Of Rust and Mold—The Insect Pin as a Token of Transimperial Cooperation

Alina Marktanner

Summary

In 1925, German entomologist Walther Horn announced the development of rust-proof insect pins, culminating decades of trial and error. The invention was spurred on through the correspondence with Horn's colleague Heinrich Hugo Karny, who struggled with specimen preservation in the Dutch East Indies' humid climate. The Horn-Karny exchange revealed how tropical humidity actively shaped European scientific practices while highlighting ongoing scientific cooperation between German and Dutch colonial networks, even after Germany's loss of colonies. While rust-proof pins marked an adaptation to humidity's requirements, the persistent presence of mold demonstrated humidity's ongoing role as a co-creator of entomological knowledge and practice.

In 1925, Walther Horn, director of the German Entomological Institute in Berlin-Dahlem, published a note in *Entomologische Mitteilungen* announcing his success finding rust-proof insect pins, the culmination of thirty years of stoically collecting different pin models. Horn stressed that his collection was not a hobby but rather aimed to document the history and improvements of this essential entomological tool—the metal pin to fix beetles and other insects in specifically designed boxes for shipping and preservation. His declaration of finally having found a rust-free needle was preceded by a six-year correspondence with Heinrich Hugo Karny, a German entomologist, then working at the Zoological Museum in the Dutch colony of Bogor (today's Java). Karny had originally contacted Horn, soliciting help in identifying the species of the beetles found in Bogor. But many of the collections sent from Bogor to Berlin-Dahlem arrived at the German Entomological Institute entirely moldy and thus unusable for scientific studies or display. The letters exchanged between Karny and Horn between 1921 and 1927 reveal that rust was just one manifestation of a more fundamental challenge with which colonial science grappled: the high humidity of the southern Asian climate that co-determined which specimens could enter the scientific record and which preservation methods proved viable.

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Portrait painting of Walther Horn made in 1916.

Painting by Ernst Bischoff, 1916.
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Humidity's role in shaping the conditions of entomological work became clear in Karny's letter to Horn on November 1, 1921. Writing from Buitenzorg, he described the climate as "the humid-warm incubation temperature of the tropics," which created perfect conditions for both rust and mold. His attempts to tinker with these conditions reveal the lengths to which colonial scientists would go to try to tame nature and impose European standards of preservation even under diverse climatic conditions—often to no avail. Despite using metal boxes that were heated day and night and trying an arsenal of chemicals—as well as "carbolic acid, formalin, naphthalene, sublimate"—Karny could not keep his specimens dry enough to prevent mold growth.

Horn's responses show how colonial scientists sought solutions through imperial networks: he first suggested consulting the Calcutta Museum, where similar humidity conditions had led to strict protocols including "the prohibition of opening any box during the rainy season." When Karny explained this was impossible in Buitenzorg, where it rained almost daily and humidity approached 100% even in dry periods, Horn proposed

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moving the collections to higher altitudes where the climate was “more reasonable.” Yet as Karny pointed out, such solutions failed to recognize local realities—the financial austerity the Dutch government had imposed on its colonies made moving collections impossible. The challenge of humidity thus exposed both material and institutional limits to European control over tropical conditions.

A small amateur insect collection.

Photograph by Debivort, 2006.
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As Horn and Karny’s correspondence about tropical humidity continued, their exchange revealed how entangled German and Dutch colonial science remained even after Germany’s loss of colonies. German expertise and materials remained relevant to colonial science’s ongoing negotiation with tropical humidity even after World War I. The requirements for specimen preservation set by humidity led Horn to pursue multiple technical solutions. In October 1924, he wrote to Karny about his months-long efforts to solve the needle problem, spurred by Karny’s “troubling experiences” with specimen preservation. The challenge was multifaceted: nickel needles, once the standard, were no longer manufactured in Germany because the same qualities that made them resistant to humidity also made them too soft—they bent too easily when pinning harder insects. Horn’s systematic testing of alternatives, detailed in his note in the *Entomologische Mitteilungen*, shows the complexity

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of finding materials that could withstand both humidity and regular use. The path to these rust-proof needles involved multiple failed attempts, from gold-plated needles that proved "completely unusable" to a first batch of Krupp steel that delivered "absolutely devastating results" by rusting through within four weeks (Horn 1925, 106). When Krupp's "V.2.A" steel finally showed promise, Horn arranged for the firm Hermann Kreye to produce a set of samples for other entomologists to order. Horn's note tacitly acknowledged the difficulty of controlling tropical environments when he stated that even the new needles required extensive testing "under the most diverse environmental conditions" before their efficacy could be confirmed (Horn 1925, 107).

The materiality of colonial entomology—the need to preserve specimens in specific ways using particular tools—required constant attention to environmental conditions that European science could neither fully grasp nor master. When Horn wrote to Karny in July 1927 that a joint colleague was "entirely enthusiastic" about the needles, and Karny confirmed they continued to perform "excellently," their exchange essentially celebrated an adaptation: rust-proof needles had met one of humidity's requirements, but mold remained a persistent reminder of tropical nature's resistance to European standardization. The development of rust-proof needles thus emerges as both less and more than Horn's article suggests—less in that it addressed only one facet of the conditions humidity imposed on specimen preservation, more in that it reveals how colonial science operated through networks of expertise and material exchange that survived the end of formal empire, even as its aspirations for control over tropical environments remained unfulfilled.

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Dr. Alina Marktanner is a postdoctoral researcher at the Chair for Modern History (C19–21) with its Knowledge and Technology Cultures, RWTH Aachen University. Her dissertation, titled “Behördenconsulting,” investigated the emergence of management consulting in the German public sector from the 1970s onward. Her second book project examines the history of pest control in German East Africa and British India around 1900. Currently, she is compiling a source collection documenting colonial traces in the region of the Rhineland and Westphalia. Her research interests include the history of science, knowledge and technology, political and administrative history, and global and colonial history.