fig. 50

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EPISTEMOLOGY

and Little Bits of Paper

D. GRAHAM BURNETT

The greatest label story in the history of science is, as it happens, the story of an orphan. Out in the home county of Hertfordshire, in the village of Tring, in a red brick manse constructed by Lionel Walter (the second baron of Rothschild), lives the ornithological collection of the Natural History Museum of London—though maybe "lives" is not the right word for a vast mausoleum of the feathered tribe. In one of the many ranks of musty roller trays secreted in this bird temple has lain for more than a century a very, very dead specimen of *Dolichonyx oryzivorus*, a small and unremarkable finch-like creature more generally known as the American bobolink. Like most of the other stuffed birds in the collection, this little shuttlecock wears the sad look of a punched-out boxer and sports a few labels tied to its trussed legs like mortuary toe tags. Three labels, in fact—of which more in a moment.

This particular bird had the distinction to have chirruped loudly and risen sharply from the ground in mid-October 1835, while resident on James Island (now Santiago) in the Galapagos—an action that, repeated several times, brought him or her to the attention of Harry Fuller, steward to Captain Robert FitzRoy (of the *Beagle*) and at that moment accompanying the captain's friend Charles Darwin, who was then engaged in wing-shooting specimens on the lava fields of the archipelago. Fuller, in the service of his betters, dropped the critter and bagged it, starting it on a new trajectory: The rest of its annual migration from the prairies of North America down to the grasslands of the Pampas would not happen. Instead, this immature bobolink—gutted, washed with arsenic soap, sprinkled with a dash of corrosive sublimate, and wadded with dry grass—would abruptly veer westward and cross the Pacific in the company of the twenty-eight-year-old Darwin, eventually finding a new home as a cadaver in the British Isles.

This might seem, on the face of it, the very antithesis of being orphaned—since the process of becoming a natural history specimen is rather more like a violently disruptive adoption. But this juvenescent bobolink had the misfortune to have been shot by a pair of mediocre ornithologists who took it to be something considerably more exotic than it was.[1] And therefore when, back in London, Darwin handed it over to the able Victorian bird expert John Gould, this gentleman pretty promptly worked out that the somewhat drab-plumaged tweet was not a heretofore unknown Galapagos pipit, but merely a familiar *Dolichonyx oryzivorus* who happened to be in the wrong place at the wrong time. So instead of taking up its throne in what would become, over the next twenty years, one of the most famous and important collections of birds ever made—Charles Darwin's Galapagos specimens, including all the finches and mockingbirds that would become the storied point of departure for his theory of evolution—this defenestrated bobolink suffered the indignity of being cast into the natural-historical outer darkness known as "scientific irrelevance," where it was shuffled about as a kind of surplus item from collection to collection, a dead bird of no importance.

fig. 51

But lack of importance can be important in its own way. Indeed, it was exactly because no one ever paid any attention to this specimen—which Darwin had numbered 3374 in his collecting notebook, as well as on a little label tied to a skeletal leg—that no one ever bothered to catalog it properly, which would have meant removing Darwin's sloppy field tag and recopying the relevant information onto a nice, tidy, new museum label. And *that* meant that when a young Harvard historian of science named Frank Sulloway lifted this featherlight skin bag out of a drawer in Tring on August 28, 1970, his heart skipped a beat. There, threaded to the tiny brittle claw, was a small piece of paper you might think of as a kind of mini-fetish of Darwin studies: an actual field label in Charles Darwin's own hand. It was unique in the world—the only such tag then known to survive the century and a half since the voyage of the *Beagle*.

Why would anyone care? Well, as Sulloway went on to argue in a paper that would become a minor classic in the field, this orphan label from an orphan specimen essentially put to rest a medium-small question that had medium-large implications: namely, "Did Darwin keep systematic track of which of his bird specimens came from which island in the Galapagos?"[2] It turned out, given that no place-information appeared on the label of the wayward bobolink, that the answer was obviously "no." It appeared that he mostly just chucked everything into a big bag, figuring that he was collecting specimens from *the Galapagos Islands*. Who needed more information than that?

Well, nearly everyone in the world with an interest in nature, God, and humankind would eventually get quite invested in this seemingly recondite matter, since the adaptive specificity of Darwin's finches would become a ubiquitous set-piece for evolutionists from Jakarta to Manitoba, and those remote, sere islands would become a veritable pilgrimage site for the faithful, who crossed oceans to feast their eyes on what they took to be the origin of the *Origin of Species*.

And this is exactly what made Sulloway's discovery so surprising and significant, since (in conjunction with finely sifted manuscript material) Darwin's label 3374 laid an ax into the trunk of one of the classic—if basically false—"Eureka!" stories in the history of science. Not only did Darwin *not* discover his theory of evolution by natural selection as a result of noticing that each little island had its quirkily distinctive finches (cue scratching of chin while standing before the crashing surf observing birds . . .), he didn't even notice that each island had its quirkily distinctive finches![3]

And it was even better than that: Over the course of the twentieth century the (more-or-less bogus) story of Darwin's finch discovery had been dragooned into service in a larger argument about empiricism and the sciences in general; i.e., people pointed to Darwin to argue that good scientists always plod carefully from the facts ("Hey, look, slightly different finches on slightly different islands in a biogeographical pattern that suggests radiating migrations . . .") to a theory ("Hey, I bet these finches species were not all created specially by God one by one—I bet they *evolved* to fit changing environmental situations . . .").

But with label 3374 in hand, Sulloway was in a position to reread the whole history of Darwin's efforts to sort out just which of his Galapagos birds came from which island. And the result was a hoot! Because when you really looked closely, the entire business had unfolded almost entirely the other way around. It was only *after* Darwin had begun to suspect that species might not be immutable that he began trying to reconstruct the biogeography of his finches, and (though he tried to be careful doing so, poring over his field notes and asking around for help from his shipmates—a number of whom were also collectors) in the process he displayed a marked tendency to line up his bird-location facts in a way that supported his emerging supposition about evolutionary processes. Oops!

Any of you creationists reading this who are getting ready to go tell your friends about how Darwin made up all the stuff about the finches and fudged the evidence for evolution: Forget it. Darwin's finches *are* a magnificent microcosm of adaptive radiation; considerably better than he knew, as it worked out. And evolution is real, baby, so get used to the idea.

The point of all of this is not, somehow, to "catch Darwin out," but rather to reveal the weird way in which phony historical legends get built up—legends that obscure not only what actually happened but also the very complex process by which science discovery unfolds.

And that is a lot of stuff to get out of a label.

All of which is to say: Historians of science have spent a good deal of time thinking about labels. Not just very specific labels, like the little tab on the toe of BM 1881.5.1.2394, either. Labeling—as a collector's field practice, as a taxonomist's technique for system building, as a curator's tool for teaching—can be thought of as standing someplace quite close to the center of natural-historical ways of making knowledge.

Take a moment to sift your own intuitions for a working account of what makes a label a label. Start with what they are not: Tattoos aren't labels, and neither, quite, is the cattleman's brand. Inscriptions into the surface of an object? Not really. And we tend not to think of a mark attached to a wild animal, say, as a "label," preferring a term like "tag." If you accept all this, you would, I think, agree that labels generally tread lightly where they go and that they are normally attached to things, not beings. Further reflection suggests that the paradigmatic label is semiotic (conveying information) rather than decorative (contrived for pleasure), and must defer to its object—no good label entirely obscures or significantly transforms the appearance of that which it labels. A casual reconnoiterof ordinary usage makes it immediately evident that we tend to reserve the term for those little bits of paper that mediate between objects and the various human worlds that dote on them. These little scraps are, in the end, our dominant way of making things talk—and not just *any* things.[4] Assimilated things. Birds in the hand; not in the bush. And maybe it would be more correct to say ways of *ventriloquizing* things, rather than just letting them chat—since we seldom let anything label itself.

And this back-of-the-envelope investigation of the semantics of labeling points to the larger importance of the activity in the history of museum practice across the sciences and the arts. The rise of collecting in the Renaissance as a significant intellectual and aesthetic practice represented a shift to an intensive new kind of "thinking with things." And the collection itself represented a novel space for thinking with others too. The shift from the monk's cell to the princely *Wunderkammer* can be thought of not merely as a move from thinking about texts to thinking about stuff but also as a drift from talking to God to talking with the person standing next to you. Interesting, then, that these earliest collections—which mingled willy-nilly works of art and wonders of nature—were largely unlabeled. The little bits of attendant and insistent paper came later, in the Enlightenment (and achieved ubiquity only late in the nineteenth century). They did not just reflect the period's growing preoccupation with taxonomy, systematics, and the secular rage for order (though they certainly did reflect all those things); even more so, it could be argued, their proliferation attested to a mounting desire to get everyone to shut up and look at what they were told to see.[5] No more talking to the person next to you in the museum: Read the label. In fact, maybe even don't waste too much time looking at the objects themselves. After all, the labels tell you what you need to know.

This is a rather polemical way of putting the matter, but there is something to it. At play in the delicate dance between objects and labels over the last four hundred years are all those most difficult questions about the eye and mind of modernity: logocentrism, the tyranny of the visual, didactic hegemony, the quiet and pervasive disciplining of the sensorium that is the hallmark of civilized life and integral to contemporary practices for producing and instilling knowledge.

It is not clear that we can go back. But the experimental stripping of labels—the orphaning of these technologies of adoption and assimilation—opens possibilities. Label-less, the objects may again begin to murmur, and if we lean close, we may be able to hear them. And suddenly objectless (as here in this volume), the labels too may find they have something to say.

fig. 52

fig. 53

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[1] For the most recent review of just how much Darwin knew about birds at this time, see: Frank D. Steinheimer, "Charles Darwin's Bird Collection and Ornithological Knowledge During the Voyage of H.M.S. *Beagle* 1831–1836," *Journal of Ornithology* 145 (2004): 300–320.

[2] The article in question, to which this essay is indebted, is: Frank J. Sulloway, "Darwin and His Finches: The Evolution of a Legend," *Journal of the History of Biology* 15, no. 1 (Spring 1982): 1–53.

[3] The actual distribution of these creatures, and their evolutionary history, are both complex. For the whole story, consider: Peter R. Grant, *Ecology and Evolution of Darwin's Finches* (Princeton: Princeton University Press, 1999), and Peter R. Grant and B. Rosemary Grant, *How and Why Species Multiply: The Radiation of Darwin's Finches* (Princeton: Princeton University Press, 2007).

[4] For more on this formulation, see: Lorraine Daston, ed., *Things that Talk: Object Lessons from Art and Science* (Cambridge, Mass.: Zone, 2004).

[5] The claim is made most provocatively by Tony Bennett, in: "Pedagogic Objects, Clean Eyes, and Popular Instruction: On Sensory Regimes and Museum Didactics," *Configurations* 6.3 (1998): 345–371.

Oological Tags

In 1976, a mutually beneficial agreement was reached between the Oakland Museum of California and the Western Foundation of Vertebrate Zoology to trade collections of oological specimens, or bird's eggs. The specimen tags pictured here, dating from the nineteenth and twentieth centuries, come from the collection of California-native birds' eggs received by the Oakland Museum of California. Containing a wide variety of penmanship, typesetting, and cryptic museological markings, these tags are in many ways just as remarkable a collection of specimens as the eggs to which they refer.

—CHRIS FITZPATRICK

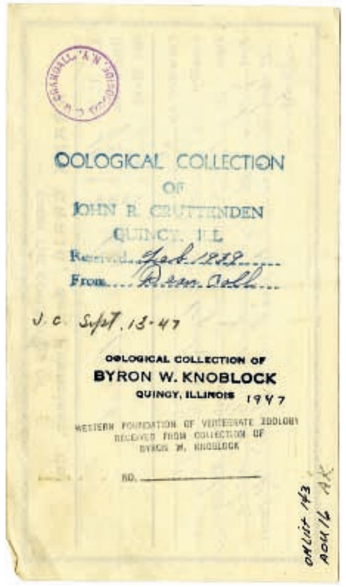
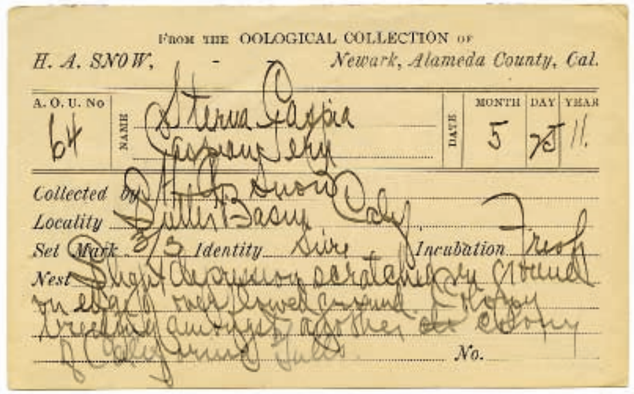


fig. 54



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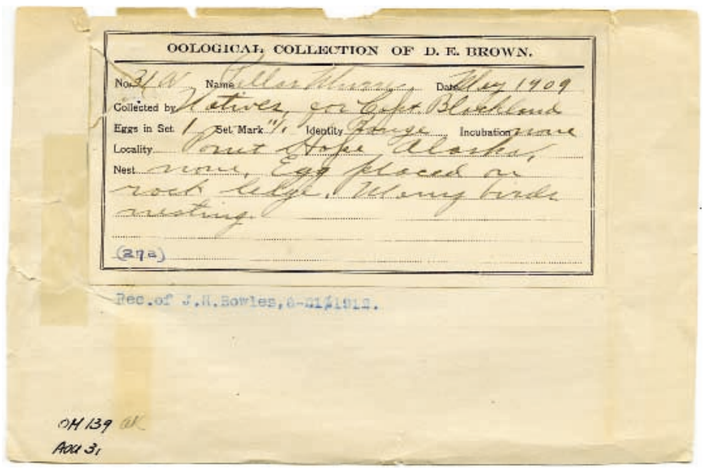


fig. 56

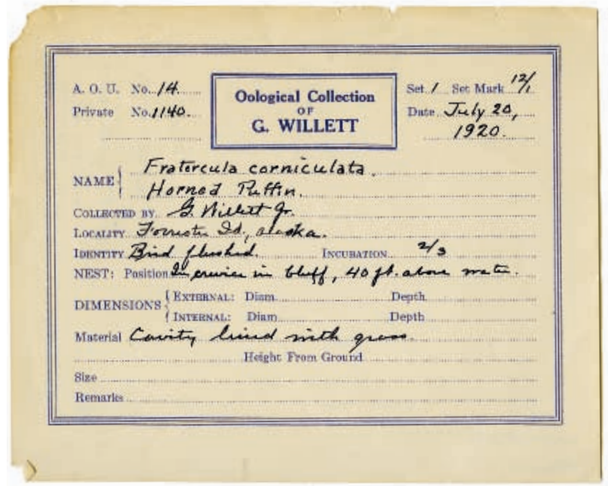


fig. 57

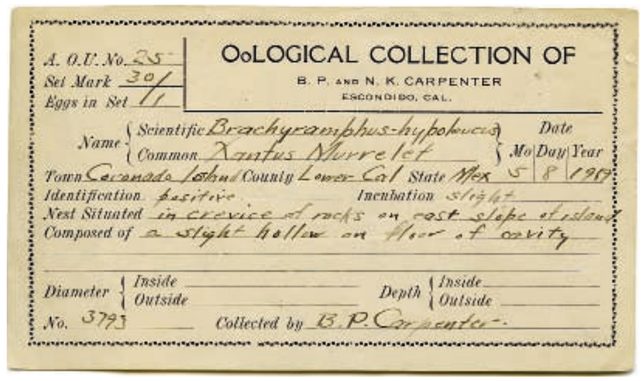
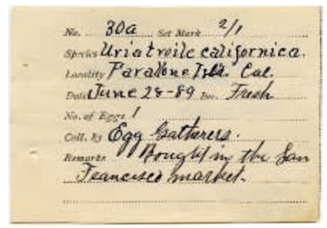


fig. 58



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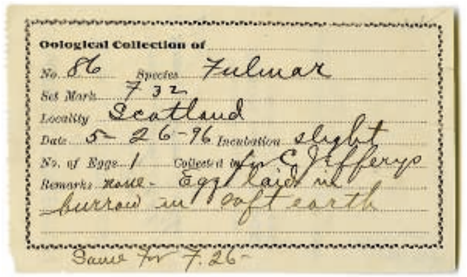

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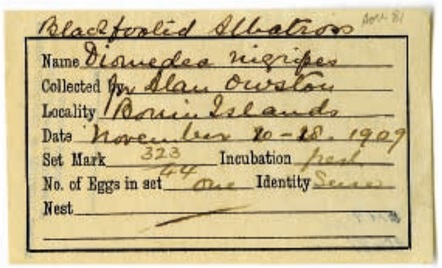

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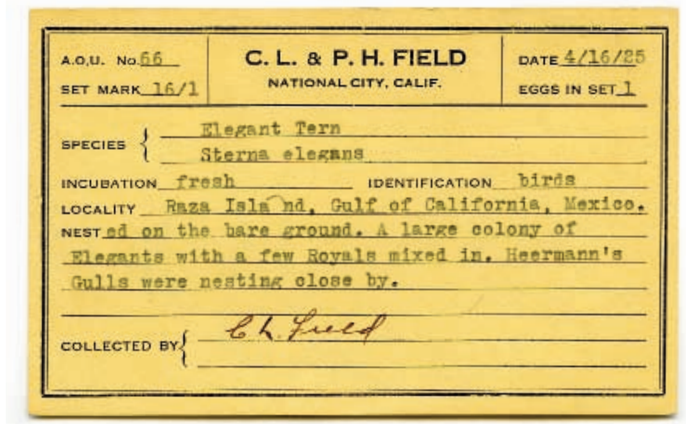
fig. 62



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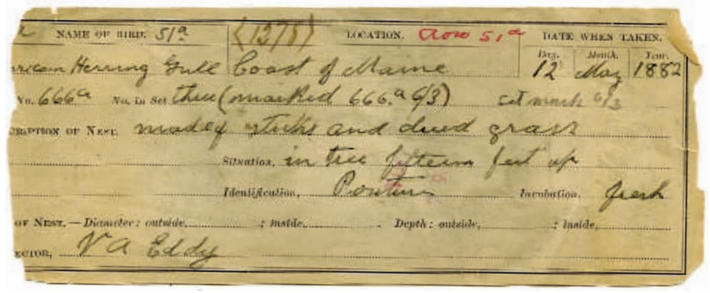


fig. 64

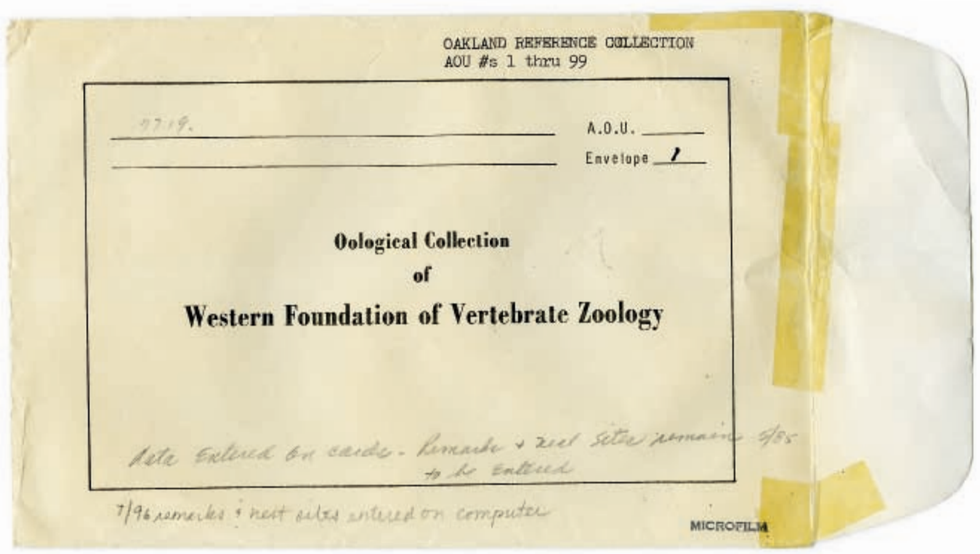
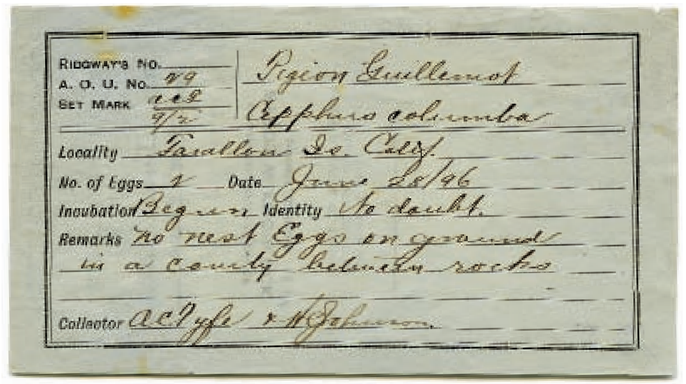


fig. 65



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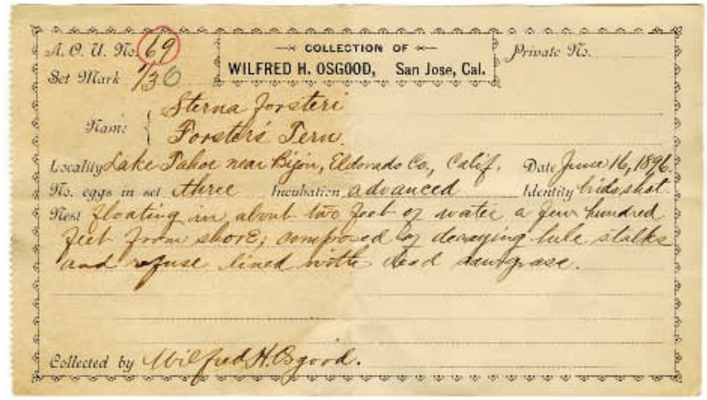
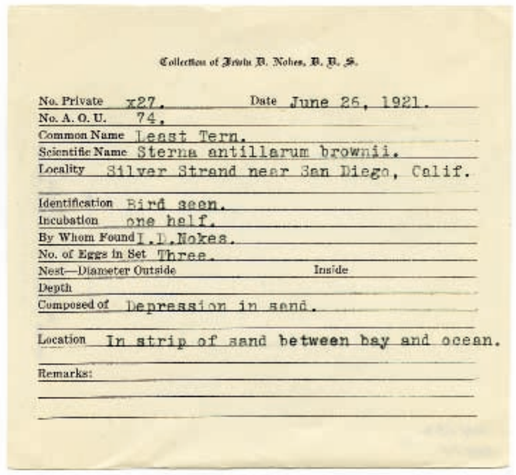


fig. 66



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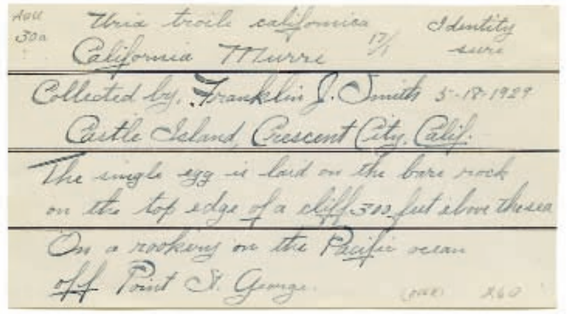

fig. 69