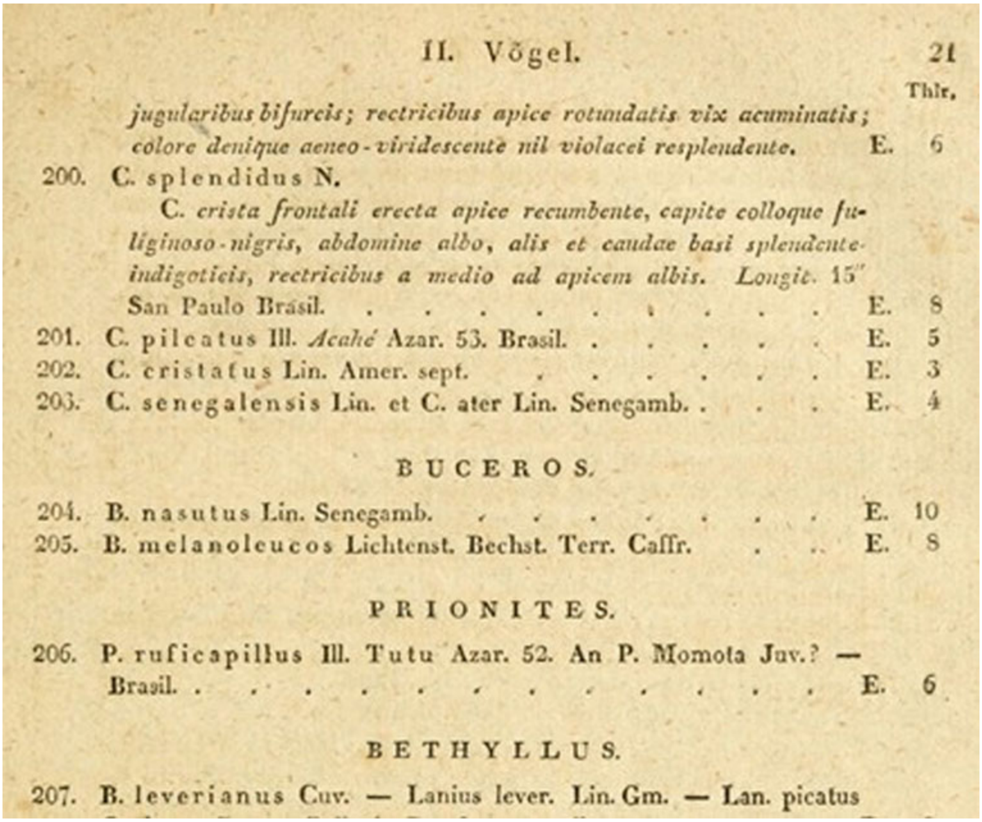

II. Vögel. 21

Thlr.

*jugularibus bifurcis; rectricibus apice rotundatis vix acuminatis; colore denique aeneo-viridescente nil violacei resplendente.* E. 6

200. C. splendidus N.
C. *crista frontali erecta apice recumbente, capite colloque fuliginoso-nigris, abdomine albo, alis et caudae basi splendente-indigoticis, rectricibus a medio ad apicem albis. Longit.* 15″
San Paulo Brasil. . . . . . . . . . . . E. 8

201. C. pileatus Ill. *Acahé* Azar. 53. Brasil. . . . . . . E. 5

202. C. cristatus Lin. Amer. sept. . . . . . . . E. 3

203. C. senegalensis Lin. et C. ater Lin. Senegamb. . . . . E. 4

BUCEROS.

204. B. nasutus Lin. Senegamb. . . . . . . . . . . E. 10

205. B. melanoleucos Lichtenst. Bechst. Terr. Caffr. . . . E. 8

PRIONITES.

206. P. ruficapillus Ill. Tutu Azar. 52. An P. Momota Juv.? — Brasil. . . . . . . . . . . . . . . . E. 6

BETHYLLUS.

207. B. leverianus Cuv. — Lanius lever. Lin. Gm. — Lan. picatus

**Figure 4.** Layout of 1823 catalogue. Lichtenstein, *Verzeichniss der Doubletten*, op. cit., p. 21. Public domain. Image from the Biodiversity Heritage Library. Contributed by the Smithsonian Libraries.

wares to a wide group of interested buyers, the published catalogue was also a legal prerequisite for holding an auction and a means of protecting consumers. As early as 1756, King Friedrich II passed a 'Regulation and Instruction' for Prussian auctions which enshrined the necessity of disseminating an 'accurate, legible catalogue'.[64] The catalogue was intended to hold the seller accountable to offer up at the actual auction only those items featured – no more and no less – and thereby prevent 'confusion' and 'needlessly raising the hopes of the public'.[65] Locals hoping to participate in the auction could obtain copies of the catalogue at the residences of Berlin's auction commissioner Friedrich Bratring and two of the city's book commissioners.[66] Details on how to contact these officials, as well as on the time and place of the auction, were disclosed in an advertisement that Lichtenstein placed prominently at the top of the rubric 'Auctions in Berlin' in the city's most widely circulated newspaper at the time, the *Berlinische Nachrichten von Staats- und gelehrten Sachen*.[67] To achieve an even wider scope of potential buyers beyond Berlin, Lichtenstein then sent catalogues to museum directors and collectors in more

64 No. 43 Reglement und Instruction für die Auctionatores (12 April 1756), *Novum Corpus Constitutionum Prussico-Brandenburgensium Praecipue Marchicarum* (*NCC*), vol. 2 (1756–1761), §1, col. 59.

65 *NCC*, op. cit. (64).

66 Johannes Schultze, 'Bratring, Friedrich Wilhelm August', *Neue Deutsche Biographie* (1955) 2, pp. 538–9.

67 [Martin Hinrich Lichtenstein], notice under 'Auctionen in Berlin', *Berlinische Nachrichten von Staats- und gelehrten Sachen* (29 August 1818) 104, n.p.

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**Figure 5.** Bird diagram marked with Latin terms for body parts in 1823 catalogue. Lichtenstein, *Verzeichniss der Doubletten*, op. cit., back cover. Public domain. Image from the Biodiversity Heritage Library. Contributed by the Smithsonian Libraries.

distant German and European cities.[68] At the same time, he sent a copy of his catalogue to be printed, in condensed form, in Lorenz Oken's scientific journal *Isis*, one of the most important natural-scientific organs in early nineteenth-century Central Europe.[69] To

68 The catalogue travelled as far as Florence, to the scholar Fillippo Nesti. See MfN HBSB, Zool. Mus., S I Auctionsverzeichnisse, Doublettenverzeichnisse 15. Keepers at other university collections in Halle, Breslau, Bonn and Greifswald also received Lichtenstein's catalogues. See Carsten Kretschmann, *Räume öffnen sich: Naturhistorische Museen im Deutschland des 19. Jahrhunderts*, Berlin: Akademie Verlag, 2006, p. 152.

69 Olaf Breidbach, 'Oken in der Wissenschaftsgeschichte des 19. Jahrhunderts', in Olaf Breidbach, Hans-Joachim Fliedner and Klaus Ries (eds.), *Lorenz Oken (1779–1851): Ein politischer Naturphilosoph*, Weimar: Verlag Hermann Böhlaus Nachfolger, 2001, pp. 15–34.

pique readers' interest in buying the museum's lots, the journal's editor or perhaps even Lichtenstein himself borrowed from the rhetorical repertoire of the salesman, closing the lot list with the exclamation 'dirt-cheap as a matter of fact' (Figure 6).[70]

Catalogues did not only emanate from the museum prior to the auction; they also circled back through its doors. As explained in the catalogue's preface, those unable to attend the auction in person were invited to mark their booklets with the specimens they desired and the highest bids they were willing to place. These annotated copies could then be sent to 'loyal middlemen' in the museum's employ, who would fill the bidders' orders during the event.[71] Hence, long before the hammer fell on the museum's first lot in November 1818, Lichtenstein could confidently report to his supervisors,

> The catalogue of our duplicate auction is received in all of Germany with great applause and bids have been placed from all regions in such significant numbers that I might be permitted to already declare the undertaking a total success.[72]

The operations involved in transforming objects into commodifiable duplicates required multiple workers in and outside the museum – from the museum director and his chief preparator to scribes and printers – and hours of labour, as well as various forms of scientific and market expertise. And, despite its formal shortcomings, the small, cheaply produced catalogue accomplished a great deal prior to the actual sale by sparking interest in the museum's objects and gaining people's trust to engage with the museum in a new way – as consumers.

## Auction day

With prospective buyers' attention successfully captured and channelled through the catalogue over the course of several months, the duplicate specimens were ready to be sold to the highest bidder. Before being outsourced to local sales rooms in the 1830s, the duplicate auctions were held directly in the Zoological Museum, effectively blurring the line between the (idealized) stability of a museum and the dynamism of a commercial marketplace.[73] While few sources providing eye-witness testimonials of these events have survived in archives, prescriptive legal sources combined with the museum's sales records can shed light on the people, objects, and practices that made up the hybrid space of the museum auction. Though Lichtenstein was in attendance, he did not engage in selling the lots himself. Rather, as defined in Prussia's 1756 auction regulation, the sale was to be carried out by two officials with no personal stake in the items being sold: the auction commissioner, or auctioneer (*Auctionator*), and his appointed crier (*Ausrufer*).[74] The former was responsible for cross-checking entries in the catalogue with the lots offered for sale, for exhorting the public 'to refrain from tumult' and for maintaining a protocol of final bids and buyers for each lot.[75] The crier, in turn, was in charge of arranging the lots according to the order given in the catalogue; in the case of the museum's first auction, the arranged

70 [Anonymous], 'Verzeichniß von ausgestopften Säugethieren und Vögeln', *Isis, oder Encyclopädische Zeitung von Oken* (1818) 1(6), pp. 1103–4 plus four unnumbered pages, at www.biodiversity.org/page/13264242 (accessed 1 April 2021).

71 [Lichtenstein], op. cit. (13), p. vii.

72 Lichtenstein, op. cit. (5), fol. 94.

73 [Martin Hinrich Lichtenstein], *Verzeichniss einer Sammlung verschiedener neuholländischer Naturalien welche am 6ten April 1837 durch den Königl. gerichtlichen Auctions-Commissarius Rauch, Schützenstrasse Nr. 10, öffentlich meistbietend versteigert werden sollen*, Berlin: Druckerei der Königlichen Akademie der Wissenschaften, 1837.

74 Bratring sold the museum's lots at auction until his death in 1829, at which point auction commissioner Rauch took over the position.

75 *NCC*, op. cit. (64), §. 3, col. 61.

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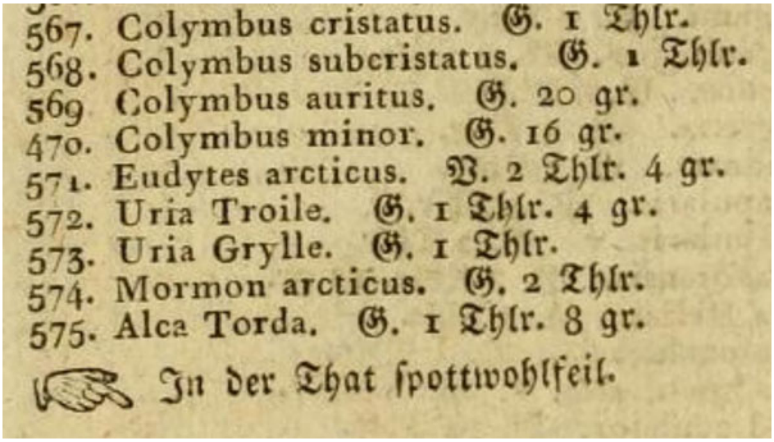

567. Colymbus cristatus. G. 1 Thlr.
568. Colymbus subcristatus. G. 1 Thlr.
569 Colymbus auritus. G. 20 gr.
470. Colymbus minor. G. 16 gr.
571. Eudytes arcticus. B. 2 Thlr. 4 gr.
572. Uria Troile. G. 1 Thlr. 4 gr.
573. Uria Grylle. G. 1 Thlr.
574. Mormon arcticus. G. 2 Thlr.
575. Alca Torda. G. 1 Thlr. 8 gr.

In der That spottwohlfeil.

**Figure 6.** Lots from 1818 auction as printed in Oken's *Isis*. [Anonymous], 'Verzeichniß von ausgestopften Säugethieren und Vögeln', *Isis, oder Encyclopädische Zeitung von Oken* (1818) 1(6), pp. 1103–4 plus four unnumbered pages, https://www.biodiversity.org/page/13264242 (accessed 1 April 2021), n.p. Public domain. Image from the Biodiversity Heritage Library. Contributed by the American Museum of Natural History Library.

lots were made available for public inspection eight days before bidding actually began.[76] During the sale, the crier was then to 'freely' hold up each lot for all onlookers to behold while 'loudly and distinctly' calling out the name of the item.[77] After waiting for the bids to increase as high as possible, the crier would then call out three times before the auctioneer hit the hammer, thereby closing the transaction.[78] In its new function as specimen vendor, the museum had to prove its integrity to the public, which now played the role of customer. The catalogue circulated prior to the auction was the first step in demonstrating the museum's good faith, but it ultimately came down to the degree to which the printed entries accorded with the actual lots made available for sale. The procedures of arranging the lots in order, holding them up, proclaiming their names and maintaining order so that all could see and hear the display were designed to prove this accordance between document and object to the attending public. The protocol, which recorded the final bidder and selling price for each lot in the margins or on interleaved pages of the catalogue, effectively validated the collective acceptance of the identity of the wares and the legitimacy of the transaction. Depending on its context of use, the catalogue hence functioned both as a precondition for and as a testament to the museum's probity as a commercial dealer.

Auction protocols help us not only to understand the trust dynamics between the museum as seller and the public as consumers, but also, more concretely, to partially reconstruct attendees. The protocol of the very first auction, for instance, bears the names of sixteen buyers, six of whom were bidding for others outside Berlin. Of those outside buyers whose names were recorded (quite a few remained anonymous), many were professors who themselves oversaw public or university natural-history collections or, in one case, the French diplomat Charles-François, Marquis de Bonnay.[79] Several bidders'

76 Lichtenstein to Ministry of Culture, Berlin, 27 November 1818, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 4, fol. 124.

77 *NCC*, op. cit. (64), §. 2, col. 60.

78 *NCC*, op. cit. (64).

79 Surrogate bidders bought specimens for Coenraad Temminck, later the director of the University of Leiden's natural-history collection, and for the professors of zoology in Breslau and Halle, Carl Gravenhorst

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names can be attributed to individuals who were already connected to Lichtenstein and the Zoological Museum, namely a student volunteer at the museum (who later became a schoolteacher for the natural sciences), Johann Ruthe; the preparator, Rammelsberg; Lichtenstein's former student Wilhelm Hemprich, who later served as travelling collector for the museum; and Dietrich Franz Leonhard von Schlechtendal, Lichtenstein's curatorial counterpart at the Berlin Royal Herbarium.[80] Given the lack of buyers' institutional affiliations, cities of origin or first names recorded in the protocol, it can be harder to identify individuals less closely associated with the museum. Still, educated guesses can be made in a few cases: the buyer Reuss likely refers to Bohemian naturalist Franz Ambrosius Reuss, who was educated in Freiberg and since 1800 had been a member of the Gesellschaft der Wissenschaften zu Göttingen.[81] Siemssen could be the same mineralogist referred to simply as 'Herr Dr. Siemssen from Rostock' in the membership list of a September 1830 meeting of the Gesellschaft Deutscher Naturforscher und Ärzte.[82] Von Gansauge is probably Hermann von Gansauge, a Pomeranian officer and military historian who corresponded with many of Berlin's prominent academics (Friedrich Schlegel, Friedrich Schleiermacher, Adelbert von Chamisso and the aforementioned Schlechtendal, to name a few).[83]

All told, the purchases made by the sixteen bidders in 1818 amounted to over 2,340 taler – at a time when the museum's acquisitions budget was set at three hundred taler.[84] Lichtenstein's commercial ambitions were hence more than fulfilled by the end of the first auction. The ostensible mission to spread specimens and knowledge widely among 'citizens of the state and the scholarly world', by contrast, seems to have been more limited in its success.[85] The small circle of buyers recorded in the 1818 protocol hardly differ from those who already enjoyed virtually unlimited access to the spaces and resources of elite natural research: university-educated bourgeois men, with the occasional learned aristocrat and military officer rounding out their ranks.[86] Yet, for all that protocols can reveal about buyers, it remains silent on the wide range of individuals who may have simply come to watch the distribution of lots or even attempted to buy one before ultimately being outbid. While this segment of the public did not consume the museum's wares in the same way as purchasers, they still fundamentally shaped the event, such as by heightening crowd energy and driving competition. Indeed, following the conclusion of the 1818 auction, Lichtenstein reported that 'so many enthusiasts from our city and local region as well as commissaries for foreign [buyers] were in attendance, such that from the very first day until the end of the sale the competition exceeded expectations'.[87] Whether or not they went home with a museum duplicate, attendees could, moreover, glean natural-historical knowledge simply by witnessing auction officials present the classified, taxonomically arranged specimens; call out their names, perhaps in Latin and German; and then determine the monetary value of that specimen in

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and Christian Ludwig Nitzsch respectively. See MfN HBSB, Zool. Mus., S I Auctionsverzeichnisse, Doublettenverzeichnisse 17.

80 MfN HBSB, op. cit. (79).

81 Dietrich Herm, 'Reuß, Franz Ambrosius', *Neue Deutsche Biographie* (2003) 21, p. 458.

82 J.H. Bartels and J.C.G. Fricke, *Amtlicher Bericht über die Versammlung deutscher Naturforscher und Aerzte in Hamburg im September 1830*, Hamburg: Perthes & Besser, 1831, p. 20.

83 See Gansauge's correspondence partners in Kalliope-Verbundkatalog at http://kalliope-verbund.info/de/eac?eac.id=116411465 (accessed 1 April 2021).

84 Lichtenstein, op. cit. (76), fol. 124; Kretschmann, op. cit. (68), p. 154.

85 [Lichtenstein], op. cit. (13), p. iv.

86 On the German natural-history public see Denise Phillips, *Acolytes of Nature: Defining Natural Science in Germany 1770–1850*, Chicago: The University of Chicago Press, 2012, pp. 43–4, 57.

87 Lichtenstein, op. cit. (76), fol. 124.

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interaction with the crowd. Auction historian H.C. Marillier, who drew attention to the educational potential of the sales room, describes eighteenth- and nineteenth-century spectators of London art auctions in a way that – geographic and material differences notwithstanding – is insightful for understanding how onlookers in the Berlin museum might still actively learn from and hence participate in the auction event:

> There are people … who haunt [sales rooms] from a sheer sense of fascination, attracted by who knows what spirit of curiosity … They cannot or do not buy, but they like looking on and watching things sold. As a rule, they mark their catalogues religiously. But whether their attendance be on this or on a higher plane, they cannot help learning. They see displayed in turn all the works of brain and hand that men count precious. Pictures, tapestries, furniture, china, jewels, plate, the rarest books, the most historic armour. All the treasures … come before them, catalogued, dated and described with surprising accuracy considering the vast range of art which has to be dealt with.[88]

For auction attendees in early nineteenth-century Berlin, the fascination with commercial transaction described by Marillier was no doubt further heightened by the contrast it presented to the hushed and hands-off museum manners that had increasingly taken hold in public collections since the end of the eighteenth century. While museums after 1800 were firmly expected to open their doors on a regular and gratis basis to a general audience, the ensuing growth in crowd sizes had led to a decline of an older museum culture, whereby small groups could inspect objects outside their cases and engage in conversation about these objects with the keeper and other visitors.[89] Throughout European collections, in place of touch and talk came locked glass repositories, descriptive labels intended to render the objects self-explanatory, and guards ready to reprimand visitors to silence.[90] In most respects, the Berlin Zoological Museum followed this trend, allowing the public to enter the collection twice weekly free of charge, where cabinets outfitted with clear panes and object labels displaying specimens' names, taxonomic rank and geographic origin would allow for all collection items to be 'perfectly identifiable without direct handling'.[91] But when Lichtenstein held auctions in the museum, the space transformed into an event that centred around talk of specimen names and values and ultimately entailed specimens leaving not only their glass enclosures, but the museum itself. Attendees thus were able to experience a museum and its collection in ways that, under the circumstances of a normal visit, were increasingly rare by the nineteenth century.

## Duplicate sales after 1818

Spurred by the high financial returns and public enthusiasm at the close of the 1818 auction, Lichtenstein immediately started planning the next auction, which would take place

88 Marillier, op. cit. (11), pp. xi–xii.

89 On the longer development of German public museums see Bénédicte Savoy (ed.), *Tempel der Kunst: Die Geburt des öffentlichen Museums in Deutschland 1701–1815*, Cologne: Böhlau, 2015. Compare British context in James Delbourgo, *Collecting the World: The Life and Curiosity of Hans Sloane*, [London]: Allen Lane, 2017, pp. 303–42. On an older hands-on museum culture see Constance Classen, 'Museum manners: the sensory life of the early museum', *Journal of Social History* (2007) 40(4), pp. 895–914.

90 Anke te Heesen, 'Vom Einräumen der Erkenntnis', in Anke te Heesen and Anette Michels (eds.), *Auf/zu: Der Schrank in den Wissenschaften*, Berlin: Akademie Verlag, 2007, pp. 90–7; Classen, op. cit. (89), pp. 907–9.

91 Hinrich Lichtenstein, *Das zoologische Museum der Universität zu Berlin*, Berlin: Dümmler, 1816, p. 12. See also Kretschmann, op. cit. (68), p. 188.

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in 1822. Indeed, the event was so successful that other public collections in Berlin, such as the Royal Kunstkabinett, began holding similar duplicate auctions in the 1820s as a way to supplement their acquisitions budget, once again demonstrating that this practice was prevalent beyond the Zoological Museum.[92] Parallel to sustaining his own museum's auctions throughout the 1830s and 1840s, Lichtenstein desired to conduct the enterprise 'with greater liberality' by selling duplicates at fixed prices throughout the year.[93] The expansion of duplicate sales provided individuals of sufficient financial means yet another form of taking part, quite literally, in the museum's material and intellectual products. Moreover, for smaller, less generously funded museums, like the Prussian university collections in Halle and Breslau, the institutionalization of Berlin's duplicate sales allowed them to stock their shelves with rare and – from the perspective of their collections – singular specimens from around the world.[94] Unlike buyers and spectators at auction, participation in fixed-priced sales largely did not depend on being physically present in the museum, but rather took place in a virtual sphere, underpinned by correspondence, catalogues, account books and receipts.

What was lost in personal interaction was made up for in the diversification of the museum's customer base, as sale records from the years 1820 to 1822 show. While the professors, collection custodians, university students, university-educated scholars and high-level bureaucrats comprising the buyers at the 1818 auction remained the dominant consumers in fixed-price sales, the demographic was shifting slightly. For one thing, several women are listed as buyers – though they make up only seven of the ninety-two individuals and institutions (7.6 per cent) listed as buying Berlin's duplicates over these two years. The largest acquisitions among these collectors were made by the Prussian princess Friederike Luise Radziwiłł, who spent nearly 250 taler on over a hundred bird specimens, and by the Duchess of Cumberland Friederike of Mecklenburg-Strelitz, who purchased 117 conches from the museum for a mere fifteen taler.[95] Other female naturalists who bought museum duplicates came from similarly royal or noble circles, such as Princess Marie of Hesse-Kassel Grand Duchess of Mecklenburg-Strelitz, Lucia Migliaccio Princess of Partanna and Caroline Erdmuthe Christiane von Bischoffwerder, a lady of the Prussian court.[96] Two other women – a Madame Bencke and the courtly Postmaster's wife Schneider – are the only non-aristocratic women recorded as purchasing specimens from the museum during this period.[97] Members of the nineteenth century's ever-widening educated public are also represented in the sales records, as the sporadic notation of customers' occupations reveals.[98] For instance, two merchants – a Herr Ploss from Leipzig and Herr Schwidersky from Memel – are listed as having bought, respectively, seventy talers' worth of bird skins and insect specimens and 125 talers' worth of bird skins, crabs, reptiles and corals.[99] A master carpenter Stieber bought five insect specimens from the museum for seven taler and twenty groschen, while a painter by the name of Weber bought fourteen silkworm and butterfly specimens for five taler and twenty groschen.[100]

92 [Friedrich Wilhelm August] Bratring, auction announcement, *Staats- und Gelehrte Zeitung des Hamburgischen unpartheyischen Correspondenten* (11 December 1827) 197, n.p.

93 Lichtenstein to Ministry of Culture, Berlin, 22 September 1820, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 6, fol. 112.

94 On the exchange of duplicates between Berlin and Prussia's other university collections see Lichtenstein to Ministry of Culture, Berlin, 13 September 1818, GStA PK, I. HA Rep. 76 Va Sekt. 2 Tit. X Nr. 15 Bd. 4, fol. 56.

95 MfN HBSB, Zool. Mus., S I Doublettenverkäufe u. -ankäufe 1820–1822 7, fols. 2–6, 139.

96 MfN HBSB, op. cit. (95), fols. 130, 120, 139.

97 MfN HBSB, op. cit. (95), fol. 68.

98 On the broadening of the German 'educated public' see Phillips, op. cit. (86), pp. 13–22.

99 MfN HBSB, op. cit. (95), fols. 10, 14, 9, 66.

100 MfN HBSB, op. cit. (95), fols. 156, 106.

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The combination of buyers' names, titles, occupations and purchases seldom allows for anything more than speculation on possible motivations behind the acquisition or the further usage of the items. Aristocratic women placing orders for large quantities of a single kind of specimen likely sought to round out their specialized private cabinets; a painter buying a handful of butterfly specimens could have used them as artistic reference material; merchants stocking up on an assortment of natural-history specimens perhaps resold them in their own stores or integrated them into their personal collections. Taken together with the public at the auctions, these examples nevertheless underscore that the museum's sales and the catalogues that structured them attracted a growing and diversifying group of individuals, whose various interests in natural-historical specimens were fed by the museum's surplus: those from inside the learned ranks of university-based natural research, but also those from outside; those ready to spend hundreds of taler on collection items, but also those who could only afford to part with several taler; as well as those simply curious to watch specimens change hands between the museum and its customers.

All told, according to Lichtenstein's own calculations of sales revenue between 1818 and 1840, the duplicate auctions generated 39,495 taler.[101] While on the surface an impressive sum, it concealed a general decline in yearly duplicate revenue, which, after peaking in 1824 with 3,956 taler, began to fall to below a thousand taler in the 1830s and finally down to a mere 265 taler in 1841.[102] Meanwhile, the museum's deficit had ballooned during this period, reaching over ten thousand taler by 1828.[103] Because of the museum's apparent early success in generating profit, however, the ministry had taken the liberty to chip away at its annual acquisitions budget (from the already scant three hundred taler to just 130 taler by 1836) and siphon off the state funds to other portfolios in more urgent need of support.[104] Over time, the museum could no longer afford to use the liquidated duplicates for selective acquisition of desirable specimens, compelled instead to put the money towards sustaining the ever-growing operational costs.[105]

But even before it became unmistakably clear by the 1840s that the museum was falling deeper into financial crisis, Lichtenstein's efforts to cater to the museum's growing consumer base through duplicate sales was not always met with praise. Particularly among members of the university and keepers of its collections there was growing unease regarding the propriety of commercial duplicate trade in scientific institutions. Already in 1822, Lichtenstein's colleague and director of the Berlin Mineralogical Cabinet Christian Samuel Weiss categorically opposed the idea of selling duplicate material from his collection, finding the very idea of 'even engaging in mercantile commerce' distasteful.[106] Karl Asmund Rudolphi, director of the Zootomical-Anatomical Museum, insisted in 1824 that it was 'outrageous that expensive [collection] voyages are undertaken, only to then deprive the museums of the acquired items for a paltry bit of cash … If this is economy, then I have a faulty understanding of this subject'.[107] Beyond their aversion to mixing business with science, they furthermore offered discipline-specific, epistemic reasons for taking issue with the notion of the duplicate and hence superfluous specimen: a mineralogist's chemical analysis of specimens inevitably involved the incremental destruction of collected samples; an anatomist, in turn, required multiple carcasses of the same animal in order to prepare specimens of the nervous system, muscular system and

101 Stresemann, op. cit. (2), p. 81.
102 Kretschmann, op. cit. (68), p. 154.
103 Stresemann, op. cit. (2). p. 80.
104 Stresemann, op. cit. (2), p. 80.
105 Kretschmann, op. cit. (68), p. 154.
106 Quoted in Kretschmann, op. cit. (68), p. 153.
107 Rudolphi to Lichtenstein, Berlin, 13 May 1824, MfN HBSB, Zool. Mus., S I Rudolphi, fol. 27v.

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skeleton.[108] Neither discipline could afford the luxury of selling off 'extra' study material. But even among zoologists, there was growing tension over the duplicate and its commercialization: in 1827 Christian Gottfried Ehrenberg, a naturalist recruited to embark on one such expensive collection voyage to northern Africa, returned to Berlin to find that his shipments had been successively mined for duplicates while he was abroad. Having hoped to publish a research survey based on the analysis of his (undisturbed) specimen shipments – which, he maintained, had never contained any duplicates, but only 'a wealth of forms ample enough to determine the nature of the species' – Ehrenberg lamented that these plans were rendered utterly pointless by duplicate auctions. Now 'every buyer and owner' of his collected specimens had essentially purchased the right to study, name and publish on the fruits of his labour.[109]

These critical voices sought to redraw a line between the museum as a permanent repository for objects of research and the dynamic world of commerce – a boundary which the museum's duplicates had uncomfortably revealed to be anything but stable. The historiography of collections has long recognized that the nineteenth-century museum cannot be understood solely in relation to itself, but rather in connection to other cultural institutions that share similar practices of displaying and explicating things as well as organizing people and shaping their behaviour.[110] While historians have productively analysed museums within a common 'contact zone' alongside trade shows, fairs and international exhibitions, the auction hall and its interactions and moments of overlap with the museum remain understudied.[111] Exploring duplicates and the practices involved in their selection, commodification and commercial circulation, this article has shown, can offer a lens that brings these two imbricated domains into sharper focus. Moreover, at a time when museums today grapple with collection accessibility, with the kinds of knowledge represented in the museum space and with ways to bring different voices into dialogue about collections, the Berlin specimen sales might offer instructive lessons: beyond the financial success or crisis the sales brought to the museum, Lichtenstein's fundamental willingness to loosen the museum's hold on its objects ushered in a reformulation of the institution in ways that allowed a gradually diversifying citizenry to take part, sometimes quite literally, in the collections and knowledge generated in the museum. Against twenty-first-century debates over the possibility and propriety of deaccessioning – especially pertinent to institutions either buckling under the weight of overly profuse collections, addressing calls to restitute unjustly obtained objects, or both – Berlin's historically open attitude towards parting with collection objects suggests that deaccessioning need not always constitute a net loss, inherently at odds with a museum's research and educational mission. Releasing collected objects from a collection institution can, under certain circumstances, potentially support these goals. Yet it is precisely the historically specific and context-specific negotiation of circumstances – who gains and loses access to deaccessioned objects? Which channels are used to release collection objects? Who materially profits in the process – that affects the compatibility of museums' commitments to research, education and collection management.

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108 Weiss in Kretschmann, op. cit. (68), p. 153; Rudolphi to Lichtenstein, op. cit. (107).

109 Ehrenberg to minister of culture Karl vom Stein zum Altenstein, 13 May 1824, in Stresemann, op. cit. (18), p. 166.

110 Tony Bennett, *The Birth of the Museum: History, Theory, Politics*, London: Routledge, 1995, p. 6.

111 Bennett, op. cit. (110), pp. 5–6; Thomas Großbölting, '*Im Reich der Arbeit': Die Repräsentation gesellschaftlicher Ordnung in den deutschen Industrie- und Gewerbeausstellungen 1790–1914*, Munich: Oldenbourg, 2008, pp. 64–76, 121–2.

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