
Part

5

Museums

Experiencing Green Pigeons

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Museums, in G. Evelyn Hutchinson's words, "provide the marvelous and the beautiful."¹ And, as you will discover from the essays in this chapter, Hutchinson considered them crucial to the pursuit of scientific knowledge, frequently highlighting the importance of natural history collections and the rare emotional experiences that museums can provide. These writings are not just the offbeat musings of a polymath on art and antiquities. Instead, as we will argue, they are central to understanding how Hutchinson attained the scientific perspective that we so admire, especially his ability to seamlessly integrate ecological and evolutionary thinking. As you will also find, Hutchinson's deep belief in the importance of museums and collections stemmed from his appreciation of their aesthetic qualities, for in the end, as Sharon Kingsland documents in her essay in this volume, he viewed science as being fundamentally about the beauty of nature.

"A CONSTANT SOURCE OF DELIGHT"

Hutchinson's close relationship with museums began, as did his passion for collecting, as a child growing up in the rich intellectual environment of a Cambridge college, where eminent naturalists were frequent visitors and he had ready access to the university's great museums. He spent countless hours in the field, kindling his lifelong love of water bugs, butterflies, and many other animals. These collecting jaunts, among other things, provided the basis for his early scientific publications—he had published six papers on insects before his twentieth birthday.²

Especially in the winter months, "when little was stirring in the field," he frequently visited the university's museums. Later he recollected that he probably knew the specimens in the zoology museum by heart by the age of fourteen.³ The displays in that museum taught him bio-



Hutchinson collecting *Philaenus spumarius* (the common froghopper or meadow spittlebug) at Cherryhinton Chalk Pit, Cambridge, as a student in 1920. Students were allowed to roam only on Sunday afternoons and, as Hutchinson wryly noted, his "Sunday-best" clothes were "tiresome and uneconomical" in the field (Hutchinson, 1979, p. 70). Yale University Archives.

logical principles that were, as he later recognized, "essential ingredients" of his life.⁴ For example, it was there that he first encountered cryptic coloration and mimicry, and animals as bizarre and delightful as the dodo and the Surinam toad.

These childhood experiences firmly established Hutchinson's views on the importance of specimens for research, and in particular the role of museums in comparative biology and evolutionary ecology. This is perhaps most directly and forcefully expressed in "On Being a Meter and a Half Long," which he wrote in connection with the celebration of the two hundredth anniversary of the birth of the British scientist James Smithson, whose gift to the United States enabled the founding of the Smithsonian Institution. He argued that although publicists and professional administrators focus only on using the latest experimental techniques (for them, "it is considered far more important to be up-to-date than to be interesting and useful"), the synthesis (and enjoyment) of existing knowledge, particularly that based on "material objects," was of equal importance to science.⁵ Earlier, in "A Note on the Functions of a University," he argued that such synthesis—or what he later termed the "extensive" study of nature—required "access to objects, manuscripts, books, pictures, records of all sorts, apparatus, chemicals, specimens, etc., which may be termed the material basis of scholarship."⁶ At the time, of course, this view was highly unfashionable. Museums had played a key role in the development of the sciences in the eighteenth and nineteenth centuries, but with the rise of experimentalism in the late nineteenth and early twentieth centuries research tended to move away from museums, which in turn began to justify their existence mainly in terms of public education.⁷

Hutchinson understood this history. But, having grappled with difficult taxonomic issues surrounding water bugs and other organisms, and understanding firsthand that solutions to "deep and difficult genetical and ecological questions . . . depended on taxonomic distinc-

tions," he consistently and strongly promoted the basic taxonomic research that depends fundamentally on museum collections.⁸ Perhaps the most elemental expression of this support appeared in a letter regarding a search for a new director of the Yale Peabody Museum: "I feel very strongly that whatever the Director's main research interest, he or she should have real experience with taxonomic biology . . . so that a tradition is maintained that supports everyone whose work depends on A being A and not B by mistake."⁹ He also recognized the renewal of systematics and evolutionary morphology in connection with the "modern synthesis" in evolutionary biology, which he saw as leading to a renaissance in the use of museums, particularly, again, at the Peabody Museum.¹⁰

Hutchinson's close connection with the Peabody Museum began from the moment he arrived at Yale, and that connection is perhaps the best illustration of his lifelong and multifaceted relationship with museums. He worked closely and productively with a number of the Peabody's curators, donated important entomological collections to the museum, frequently used Peabody specimens in his teaching, and supported the Peabody's educational endeavors in the New Haven community.¹¹ In recognition of this diverse activity Hutchinson was elected in 1975 as one of the first honorary curators of the Peabody, a special status created to recognize "a leading authority in the natural sciences . . . appointed to the Museum at large, not to a particular division." In 1981, he was awarded the Verrill Medal, the Peabody Museum's highest honor, and his name is right at home among the luminary recipients of that prize, including George Gaylord Simpson, G. Ledyard Stebbins, Ernst Mayr, and Theodosius Dobzhansky. In presenting the award, his former student and lifelong friend S. Dillon Ripley, who was then Secretary of the Smithsonian Institution, provided this wonderfully apt citation: "Refreshingly you have always believed in the value of specimens and museum collections as essential to learning. Yale's Peabody Museum is blessed by your multidimensional presence."¹²



Hutchinson (center) holds the Verrill Medal that S. Dillon Ripley (right) presented to him on behalf of the Peabody Museum. Karl M. Waage, then director, is on the left. The book in Secretary Ripley's hand is Hutchinson's account of his travels in Goa and Indian Tibet. Yale Peabody Museum Archives; copyright Yale University.

This “multidimensional presence” also included Hutchinson’s well-documented admiration of the great works of art for which the museum is famous—most notably Rudolph Zallinger’s mural *The Age of Reptiles*.¹³ While Hutchinson clearly recognized the great scientific value of natural history collections, his essays highlighted the great significance he also attached to their aesthetic value, which he believed was as important as any perceived “relevance.” It is to this aspect of his understanding of museums and their collections that we turn now.

“FEELINGS OF THIS SORT MOLD OUR LIVES”

Hutchinson believed that appreciating beauty in the world—recognizing “that the universe and its inhabitants can be extremely decorative”¹⁴—was as fundamental to science as it was to the enjoyment of life, and he himself took

great pleasure in a very broad range of “material objects.” For example, he declared in his autobiography that the “greatest” museum in Cambridge was the Fitzwilliam Museum of art and antiquities, and he made frequent visits there to enjoy its paintings.¹⁵ In general, he made little distinction between art and natural history objects, focusing instead on the common emotional experiences that they can elicit.

He approached these issues most directly in “The Naturalist as an Art Critic,” delivered as a lecture in 1963 to commemorate the 150th anniversary of the Academy of Natural Sciences of Philadelphia. Why, he asked, are some objects placed in an art museum and others in a natural history museum? What, after all, is the distinction between a work of art and an object of natural beauty? In the very first museum collections, natural and man-made objects were intermingled, or even variously conjoined (which

he illustrated with an ostrich egg goblet), whereas moving toward the present these "have been sorted out, purified, or perhaps merely divided into categories convenient in administration."¹⁶ This sorting is not, he asserted, about beauty, or symmetry, or other such aesthetic qualities. Instead it perhaps rests upon whether there is "some evidence of a message from, or expression of, the personality of another human being, the artist who made the work."¹⁷ However, with the clever aid of fake paintings and artistic apes, Hutchinson quickly blurred any such distinction. Extending this thinking still further, he argued that "if the whole aspect of the work of a natural history museum is considered in this light, a taxonomically arranged set of diatom slides or a drawer of insects, no less than a habitat group or the magnificent fulgerite . . . are seen to have some of the properties of works of art."¹⁸

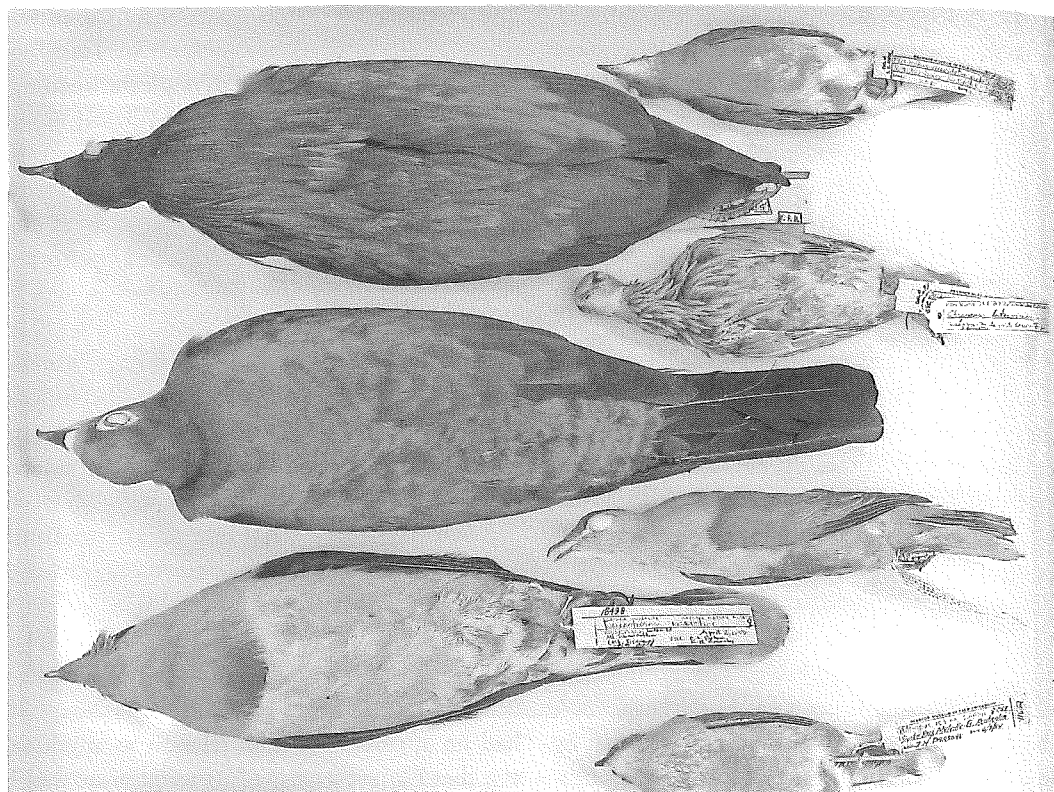
Beyond beauty there are a host of other aesthetic experiences, which were explored first by Immanuel Kant and more recently in connection with biodiversity by Kiester.¹⁹ Hutchinson's writings feature some of the deep emotions inspired by natural history museums. For example, in reflecting that "many people entering a natural history museum for the first time must wonder, if only for a moment, whether a pterodactyl or dinosaur really could have lived," he puts his finger directly on the fine and shifting line that separates reality from make-believe, and the sublime disorientation of truly not knowing which side of that line you're on.²⁰

He also provided vivid examples of the feelings associated with actually handling museum objects. He recalled, for example, being shown some of the "special treasures" of the Cambridge Museum of Ethnology and Archaeology on his tenth or eleventh birthday, and actually trying on a magnificent Hawaiian feather cloak. In South Africa he had a chance to handle some of anthropologist Raymond Dart's specimens: "The memory of having the original *Australopithecus* skull in my hands still thrills me."²¹ But, for us, the most engaging account of such an experience comes from a speech that Hutch-

inson delivered in 1960 as part of a symposium titled "The Role of the Museum in Teaching and Research at Yale," held to mark the opening of the Oceanographic and Ornithological Wing (better known as the Bingham Laboratory) of the Peabody Museum. This essay was published later under the title "The Uses of Beetles" in *The Enchanted Voyage*.²² In concluding he recounted this experience: "A few weeks ago, I happened to be in the Coe Memorial Room at the top of the new building where our enthusiastic ornithologists were arranging the collection of bird skins. Suddenly it dawned on me that I had never realized what an extraordinary number of pigeons are bright green. Most of you will also probably not have experienced any large number of green pigeons, though to the ornithologist they are a commonplace. Many of them have in addition minor decoration in a great variety of other colors, often of a rather startling kind. To me, this realization, though it had no apparent value in relation to anything else that I knew, gave me intense pleasure that I can still recall and re-experience. Feelings of this sort mold our lives, I think always enriching them."²³ Embodied in this story are themes that resonate throughout Hutchinson's writings. He was keenly aware of and attributed great significance to the incomparable, if fleeting, emotional experiences stimulated by natural objects, and he viewed museums as providing circumstances highly conducive to such experiences. These are of crucial importance, he felt, despite their having "no apparent value in relation to anything else." We believe this to be an exceptionally deep insight, and it certainly is one that has oriented our own thinking about museum experiences and their place in our lives.

"THE SMALL ROOTS OF MODERN SCIENCE"

While some aesthetic experiences pass without noticeable consequence, others form the basis of a more extended commitment, which can, in the right hands and at the right moment, yield profound insights. So it was for Hutchinson. His lifelong interest in water bugs and moths, which was founded first of all on aesthetic at-



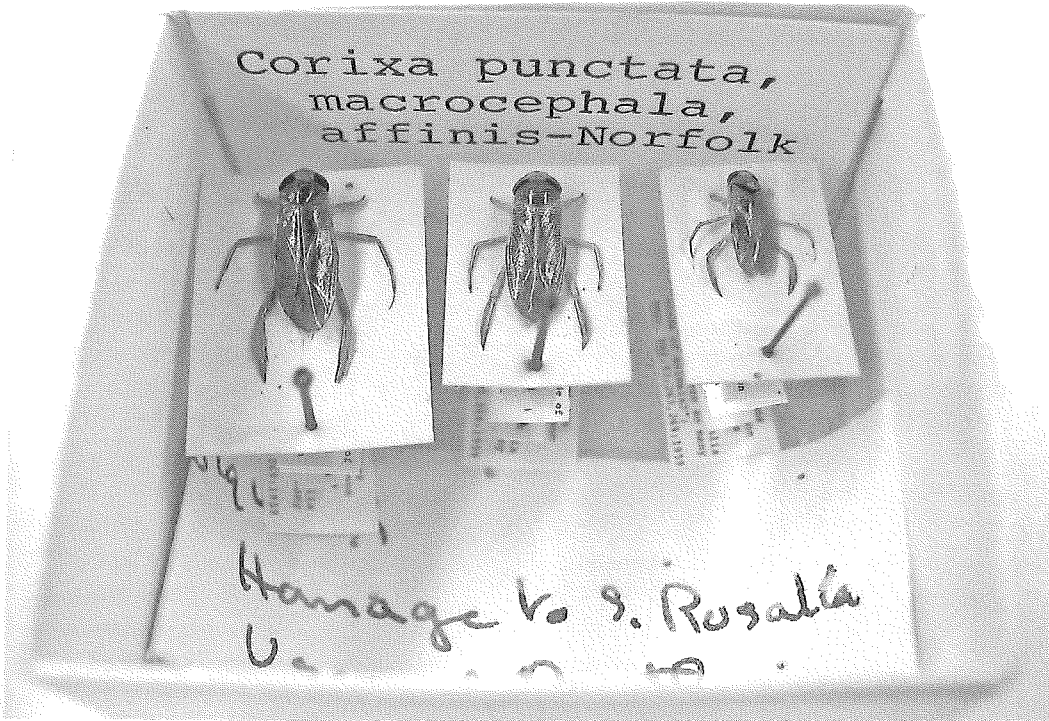
A variety of "green pigeons" from the Peabody's ornithology collection.

tractions and the simple joys of collecting, inspired many of his most important ideas. Perhaps most notably, "Homage to Santa Rosalia," in which he contemplated niche differences among related species, was stimulated by his observations on the *Corixa* water bugs that he collected from a small pond just below the sanctuary of Santa Rosalia on Monte Pellegrino, near Palermo, Italy.²⁴

As for the Lepidoptera, he observed that they "carry all the major problems of evolutionary biology set out in colored two-dimensional diagrams on their wings."²⁵ Indeed, he used them often in his writings, as for example in one of his best-known short essays, mysteriously entitled "The Cream in the Gooseberry Fool."²⁶ This work illuminated a pathway from an aesthetics-based collecting impulse to a major scientific insight, and at the same time it provided an astonishing tribute to the importance

of museum specimens and amateur naturalists. The human star of the "Gooseberry" tale is one Reverend Raynor (1854–1929), a keen amateur lepidopterist. The animal protagonist is the magpie moth, *Abraxas grossulariata*, known also as the gooseberry moth because the larvae feed on currant and gooseberry plants. Hutchinson had himself studied these organisms carefully as a child in Cambridge, later reflecting that "the fantastic variation exhibited by a small minority of the specimens of the species, an aristocratic variability remote from the daily life of the average currant moth, is always beautiful but also in turn puzzling, frustrating and challenging."²⁷

Raynor deposited a series of *Abraxas* specimens in the zoological museum in Cambridge, documenting the results of his extensive breeding experiments with aberrant forms of the moth. Hutchinson found these annotated by the geneticist Leonard Doncaster, who recog-



Corixa waterbugs, with Hutchinson's annotations, from the Peabody's entomology collection, showing the size differences discussed in "Homage to Santa Rosalia" (Hutchinson, 1959) and a part of the collection that he used in his research and in classroom demonstrations. These specimens, from Norfolk, England, were collected by Hutchinson when he was a student.

nized in them the first example of what we now call sex-linked inheritance. Raynor and his moths later came to the attention of yet another renowned geneticist, Huia Onslow, who then used *Abraxas* to demonstrate the Mendelian basis of what appeared to be blending inheritance. So, in the end, these studies underpinned the modern chromosomal theory of inheritance, the work of E. B. Ford on natural selection in the wild, and "all that has happened subsequently in genetics."²⁸

The basic message is a simple one: collections, carefully made and maintained, can and actually do inspire great discoveries, but often quite "accidentally." Raynor did not, after all, set out to prove or disprove the existence of sex-linked inheritance, he simply delighted in what Hutchinson called "the protean beauty of the

maggie moth."²⁹ The meaning of the essay's title is trickier to decipher. A play on the popular dessert, it refers to the amateur lepidopterists who gathered to purchase some of Raynor's *Abraxas* specimens when they were put up for auction in 1907. "Gooseberry fools" purchased them, at quite high prices, solely as curiosities, while only the "cream" among them appreciated their true scientific significance.

The deeper theme of the "Gooseberry" essay—that big ideas are so often stimulated by small, seemingly inconsequential observations—appears repeatedly in Hutchinson's essays. As Kingsland describes in this volume, Hutchinson firmly believed that all observations, however small, could be of great importance. For example, consider this lovely point from "Science Has Been Liberal Handed . . .": "Only to the



Gooseberry moths (*Abraxas grossulariata*) in the Peabody's entomology collection, with Hutchinson's annotations. These were purchased in London by the curator of entomology, Charles Remington, specifically for Hutchinson's work, including his writing of "The Cream in the Gooseberry Fool" (Hutchinson, 1965).

inhabitants of a university would it seem natural that an article with the title 'The origin and distribution of the chestnut-backed chickadee' should contain a conclusion which, we now realize after nearly three-quarters of a century, describes the basic role that competition plays in the distribution of all living things, plant or animal, friend or foe of man."³⁰ "Conjectures Arising in a Quiet Museum," in which he considered the consequences of incomplete penetrance for adaptive evolution, presented yet another example from his own work with specimens.³¹ This essay begins, "These speculations arose largely from visits to Tring to gaze at the huge series of *Abraxas grossulariata*," and it continues, "Now that I think I see what some of it may mean, the meaning tends to be related to other

organisms, watersnails, stoats, and even man himself."³²

As these last remarks begin to demonstrate, Hutchinson was, largely by virtue of his museum background, a superb comparative biologist, who also very clearly recognized threats to biodiversity and the great need to preserve it. The following passage, taken from "Fifty Years of Man in the Zoo," provides a flavor of his natural ability to draw together his exceptional knowledge of the diversity of life in framing and then extending an argument: "The themes that have been developed have been illuminated by studies on butterflies, deer mice, robins, a lioness, and by implication all the primates living as well as fossil. It would have been quite possible to develop other themes involving snails, water-

bugs, birds of paradise, dolphins, giraffes, and rhinoceroses. We are only at the beginning of this kind of study. . . . Without this diversity it will be immeasurably more difficult to understand ourselves."³³ Taking an even broader perspective, we can see the deep imprint of Hutchinson's museum experiences in his blending of ecological and evolutionary thinking into what we now call "evolutionary ecology." That discipline today is perhaps not quite so interesting as it was in Hutchinson's hands. What is missing in many modern practitioners is Hutchinson's hands-on knowledge of museums and collections and, consequently, his deep-seated appreciation of the intricacies of biological diversity, and his ever-present awareness of the influences of deep evolutionary history. Consider, for example, this passage from *The Ecological Theater and the Evolutionary Play*: "It is evident that at any level in the structure of the biological community there is a set of complicated relations between species, which probably tend to become less important as the species become less closely allied. These relations are of the kind which insure niche separation. They are probably balanced by another set of relationships expressing the fact that organisms of common ancestry are more likely to inherit a common way of life."³⁴ Such formulations, which came so naturally to Hutchinson (as they also did to Charles Darwin), appear to have become increasingly difficult as ecology and evolutionary biology have tended to separate from one another. It is only over the past several years that we are undertaking a serious integration of the study of phylogeny with community ecology issues or with the analysis of global biogeographic patterns.³⁵ For example, Cavender-Bares and her colleagues provided an outstanding study

on oak trees of the balance that Hutchinson so thoroughly appreciated.³⁶

"A CERTAIN DEGREE OF LOVABLENESS"

Reading the body of Hutchinson's work represented in this chapter, we are struck not only by his deep love and knowledge of museums and the unique roles that they play in human experience, but also by the ways in which he embraced these things in his own science. He seems to have been entirely comfortable in discussing and using emotional and aesthetic experiences to enrich his work. One has the sense that scientists are anxious to distance themselves as much as possible from discussions of emotional experiences and the like, considering them "unscientific." But for Hutchinson these boundaries just didn't seem to matter, for, as he put it, "ultimately the values of pure science and of the fine arts are identical."³⁷ In fact, it is the very blurring of these boundaries that we associate with his peculiar genius—the style of thinking and writing that produced his most innovative work.

So, far from being a sideline in Hutchinson's life that just happened to have brought forward some of his finest writing, his museum experiences are critical to properly understanding the development of his key scientific contributions and, in particular, the beginnings of a deeply satisfying (if still quite underdeveloped) integration of ecology and evolutionary biology. Evelyn Hutchinson believed that the goal of inductive knowledge was to produce beautiful conceptual schemes and thereby to increase the "lovableness" of the universe. Owing in no small measure to his museum experiences, he surely achieved this end quite perfectly.