

## The ornithological cabinet of Jean-Baptiste Bécœur and the secret of the arsenical soap

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**ABSTRACT:** The use of arsenical soap to reliably preserve bird skins was one of the most significant advances in the development of ornithology, but the inventor of this material never published the secret of its composition and remains largely unknown. Jean-Baptiste Bécœur (1718–1777), pharmacist in Metz (France), had a cabinet of European birds, which was only generally described during his lifetime. The collection was sold to Duke Karl III of Zweibrücken to be incorporated in the cabinet in Karlsberg. Although specimens may have been transferred to Mannheim or Metz around 1795, none can now be recognized. Bécœur experimented with a variety of chemicals to discover a way to stop insect attacks on the skins. Believing to have succeeded in 1743, he tried to advertise the efficacy of his method by distributing treated bird skins to the Jardin des Plantes in Paris and some influential cabinet owners. He died without publishing the recipe of the arsenical soap. It appeared again early in the nineteenth century in publications by Daudin and Dufresne, who were connected with the Muséum d'Histoire Naturelle in Paris. It is argued that Bécœur's method was guarded by François Levaillant (1753–1828), who sold the recipe together with his collection to the French government in 1797.

**KEYWORDS:** taxidermy – preservative – Levaillant – Metz – Mannheim – cabinets

### INTRODUCTION

Although cabinets of natural history were growing exponentially both in number and in size during the eighteenth century, there were no suitable reliable methods to protect bird skins and feathers from attacks by insects. For instance, Réaumur (1748) complained that to collect birds was all but a waste of time, despite the intrinsic beauty of their plumage, “having had the Mortification to see them every Day destroyed by ravenous Insects.” A solution to this vexing problem was found in the 1740s by Bécœur, a pharmacist living in Metz, who had a great interest in natural history and collected birds from an early age. He devised a preparation, incorporating white arsenic (arsenic trioxide; arsenious oxide), that served as both a skin preservative and an effective insecticide. The formula remained unpublished during his life-time, then reappeared suddenly with proper attribution at the beginning of the nineteenth century, and has been used successfully in museum collections around the world at least until very recently (Morris, 1993). Although the name of Bécœur is known to many ornithologists and taxidermists as the inventor of this arsenical soap, details of his biography are only found in a few rather inaccessible papers by Duhamel (1864) and by Dorveaux (1923a, 1923b, 1924). The importance of the arsenical soap was placed in a historical context by Farber (1977).

## THE LIFE OF BÉCOEUR

Jean-Baptiste Bécoeur was born to a family of pharmacists settled in the town of Metz, north-eastern France. His parents, François Bécoeur and Anne Vaucremont, were married in 1714 and had two children, Jean-Baptiste (born 16 April 1718) and his younger brother François, who died in the 1760s leaving six children (Fleur, 1926). Jean-Baptiste was sent to a Jesuit school in his home town, but performed poorly and was then apprenticed in his father's shop as a teenager. After obtaining his Mastership in Pharmacy on 1 December 1738, he spent three years at the Jardin des Plantes in Paris to study the art of taxidermy. On his return to Metz in 1741, he married Madeleine Béchamps and bought a pharmacy near the Cathedral Saint-Etienne. On a visit to Metz in August 1744, King Louis XV suddenly fell ill and was cured with the assistance of Bécoeur, which made his name known throughout the country (Dorveaux, 1913).

Bécoeur was interested in the sciences, especially in natural history. In 1757 a new scientific society was formed in Metz, the Société d'Étude des Sciences et des Arts, which later evolved into the Académie de Metz. As this had a mostly clerical membership, Bécoeur did not join. Instead, he associated himself from the outset with a small parallel society started on 17 August 1759 called the Société des Philathènes. He usually attended its meetings and read nine papers between 1761 and 1773 on subjects ranging from the study of mathematics and chemistry to a description of a cabinet of natural history and a method to display birds; all of these remaining unpublished (Anonymous, 1875; Dorveaux, 1924: 10). In the 1760s, Bécoeur tried on several occasions to find employment as a taxidermist or "conservateur" in the Royal Cabinet in Paris, but his attempts were in vain. He therefore remained in Metz until he died, after a long sickness, on 15 December 1777.

## BÉCOEUR'S CABINET OF BIRDS

Bécoeur had started to be interested in the animal kingdom at an early age, "dès mon enfance", as he himself said in a letter written to the *Journal encyclopédique* which contained a few autobiographical recollections (Bécoeur, 1774a: 149). It is recorded that he often made excursions into the countryside to observe and collect the local species of birds and insects (Dorveaux, 1924: 6). In this way he was able to assemble an extensive cabinet of natural history, exhibiting a selection of mounted birds, probably mostly European species, besides insects and a few other animals (Duhamel, 1864: 272; Dorveaux, 1924: 21). Although Bécoeur allowed visitors to see his cabinet, only a few contemporary descriptions of its contents have been found, hidden in obscure books about natural history in the region. Pierre Joseph Buc'hoz (1731–1807), physician in Metz and prolific author of mainly botanical works, in 1771 gave the following eye-witness account of the collection assembled by Bécoeur in a chapter on cabinets in Lorraine (Buc'hoz, 1771: 165–166):

The third Cabinet is that of Mr Bécoeur, apothecary in Metz, which only includes zoological specimens. The birds are the most interesting and almost all kinds found in this country are represented. There are also a few foreign species, including the flamingo, the swan, several colibris and humming birds, a gallinule, a night heron, a small bustard and a penguin. One especially admires the head of the cardinal bird and beaks and throats of the toucan. The cabinet also has a small collection of eggs and nests. From Metz I received an egg, which showed the figure of a clock on its shell, but it was not complete (see the Mémoires of the Academy about the formation of this egg).

The birds in Becoeur's cabinet are very well mounted in their natural attitudes. The method employed by

this naturalist guarantees that the birds are free from attack by insects and are protected against decay, even when they are exposed to air. There are birds in the cabinet which were preserved twenty years ago and are still as fresh as on the first day. One would wish that Bécœur revealed this secret, which would much oblige other naturalists. The cabinet also contains a collection of local insects and a few foreign species, like the large Indian stag-beetle, the great firefly, the Antillean phalangid, the Italian dung-beetle, Italian centipedes, the large millipede and the American woodboring beetle. There are only a few quadrupeds, including a badger, a young roe-deer, white and wild hares.<sup>1</sup>

Soon after Bécœur's death, Bernardin Pierron in a curious poem published in both French and Latin on facing pages, gave another insight into the contents of this cabinet. In a footnote, he mentioned that the apothecary had died in 1777 and that an obituary had been read by Dominique Nicolas Hyacinthe Louis Bardou Duhamel (1734–1811) at the Academy in Metz. He was aware that Bécœur had guarded a secret to conserve birds in a superior fashion (Pierron, 1779: 149) and this probably was common knowledge locally. His artistic description of the cabinet may be quoted here (Pierron, 1779):

Had Bécœur lived in ages past, he would have been accused of witchcraft and enchantment. What wonders has this excellent naturalist not been able to unite in his cabinet. These are truly immortal animals. The dog barks (or so it seems), the monkey changes posture, the hedgehog hides below its spines, the timid hare lifts its ear to listen, the sloth fears to move in search of food, the Indian stag-beetle breaks the sugarcane, the lantern-fly sheds a soft light in the darkness of the night, the butterfly flutters here and there or rests on the flowers, the fly recklessly flies into the web which the spider has woven for it. The birds soar or play with their feathers painted in a thousand different colours. They are marvelously assorted in the bird of paradise, which has a golden head, a green collar, a bright red back and wings equal to the rainbow in beauty; yet, it is not inferior to the humming-bird whose lively brightness surpasses all masterpieces of art. The feathers of the cock-of-the-rock seem to compete with the first rays of dawn. The toucan with its curved beak, the cardinal, the American blackbird – but I would struggle in vain to mention all the birds which Bécœur assembled. Then a hideous snake with bristling scales is ready to bite with poisonous fangs, and a scorpion, with its fearful sting, stays hidden. Elsewhere the tarentula tends its web, and if that spider happens to bite you, only music and dance can counteract the singular effects of the poison.

The envy which follows all great men could not leave Bécœur alone; but the cloud will soon pass. The flame of the truth will dissipate the clouds of the lie; posterity will do justice to the merit of this great naturalist. Paris will bemoan, when it is too late, that it never took the service of this estimable citizen.<sup>2</sup>

The cabinet was also mentioned in the list of French collections of natural history found in Dézallier d'Argenville (1780: I: 276), but only very briefly with reference to the description of Buc'hoz. A final eulogy was published by his pupil and friend François Levaillant, who lived in Metz as a teenager after arriving with his parents from Surinam in 1763, and learned much from Bécœur. Levaillant must have spent many hours in the cabinet, which he later called the most comprehensive collection of European birds (Levaillant, 1790: xx; 1801).<sup>3</sup>

#### THE FATE OF BÉCOEUR'S CABINET

Bécœur (1774a: 151) himself stated that he gave some of his duplicate specimens to the Comte de Bèze in 1756, which were still in superb condition in 1774. This may have been the Abbé de Besse, canon of the cathedral in Metz, whose cabinet surpassed that of Bécœur if we are to believe the description in Buc'hoz (1771: 163), copied by Dézallier d'Argenville (1780: I: 276). Although there probably were similar donations of spare specimens to friends and benefactors, the bulk of the cabinet assembled by Bécœur was intact at the time of his death in December 1777. According to Levaillant (1801), the collection was bought seven years after his death (hence in 1784) by Karl III August Christian, Duke of Pfalz-Birkenfeld-

Zweibrücken (1746–1795). Soon after the start of his reign in 1775, the duke built a new chateau, the Karlsberg near Homburg in Saarland, which he occupied from 1778 onwards. It contained a library, a magnificent collection of paintings and other works of art, and a menagerie, as well as a cabinet of natural history (Petry, 1937; Bender and Kleber, 1993).

The director of both cabinet and menagerie was François Holandre, who in 1785 published a catalogue of the birds available at the time in the cabinet. The list identifies 1,187 specimens representing about a thousand species (Hartert, 1923). In his introduction, Holandre (1785) stated that the collection was formed through the personal interest of the duke and was based on the cabinet of Pierre-Jean-Etienne Mauduyt de la Varenne (1730–1792). Although Bécoeur's name did not appear in Holandre's enumeration, it is unlikely that Levaillant was wrong – maybe the birds were only added in 1785 after the catalogue had gone to press. We have been unable to retrieve any later description of this cabinet. Karlsberg was completely destroyed on 28 July 1793 when the French revolutionary army invaded the district. The books and art treasures had been moved to safety, but the cabinet of natural history remained in the building in packing cases. There is a general inventory of the items in the cabinet said to be plundered or destroyed, which along with a few individual pieces lists “the entire cabinet of birds” (Becker, 1934; Petry, 1937).

Although it has generally been assumed that none of the birds in the cabinet at Karlsberg survived the French attack (Hartert, 1923; Stresemann, 1951: 104), there are indications that some of the specimens were removed from the castle at the time. One trail leads to Mannheim. Weber (1987: 355) argued, based on a contemporary diary, that at least some of the 1,200 birds in the collection were packed just before the invasion and transported via Kaiserlautern to the duke's properties in Mannheim. This trail ends here, but there is a second one leading to Metz. Holandre returned to France, where he was in charge of a “Cabinet d'Histoire Naturelle” in Metz from 1806 to 1840. Previous to the foundation of this museum on 5 Brumaire Year 4 (26 October 1795), the revolutionary army had deposited in Metz some boxes with natural history specimens, which had come from the Karlsberg (Holandre, 1840, 1845; Weber, 1987). The early history of the Musée d'Histoire Naturelle in Metz is found in a notice signed “Holandre”, which was not the previous director of the Karlsberg cabinet, but the librarian of the town and amateur naturalist, Jean Joseph Jacques Holandre (1778–1857), who contributed a number of papers on the local avifauna as well as on fossil bones of the elephant to the journals of the Académie de Metz (Vaillant, 1857). Holandre (1840, 1845) confirmed that some specimens from the collection of the duke of Zweibrücken were deposited in the building then called the Palais de Justice. However, as no arrangements were made for their conservation, most of the objects disappeared: “whole trays of exotic butterflies were destroyed just to make hairpins of them” (Holandre, 1840).<sup>4</sup> There are no specimens attributed to Bécoeur or the duke in a summary of the contents of the museum in Metz provided by Malherbe (1857).

The above account of the possible fate of Bécoeur's private cabinet is an example of many similar queries about the fate of individual specimens through the years. Details about exchanges, sales or auctions of the smaller collections are usually insufficient to follow a trail from one cabinet to another. In this case, we have shown that some of the birds originally mounted by Bécoeur survived the French Revolution and may have been incorporated in museums in Mannheim or Metz. It is unlikely, however, that any can still be recognized.

### THE INVENTION OF ARSENICAL SOAP

Bécoeur not only perfected a method to mount birds in a natural way, he also tried to find a solution to the problem of destructive insects. It was normal practice in the first part of the eighteenth century for bird skins to be preserved using various substances, ranging from tobacco and spices to powdered sulphur, alum and oil of turpentine, none of which proved wholly effective, particularly against the ravages of insects. In 1738, Bécoeur started to experiment with 50 different chemicals to determine which were most effective. He used each chemical on a different specimen, which was left open to the air. After three years, only eight birds were still in reasonable condition, and after waiting another year he was able to conclude that four of the chemicals applied individually kept the insects away. However, when he consequently found that one of these birds was still attacked by mites, he decided to combine all four elements into a single preparation (Bécoeur, 1774a: 149–150). This later became known as arsenical soap.

In order to advertise his invention without divulging the ingredients of his secret recipe, Bécoeur sent a selection of birds to the Muséum d'Histoire Naturelle in Paris, where the efficacy of his method could be tested objectively in a public institution. The director, George-Louis Leclerc de Buffon (1707–1788), wrote him a letter in February 1755 to acknowledge the receipt of these specimens (Dorveaux, 1924: 16):

I find your birds very well prepared. Those set up by the best taxidermists aren't any better, and their birds only keep for three or four years, at least when they are kept in a vacuum flask. I will leave yours exposed to the air. In case they keep well, I will inform you, in which case we would like to receive many others.<sup>5</sup>

He must have been overjoyed when Buffon wrote to him three years later, on 7 January 1758, that in fact the birds were still in good state of preservation, despite an adverse report by Buc'hoz: "I don't know why Buc'hoz told you that the birds which you sent to the Cabinet du Roi would not be well-preserved. I can assure you that they are in excellent condition. ... You would do me a great pleasure by sending me other birds" (Dorveaux, 1924: 16).<sup>6</sup> Bécoeur could hardly have wished for a better result, all the more so because visitors to the museum in Paris were often shown his birds as prime examples of good preparations (Bécoeur, 1774b: 519).

In 1771, Bécoeur gave a few birds preserved according to his method to Mauduyt de la Varenne. Possibly to discover the secret of the recipe, Mauduyt (1773) sent a letter to the *Journal de physique* discussing the various known methods by which birds could be preserved. He deplored that there still were no effective measures to keep skins in good condition over a period of time, curiously making no allusion at all to Bécoeur's invention. The latter had to register his protest in another letter, thus starting a polemic which was to last until 1775 (Dorveaux, 1924: 17–18; Farber, 1977; see Bécoeur, 1774a, 1774b, 1774c, 1775a, 1775b; Mauduyt, 1774). Bécoeur was at a disadvantage, because he had to show the usefulness of his method without providing a clue as to which ingredients were actually used. Both parties gave up after some time, and Bécoeur apparently went to his grave without divulging his secret recipe.

### THE REDISCOVERY OF ARSENICAL SOAP

Years passed without further allusions to the preparation invented by Bécoeur to safeguard mounted birds from insect attacks. Then, unexpectedly, it surfaced in a book on ornithological

*Recette du Savon arsenical.*

Camphre . . . . .	1 once 2 gros.
Oxide blanc d'Arse nic pulvérisé . . . . .	8 onces.
Savon . . . . .	8 onces.
Carbonate de Potasse . . . . .	3 onces.
Chaux en poudre . . . . .	1 once.

Figure 1. Recipe for Bécoeur's arsenical soap as first published in Daudin's *Traité élémentaire et complet d'ornithologie* (1800).

## TAXIDERMIE

OU

ART DE PRÉPARER ET DE CONSERVER LA DÉPOUILLE DE  
TOUS LES ANIMAUX, POUR LES MUSÉES, LES CABINETS  
D'HISTOIRE NATURELLE, ETC.;

PAR L. DUFRESNE,

Aide-Naturaliste et chef des travaux zoologiques au jardin  
du Roi; Membre de la Société d'Histoire Naturelle de  
Paris, de l'Académie des Sciences et Arts de Bordeaux,  
de celle de Lille, etc.

MISE AU UTILE AUX PERSONNES QUI S'OCCUPENT L'HISTOIRE NATURELLE.

Extrait de la seconde Edition du Nouveau Dictionnaire d'Histoire  
Naturelle, publiée par J.-L.-F. DETERVILLE.

A PARIS,

DETERVILLE, Libraire, rue Hautefeuille, n.º 8.

De l'Imprimerie d'Arzet L'ANOE; rue de la Harpe, n.º 78.

1820.

Figure 2. Title-page of Louis Dufresne's book on taxidermy, published as a separate title in 1820.



procedures written in 1800 by François-Marie Daudin (1774–1804), with proper attribution, as the arsenical soap of Bécoeur: “One should also have a sufficient quantity of the preservative which was invented about 20 years ago by Bécoeur, then apothecary in Metz, and named after him, the arsenical soap of Becoeur” (Daudin, 1800: 445).<sup>7</sup> He proceeded to list the main ingredients (camphor, ground arsenic, soap, potassium carbonate and powdered calcium hydroxide) and to describe the method to produce and apply the mixture (Rookmaaker *et alii*, 2004: 26; Glenn, 2005) (Figure 1). Three years later this arsenical soap was given a wider audience by Louis Dufresne (1752–1832), the taxidermist at the museum in Paris, in an article on taxidermy found in one of the scientific dictionaries popular at the time (Dufresne, 1803). A revised text was published 16 years later in the second edition of the dictionary (Dufresne, 1819). This later text was also issued as a separate publication, with a new title-page and new pagination, which was sold as an instruction manual of taxidermy (Dufresne, 1820) (Figure 2). Here Dufresne (1819: 559) claimed that he had written the section on taxidermy in Daudin’s book of 1800, where the arsenical soap was first made public. Dufresne was a friend of Levaillant and had a considerable personal cabinet (Rookmaaker, 1989). It has been a puzzle how, as Farber (1982: 54) put it, the knowledge about the arsenical soap “somehow passed to the Muséum”. Dorveaux (1924: 22) thought it was through one of Bécoeur’s nephews, but he was unable to put a name to him.



Figure 3. Portrait of François Levaillant, friend of Bécoeur, who included the secret of the arsenical soap in a sale to the French government in 1797 (Bechstein, 1797: I: frontispiece).

Evidence has now been found that it was François Levaillant (1753–1828), who kept the secret of the arsenical soap and passed it on to the authorities in France (Figure 3). Levaillant was acquainted with Bécoeur in Metz from 1763, moved to Paris in 1779, explored the interior of South Africa from 1780 to 1784 and returned to pursue his ornithological studies in Paris and Lunéville (Rookmaaker, 1989; Rookmaaker *et alii*, 2004). In the wake of the French revolution, Levaillant actively tried to sell his collection, comprising birds, insects and the skin of a giraffe, to the French government. In the process, his applications and the ensuing reports were discussed in a number of meetings by the relevant governmental committees.

On 10 March 1794, the Comité d'Instruction Publique considered Levaillant's proposal to sell his cabinet together with his methods to conserve and prepare bird skins (Guillaume, 1901: 248).<sup>8</sup> On 15 May 1794, whilst documents were passed between departments, again there is reference to the secret kept by Levaillant: "The Comité d'Instruction Publique returns to the Commission [des Arts] a letter by François Vaillant in which he offers to the nation his cabinet of natural history together with the secret which he possesses of the method to prepare and conserve birds" (Guillaume, 1901: 656).<sup>9</sup> The negotiations about the sale continued for almost three more years, but eventually Levaillant's proposal was accepted and his collection passed to the Muséum d'Histoire Naturelle in Paris, where receipt was confirmed on 27 February 1797 (Rookmaaker *et alii*, 2004). The secret of Bécoeur's recipe was not mentioned in the later documents, but there is little doubt that Levaillant was true to his word and taught the taxidermists at the Museum all that he knew about bird preservation.

### THE SPREAD OF ARSENICAL SOAP

The publication of Bécoeur's recipe by Dufresne would probably have escaped notice outside France, at least for a time, had it not been for the efforts of Thomas Edward Bowdich (1791–1824) and Captain Thomas Brown (1785–1862). Both visited the Paris Museum in 1820 and seemingly obtained a copy of Dufresne's manual of 1820. They subsequently published their own books, this time in English, incorporating large elements of Dufresne's work (in translation) virtually word-for-word. This included advocating the use of arsenical soap and thus bringing its composition to the notice of the English-speaking world. As Bowdich himself was busy translating other works into English, his wife Sarah (1791–1856) finished the job of preparing the taxidermy volume, which included only a minimal reference to Dufresne's work (Beaver, 1999). It was published in London, anonymously at first ([Bowdich], 1820), and ran to six editions, the last of which was published in 1843, with Sarah (now married to Robert Lee) taking full credit for authorship (Lee, 1843). This book was the first manual of taxidermy published in English and became widely adopted as the leading text in the mid-nineteenth century. Its recipe for arsenical soap was then copied into several other nineteenth century taxidermy manuals. Brown's book seems to be substantially a verbatim translation of Dufresne (1820), although in his preface he had the effrontery to claim himself as the author, "...being firmly of the opinion that no man should publish on a subject which he is ashamed to acknowledge" (Brown, 1833) – this was presumably a swipe at Bowdich, whose anonymously published book would appear similar to Brown's since both were

#### **Arsenic—Dry Powdered**

1 lb. (not mailable)	by express only.....	\$0.35
5 lbs. (not mailable)	by express only.....	1.50
10 lbs. (not mailable)	by express only.....	2.90

#### **Arsenical Soap—(Not Mailable)**

Chieftain Brand. Taxidermists claim our Chieftain Brand is the finest and most satisfactory arsenical paste on the entire market. It is used for mounting animals, game heads and birds. Is ready for use and easily applied with a small brush.

1 Pint, by express only...	.60
1 Quart, by express only	1.00
1/2 Gallon, by express only	1.75
1 Gallon, by express only	2.90

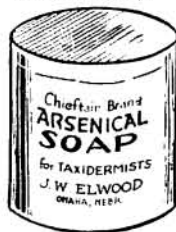


Figure 4. From a sales catalogue issued by J.W. Elwood in Omaha, Nebraska, USA, in the 1950s offering his special brand of arsenical soap.



derived from the same source. The significance of Brown's work in the present context is that it was reprinted many times, unchanged, with a twenty-seventh edition as late as 1876. Moreover, several versions also appeared in the USA and Brown's work, with Bécoeur's recipe for arsenical soap as the prime bird skin preservative, thus became widely adopted by commercial, amateur and museum taxidermists on both sides of the Atlantic.

Large sections of Brown's text, including instructions to use arsenic, were even reproduced in *The ladies manual of art*, a "self teacher in all branches of decorative art" (Anonymous, 1890), without any note of caution to the artistic ladies of America. The use of arsenical soap was further disseminated by various American taxidermists and authors, notably by J. W. Elwood's Northwestern School of Taxidermy in Omaha, Nebraska, established in 1903. The school offered a correspondence course in taxidermy, linked to a mail order catalogue from which the necessary supplies could be obtained. Arsenical soap was included in the sales catalogues for decades (Figure 4), and was still on offer in issue no. 101, probably dating from the 1950s (Elwood, about 1950). By this time, the School's publicity brochure claimed to have enrolled more than 300,000 amateur taxidermists, worldwide, all of whom were taught to use arsenical soap as a skin preservative.

Through the centuries, poisonous substances like arsenic had to be used with caution and substitutes like borax or other non-toxic substitutes have been suggested. Today, health and safety considerations mean that arsenical compounds are difficult to obtain and no longer permitted in taxidermy workshops, with safer non-toxic insecticides such as synthetic pyrethroids being used instead. Nevertheless, arsenical compounds were still being advocated in print as late as 1976 (Harrison, 1976). Despite the supposed dangers of arsenic, many taxidermists who used it enjoyed a longer-than-average lifespan (Morris, 1982) and the less hazardous alternatives frequently resulted in a high proportion of specimens being destroyed by insects. There is a particular advantage of using arsenic in taxidermy, which appears not to have been commented on previously and may have escaped the notice of Bécoeur himself. Many specimens preserved with arsenical soap were sealed in glass cases and later stored in damp conditions. Under these circumstances (perhaps aided by fungal or microbial decay), the arsenic seems to decompose and produce small amounts of volatile arsine. This can often be smelt when old cases of taxidermy are opened after many years in a store. Thus, the arsenical soap also created a poisonous atmosphere inside glass cases, and the specimen was in effect self-fumigating.

The arsenical soap of Bécoeur has been in use in museums around the world for almost two centuries. Jean-Baptiste Bécoeur invented it in 1743 and while he had struggled to convince his peers of its usefulness, it became common usage in Paris from the early years of the nineteenth century through the intervention of François Levaillant. The recipe was published in articles by Louis Dufresne, from where the word spread to English-speaking countries.

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## NOTES

<sup>1</sup> The original of the description of Bécoeur's cabinet by Buc'hoz (1771: 165–166) reads:

Le troisième Cabinet est celui du sieur Becocour, Apothicaire à Metz, il ne renferme que le regne animal: la partie des oiseaux est la plus intéressante, elle comprend presque tous ceux qui se trouvent dans le Pays. On y en remarque encore plusieurs étrangers; les plus curieux sont le Flamand, le Cigne, quelques Colibris & Oiseaux-Mouches, une Poule Sultane, un Nicticobax, une petite Outarde, un Pinguin. On y admire sur-tout une tête de Cardinal Capucin, des bees & gorges de Toucan. Outre ces Oiseaux, il y a dans ce Cabinet une collection commençante d'oeufs & de nids. On m'a envoyé de Metz un oeuf qui représentoit sur sa coquille un cadran; mais nous n'avons pas eu l'avantage de l'avoir entier; consultez les Mémoires de l'Académie sur la formation de cet oeuf. Les Oiseaux du Cabinet de M. Becocour, sont très-bien embaumés dans leur attitude naturelle. La méthode qu'emploie ce Naturaliste, garantit les Oiseaux ainsi embaumés de tout insecte, & les met à l'abri de la corruption, quoiqu'exposé à l'air. On voit dans ce Cabinet des Oiseaux embaumés depuis vingt ans, aussi sains que le premier jour; il seroit à souhaiter que M. Becocour voulût bien nous communiquer ce secret, les Naturalistes lui auroient de grandes obligations. On trouve aussi dans ce Cabinet de ce Curieux, une collection d'insectes du pays & quelques étrangers, tels que la grande Biche des Indes, la grande Mouche-à-feu, la Phalange des Antilles, le Pillulaire d'Italie, des Scolopendres aussi d'Italie, la grande lule, & le Joli-Richard d'Amérique. Les quadrupedes sont en petit nombre dans ce Cabinet; il s'y trouve un Blaireau, un faon de Chevreuil, un Lièvre blanc & un autre fauve.

<sup>2</sup> The original French text by Pierron (1779: 148–155) reads:

Si Becocour avoit vécu dans des siècles plus reculés, on l'auroit accusé de sortilège & d'enchantement. Que de prodiges cet excellent Naturaliste n'a-t-il pas rassemblés dans son cabinet? C'est-là que les animaux sont immortels. Le Chien aboie: (vous le croiriez du moins). Le Singe change de posture; le Hérisson se couvre de ses pointes; le Lièvre craintif dresse une oreille attentive; le Paresseux ose à peine se remuer pour chercher sa nourriture; la Biche des Indes brise la canne à sucre; le Porte-lanterne répand une douce lumière au milieu des ombres de la nuit; le Papillon erre ça & là, ou se repose sur les fleurs; la Mouche va se jeter imprudemment dans les filets que l'Araignée lui a tendus. Les Oiseaux voltigent ou se jouent avec leurs ailes peintes de mille couleurs différentes. Leur mélange est admirable dans l'Oiseau de Paradis; sa tête est dorée, son collier vert, son dos d'un rouge éclatant, & ses ailes égalent en beauté les couleurs de l'arc-en-ciel; cependant il ne l'emporte pas sur le Colibri, dont le vif éclat surpasse tous les chefs-d'oeuvre de l'art. Le plumage du Coq de roche semble le disputer aux rayons de l'aurore. Le Toucan au bec recourbé, le Cardinal, le Carouge ... mais j'entreprendois en vain de vous nommer tous les oiseaux que Becocour a rassemblés. Là, un Serpent affreux & hérissé d'écaillés vomit son venin, & un Scorpion, dont le dard est si redoutable, se tient caché. Ici, la Tarentule tend ses filets; si par hazard cette araignée vous mord, il n'y a que la musique & la danse qui puissent obvier aux effets singuliers que produit son poison. L'envie qui poursuit toujours les grands hommes, ne manqua pas d'attaquer Becocour; mais le nuage sera bientôt dissipé; le flambeau de la vérité écartera les ténèbres du mensonge; la postérité rendra justice au mérite de ce Savant Naturaliste, & Paris géмира, mais trop tard, de n'avoir pas possédé cet estimable citoyen.

<sup>3</sup> In the words of Levaillant (1790: xx) about the cabinet of Bécoeur: "il offroit, pour l'ornithologie d'Europe, la collection la plus nombreuse et la mieux conservée que j'aye jamais rencontrée."

<sup>4</sup> Holandre (1840: 141): "On a vu même des personnes détruire des cadres entiers de papillons étrangers pour en avoir les épingles!"

<sup>5</sup> Buffon wrote to Bécoeur in February 1755 (Dorveaux, 1924: 16):

Je trouve vos oiseaux très bien préparés. Les plus habiles ne font pas mieux; mais leurs oiseaux ne durent que trois ou quatre ans, à moins qu'on ne les mette dans une boîte hermétiquement fermée. Je vais laisser les vôtres exposés. S'ils durent, je vous en informerai; nous pourrions, dans ce cas, vous en demander beaucoup d'autres.

<sup>6</sup> On 7 January 1758, Buffon wrote to Bécoeur (Dorveaux, 1924: 16):

Je ne sçais pourquoi M. Buc'hoz vous a dit que les oiseaux que vous avez envoyés au Cabinet du Roy ne se sont pas bien conservés. Je puis vous assurer qu'ils sont en très bon état. ... Vous ne pouvez me faire plus de plaisir que de m'en envoyer encore.

<sup>7</sup> Daudin (1800: 445) wrote: "Ayez aussi une quantité suffisante du préservatif inventé il y a environ vingt ans par Bécoeur, alors Apothicaire à Metz, et nommé, à cause de cela, Savon arsenical de Bécoeur".

<sup>8</sup> The minutes of the meeting of the Comité d'Instruction Publique on 10 March 1794 referred to "la proposition du citoyen Vaillant de céder à la nation le cabinet d'histoire naturelle qu'il a formé, et d'indiquer les moyens dont

il se sert pour la conservation et la préparation des oiseaux. est renvoyée à la section de zoologie" (Guillaume, 1901: 248).

" On 15 May 1794, the government officials in Paris said that "Le Comité d'Instruction Publique renvoie à la Commission [des Arts] une lettre de François Vaillant par laquelle ce particulier offre à la nation son cabinet d'histoire naturelle avec le secret qu'il possède sur la manière de préparer et conserver les oiseaux" (Guillaume, 1901: 656).

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