The Sandwich Islands Committee, Bishop Museum, and R.C.L. Perkins: Cooperative Zoological Exploration and Publication

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ABSTRACT

The history of a project of zoological exploration in the Hawaiian Islands is traced from the project's inception by a group of British zoologists interested in the evolution of the Hawaiian fauna to publication of its results in *Fauna Hawaiiensis.* The project is examined primarily from the viewpoint of Bishop Museum. A decision by the Museum's founder, C.R. Bishop, and its trustees to cosponsor the project with the Sandwich Islands Committee brought financial support to the project when it was critically needed. The role of *Fauna Hawaiiensis* in establishing a scientific press at Bishop Museum is explored, as is the role of the project in the development of programs at the Museum. Excerpts from letters, newspapers, and diaries convey the drama of funding the project, choosing a collector, the arduous and exciting fieldwork, and the contention associated with distributing the resultant specimens. The personality and eccentricities of the collector, R.C.L. Perkins, are seen to have influenced this history. Exploratory work on each island is summarized, while appendices provide detailed information on members of the guiding Sandwich Islands Committee, authors of *Fauna Hawaiiensis,* and publication data. Perkins' collecting itinerary has been compiled from many sources to assist curators and zoologists using his collections.

INTRODUCTION

The zoological exploration initiated in 1890 by the Sandwich Islands Committee and eventually cosponsored by Bernice Pauahi Bishop Museum resulted in outstanding collections of the land fauna of Hawai'i and in *Fauna Hawaiiensis,* a publication of continuing importance. In this paper, the project is examined predominately from the viewpoint of Bishop Museum. For Bishop Museum the undertaking inaugurated a tradition of international scientific cooperation, provided the foundation of a world-renowned entomological collection, and contributed to the initiation of scientific publishing by the Bishop Museum Press. Co-sponsorship provided Bishop Museum with access to the international scientific community and recognition otherwise unavailable so early in its growth and development. The effect of the methods and personality of R.C.L. Perkins, the collector chosen by the Committee, on the project and on its results is also examined. To aid zoologists and scholars in making critical use of both the collections and *Fauna Hawaiiensis,* detailed information is provided on the actual fieldwork and on the editing of the publication.

Interest builds: a committee is appointed

In September 1890, with the year-old Bishop Museum not yet open to the public, the British Association for the Advancement of Science (BAAS) appointed a committee to "report on the present state of our knowledge of the Zoology of the Sandwich Islands, and to take steps to investigate ascertained deficiencies in [our knowledge of] the Fauna" (BAAS 1891). The Association was reacting to an interest in Hawai'i's land fauna that had built steadily since Hawai'i's discovery by the Europeans in 1778. The works of3 men, Blackburn, Gulick, and Wilson, were the most immediate stimuli for this zoological interest. Their collections tantalized the British scientific community with unique specimens and the promise of more.

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The Rev. Thomas Blackburn was a Honolulu resident for 6 years (1877-1883) while affiliated in various capacities with the city's Episcopal cathedral (Blackburn & Sharp 1885). Blackburn's avocation was entomology and his precious free time was spent collecting elusive Hawaiian insects. In 1882, Blackburn exhibited his collection in Honolulu (Hon. Libr. Assoc. 1882) and published a short summary article, "Hawaiian Entomology," in the Hawaiian Almanac and Annual (Blackburn 1881). Compared with the few previous attempts at collecting Hawaiian insects, Blackburn's success engendered a serious interest in Hawaiian entomology when his specimens reached English scientists. Blackburn described his collections for British journals, either alone or in cooperation with recognized authorities such as coleopterist David Sharp and hymenopterist Peter Cameron. These scientific papers usually included a plea for exploration of Hawai'i by a collector devoting full effort to scientific pursuits. Blackburn even included glowing descriptions of beautiful Hawaiian scenery, considering this a justified "digression. . . [which] may be excused for the possibility of luring fresh explorers to the islands" (Blackburn & Sharp 1885).

While Blackburn was Hawai'i's only resident amateur entomologist, many collected land snails. For collector Rev. John Thomas Gulick, land snail characteristics formed the basis of his theory on the mechanics of evolution. In 1872 Gulick brought Hawai'i's land snails, particularly Achatinella, to the attention of those involved in evolutionary debates by reading papers before the BAAS and the Linnean Society. He used his time in England to study at the British Museum (Natural History) (BMNH) and to visit scientists to discuss the land snails he had brought with him (Gulick 1932). Gulick continued to publish his theories and to designate new species of Achatinella, and in 1887 he read before the Linnean Society a lengthy paper, "Divergent evolution through cumulative segregation" (Gulick 1890). More journal articles followed in 1889 and 1890. Gulick's theories were seriously debated by evolutionists. Would these theories be reasonable when applied to equally well-documented, large, and geographically diverse series of Hawaiian birds or insects? It was impossible to test Gulick's theories using the small collections of birds and insects then available in European museums.

In 1887, four years after Blackburn's departure from Hawai'i and shortly before Gulick's paper to the Linnean Society, Scott Barchard Wilson, under the urging and tutelage of Alfred Newton of Cambridge University, arrived in the Hawaiian Islands "with the view of investigating their ornithology in a thorough way" (Newton 1892c). Wilson worked toward that objective during 18 months in Hawai'i. The specimens with which Wilson returned had much the same effect on Britain's scientific community as Blackburn's insects.

By summer 1889 Newton was pressing Wilson to conduct further fieldwork in Hawai'i (Wilson & Evans 1890-1899). When he was unsuccessful, Newton argued the need for continued exploration before the 1890 meeting of the BAAS. Newton's plea was favorably received by an audience whose appetite had been whetted by Blackburn, Gulick, and Wilson. Certainly the lure of the unknown, of new creatures to be discovered, played a part in the eagerness of the British to support exploration in Hawai'i. Equally important were the theoretical questions to be answered by examining the fauna of Hawai'i and other island areas. Peter Cameron, urging further exploration of Hawai'i, had written in 1886 that

> The investigation of the natural history of oceanic islands is now rightly regarded as a subject of great interest and importance. Not only do their fauna and flora throw much light on the manner in which species have been distributed over the globe, but many of the species themselves are, from the peculiarities of their structure, of extreme value in throwing light on the origin of species. (Blackburn & Cameron 1887)

Furthermore, time was running out. Introduced plants and animals, together with habitat reduction, were expected to result in mass extinction of species (Blackburn & Cameron 1887; Sharp 1890). Newton's suggestion was acted upon by the BAAS and the Sandwich Islands Committee was appointed with a grant of £100 (US $500)[2]2 (BAAS 1891).

Additional funds needed

The Committee, chaired by William Henry Flower, Director of the British Museum (Natural History), acted quickly. A meeting was held and the new Committee decided, not surprisingly,

> that the Zoology is but imperfectly known, that it is of great scientific interest and that it ought to be further investigated. That the only way to do this is to send a naturalist to the islands to explore their natural history as thoroughly as may be found possible and to transmit the objects obtained to this country to be examined and reported upon by competent authorities. (Sharp 1890)

Yet the Sandwich Islands Committee's £100 would hardly support such a plan. The Committee decided to seek additional funding even though an ornithological collector, Lionel W. Wiglesworth, volunteered to start for the Islands immediately (Wilson & Evans 1890-1899). This decision cost the Committee valuable time in the contest to reach Hawai'i's rich collecting grounds first. Wilson's ornithological discoveries had piqued the interest of Sir Lionel Walter Rothschild, who maintained a museum on his estate at Tring, England. Rothschild, not constrained by funds, dispatched Henry C. Palmer to Hawai'i, where Palmer worked, with several assistants, from December 1890 until August 1893 (Rothschild 18931900). Newton (1893a) and Perkins (1894) concluded that Rothschild planned to precede the Committee's collector and reap the glory of new discoveries and descriptions of new species. Certainly George C. Munro, who collected with Palmer from 1890 until 1892, believed this (Munro N.D.a). A rivalry with Rothschild marked the first 18 months of the Sandwich Islands Committee's work. Newton's feeling of lost glory is mirrored in the "Introduction" to Wilson's report on his own work:

> The loss of the season of 1891 was unfortunate for the credit of the Joint Committee; for many discoveries which its collector, had one been sent out in that year, could not have failed making fell to the lot of the persons employed by Mr. Rothschild in 1890-1892. (Wilson & Evans 1890-1899)

In its search for additional funds, the Committee turned first to the Royal Society of London, which dispensed a "Parliamentary Grant for scientific investigations," commonly called the Government Grant. Several members of the BAAS's Sandwich Islands Committee were also members of the Royal Society, and the Society appointed a committee soon after the 1890 BAAS meeting (Sharp 1913a). By May 1891, an additional £200 was made available to the Sandwich Islands Committee by the Royal Society (Sharp 1891a).

The Committee also hoped that the Hawaiian Kingdom's legislature and that country's wealthy citizens would support zoological exploration of their islands. David Sharp, who was to remain the Committee's secretary throughout its history, wrote on 8 November 1890 to A. Hoffnung, the Hawaiian charge d'affaires in London, stating the Sandwich Islands Committee's plan to investigate the Islands' fauna. Sharp carefully noted that sums

[2] . All dollar values of British pounds are based on a 19th century exchange rate of ca. US $5 to £1. The 1985 value of one 19th century dollar is ca. US $12.95

appropriated by the legislature or donated by Hawaiian citizens would be "expended in the islands" and would "add. . . to the wealth of the islands, rather than diminish it." Sharp also asked about the efficacy of distributing a circular to acquaint residents with the Committee's aims (Sharp 1890). The charge d'affaires passed Sharp's letter to J.A. Cummins, minister of foreign affairs, who received it in January 1891. Cummins' speedy answer noted that the legislature's recent adjournment made government funds unavailable. Cummins did offer to distribute circulars if the Committee sent them to him (Cummins 1891). Regrettably, available copies of Cummins' letter contain a copyist's error that inadvertently deleted as much as a page from the text. The text jumps from "Unfortunately the Legislature has but recently adjourned" to "and of much larger and wealthier States but regret is expressed on all sides that so many of our historical treaties have passed into the hands of Collectors of Foreign Countries" (Cummins 1891). The surviving phrases hint at a sentiment familiar today in emerging nations whose cultural and natural history treasures rest largely in the museums of other countries. The Committee, however, considered the reply a "very favourable answer" and apparently had no objection to Cummins' suggestion, perhaps made on the missing page, that Hawai'i funding sources "would be likely to cooperate, provided that a portion of the collections obtained should be ultimately placed in the Museum at Honolulu [B.P. Bishop Museum]" (BAAS 1892). The Committee's circular, "Zoological Exploration of the Hawaiian Islands," reached Hawai'i by November 1891 (Sharp 1891c).

By coincidence, Honolulu banker Charles Reed Bishop was traveling in Europe during 1891 and in September met to discuss the Committee's plans with the new chairman, Alfred Newton, and others. Newton called Bishop's interest in the program "strong," but apparently Bishop made no definite promises (Newton 1892a). Bishop may have wished to wait and watch, being a cautious man regarding finances, particularly when scientists were involved. Bishop wrote of a scientific collection, "I do not like to 'buy a pig in a poke' " (Bishop 1894), explaining his wish to have it independently examined before buying. Later, Bishop wrote that "naturalists and scientists have their pet hobbies on which they would spend or induce others to expend almost any amount" (Bishop 1898d). It is also probable that Bishop's decision not to assist the project financially was influenced by the advice of William Tufts Brigham, the first curator of the Bernice Pauahi Bishop Museum, which Bishop had founded in 1889 in memory of his wife. When the Committee first contacted Bishop Museum seeking assistance, Brigham wrote to David Sharp that the Committee shouldn't send an entomologist to Hawai'i, since he (Brigham) "had been all over the islands and there were no insects. . . except common American ones. . ." (Perkins 1947). He had discovered this "whilst botanizing" (Holmes 1897c). Brigham's remarks were, as Museum Trustee Henry Holmes wrote, "a huge blunder" (Holmes 1897c) that gave the Sandwich Islands Committee a poor opinion of Bishop Museum. Yet Brigham was not as far from the mainstream of scientific thought as modem observers might presume. Unfamiliar with Blackburn's work (Perkins 1892-1897), Brigham was unaware of Hawai'i's potential for insect collecting. Even Blackburn had concluded that

> One of the most remarkable features in Hawaiian entomology is the extreme rarity of specimens, in comparison of the number of species, the very common insects being few indeed, and the rather common ones almost none at all. . . . My experience in this matter agrees with that of previous explorers in the islands of the Pacific Ocean, many of whom allude to the extreme paucity of insect life there. (Blackburn & Sharp 1885)

By 1895, Brigham observed that the Committee's work had "overturned the theory of the poverty of insular faunas" (Brigham 1895). In short, the Sandwich Islands Committee received little more than kind words and encouragement from Hawai'i during 1890-1891.

Joint Committee formed

Encouraged by the Royal Society's funding and the hope of cooperation from Hawaiian sources, the Sandwich Islands Committee made its first report to the BAAS at the August 1891 meeting. The Committee received permission to cooperate with the Royal Society's committee. The combination was formally known as the Royal Society and British Association Joint Committee for the Zoology of the Sandwich Islands and, for obvious reasons, was informally termed the Joint Committee. Alfred Newton, Magdalene College, University of Cambridge, was named chairman of the Joint Committee. David Sharp, Museum of Zoology, Cambridge University, continued to serve as secretary. S.J. Hickson, University of Manchester, would remain treasurer throughout the Joint Committee's life. Newton, Sharp, and Hickson formed an executive subcommittee, authorized to act for the whole. Other members were W.T. Blanford, geologist, Osbert Salvin, ornithologist, and P.L. Sclater, editor of *Ibis* and a founder of the British Ornithologists' Union. E.A. Smith, British Museum (Natural History) malacologist, and C.V. Riley, U.S. Bureau of Entomology and Plant Quarantine, were appointed to the Committee at the 1891 meeting (BAAS 1892).

Over the next 23 years this Joint Committee, with a few additions and resignations (Appendix 1), guided a collector and generated the funds to sustain and publish the results of his work. The Committee was composed of British men, Riley having emigrated to America in 1859 (McLachlan 1895). The average age of Committee members on appointment was 58. All were university educated but not in natural history. Flower and Sharp, for instance, were trained in medicine, then a recognized "sphere for such tendencies [as natural history] in those devoid of private fortunes" (Royal Soc. Lond. 1905). Typically, Sclater began by "practicing at the Bar, but always working steadily at natural history" (Evans 1913). By 20 years after the publication of Darwin's "The Origin of Species," the mechanisms of evolution and zoogeography were common interests among the Committee's members. Sclater's position as editor of *Ibis,* a well-read ornithological journal, was used to keep the Joint Committee's efforts and needs before the scientific community. By fortune or design, several Joint Committee members served on the Royal Society and British Association committees controlling financial assistance for zoological exploration. Newton had a particular gift for piloting the Joint Committee's requests through those committees. He may have been chairman, but it was David Sharp who ably and aptly represented the mind of the Joint Committee to others in correspondence, orchestrated and edited *Fauna Hawaiiensis,* and wrote major portions of the Coleoptera sections of the *Fauna.* Newton described him as the "life & soul" of the project (Newton 1906).

A collector chosen

Following its formation, the Joint Committee faced the important and difficult task of selecting a collector upon whom the success or failure of the Committee would rest. In addition to L.W. Wiglesworth, an international field of candidates was considered for the position. Sharp and Riley discussed the possibility of the United States sending entomologist Albert Koebele to Hawai'i and the Joint Committee sending a collector specializing in the birds, mollusks, and other land fauna (Sharp 1891b; Riley 1892). In late November of 1891, Robert Cyril Layton Perkins, Jesus College, Oxford University, was invited to apply for the position through Joint Committee member E.A. Smith, with the support of Perkins' professor, Oxford entomologist E.B. Poulton. Walter Garstang, Owens College, Manchester University, wrote encouragingly to Perkins:

Dear Perkins, Nov. 6, 1891

I am glad you like the prospect & I am sure it is a capital opportunity. Of course we mustn't count our chickens, but we will hope for them.

I believe that the Committee would prefer to have a man recommended to them & in whom they could trust rather than throw the post open to competition. So I have great hopes of your selection. The secretary of the committee is Dr. David Sharp, F.R.S., Museum of Comparative Zoology, Cambridge, & it is a good omen that, like you, he is an entomologist. Write to him as soon as you like now, and say that, having been invited to apply for the post by me, through Mr. Edgar Smith, you would be glad if you could be supplied with further particulars and details concerning the duties of the post and the work you would be expected to perform &c &c. You should state your qualifications fully e.g. your training at Oxford in the school of Animal Morphology, your long experience &c in the collecting line mentioning the extent of your own collections of British Hymenoptera &c &c the fact that you have published several papers on them also, and a word or two to the effect that you would throw yourself heart & soul into the work would perhaps fetch!

I will write to Sharp myself also on your behalf and will write to Poulton & ask him also to help. Smith is on the committee also & I will write to him & feel sure he will support you.

It will be as well if you also give Dr. Sharp the names of one or two naturalists as referees on your behalf-Poulton of course being one. I am not important enough myself for a referee I am afraid, but will write however informally for you. If you can add the name of some big Johnnie who is great upon any other land bugs except insects, in addition to Poulton, it will help (provided you can count upon his support).

There! that is all I can do, I think, except to say 'Go in & win.'

Yours ever,
W. Garstang

Perkins applied immediately to Sharp who replied with details of the proposed work and a warning that the position carried no salary-only expenses would be paid (Sharp 1891c). Perkins was not deterred and wrote on 12 November affirming his application (Sharp 1891d). In the next 1 *1/2* months Perkins pressed his case in interviews with several Committee members (Sharp 1891e). Persistence, recommendation, and qualification blended, and in the first week of January 1892 the Joint Committee chose Perkins from a field of candidates. Chairman Newton quickly wrote to Charles R. Bishop, subtly suggesting that it was still possible for Bishop to sponsor the project.

My dear sir, 9 Jany 1892

I have delayed troubling you with a letter until I should be able to furnish you with some positive information as to the action of the Committee. . . I have now to tell you that the Committees. . . have, within the last week selected from the various candidates who offered their services, Mr. Robert C.L. Perkins, B.A. of Jesus College, Oxford, and this gentleman will proceed to

> Honolulu, via San Francisco, with as little delay as possible. I accordingly have to bespeak on his behalf the valuable assistance of yourself and of any of your friends whether private persons or members of the Hawaiian Government, which I hope will regard favorably the important enquiry with which he is entrusted. Although I had not previously known Mr. Perkins, I feel sure from the testimony of others well qualified by personal acquaintance with him that I may safely recommend him to your notice and consideration-and I may add that he will perhaps stand in greater need of such attentions as you may be so good as to bestow upon him for I understand that he has never visited any foreign country.
>
> Mr. Perkins' instructions are to lose no opportunity of collecting examples of all Classes of Fauna-though he will be directed to a few special points. It is impossible for me at present to say how long he will stay in the islands. The belief of the Committee is that the proper investigation of their Zoology would require his residence for a couple of years, but the funds as yet at our disposal (£300) are manifestly insufficient for so long a period. We intend however to apply for a renewal of the grants. I should state that Mr. Perkins renders his services gratuitously-his actual expenses alone being defrayed by the Committee-and this fact will, I trust, dispose all who are in a position to assist him the more readily to further his object. . . . (Newton 1892b)

While his superiors continued to worry about money, the 26-year-old Perkins, with a bit more than a month before departure, prepared for his great personal and scientific adventure. Meetings were arranged with Sharp, Newton, Scott Wilson, and other specialists, during which Perkins absorbed hints on collecting techniques and localities, animals especially wanted, and preservation methods. He read the few articles written on the Hawaiian fauna and arranged for customs clearances and passage. Hurried notes about equipment passed between Sharp and Perkins. Silver pins were ordered for insect mounting, and Sharp offered to lend Perkins his sieve for sifting insects from leaf litter (Sharp 1892a).

By mid-February Perkins had departed England, arriving in New York on 24 February and in Honolulu on 10 March 1892. The *Daily Bulletin* noted:

> Mr. Perkins has lost no time in pursuing his journey, as he arrived here by the steamer Mariposa yesterday. Honolulu is becoming a meeting place for scientists. There are here now Professor Marcuse of Germany and Preston of the United States investigating vagaries of the earth's axis, and Mr. Perkins to make a thorough examination and report of the zoology of the group. (Daily Bulletin 1892)

Perkins proved a poor correspondent, notwithstanding the instructions he received from Newton before leaving England that keeping the Committee fully informed was necessary to ensure the renewal of grants (Newton 1892b). Perkins did not write enroute and waited more than 2 weeks before notifying Newton of his arrival in Hawai'i. Nor did Perkins' letters give Sharp and Newton sufficient information to satisfy the inquiries of other Committee members or the granting committees. In 1896, during the second trip Perkins made for the Joint Committee, Newton was still chiding him:

> When I meet members of the Committee they always ask where you are and what you are going to do next. To question No.1 I generally answer "In the Sandwich Islands" & to No.2 "To stay there for the present" but this does not always content them. Which shews *[sic]* how difficult it is to please them. (Newton 1896e)

Fieldwork initiated

Perkins went enthusiastically and immediately to work in the field, if not at the writing table. He found Hawaiian forests receding at a frightening rate: while sugar cultivation was not expanded in 1892, coffee plantations were extended in 'Ola'a, an important bird habitat on the island of Hawai'i, and while construction of the road from Hilo to Kilauea Crater was slow, Honolulu streets were expanding and attracted "a rapid extension of the use of bicycles" (Thrum 1892). Obtaining a guide, Perkins made several trips into O'ahu forests, educating himself on the Hawaiian fauna (Perkins 1892-1897). March, April, and May were devoted to learning and adjustment (see Appendix 4 for details). This period was discouraging for Perkins, but Newton consoled him:

> Everyone who goes to collect natural history things in a foreign country must make up his mind to the fact that weeks or even months will be wasted at the beginning-& if the country is partially civilized more time is likely to be wasted, through misleading information (given with the best of intentions) than if it were wholly unknown. . . . I have always been on my guard against the local informant - though it may happen that he is not always wrong. (Newton 1892e)

Perkins found O'ahu a poor collecting ground for the novice and felt he could learn more quickly in a district "where the birds were known to be numerous in species and individuals. . . . On this account I left Oahu for Kona, Hawaii, in June 1892" (Perkins 1892-1897). Indeed the choice had been well made:

> When I first arrived in Kona the great Ohia trees. . . were a mass of blooms and each one of them was literally alive with hordes of the crimson Apapane and scarlet liwi, while . . . the 00 could be seen on the wing, sometimes six or eight at a time. The Amakihi was numerous in the same trees, but less conspicuous, and occasionally one saw the long-billed Hemignathus. Feeding on the fruit of the leie could be seen the Hawaiian crow commonly and the Ou in great abundance. The picture of this noisy, active and often quarrelsome assembly of birds, many of them of brilliant colours was one never to be forgotten. (Perkins 1892-1897)

In Kona, the Greenwell family gave Perkins permission to hunt on their ranch. Greenwell hospitality left Perkins with warm memories of the brothers Arthur and Henry and sisters Lily and Christina, whom he called "most charming girls" (Perkins 1937). After collecting on Hawai'i until mid-October 1892, he returned to O'ahu.

Having learned to identify many Hawaiian birds and insects and to recognize their habits, Perkins now devoted a profitable 61/2 months to O'ahu fieldwork. The experience gained in Kona did not eliminate the problems of working on O'ahu. Perkins complained that

> the whole of the mountains here is made up of countless ridges. One is practically confined to the ridge one is on, while the bird might be quite near, yet. . . inaccessible. . . . How different from Kona! One might hunt a bird, of which few individuals survive, for years without success. The chance of such a bird being on the very same ridge as is the collector and on the same part of that ridge at the same time is very small unless the bird really exists in some numbers. (Perkins 1892-1897).

In early May 1893, Perkins moved from O'ahu to Moloka'i, where he worked until November. There he contended with extremely wet forest conditions, as he hiked high in the mountains. Despite 2- or 3-ft deep trenches around his tent, the ground inside became a pool of mud. His discomfort was rewarded with the discovery of *Drepanis funerea,* a new species of *mama* (Perkins 1892-1897).

In July 1893, he hiked alone into Moloka'i's Pelekunu Valley from the ridge above. After a descent punctuated by a fall of some feet, Perkins waded down the valley's stream until he encountered some Hawaiians:

> For a long time I could not convince them that I was alone and when I told them that I was from Kaunakakai, they said no malahini *[sic]* [newcomer] could find his way from there and kept looking back to see if others were coming behind me! One of the natives, a boy of about 18, took me off to his house in the village about a mile or two from where I met them. There are only about twenty houses on the beach. . . . They got me a change of clothes as I was wet through and plastered with mud, and fed me on fish & taro. . . . I saw the winding-up exercises at the school. The children's performances were creditable but their number was small. I had expected to find grass houses in this valley and even possibly see tapa making, but there was nothing of the kind. The natives are a sturdy and energetic lot, as they had no horses. . . . (Perkins 1892-1897)

In August, Perkins spent the first 2 weeks based at the Kala'e home of Rudolph W. Meyer, where he thoroughly enjoyed "the varied and well cooked food" (Perkins 18921897), conversations on "Darwin's theories" (Perkins 1948), and the companionship of Meyer's sons on tramps to the high mountains (Perkins 1936a).

From mid-December 1893 until late February 1894, Perkins collected on Lana'i, where the Hayselden family provided access to collecting sites, home-cooked dinners, and good conversation. There he experienced the problems of a dry camp, i.e., where water had to be packed in. Feral cats were numerous and Perkins shot many. One day while he was away from camp, cats tore up bird skins that he had left there (Perkins 1892-1897).

After a quick return to O'ahu, Perkins made his first attempt at collecting on Maui in early March 1894. There he met Matthias Newell, a Marianist brother and enthusiastic amateur naturalist; Newell provided advice on collecting sites and gave Perkins a few entomological specimens (Perkins 1892-1897).

Perkins began 11/2 months of Kaua'i work in mid-May 1894, based at the home of George C. Munro, Palmer's 1891-1892 assistant. Munro allowed Perkins to read his field notes, providing him with knowledge of Palmer's collecting sites (Munro N.D.b). Munro's action was particularly ironic, as Palmer, who had left the Islands in August 1893, had refused Perkins this information to protect Rothschild's dominant position in the "race" with Newton. Sundays on Kaua'i were occasionally spent with the Gay family going to church and, later, talking with Mr. Francis Gay from whom Perkins heard "about plants and birds and all other Hawaiian matters and. . . learnt much. . ." (Perkins 1892-1897).

Having made an in-depth search on each of the major islands, Perkins made a short return trip to Lana'i and then spent his last month in Kilauea and Kona on Hawai'i. Lana'i results were disappointing. Feral goats had destroyed important bird habitats. Near Kona's Holokalele, Perkins found that *Moho nobilis,* which he had found plentiful in 1892, was now scarce, and wild cattle, mongooses, and myna birds were everywhere (Perkins 18921897). This destruction was repeated on every island, while sugar and coffee acreage increased annually. The Bureau of Agriculture and Forestry had been established within the

government to assist growers, and parasitic insect introductions were under consideration (Thrum 1893, 1894). Clearing of forests together with introduced animals reduced forest habitat for endemic wildlife. Not surprisingly, Perkins' letters to C.R. Bishop about the work of the Joint Committee carry an overtone of urgency. In reply to one letter Bishop wrote, "It makes one sad and regretful to be told that anything of the fauna or flora is extinct, and there is no doubt that many things indiginous *[sic]* in and peculiar to Hawaii have become extinct, and that others are fast following toward a like fate" (Bishop 1898c).

The Joint Committee decided that the rainy season so hampered Perkins' collecting that he should return to England on 1 September 1894 (Sharp 1894a). Perkins spent the next 4 months at the Cambridge University Museum of Zoology overseeing the pinning and labeling of his insect specimens. The possibility of a return to the Islands remained contingent on the uncertain renewal of grants.

Advice from home

In his first 6 months of exploration, Perkins cast about for a plan to organize his search. Should he investigate each island in depth, then move on, or move about among the islands frequently? While stressing that the final decision was Perkins', Newton and Sharp offered conflicting advice. Newton favored a long O'ahu stay, hoping that Perkins would find the rare and, Newton hoped, not-yet-extinct birds that he so desired (Newton 1892e). Sharp felt that short, quick interisland trips had benefited Blackburn and would give Perkins and the Committee an idea of the fauna of the different islands (Sharp 1894b). Newton countered that while he didn't "deny the possibility of the existence of Tom Tiddler's grounds[3], . . . they are not common enough to make it worth anybody's while to look for them, & that on the whole a better living is to be earned by steady work than by lottery tickets" (Newton 1893c). In this first of his 3 expeditions, Perkins developed a hybrid collecting strategy, staying for long periods on an island, but traveling about frequently on that island.

The Joint Committee, through Newton and Sharp, gave Perkins the freedom to decide where and when he would collect. They soon recognized that Perkins possessed such knowledge of the conditions in the Islands that "it would [be] the height of folly for us to direct you to go in this that or the other place" (Newton 1894a). Newton did caution Perkins to shun the areas where Lord Rothschild's collector, Palmer, was working:

> . . . it is inexpedient for you in your character as the representative of scientific effort to come in competition with the unscientific collector with practically unlimited means, when your own are unfortunately restricted. (Newton 1892e)

Equally important was the question of how to fulfill the demanding task of collecting comprehensive, well-documented samples of the entire land fauna. Should he favor one biological group over another? Were insects, or birds, or mollusks more important? Sharp urged Perkins to be even-handed, repeatedly advising that Perkins "do something in other groups besides the insects; otherwise naturalists will think I am selfish in getting an entomologist sent to the islands" (Sharp 1892g). Sharp felt his responsibility very strongly in this matter. After a month's silence, he wrote Perkins:

> I wished to leave you for some time without sympathy entomological, in hopes you would denounce me as a useless being and give all your attention to shells and other things. Now I think it is time for the insects to have an innings again so I mean to persecute you with letters, till I feel sure you have got another 200 new species. . . I expect. . . you are tired of a

[3] Refers to a place where things are easily obtained without interference.

> biological diet of snails and are off to Maui to get some fine birds and several hundred new species of insects . . . . (Sharp 1893a)

It was a rare Newton or Sharp letter that did not contain a reminder to collect some particular specimen: Newton continually asked for rare and possibly extinct birds; not to be forgotten were nestlings and eggs (Newton 1892e,f); Hickson hoped pond mud contained protozoa; Sharp wanted bird lice from the indigenous birds (Sharp 1892e), and galls (Sharp 1892f); malacologist Cooke wanted land snails "with the animals in them collected into spirit" (Sharp 1894d). Sharp conceded that Perkins should "get plenty of butterflies as . . . people take much more interest in them than they do in sensible things like beetles & Hymenoptera" (Sharp 1892i). In the end, the rarest birds and the insects got most of Perkins' attention, in part because local residents would collect common birds and land snails (BAAS 1892). Perkins, though, attributed his "comparatively great failure as a shell collector to the fact that there was no malacologist . . . urging me to look out for this or that" (Perkins 1936d).

Sharp's and Newton's letters also reminded Perkins of the reason for collecting the Hawaiian land fauna. Not only was he to collect the birds, insects, land snails, lizards, and bats, but he was also to note his "observations on the habits or distribution of the creatures . . . . Great interest is felt in the details of the Sandwich island fauna. . ." (Sharp 1892b). Sharp reminded Perkins: "We want a great deal of information as to the modifications of species in the different islands. . ." (Sharp 1892d), and cautioned him: "Be sure in the different islands not to miss taking a thing because you have got it previously in another island, for we want very much exact information as to what occurs in each island" (Sharp 1892e). Even recently introduced insects were to be captured:

> If these. . . forms shew *[sic]* no variation, why have those that have been so much longer there (on the Wallace hypotheses) varied so enormously? Gulick tried to make a reason for the shells, & I think failed; if the insects that are winged shew *[sic]* the same general phenomena as the Mollusks, it kills his theory. (Sharp 1892j)

Newton and Perkins engaged in a long-distance debate about the organization and classification of the Hawaiian honeycreepers. While Newton disagreed with some of Perkins' ideas, he encouraged Perkins to continue observing and theorizing:

> If "collectors" in other parts of the world had been employing their brains in your way we should be in a far better position to tackle these problems, and I can't sufficiently commend you for bearing them in mind. (Newton 1896b)

Personality in the field

The advice of Newton and Sharp was tempered and flavored by Perkins' own personality and his experiences in the field. Experience showed that, at least for Perkins, it wasn't practical to collect birds on the same day as insects and shells (Newton 1892d). Perkins complained that when he tried this, he usually saw a good bird while holding his insect collecting net and a desired insect while holding his gun! Additionally, Perkins contended that the birds most coveted by Alfred Newton, such as *Chloridops kona* and *Rhodacanthis palmeri,* were found in the highest forest, while the endemic trees that hosted most of the native insects occurred at the 612-914-m (2,OOO-3,OOO-ft) level (Perkins 1892-1897).

Both for financial reasons and from personal preference, Perkins worked alone most of the

time. After a few days with a guide in a new area, Perkins would work alone. Although Sharp occasionally renewed his suggestion that Perkins employ a young boy to "run after the dragon-flies" (Sharp 1894c), Perkins felt that such an untrained person was in the way (Munro N.D.b). Guides and attendants required wages and food, and this definitely restricted Perkins' use of them. Perkins complained that Hawaiians, not blessed with his minute appetite, ate "a great deal and this is rather a disadvantage of taking natives with one" (Perkins 1892-1897). When forced to employ a gang of trail cutters, Perkins recalled that "at a $1 a day a man and food supplied, such trips were necessarily as expensive as some of my solitary ones were cheap!" (Perkins 1936b). Doubtlessly Perkins' thrifty ways lengthened the time the Sandwich Islands Committee was able to employ him.

Perkins' solitary fieldwork caused those at home some not unreasonable worry. Sharp suggested that in case Perkins have an accident in the mountains, an assistant would be able to summon help (Sharp 1894d). The idea had merit. By the time Sharp made his diffident proposal, Perkins had been briefly lost in the mountains at least 4 times and threatened by haughty wild boars on O'ahu (Perkins 1892-1897), had escaped a charging wild bull on Moloka'i (Newton 1893a), had twice fallen into deep, fern-covered cracks on Maui, and had been rescued by a Hawaiian on horseback when stranded by the 'Iao Stream in flood. Perkins escaped most adventures with only minor i1J.juries, such as a toe crushed by a rock when fording 'Iao Stream and self-doctored with a poultice of "hard-tack soaked in boiling water" (Perkins 1892-1897)! But the dangers were real, as attested by the death of a guide's horse (Newton 1892e) and the near death of a guide (Perkins 1896a).

Actually, Perkins was not a confirmed loner; he enjoyed the company of fellow collectors Brother Matthias Newell, George C. Munro, and, on his second and third trips, Albert Koebele. Similarly, a Hawaiian bird catcher, described by Perkins as a "passenger rather than a worker" (Perkins 1936b), made a desirable companion. One unnamed bird catcher took Perkins

> to the very tree in which it *[Drepanis pacifica]* had been shot at the time when the 1830 flow was approaching Hilo. He was in the forest then, and a dozen were killed at that time. Whenever he has been with me, all the time as we go along he gives what is no doubt an exact imitation of the Mamo's call. . . . Though he tried hard, he never succeeded in getting any response to his call. (Perkins 18921897)

Still, Perkins' methods were solitary when compared with Henry Palmer's parties of up to 5 mounted hunters and Hawaiian guides. They could cover twice the area by dispatching one party headed by Palmer and a second headed by his assistant (originally Munro and later Wolstenholm) (Deverill1891-1892).

The mechanics of fieldwork

As Perkins learned the haunts and habits of the birds and insects, he learned which "dodges" (techniques) he needed to capture them. The sifting dodge, for which Sharp had lent Perkins his sieve, separated insects from leaf litter (Sharp 1892d). The light dodge attracted insects at night, using a lantern near the tent fly on which insects landed and could be captured (Sharp 1892e). Some familiar European techniques, such as turning over stones, did not work well in Hawai'i (Sharp 1892c). Perkins improvised techniques as his experience in Hawai'i grew. A dodge for beetles involved clearing "small areas of a few feet, especially where the soil was sandy or of fine grit and then from time to time one would see the smaller Carabids begin to move on the cleared space" (Perkins 1931). Perkins learned that by whistling imitations of their songs, he was able to attract birds close enough to shoot them (Perkins 1892-1897).

Equipment, or the lack of it, was also important in Perkins' work. David Sharp tried to keep Perkins well supplied with the special equipment needed by a general zoology collector. The distance from suppliers forced Perkins to anticipate his need for specific items 5-6 months in advance (Sharp 1892f). The fine, silver pins needed for microlepidoptera would not stick well in cork, and Sharp sent sheets of vegetable pith as a cork substitute (Sharp 1892d). Improvisations were suggested by Sharp to sustain Perkins between supply shipments: if ethyl alcohol or formaldehyde was not available as a preservative, substitute whiskey (Sharp 1892h); if thin cork was needed for pinned insects, substitute sliced bottle corks (Sharp 1892d).

Keeping specimens safe in the field was a constant problem. Mountain dampness caused insect boxes to fall apart, and birds shot in the morning rotted by afternoon (Perkins 1892-1897). Mold, a constant threat, was prevented by liberal applications of carbolic acid in boxes (Sharp 1892e). Even in Honolulu specimens were not safe:

> When I had turned out my captures of the day in the evening, I was called away to the telephone, leaving the insects on my table against the open window. On my return after a considerable delay, I found most of these had disappeared, and a great stream of the ant Pheidole was coming and going through the window carrying off their booty. (Perkins 1892-1897)

Packing and shipping resembled trial by combat; sawdust was the only padding available and the chance of damage was great on the long voyage to England. A case sent in September 1895 reached England in January 1896, and Sharp had to report that "the spirit all came out of the two bottles of shells you put on top of the butterflies in paper & produced a sort of solution of Vanessa" (Sharp 1896a).

In October 1892, Perkins shot on O'ahu what he believed was the rare *Hemignathus obscurus ellisianus,* which Alfred Newton desired so fiercely. The bird fell over a cliff. Perkins spent 2 days looking for it, clearing a large area of undergrowth using a cane knife (Perkins 1892-1897). The plants were sacrificed without reward, as the bird was never found. Perkins stated:

> There is no doubt that a bird collector should bring out a couple of good dogs at any cost. At least 25 p.c. of the birds I see I cannot shoot at (for fear of not being able to gather them) and the same percentage I lose, although I shoot at no bird, rare or common, unless I think I have a good chance of picking it up. (Perkins 1892-1897)

A trained retriever would have ensured that every bird shot went into Perkins' collecting bag. Offers of such a dog came from Charles R. Bishop (Perkins 1893b) and, later, from Rev. Charles M. Hyde, a Bishop Museum trustee (Perkins 1895). Although in May and June 1894, Perkins used "Nixie," one of a pair of hunting dogs left in the Islands by Henry Palmer (Perkins 1892-1897), he never acquired a dog of his own.

In England, Scott Wilson had advised him that a tent was unnecessary, but Wilson had worked mainly from the mountain houses of Island families. Perkins quickly decided that serious collecting of both birds and insects would require him to spend long weeks in the highest mountains above these cabins (Perkins 1892-1897) and soon after his arrival in Hawai'i ordered a tent. The weight of the tent added considerably to his pack. Consequently, Perkins frequently carried only the fly, which added 9 pounds to his load (Perkins 1896c).

Perkins' preference for going barefoot in the wet forests was as idiosyncratic as his solitary collecting. In June 1892, on the Kona lava fields, he wore out a pair of "porpoise-leather shooting boots" and began collecting barefoot (Perkins 1892-1897). Although Sharp warned Perkins of the risk of a "serious wound to the foot" (Sharp 1892£), Newton treated the affair lightly:

> Glad we both are to find you writing so cheerfully-even when you are going barefoot. It is well that you mentioned that fact, for if we ask for any more money we shall be able to make our appeal the more touching! But I really suppose that boots of some kind are to be had, if you cared to have them. . . . (Newton 1892g)

Perkins' preference for going barefoot was even more eccentric in light of his usual method of transportation on an island: he walked. And he was fast. In early November 1892, after his return from Kona, Hawai'i, Perkins felt that before doing general collecting on O'ahu, he should survey the island. He did this by walking around the island with a New Zealand journalist (Perkins 1892-1897):

> The walkists are named De Bomford and Perkins. They walked from Honolulu via Koko Head to Waimanalo on Monday Nov. 7th; on Wednesday to Kahuku, and on Thursday back to the city, a good forty miles which was done in 10.5 hours actual walking. This is good work in these degenerate days. (Friend 1892)

Similar accomplishments were recorded on every island. On Kaua'i, in May 1894, Munro, then working on the Gay and Robinson ranch, wrote in his diary:

> Took Perkins up to Kaholumanu *[sic]* [and] he walked the whole way up[,] to the small astonishment of the natives, [as] he had been in the habit of doing so allover the Islands. (Munro 1892-1895)

Horses were acceptable for carrying food and equipment but not for carrying Perkins. On his arrival in Hawai'i, Perkins tried riding horses both on O'ahu and Hawai'i. The experience was not pleasant and Perkins "was so active on his feet and a horse is an impediment in forest work [that] he decided he was better without it" (Munro N.D.b).

To cover what were long distances even for Perkins, interisland steamers and stage coaches were needed. The interisland steamship companies, Wilder Steamship Company and Inter-Island Steam Navigation Company, offered Perkins a reduced fare (Newton 1892d). Neither Sharp nor Newton seems to have appreciated this financial assistance to the Committee. A cabin-class round trip from O'ahu to the island of Hawai'i was $50, ca. £10 ($647.50 at 1985 prices). With a total budget of £300 in the first year, Perkins could not have afforded many such trips at the full fare. Munro gives a vivid picture of the departure of a steamer from Honolulu harbor:

> The Interisland Company's Steamship W.G. Hall advertized time of leaving is 10 a.m. so we are aboard in time. A large crowd of natives are collected to see her off and as usual, there are men haranguing the multitude in the native tongue on religious or other topics. The morning has been very close and hot on account of a few showers of much needed rain, during the night, the perspiration has been just streaming off us wetting all our underclothing. We get away a little after the time and get a little refreshing breeze as we get out of the harbour, and bid Adieu to Oahu for a time. (Munro 1891)

Certainly the interisland trips were not pleasure excursions. Perkins relates a rough night crossing of the W. *G. Hall* from O'ahu to Hawai'i in July 1894:

> The steamer was crowded and I could not get a mattress to lie on, nor even a pillow. The school-children were all returning to the various islands for their summer holidays and practically all of them were very sea sick, lying on mattresses on the deck, so that one could not walk about. (Perkins 1892-1897)

Land transportation was little better than a pitching sea vessel. Of the stage from Pahala to Kilauea, Hawai'i, Perkins did not complain, but wryly noted:

> The drive was too much for my fellow passengers, the rough road over rocky places causing them to bounce up and down like india-rubber balls. They stayed in bed the next day. (Perkins 1892-1897)

Perkins, of course, went out for a full day of collecting.

Bishop Museum lends support

Even as Perkins prepared to leave England in 1892, Alfred Newton, as chairman of the Joint Committee, began his campaign to ensure renewal of the grants from the British Association and Royal Society. His review of Hawaiian ornithology in the March 1892 issue of *Nature* was a straightforward advertisement for the work of the Joint Committee. The article poses questions about the Hawaiian fauna and assures readers that Perkins' work will answer these questions if he "is enabled to prolong his stay for sufficient time; but that depends upon the financial support he may receive" (Newton 1892c). Newton relied on 2 factors in his fund raising strategy: publicity and results. Newton was to produce the publicity and Perkins the results. Newton and Sharp constantly badgered Perkins for information on his plans, observations of the fauna, tidbits that highlighted the increasing degradation of the forests, and, most importantly, specimens. Newton was not above drama to advance the Committee's work. He reported to Perkins that at the 1896 British Association meeting he had "fetched the audience" with Perkins' account of finding a promising collecting site only to discover that "the imported ants had cleared off everything almost. It even stirred Poulton. . . & for a few minutes he became animated on the subject" (Newton 1896e). *Nature, Ibis,* and other suitable journals reported Perkins' progress and movements for more mundane but positive publicity.

Competition for grant funds was keen and all of Newton's skill was used to accomplish renewal. Irregularity of shipping and postal delays made it nearly impossible to arrange the arrival of specimens in England to coincide with the meeting of a Royal Society or British Association grant committee. Of the August 1892 British Association meeting, Newton wrote that he had "squeezed another £100 out of the British Association (we asked for £200 but I did not expect more than half)" (Newton 1892f).

But even with Newton's efforts at fund raising and Perkins' economies in the field, the Committee needed additional and more stable sources of funding. Sharp suggested to Perkins that "the Committee may perhaps be driven to eke out its slender resources by disposing of a few specimens to museums" (Sharp 1893b). Lord Rothschild had indicated his willingness to purchase duplicate specimens (Sharp 1894c). Newton was loath to accept this offer, as his rivalry with Rothschild, whom he often denounced in harshly anti-Semitic terms, had progressed considerably during Perkins' first trip to the Islands. The Committee was also experiencing increasing problems in transmitting funds to Perkins through the convoluted banking systems of the late 19th century. During one delay, Newton apologized to Perkins, saying "I only trust you will not be hard up and have to eat

your boots or do something desperate in the meanwhile" (Newton 1895c).

The Committee began to look upon a partnership with the Bernice P. Bishop Museum as its best hope of stable supplemental funding. The Bishop Museum had been growing during Perkins' first period of fieldwork, 1892-1894. Under Charles R. Bishop, the Trustees, and Curator Brigham, Polynesian Hall was added to the buildings, the library holdings increased, regular public hours were initiated, and many specimens were added to the collections. Bishop had begun to endow the Museum, having previously paid all expenses personally (Hyde 1893).

Bishop had traveled extensively in 1892-1893, but he nonetheless had time for conversations as well as correspondence with Perkins. Bishop expressed respect for Perkins' abilities both as a scientist and a collector, calling him "a wonderfully keen and energetic naturalist" (Bishop 1895b), who was "thorough and enthusiastic in his work" (Bishop 1893b). In June 1893 Bishop decided that it would indeed be to Bishop Museum's advantage to, as Newton colorfully phrased it, "get a share of the spoil" (Newton 1893b). Bishop addressed his initial inquiry asking for entomological specimens for Bishop Museum in a letter to Perkins, who sent the letter on to Newton. Newton wrote Perkins that, while Bishop Museum might receive some expedition specimens, the Joint Committee would be more generous if monetary assistance were given. Also, Bishop's equitable treatment of Palmer and Perkins had irked Newton (Newton 1893c). For instance, Bishop had urged R.W. Meyer, his ranch manager on Moloka'i, to help both collectors to the fullest extent possible (Bishop 1893a). Newton obviously undervalued the assistance Perkins had received as a result of such recommendations to landowners in Hawai'i. Pack animals, guides, use of mountain cabins and tents, permission to shoot and - not to be overlooked - home cooked meals were all provided to Perkins without charge. These privileges and kindnesses were not accorded every applicant. In 1894, for example, professional collector Milton Flood was refused permission to shoot birds on Bernice Pauahi Bishop Estate lands when he failed to produce documentation showing he acted for "some reputable scientific society" (Damon 1894).

Perkins conveyed Newton's message to Bishop, adding a liberal advertisement for the work of the Joint Committee, a warning about how quickly "introduced beasts" were "cleaning out the native ones," and a lament on "how exceedingly difficult it is to raise money for this sort of work" (Perkins 1893a). When Bishop wrote to Perkins asking him to collect solely for the Bishop Museum, Perkins replied that he was obligated to the Joint Committee and that the Museum should cooperate with them (Perkins 1894). Bishop was frustrated by an unbusinesslike approach to the matter, stating that "if the societies in whose employ he [Perkins] is working would allow him to supply our museum, and would state the terms, I would know what to do" (Bishop 1893c).

Bishop and the Trustees soon abandoned hope of getting Perkins' exclusive services or of obtaining his specimens without joining with the Committee. A formal request suggesting cooperation was sent by Bishop to Newton in July 1894 (Newton 1894b) and reiterated by the Trustees in August (Sharp 1894f).

Negotiations continued after Perkins' return to England in 1894. Briefly, the Joint Committee's position was that they were "most seriously hampered for want of funds" to continue the work and if Bishop Museum contributed, then the Joint Committee would "more readily entertain any proposition. . . to share in the disposal of the collections" (Sharp 1895a). Discussions were necessarily protracted when a letter routinely took a month to travel one way between Hawai'i and Britain. So Perkins actually returned to the Islands and began his second expedition before the Bishop Museum became an official partner. On 27 March 1895, the Trustees, acting on Bishop's suggestions and with his assurances of bearing the cost personally, approved a resolution offering to pay 1/3 of

Perkins' expenses of both the first and second tours in return for 1/3 of the specimens collected (BPBM T 1895a).

Bishop, who was then residing in San Francisco, California, countersigned and forwarded the resolution, which reached the Joint Committee in May 1895. Newton and Sharp were pleased, calling the Trustees' offer "both practical and liberal-but at the same time it is clearly an advantage to the Honolulu Museum to acquire such a valuable set of the native fauna as it covers-and this without risk or trouble" (Newton 1895b).

Newton and Sharp noted a problem with Bishop Museum's proposal. The Committee had already promised the first and second sets of specimens to British institutions in recompense for the funding given by the British Association and Royal Society. Since Perkins in his early collecting was not taking specimens to supply 3 institutions, there would not always be 3 specimens of all species of birds, insects, or land snails. These facts were not clearly stated to the Bishop Museum Trustees. Certainly, they understood the third set of specimens was less than 1/3, as Trustee Charles M. Cooke, Sr., proposed that the Museum ask for the fourth as well as the third pick (BPBM T 1895b). Perkins assured the Trustees that the agreement was "both simple and reasonable" and that under the proposal "there is not a single species of bird so far collected, of which at least one and generally several specimens would not come to you" (Perkins 1895). In early August 1895, after discussing the matter with Curator Brigham, the Trustees and C.R. Bishop signed the new agreement calling for them to receive the third set of specimens (BPBM T 1895c). By not joining with the Sandwich Islands Committee in 1891, Bishop had gained a chance to judge the Committee's collector by results but had reduced his bargaining position for a more advantageous division of those results. Sharp stated: "the [Bishop] Museum only comes into the arrangement after the success of the investigation is well assured whereas the committee has had to run the risk of its being a failure" (Sharp 1895c).

The British Association at its September 1895 meeting authorized the partnership and another £100 (BAAS 1895). British grant funds now supported processing and labeling of specimens, procurement and shipping of supplies to Perkins, and other expenses originating in Britain. Bishop Museum's contribution was paid directly to Perkins for his support in the Islands. This arrangement eliminated the small expense and large problem of transferring British funds to Perkins. Funding was no longer a constant source of worry in Newton's and Sharp's letters. They were, Newton said, "on Velvet" (Newton 1895b). Newton assured Perkins that if Perkins would continue the work and the Bishop Museum Trustees would "stump up," the Joint Committee would keep him in the field (Newton 1896c).

Return to fieldwork

With the next round of grants from the British Association and the Royal Society still in question, and Bishop Museum's continued support uncertain, Perkins returned to Honolulu on 24 March 1895 (PCA 1895). Newton and Sharp now offered little advice about places for, and methods of, collecting. Shortly after the resumption of fieldwork, Sharp admitted to Perkins, "I recognize that you now know so much more about what is wanted than I do, that I had better not express an opinion-for fear you might attend to it" (Sharp 1895b).

Throughout April and May 1895 Perkins was once again collecting on the lands of the Gay, Robinson, and Knudsen families on Kaua'i, sometimes in the company of George Munro (Perkins 1892-1897).

June brought an extended stay on the island of Hawai'i, where Perkins worked largely in the Ka'u and Puna districts, with special emphasis on the 'Ola'a and Kilauea areas (Perkins 1895-1901). On his return to O'ahu in September, he was held in a quarantine imposed to curb a cholera epidemic. In October Perkins returned to the lands of Gay and

Robinson once more. Such return trips were, in part, necessitated by the Joint Committee's acquiescence to the request by the BMNH for the first set of specimens taken by Perkins. As the government's chief scientific depository, the BMNH, with heavy representation on the Joint Committee, was not to be denied, considering the strong financial support received from the "Government Grant" (Sharp 1895a). Of course, the addition of Bishop Museum to the sponsors increased the pressure on Perkins to collect multiples of the various birds and insects taken on his 1892-1894 trip.

During December 1895 to January 1896, above 'Amauulu in Hilo on the island of Hawai'i (Perkins 1892-1897), Perkins hoped to obtain specimens of *Hemignathus sagittirostris,* a bird discovered by Palmer (Perkins 1896a). In this dense forest he hired men to cut trails, and Perkins describes their life:

> [We] built a rough house about 20 ft by 10 ft roofing it first with banana leaves and above this with the fly of my tent. The latter was erected separately and the other house was used as a shelter when eating, and sometimes for the purpose of trying to dry our clothes. . . . Owing to the excessively heavy rainstorms, a fire was kept up continually in the open during my stay, great logs, practically dead tree trunks, being supplied to this, so that by removing the upper ones one could always cook rice or boil water for coffee in spite of the rain. (Perkins 1892-1897)

Perkins, successful in obtaining a series of the birds, bragged to both Bishop Museum Trustee C.M. Hyde and Bishop of his triumph over Rothschild's collectors:

> They got 4 specimens & I beat them again with this. I made out its habits & anatomy & found Mr. R. had classified it utterly wrongly. . . . It now goes by the name I gave it of "nuku pololei" [straight-billed]. (Perkins 1896b)

The bird had apparently never attracted the attention of Hawaiian bird catchers and feather gatherers and was unknown to those accompanying Perkins in 1895 (Perkins 1896b).

In the forests near Kaiimana, Hilo, Perkins again encountered mongooses in great numbers. Alfred Newton vented his rage on these creatures, who never missed a chance to dine on birds or their eggs:

> I have gnashed my teeth at what you write of Mongeese, and am ready to consign them to the place of torment that no doubt awaits the German Emperor and President Cleveland to say nothing of other officials- Yet I am sure you will give me credit for being a kind-hearted Christian. (Newton 1896a)

Perkins spent March, April, and May 1896 on Hawai'i and Maui Scott B. Wilson was again visiting Hawai'i, and Newton hoped that Wilson would help Perkins with the bird collecting. Wilson, however, seemed uninterested in the rigors of collecting and did little while in the Islands. Newton despaired of any ornithological work being done by him:

> Nothing more have I heard of or from Wilson. . . . If he took up a photographic craze & left his dog behind, not much could be expected from him. . . . (Newton 1896d)

Collecting in the West Maui Mountains with Brother Matthias was a more rewarding collaboration. During this second trip Perkins often worked with Albert Koebele, then employed by the Republic of Hawai'i to control agricultural pests. Perkins and Koebele had

made insects newsworthy. Perkins' success was reported by Honolulu's daily press: "R.C.L. Perkins, the naturalist, has been spending a few days on Kauai finding 'bugs' of interest where other people supposed there was nothing" (PCA 1896a). Even a canceled trip made copy: "It was the intention of naturalist R.C.L. Perkins to leave on the W.G. Hall yesterday morning, but on account of indisposition he was forced to put off his tramp after his ever present friends the birds and beasts" (PCA 1896b). Koebele's battle with the coffee pests was front page news, and when the 2 men worked together it was reported: "Prof. Koebele & R.C.L. Perkins, the 'buggists,' are doing Maui" (PCA 1896d).

Perkins succeeded in fulfilling his secret desire to experience an earthquake during a September 1896 trip. Headlined "This Was No 'Night Mare' *[sic];* How They Took It," the *Pacific Commercial Advertiser* interviewed Perkins and other passengers returning to O'ahu about their experiences:

> R.C.L. Perkins, the naturalist, was visiting T.]. Higgins in Olaa when the quake came, and was particularly delighted at being present. Mr. Perkins has been gathering birds and bugs and incidentally waiting for an earthquake on the island for the past four years, and having secured every species of bird, has devoted his time and energies lately to locating earthquakes. In a conversation with a reporter for this paper after the arrival of the Kinau yesterday Mr. Perkins said: "I was awakened the moment the shock began; my lamp was in danger of falling from the dresser, so I got up and placed it on the floor and then sat down alongside of it, merely to experience the thing in its fullest force, and I was quite successful. I was very sorry when it was over, but I hope when I am on Maui next week to have another try at it as it comes back. I would not have missed it for anything, I can assure you." (PCA 1896c)

January 1897 brought a generally unprofitable, abbreviated trip to the Lahaina area. A trip to Kaua'i in February proved more rewarding, but perhaps a bit too exciting:

> I took no tent with me on this occasion but Mr. Francis Gay had one fixed up at about 2000 ft. in the mountains in the Makaweli district. . . . There were very high winds at this time, and one night in a gale of wind and torrents of rain accompanied by thunder and lightning my tent crashed down on me and in the dark I managed to make my way down to a small shack which I had noticed at a lower elevation. This was in the region of ants and I had great trouble in keeping myself free from the swarms of Pheidole when lying on the floor at night and my food at all times. (Perkins 1892-1897)

Work on O'ahu during this second expedition consisted of short work periods between trips to the other islands. One such field trip in early March 1897 concluded what Perkins anticipated were his last 2 years in Hawai'i (Perkins 1892-1897). He departed Honolulu 9 March on board the steamer *Peru* bound for San Francisco (PCA 1897). In San Francisco Perkins had several talks with Bishop before returning to England, where he arrived in May (Perkins i897a).

Between May 1897 and mid-1899 Perkins supervised the preparation of the insect collections, helped Sharp distribute specimens to specialists for study, and studied material in his own specialty, Hymenoptera. During this time he reflected on what future he might shape for himself. He considered joining an expedition to New Guinea (Perkins 1897b), or the massive project Biologia Centrali-Americana, run by Joint Committee members Godman and Salvin (Perkins 1898d). He most seriously considered collecting Hawaiian insects solely for sale in the collectors' market. He would not think of shooting birds for

profit; they were already too rare (Perkins 1898a). Perkins, however, obviously disliked the thought of becoming a professional collector out of financial need. E.B. Poulton, his old Oxford professor, encouraged him not to be repulsed by the thought, suggesting Wallace, Bates, and Belt as models (Poulton 1897).

During this period of indecision, Perkins was considered as a candidate for director of Bishop Museum. In October 1897, in a disagreement with the Trustees over what Bishop called Brigham's "unruly tongue" (Bishop 1897e), Brigham resigned, not for the first time. Regardless of hopes for an accommodation, Bishop and the Trustees conducted an extensive search for a replacement, consulting such respected scientists as David Starr Jordan of Stanford and Alexander Agassiz of Harvard. Jordan's suggestion of zoologist Leonhard Stejneger was thoughtfully discussed. Both Munro and Sharp suggested Perkins, who refused to consider the position, saying that Brigham "would go back as soon as he had sufficiently annoyed the Trustees and made them properly humble!" (Perkins 1898b). In the end, Perkins was right. Agassiz "spoke favorably of Brigham's work and advised the trustees to hold on to him" (Bishop 1898b). In February 1898, Brigham and the Trustees were indeed reconciled and Brigham rehired, now with the title "Director" (BPBM T 1898b).

Concurrent with a discussion of how to staff the Museum, Bishop and Holmes corresponded about continuing the collection and study of Hawaiian natural history materials. When Perkins left the Islands in 1897, Trustee Holmes wrote Bishop that it was imperative to continue collecting the diminishing insect fauna "which through Perkins' labors is likely to be as interesting and important as Darwin believed it would be" (Holmes 1897a). Bishop agreed, and his 1897-1898 letters often include a reminder to the Trustees: "Is it not quite important to get a man soon who can carry out the work so well begun by Perkins?" (Bishop 1898a).

In early 1899, while the Bishop Museum still searched for a collector, the Sandwich Islands Committee began to consider sending Perkins to Hawai'i to investigate questions of insect distribution and local variation, particularly on O'ahu. In soliciting Bishop Museum's participation, Sharp noted that as the Museum was to receive the third set of specimens collected, it was to its advantage to support this trip. The specimens collected would be combined with those collected on the first and second trips (Sharp 1899). Therefore, if Perkins collected 6 specimens of a species, 1 each on the first and second trips and 4 on the third trip, Bishop Museum would receive 2 of the 4 collected on the third trip, or 50%. A comparison of the collecting dates on specimens in the Bishop Museum and BMNH collections, based on data extracted by Bishop Museum staff Dr. Wayne Gagne and Hans Megens (see Appendix 4), indicates that this method of distributing the specimens was in fact used, and Bishop Museum has more third-expedition specimens than the BMNH, the depository for the first set of specimens.

In March 1899 the Bishop Museum Trustees again voted to bear V3 of Perkins' expenses (BPBM T 1899b), and the Joint Committee asked the British societies for matching support. Both the BAAS (1900) and the Royal Society of London agreed (Royal Soc. 1901), offering a total of £300. On May 30, 1900, after an outbreak of bubonic plague in Honolulu necessitated a delay of some months, Perkins was again in the Hawaiian press:

> Eminent Naturalist Again in Town
>
> Prof. R.C.L. Perkins, the naturalist, returned to Honolulu today after an absence of several years in England. . . . "As before, I am sent out by the societies at home to gather specimens and mount them. It is my intention to be in Honolulu quite a long time and in the Islands about one year. My stay may be even longer than that, for the work before me is quite extensive". . . . He went on to say that he would not on this visit have anything to do with birds.

> His intention is to gather as complete a line of butterflies and insects as may be found in the Islands. One of the first calls made by the naturalist this morning was upon Professor Koebele, the local entomologist. The latter opened up his collection of butterflies, and the two men busied with them for a long time. Some of the specimens were new, and were only located by means of what may be called a "bugicon" or dictionary of flies and bugs. Professor Perkins is stopping at the Arlington. . . . It may be added that he is one of the most famous men in his line in the world. (Hawn. Star 1900)

Perkins' third field trip ran until early December 1901 (see Appendix 4 for details). With the exception of a few short trips to Maui and Hawai'i, he was almost constantly at work on O'ahu. As Perkins worked exclusively on entomology, no bird collecting was done until mid-November 1901, despite proddings from Newton (Perkins 1901c).

During Perkins' absence the Islands had been annexed by the United States and accorded territory status. Perkins' reports of the expansion of both plantation and city under stimulus of American capital depressed Newton:

> It is sad to hear a repetition of the old story-the extinction of the original fauna by the introduced exotic species, but there is a crumb of comfort in the fact of an Himatione having learnt to eat scale-bugs, for that may be the saving of it for a time at least. . . . I am glad the new railway saves you some troublesome traveling, but I imagine it can't fail to work still greater mischief in desolating the country. (Newton 1900)

In 1901 the Joint Committee's failure to receive renewal of the British grants coincided with Perkins' October marriage to Zoe Atkinson, daughter of Honolulu educator and editor-writer, A.T. Atkinson. The 2 events ended 6 years of active fieldwork under the direction of the Joint Committee. Perkins was weary of the hard, wet work in the high forests, declaring that "my collecting days are done, & I am not sorry for this" (Perkins 190ta). Of course, Perkins' collecting days were not "done," as he went on to organize and administer the Entomology Division at the Hawaiian Sugar Planters' Association's (HSPA) Experiment Station, searching out predators of sugarcane pests in many Pacific areas. He retired in ill health to England in 1909, where he was for many years retained by HSPA as a consultant (Fullaway 1956).

A share of the spoil and more

Perkins' 6 years in the field were supported by £1,400 from the Royal Society, £1,034 from Bishop Museum, and £500 from the BAAS, a total of £2,934, or $14,670 ($189,976.50 in 1985). Additionally, Bishop Museum paid approximately $200 in shipping, customs fees, and crates to have its specimens shipped back to Hawai'i (BPBM 1896-1908; 1899-1902; 1908-1916).

The Museum's agreement with the Joint Committee was to pay 1/3 of Perkins' expenses and, in fact, it paid just over *V3.* In return, the Bishop Museum received the third set of specimens. Throughout negotiations with the Joint Committee and later during the period of active cooperation, C.R. Bishop was concerned about getting equitable treatment:

> Considering what the Museum is likely to receive and has received, it seems to me that we have a rather one-sided agreement with the English Societies-I hope that it may turn out that I am mistaken in this opinion. (Bishop 1897£)

Trustee Henry Holmes answered Bishop's worries over the division of Perkins' collections:

> I do not think that the Museum will have much to complain of what it will get of the collections made by that gentleman. Are you giving the societies in England sufficient credit for the large amount of work that they are expending upon these collections? They[,] too, have put up two-thirds of the actual expenditure for collecting, and are doing all the work in connection with the care and distribution of the specimens and in providing, and interesting, scientists to work them out. (Holmes 1897d)

Alfred Newton was also concerned about the division of Perkins' specimens, especially the birds. The BMNH was strongly represented on the Joint Committee, and Newton and Sharp of the Museum of Zoology, the Committee's hardest workers, watched as the cream of Perkins' effort was carried off to London. The first division of Perkins' birds brought the BMNH 175 specimens, including 26 species new to the collection (Sharpe 1906). Newton complained that R.B. Sharpe, BMNH bird curator, "went back rejoicing. . . . All this without their having taken any trouble in the matter" (Newton 1895d). Newton's Museum of Zoology netted 147 bird specimens (Cambridge 1896). In the same division, Bishop Museum received only 88 specimens (BPBM 1896), and Perkins was intensely dissatisfied. In sympathy with Perkins' complaints about Bishop Museum's allotment, Sharp confided:

> Entre nous: I was very vexed to find the set selected for the H[onolulu] Museum was so small; and I at once stated to some of the Committee that in any future division of specimens there must be a person appointed to specially represent the H. Museum. If you think this will do please let me know. The H. Mus. has not made any statement to me, but should it do so, I shall of course lay it before the Committee. (Sharp 1895d)

Perkins suggested that he be empowered to give the Bishop Museum its specimens directly, but both Newton and Sharp advised him that the Joint Committee would never sanction the idea. Newton suggested that Perkins mark specimens he recommended for return to Bishop Museum, and Newton would try to arrange such a division. "I quite see the necessity of keeping these good people satisfied and so I hope they will be in the end," Newton remarked (Newton 1895£). By mutual agreement Perkins represented Bishop Museum at future divisions of the "spoil" (BPBM T 1897a). With Perkins attending the 1897 division of birds, the BMNH received 81 bird specimens (Sharpe 1906), the Museum of Zoology 87 (Cambridge 1898), and Bishop Museum 97 specimens (BPBM 1897). The division of the largely unknown insect fauna was protracted (1898-1913), being contingent upon Sharp and Perkins finding specialists willing to identify and describe them.

Bishop Museum gained more than "spoil" from its association with the Joint Committee and Perkins. Charles R. Bishop and the Trustees gained access to the opinions and advice of Newton, Sharp, and Perkins during a period of learning, expansion, and direction-setting for the Bishop Museum. Bishop's original plan envisioned a small museum housing the collections of Mrs. Bishop and other royalty, with the addition of birds, shells, and ferns he had acquired especially for the purpose. Bishop wanted his memorial to bring honor to his wife and he was not too proud to ask for-and accept-advice. Curator Brigham was a frequent and important source of advice. Three Bishop Museum Trustees took a particularly active interest in the Museum's future: Rev. Charles M. Hyde, secretary of the trustees, who had scholarly experience and whose letters glow with enthusiasm for the Museum's work; Sanford B. Dole, many years trustee president and a

noted amateur ornithologist; and Henry Holmes, a financial supporter whose "anonymous friend" often purchased needed collections and who freely expressed his opinion of proper work for the Museum. Into this babel of advice came the voices of Newton, Sharp, and Perkins.

Newton's opinion was solicited before investing in costly ornithology books (Hyde 1899). Sharp and Hyde, the secretaries, developed in their correspondence a mutual respect that helped seal the 2 organizations in their agreement.

Perkins offered subdued advice and taught without appearing to demand or insist, though his letters might discourse on the care of entomology collections (Perkins 1898c) or the need for field study of the habits and life cycle of land snails. Perkins managed to say that the Bishop Museum's decision not to lend its land snails to E.R. Sykes for study and revision with the material collected by Perkins had been a mistake-without making Bishop or other trustees feel defensive (Bishop 1897c).

Bishop's museum plan evolved as he learned from those whose opinions he respected. He demonstrated this ability to expand his vision of Bishop Museum's work in his changing attitude toward the study of entomology. Although in 1893 Bishop made inquiries about acquiring a share of Perkins' insect collections for the Museum (Perkins 1892-1897), he admitted that he was "more anxious to fill out our collection of birds than I am of insects" (Bishop 1895a). Perkins frequently indicated the scientific importance of the insect fauna, its rapid extermination, and the potential for entomology at Bishop Museum:

> I expect it will be the insect department of your museum which will eventually give it most renown with outside countries because of the much greater field afforded by them. Birds like antiquities &c can hardly be much increased after a short time while an insect fauna is always yielding new things. For this reason I should never advise the purchase of foreign birds or insects, because sooner or later some one will have to look after this department & it will always be easy to get specimens of birds and insects from any country in return for Hawaiian insects, or indeed for the native birds, except the commonest kinds. In any case a large collection from anyone country is not what you want as it seems to me but rather typical specimens from outside countries and as perfect a collection as possible of Hawaiian species. . . . (Perkins 1896b)

Bishop's ideas had so changed that in 1898 he wrote Jordan at Stanford University that the "first work" of Bishop Museum was to continue Perkins' entomological collecting (Bishop 1898b). Bishop's attitude toward publishing scientific studies was to undergo a similar metamorphosis.

Publication: Fauna *Hawaiiensis*

With the close of fieldwork in 1901, the Joint Committee in 12 years had fulfilled the first part of its charge- "to send a naturalist to the islands to explore their natural history as thoroughly as may be found possible" (Sharp 1890). The second half of its responsibility - to arrange for the collections obtained in the islands "to be examined and reported on by competent authorities"-took 16 years (Sharp 1890).

To complete the work of the Joint Committee it was necessary to disseminate the information obtained. As Newton said, "the primary object of the Committee is the investigation of the Zoology of the Islands in general & not the aggrandizement of this that or the other Museum in particular" (Newton 1895e). By prior agreement the ornithology specimens were used in the completion of Wilson's *Aves Hawaiienses* before being distributed to depositories. The problem of locating specialists to work on the remaining,

largely entomological fauna fell to Sharp, and he began to think about the solutions in 1892, soon after Perkins reached Hawai'i. The Hymenoptera he reserved for Perkins, but other groups were almost immediately sent to specialists (Sharp 1892e). Sharp discouraged publications based solely on the early collections, because decision-making based on small collections "leads one into all sorts of muddles about genera" (Sharp 1892i). Sharp hoped funding would allow publication of the specialists' reports in a separate book (Sharp 1894c). Initially, neither Sharp nor Perkins worried about other investigators "anticipating" them (Sharp 1894e). Still, some preliminary reports were made: Brunner van Wattenwyl described Orthoptera in 1895, Beddard some earthworms in 1896, and Collinge and Sykes slugs and snails in 1897. Eventually, the Committee's comfortable edge over other workers having eroded, Sharp capitulated and wrote a paper on beetles. "If only to secure the recognition to you," he told Perkins (Sharp 1896b).

Perkins had successfully excited Bishop about the collecting of the Hawaiian fauna to the point of Bishop's urging the Museum's Trustees to cooperate with the Joint Committee. Now, in late 1896, Sharp hoped to enthuse Bishop about publishing the results of that work in the descriptive volumes be envisioned:

> I am afraid we shall have great difficulty in getting the large amounts of descriptive and observational matter published owing to their extent. The Birds and Shells have, it is true, been in large part done, but 1 am afraid that the remaining groups to be properly published and illustrated will cost something like £2000. . . . You have been so very good to Zoology that it has occurred to me you might possibly be inclined to help us in the matter of publication. (I am writing privately, not on behalf of the Committee, the subject not having yet come before them in any way.) 1 should think the Committee ought to take the view that if so, and you wished it, the Volumes might avowedly appear under the auspices of the B.P. Bishop Museum. . . . 1 fear there will be no course open to us except to have the results scattered in a score or more of papers in the Transactions of various Societies in different parts of the World. 1 am sure you will forgive me for my suggestion which 1 am well aware is a rude one; and 1 know also that the more liberal people are, the more claims are made on them. Please therefore, if you so prefer, take no notice whatever of this second part of my letter. (Sharp 1896d)

Bishop, constantly beleaguered by requests for financial assistance, complained that "it is quite easy to suggest these large contributions, but not so convenient to meet them" (Bishop 1897d). Nevertheless, Bishop forwarded Sharp's request to the Museum Trustees, where it joined a debate begun in 1893 when Brigham had first advised publishing the results of his research (Brigham 1893). The Trustees took no action then, as other projects claimed limited funds; however, Brigham renewed his request periodically. Bishop did not begin the debate over publishing entirely opposed to the idea. He had considered limited publishing as early as 1895 and included publishing as a proper activity for Bishop Museum in the 1896 Deed of Trust. Yet Bishop remained concerned about cost, and throughout most of 1897 counseled the Trustees against any "considerable printing" (Bishop 1897b).

The campaigns of Brigham and Sharp to have Bishop Museum sponsor scholarly publications gained strong allies in 1897, namely C.M. Hyde and Henry Holmes. In a letter to Curator Brigham, Bishop urged caution while acknowledging Hyde's advocacy of publishing:

> You say "Dr. Hyde assured me that you (I) desired the Museum to have scientific serial publications, both as a means of spreading a knowledge of our treasures and as serving as a basis of exchange with the various

> Museums and scientific societies whose publications we greatly need." I think that the Doctor must have, in his enthusiasm, given a more liberal interpretation to what I may have said than I had in mind. No doubt it should be our aim, within the limits which have been marked out for the Museum, to make it interesting to scientists and a value to science, and not merely a show-place, and the Trustees will from time to time consider what should be and what can be done in that direction. (Bishop 1897a)

Holmes campaigned vigorously to persuade Bishop that descriptive, scientific publishing was the proper work of Bishop Museum.

> . . . is it not the business of the Museum to publish within its means whatever contributions to knowledge may be made by its staff? To disseminate knowledge is equally as important as to discover it, and if the Museum is going to be recognized by the Scientific Institutions of the World it will be through its publications as much as through the contents of its buildings. . . . Surely you will allow, that the publication of works descriptive of the fauna of the Hawaiian Islands is very properly the work of the Hawaiian Museum. I hope I am not guilty of heresy in thinking it will be better to postpone building the Annex [Hawaiian Hall] even for a year so that more funds might be available for doing this truly Hawaiian work *[Fauna Hawaiiensis].* Will it be wise to have spent $5,000 in collecting Hawaiian fauna and not spend a dollar to publish descriptions of and the results of the investigation of such fauna? . . . Is the credit of this work to go to others? If there is any work that properly belongs to the Museum it is this, which is so valuable and important that I would consent to all other work standing still until this is done. (Holmes 1897b)

Holmes reassured Bishop that the Trustees would bear the costs within the existing endowment and fully understand the costs before committing themselves (Holmes 1897b). Holmes stressed that, "if we fail to take any part in this work *[Fauna Hawaiiensis],* I fear the Museum will share very little in the credit attached to this very important matter" (Holmes 1897d). Bishop was slowly won over and by December 1897 allowed that, providing the British societies gave Bishop Museum credit for their contribution, he would favor publishing the results of Perkins' and Brigham's work over building new exhibition space (Bishop 1897g).

In May 1897, with Bishop still undecided, the Trustees opened negotiations with the Joint Committee on sponsoring the volumes Sharp had first contemplated in 1892. They suggested that the work be placed in either of the Museum's planned series, the *Memoirs* or *Occasional Papers* (BPBM T 1897b). As with the negotiations over sponsorship of Perkins' fieldwork, the distance between Hawai'i and England meant a protracted exchange of letters.

Midway in the discussion, Brigham's resignation complicated matters, as Hyde explained to Sharp:

> Brigham severed his connection with the Museum Oct. 2, 1897. No one has been appointed to succeed him. I was absent in Japan at the time and since my return I have had all that I could do in pushing forward the business of the various trusts, that had been deferred awaiting my return. You will see that without a Curator, Director or Editor, it would be very difficult for the Trustees to assume any direct responsibility for the publication of the results of Mr. Perkins'

> investigations. Is it not possible for the Trustees of the B.P. Bishop Museum to assist pecuniarily in the expense of publication receiving due credit for the same without bearing the whole burden? We are planning to build an Annex, and our available funds must go largely for that. We might spare some definite amount from our annual income, if not out of proportion to other usual expenditures. (Hyde 1898)

When Brigham rejoined the Museum in February 1898, there was no suggestion or discussion by either Bishop Museum or the Joint Committee of returning publication to Bishop Museum. Instead, they continued to discuss a mechanism by which Bishop Museum could contribute financially to the publishing and match the resulting publication to its planned *Memoirs.*

Based on discarded proof pages (which Hyde had "hunted up in the wastepaper basket") showing the format of the Museum's publications, the Joint Committee settled on the quarto size and print style of the *Memoirs* (BPBM T 1898a). In May 1898, the Bishop Museum Trustees agreed to pay up to £500 as 1/2 the cost of "publishing the history and results of the exploration of the Fauna of the Hawaiian Islands" (BPBM T 1898c). Bishop deemed the Trustees' decision "wise" (Bishop 1898d). The Royal Society's publication fund stood ready to add the matching £500, "provided the Government Grant Review Committee are satisfied with the allocation of the specimens collected by the Committee" (Foster 1898). Having obtained the necessary funds, Sharp now added the considerable duties of editor of *Fauna Hawaiiensis* to his other labors for the Joint Committee.

Authors and other headaches

As editor, David Sharp had a number of responsibilities: to find competent specialists who would agree to work out collections, urge them to follow through and complete the work, try to satisfy author demands for descriptive plates while ensuring that available funding covered the entire project, deal with printers and proof copy, arrange distribution of the completed parts, and explain to still another inquiring subscriber that, no, *Fauna Hawaiiensis* was not completed yet. Like a master juggler, Sharp satisfied his audience and in the end it was said that "the 'Fauna' . . . throughout has the high standard usually associated with the name of Sharp" (Gardiner 1913).

Sharp's editorial problems began immediately. The Bishop Museum Trustees objected to the use of "Sandwich Isles" in the proposed title "Fauna Hawaiiensis or the Zoology of the Sandwich Isles," returning the Committee's proof sheet with "Hawaiian Islands" substituted (BPBM T 1898d). Sharp explained that since the group was known as the Sandwich Islands Committee "we shall have to leave the words 'Sandwich Islands' on it in some form" (Sharp 1899). The addition of "Hawaiian" in parentheses after "Sandwich" in the final title appears to be Sharp's compromise. The Bishop Museum Trustees did not carry out Hyde's suggestion of printing an alternate title page for substitution in Honolulu (BPBM T 1899a).

With funding assured, publication of available manuscripts commenced quickly, and parts of both Volumes 1 and 2 were published in 1899. After 1900 publication slowed down. Parts were issued sporadically between 1901 and 1910, when Volumes 2 and 3 were finally finished. Volume 1, however, lingered unfinished until 1913, when Perkins finally completed the "Introduction" as Part 6. (See Appendix 3 for details.)

In seeking authors, editor Sharp, himself a respected coleopterist, drew on his many contacts in British and European scientific circles. Even so, Sharp experienced difficulty in getting zoologists to undertake the "working out" of Perkins' specimens. The very unique-

ness and diversity that had driven the Joint Committee to pursue the collection of the Hawaiian fauna caused some scientists to shy away from describing the specimens. After the International Congress of Zoologists met at Cambridge in 1898, Perkins wrote Hyde to say, "Many of the big Continental entomologists came & looked through my collection but we could not persuade any of them to help in working it out. It was 'magnifique mais tres difficile' & they would have none of it!" (Perkins 1898d). Lepidopterist Meyrick remarked that working with Hawaiian insects was "as if we were doing those of another planet" (Sharp 1896c). Finding authors for the Coleoptera sections was so difficult that Sharp eventually filled the gap himself, doing more of this descriptive work than he would have preferred (Sharp 1904). Authors who completed a description of first-expedition specimens often declined to do a supplement based on material from the second and third trips. Others failed to finish jobs they had begun. Paramount among these might-havebeen authors was Robert McLachlan, an Odonata specialist who kept the dragonflies for 4 years before returning them unworked (Perkins 1898d). Many of those who agreed to work out collections and actually stuck with the job needed a good bit of editor Sharp's prodding. "As soon as possible" was a constant request in Sharp's letters to authors.

The authors of *Fauna Hawaiiensis* (see Appendix 2) reflect a changing time in science. Most of the older authors were amateurs-clergy, doctors, the wealthy. Amateurs predominated in botany and zoology at a time when such studies were acceptable as hobbies but not as careers. The younger authors, in contrast, held university degrees in zoology rather than the classics. They represented a new era of trained professionals attached to museums, universities, or economic entomology centers. Amateur and professional alike, the authors had a strong interest in evolution. They were predominately British and all, with one exception, were male.

Although Sharp chose and encouraged authors and edited and organized the volumes, the scientific quality and the usefulness of *Fauna Hawaiiensis* are due to the work of the authors, some of whom brought special talents or perspectives to the job.

Vernon Kellogg and Bertha Chapman coauthored an article on Hawaiian Mallophaga, which appears in *Fauna Hawaiiensis.* Kellogg, known for his work in popularizing biology, had a strong interest in evolution, particularly the evolutionary importance of biting lice (McClung 1939). Chapman studied under Kellogg at Stanford University, where they collaborated on other works; she is the only female contributor to the *Fauna.* Their article in *Fauna Hawaiiensis* presents a puzzle. Originally published in the *Journal of the New York Entomological Society* (Kellogg & Chapman 1902), then reprinted in the *Fauna* (1904), the article does not treat material collected by Perkins or any of his known associates. A possible solution to the puzzle is presented by E.C. Zimmerman's statement in *Insects of Hawaii* that the Mallophaga specimens collected by Perkins disappeared before they could be studied (Zimmerman 1948: 72). Sharp apparently used the Kellogg-Chapman article to fill the gap caused by the lost specimens.

George Kirkaldy was one of the first entomologists hired by Perkins in 1903 for the professional staff of the Entomology Division of the Hawaiian Sugar Planters' Association's (HSPA) Experiment Station. Kirkaldy, asked to describe the Hemiptera for the *Fauna,* became one of Sharp's biggest frustrations and received many "as soon as possible" letters. Sharp spent 5 years seeking return of the described specimens before abandoning all hope (Sharp 1909). Biographers frankly described Kirkaldy as "fond of controversy" (Perkins 1910), noting that he was led into many errors "by his love of revolution" (Sharp 1910). His inflexible adherence to the rule of priority in nomenclature was the source of "polemics with coworkers" (Terry 1910).

Edward Meyrick was a well-known specialist in Pacific microlepidoptera, yet he was chosen to describe the macrolepidoptera of the *Fauna.* He was criticized for ignoring moth

genitalia and immature stages when naming species. To reconcile his theories on the origin and distribution of Pacific insects with the species he described, Meyrick created a South Pacific archipelago, Palaeonesia, which he contended had sunk 3,658 m (12,000 ft) below the ocean (Busck 1938).

Perkins wrote or coauthored 9 parts of *Fauna Hawaiiensis,* ca. 1/2 of the total work. Two of those parts, "Introduction" and "Vertebrata," are of exceptional usefulness to zoologists now interested in the Hawaiian fauna. The "Introduction" condenses Perkins' observations during his many years of Hawai'i fieldwork. His poor health delayed publication of both sections. The years of wet, cold work in Hawaiian forests and later exploratory work for the sugar planters combined with dengue fever, malaria, appendicitis, an ossified cysticercus on his liver, and other maladies to make Perkins' later years ones of constant illness. Sharp sent many encouraging letters urging Perkins to finish these 2 parts. Although Perkins discusses the birds in both the "Introduction" and "Vertebrata," there are no systematic descriptions of avian species in *Fauna Hawaiiensis.* Perkins gives 2 explanations for this decision. To William Alanson Bryan, Bishop Museum curator of ornithology and author of a 1915 book on the natural history of Hawai'i, Perkins stated that the "Vertebrata" would complement Bryan's work, as descriptions and synonymy had been "done to death already" (Perkins 1902). To George Munro, longtime friend and correspondent, Perkins stated that his lack of access to study skins prevented him from dealing with the "specific characters of the Drepanids" and that "my work on the birds [was] incomplete and unsatisfactory to myself" (Perkins 1945). Actually, the birds Perkins collected were systematically described by Scott Wilson, with considerable assistance from Newton, in *Aves Hawaiienses.* In addition to quoting Perkins' 1893 and 1895 *Ibis* articles, Wilson constantly cites Perkins' field observations. "Mr. Perkins says," "Mr. Perkins observed," or "Mr. Perkins states" appear in many *Aves Hawaiienses* descriptions. Wilson also figured and described *Drepanis funerea,* the only new bird species found by Perkins.

Lord Walsingham was an amateur lepidopterist, educated at Eton and Trinity Colleges, and a trustee of the British Museum. Like Meyrick, he was a controversial figure. His quick descriptions of new species were often based on questionable characteristics (Durrant 1920). Sharp found him an irregular correspondent, and Walsingham took 12 years to produce his microlepidoptera contribution. Meyrick, who would have liked to step in, chafed at Walsingham's slowness. When the manuscript arrived it included a request for illustrative plates costing £412. "Imagine my dismay," Sharp moaned (Sharp 1901). Eventually Walsingham donated £100 to defray the cost of the plates (Sharp 1902b). Sharp, a coleopterist through and through, in a rare verbalizing of his frustrations as editor, described the microlepidoptera section as "big, costly, pretentious, and uninteresting except to 3 or 4 people" (Sharp 1906).

In addition to the authors of record, others were involved in the preparation of *Fauna Hawaiiensis.* For instance, plates for the book were done by various artists and lithographers, including M. Anne Sharp. David Sharp said of his daughter: "[She] is getting really skillful & works for almost nothing while living with me" (Sharp 1905).

"The Fauna" continued

Despite Sharp's economies of employing his daughter "for almost nothing," in 1902 the Fauna faced a financial crisis. The £1,000 contributed by the Royal Society and Bishop Museum had been spent, and Sharp admitted that "if the Honolulu people will not contribute more, I shall have to close the *Fauna* and publish the rest as separate papers in Scientific Societies Transactions" (Sharp 1901). Quite diplomatically Sharp wrote the Bishop Museum Trustees that the Joint Committee had now published "about the amount we anticipated we should be able to give you for your subscription of £500" and asked for another £500 plus £200 to pay for "working out the collection" (Sharp 1902a). This the

Trustees authorized in April 1902 (BPBM T 1902b). The Joint Committee was only able to match the Bishop Museum's £700 with a Royal Society grant of £200 for preparation and study of specimens (Royal Soc. 1904). Excluding specimen preparation, *Fauna Hawaiiensis* cost £1,600, or $8,000 ($103,600 in 1985). Bishop Museum carried the major portion, £1,000, the Royal Society gave £500, and Lord Walsingham £100. In addition to specimen handling, Bishop Museum had additional costs of $760, principally for crates, shipping, and reshipping the books to subscribers and library exchange partners (BPBM 1896-1908; 1899-1902; 1908-1916). In October 1901 the relatively new Territorial bureaucracy created a new financial problem for Bishop Museum. Under U.S. federal laws, books printed abroad could not be imported for sale without payment of a duty. When part 3 of Volume 1 of *Fauna Hawaiiensis* arrived, Customs demanded a sizeable duty. After a futile attempt to have the rule waived, the Trustees were forced to declare *Fauna Hawaiiensis* "not for sale" to avoid duty on the remaining 10 parts (BPBM T 1902a). Of course this ended any hope of recovering even part of the printing costs by sales of the book.

The "Introduction" and "Preface" with an "Index" were the last parts of the *Fauna* to be printed. Sharp again harnessed his daughter, who compiled the "Index" (Sharp 1912). At Sharp's suggestion, plates of key Joint Committee members and Charles Reed Bishop were included. Perkins, who successfully avoided being photographed until late in his life, declined to be included. One can imagine Sharp as he perused the finished Volume 1, Part 6, ready to heave a sigh of relief at finally being rid of the "FH." With horror he read the caption of Plate 1: "Likeness of the Honorable Charles *Robert* Bishop aet. 88, Founder of the Bernice P. Bishop Museum at Honolulu, and to whom the Fauna Hawaiiensis is dedicated." Bishop Museum's copies had already been shipped and Sharp was forced to write the Museum Trustees and beg them to reprint the caption, correcting Bishop's name, and tip in the new page before distributing their exchanges (Sharp 1913b).

Because the Joint Committee was a temporary body, it was necessary to dispose of the remaining volumes of *Fauna Hawaiiensis.* The surplus books were wholesaled to a London book dealer and the proceeds added to the Committee's treasury (Brigham 1912). Now the Joint Committee had an odd problem-what to do with surplus funds! The Committee eventually turned over the entire sum, £176.16.3, to the Bishop Museum, recommending that £50 be given to Perkins in recognition of his service to the project (Hickson 1914). The Museum Trustees, led by Henry Holmes, expanded on the idea:

> Mr. Holmes said that while in San Francisco recently [1914] he had spoken about this to the Honorable Charles R. Bishop and that the latter had expressed the opinion that Mr. Perkins had been but poorly paid for his services and that the whole of the refund should be turned over to him; and Mr. Holmes believed that if this were done it would be very gratifying to Mr. Bishop. . . . (BPBM T 1914)

On a unanimous vote the Trustees agreed to send Perkins the entire sum. Upon receipt of the Trustees' check, Perkins immediately wrote in return:

> I have duly received draft no. 2881, (Bishop & Co.) for £176.16.3 & herewith express my sincere thanks for the great liberality with which I have been treated by the Trustees in this matter. It is, further, very pleasing to me to think that my work on the Fauna has been appreciated by those who were so largely responsible for the assistance which rendered it possible. (Perkins 1914)

In retrospect: nothing better

At the close of the Joint *Committee-Fauna Hawaiiensis* project, Bishop Museum had expended $12,130 ($157,083.50 in 1985). From the establishment of the British Association's committee in 1890 to the issuing of the last part of *Fauna Hawaiiensis* in 1913, Newton, Sharp, and Perkins had devoted 23 years of often frustrating effort. Perkins called the project "the big work of my life" (Perkins 1901b). Trustee Holmes, more than satisfied with *Fauna Hawaiiensis,* felt "that nothing better had ever been done by this Museum than that of contributing towards its costs" (BPBM T 1914). Bishop, who worried that the Museum might not get a fair return for its money and that scientific publishing was too expensive, was gratified by the results of the investment:

> Mr. Holmes mentioned that when in San Francisco recently [1912] he had talked with the Honorable Charles R. Bishop on Museum matters and found him greatly pleased now that the Museum had assisted in the making of the Perkins Entomological Collection and in the publication of the results in the form of the Fauna Hawaiiensis, observing that the Museum had never attempted any work that would be of more value, and commented upon the great demand which was apparent for the Fauna. (BPBM T 1912)

In his final report to the BAAS, Sharp provides perhaps the best comment on the worth of the nearly quarter century of work by the Joint Committee, Perkins, and Bishop Museum. "Fauna Hawaiiensis" is, Sharp stated, "the true report of [the work of] this Committee" (BAAS 1913).

ACKNOWLEDGMENTS

The list of individuals and institutions who aided me in this 5-year research effort would be a long one. Deserving of special gratitude for his encouragement, understanding, and forgiving nature is Dr. Steven L. Montgomery, who also provided entomological advice. Without the devoted and persistent effort of volunteer Leilani Pyle in transcribing the archaically phrased, scrawled letters of Alfred Newton, this paper would simply not have been possible. Volunteer Kathleen Hamlin made a significant contribution in rechecking and verifying citations in Appendix 4. Special thanks go to volunteer Jane Medler for reading manuscript material at the Entomological Library, British Museum (Natural History) (BMNH), and to the Trustees of the BMNH for providing Bishop Museum copies of many documents. David Forbes gave valuable assistance in preparing Appendix 3.

Among the many Bishop Museum staff members who provided necessary advice and explanations of terms and techniques were the staff of the Bishop Museum Library and Drs. Wayne C. Gagne, Francis G. Howarth, Frank J. Radovsky, and Alan C. Ziegler.

The staff of the following depositories were especially helpful: BMNH, especially Pamela Gilbert and Ann Datta; Hawaiian Historical Society; Hawaiian Mission Children's Society; National Archives; and Smithsonian Institution Archives.

The Hawaii Audubon Society contributed $100 in 1981 in partial support of mainland travel to consult manuscript material.

APPENDIX 1

MEMBERS OF THE JOINT COMMITTEE

	Years of Membership
Blanford, William Thomas (1832-1905)	1890-1905
Flower, William Henry (1831-1899)	1890-1899(?), Chairman 1890-1891
Godman, Frederick Du Cane (1834-1919)	1899-1912, Chairman 1907-1912
Godwin-Austen, Henry Haversham (1834-1923)	1890-1912(?)
Hickson, Sydney John (1859-1940)	1890-1912, Treasurer 1892-1912
Newton, Alfred (1829-1907)	1890-1907, Chairman 1892-1907
Riley, Charles Valentine (1843-1895)	1891-1895
Salvin, Osbert (1835-1898)	1890-1898
Sclater, Philip Lutley (1829-1913)	1890-1912
Sharp, David (1840-1922)	1890-1912, Secretary 1890-1912
Smith, Edgar Albert (1847-1916)	1891-1912

This list is based on annual reports of the Committee in the *Report of the British Association for the Advancement of Science* (BAAS) (1891-1913) and a circular, "Zoological exploration of the Hawaiian Islands" Qoint Committee 1891). Flower and Godwin-Austen apparently served on the Committee until 1899 and 1912, respectively, although neither appears in the BAAS reports after 1891. Both were fellows of the Royal Society and probably were the Society's representatives on the Joint Committee. The Royal Society's *Proceedings* (1892-1896) and *Year Book* (1897-1904) include no listing of Committee membership. David Sharp (1913a) lists both men, without comment, as Committee members in his "Preface" to *Fauna Hawaiiensis*.

APPENDIX 2
FAUNA HAWAIIENSIS AUTHORS AND THEIR SECTIONS

	Section. Volume (part): pages
Ashmead, William Harris (1855-1908)	Hymenoptera Parasitica. 1(3): 277-364
Bagnall, Richard Siddoway (1889-1962)	Thysanoptera. 3(6): 669-701
Beddard, Frank Evers (1858-1925)	Annelida. 2(4): 413-26
Carpenter, George Herbert (1865-1939)	Collembola. 3(4): 299-303
Chapman (Cady), Bertha Louise (1873-1956)	Mallophaga. 3(4): 305-21
Dollfus, Frederic Jules Adrien (1858-1921)	Crustacea, Isopoda. 2(5): 521-26
Forel, Auguste Henri (1848-1931)	Formicidae. 1(1): 116-22
Godwin-Austen, Henry Haversham (1834-1923)	Anatomy of Mollusca. 2(4): 271-412
Grimshaw, Percy Hall (1869-1939	Diptera. 3(1): 1-78
	Diptera Supplement. 3(2): 79-86
Kellogg, Vernon Lyman (1867-1937)	Mallophaga. 3(4): 305-21
Kirkaldy, George Willis (1873-1910)	Hemiptera. 2(6): 531-99; 3(2): 95-174
Meyrick, Edward (1854-1938	Macrolepidoptera. 1(2): 123-275
	Microlepidoptera Supplement. 3(4): 345-66
Pearce, Nigel Douglas Frith (1862-1939)	Acarina. 3(6): 702-04
Perkins, Robert Cyril Layton (1866-1955)	Introduction. 1(6): xv-ccxxviii
	Hymenoptera Aculeata. 1(1): 1-115
	Vertebrata. 1(4): 365-466"
	Orthoptera. 2(1): 1-30
	Neuroptera. 2(2): 31-90
	Coleoptera (part). 2(3): 117-270; 3(6): 581-644, 650-66
	Hymenoptera Supplement. 2(6): 600-12
	Orthoptera Supplement. 2(6): 687-90
	Diptera (Pipunculidae and *Idiomyia).* 2(6): 697-700
Scott, Hugh (1885-1960)	Strepsiptera. 3(6): 667
Sharp, David (1840-1922)	Coleoptera (part). 3(5): 415-22, 431-34, 455-74, 502-05, 508-38; (6): 644
	Preface. 1(6): xi-xiii
	Coleoptera (part). 2(3): 91-116; 3(3): 175-292; (5): 367-579; (6): 645-50

	Section. Volume (part): pages
Shipley, Arthur Everert (1861-1927)	Entozoa. 2(4): 427-41
Silvestri, Filippo (1873-1949)	Thysanura. 3(4): 293-97
	Myriopoda. 3(4): 323-38
Simon, Eugene (1848-1924)	Arachnida. 2(5): 443-519
	Arachnida Supplement. 3(4): 339-44
Speiser, Paul Gustav Eduard (1877-1945)	Diptera Pupipara. 3(2): 86-92
Stebbing, Thomas Roscoe Rede (1835-1926)	Crustacea Amphipoda. 2(5): 527-30
Sykes, Ernest Ruthven (1867-1954)	Mollusca. 2(4): 271-412
Walsingham, Thomas de Grey (1843-1919)	Microlepidoptera. 1(5): 469-759

APPENDIX 3

PUBLICATION DATES FOR *FAUNA HAWAIIENSIS*

This compilation of Fauna Hawaiiensis is based on a reserve copy in the Bishop Museum Library. The volumes are bound in the wrappers.

Part	Pages	Plates	Date
Volume 1			
1*	1-122	I-II	Mar. 20, 1899
2	123-276	III-VII	June 8, 1899
3	277-364	VIII-IX	Aug. 1, 1901
4	365-468		Nov. 19, 1903
5	469-760	X-XXV	Dec. 1, 1907
6	ix-ccxxviii**	I-XVI***	Jan. 15, 1913
	1-46 ‡		Jan. 15, 1913
Volume 2			
1	1-30	I-II	Aug. 19, 1899
2	31-90	III-V	Sept. 25, 1899
3	91-270	VI-X	Feb. 8, 1900
4	271-442	XI-XIV	May 19, 1900
5	443-530	XV-XXI	Oct. 17, 1900
6	531-700		Dec. 17, 1910
Volume 3			
1	1-78	I-III	Dec. 30, 1901
2	79-174	IV-V	Dec. 23, 1902
3	175-292	VI-VII	Apr. 9, 1903
4	293-366	VIII-XII	Apr. 9, 1904
5	367-580	XIII-XVI	Dec. 18, 1908
6	581-704	XVII-XIX	Dec. 17, 1910

* An unnumbered 2-page "Map of the Hawaiian Islands" appears between p. 122 and pl. I. A "Notice to Binder" with vol. 1, pt. 6 (1913) states, "This map may be placed between plate iv and plate v of the Introduction (1: 6), where there is an explanation of it."

** The title page states that vol. 1, pt. 6, contains p. i-ccxxviii. The numbered pages in all copies examined in this study (bound and in wrappers) start with p. ix. Unnumbered pages do not account for p. i-viii, and the initial signature appears to be missing.

*** The plates for vol. 1, pt. 6, are numbered separately from pt. 1-5.

‡ The index is numbered separately from the text pages. Three copies are bound in the wrapper with vol. 1, pt. 6. A "Notice to Binder" states that a copy of the Index should be bound with each volume.

APPENDIX 4

CHRONOLOGY OF R.C.L. PERKINS' FIELDWORK AND TRAVEL IN THE HAWAIIAN ISLANDS, 1892-1901

This chronology is based on correspondence, diaries, recollections, specimen label data, and interisland passenger lists. It may be used to place individual specimens in the context of overall collecting efforts, supplement sketchy label data, detect errors introduced in label copying, and compensate for the absence of most of Perkins' diaries. The diaries were destroyed by Perkins after he used them in writing the "Introduction" to *Fauna Hawaiiensis* (Perkins 1936c). In 1936, prompted by correspondence with Bishop Museum Trustee Albert Judd, Jr., and Research Associate George Munro, Perkins made copies of the surviving diaries for the Bishop Museum Library. Perkins termed the originals "all but illegible" (Perkins 1936c) and the copies "exact" (Perkins 1936e). These copies, beginning with his first diary, cover the following collecting trips:

June 20-Sept. 10, 1892	Hawai'i
Oct. 24-Nov. 5, 1892	O'ahu
May 11-June 29, 1893	Moloka'i
July 9-Sept. 25, 1893	Moloka'i
Jan. 5-Feb. 23, 1894	Lana'i
Mar. 6-May 1, 1894	Maui
May 15-June 16, 1894	Kaua'i
July 4-July 14, 1894	Lana'i
July 20-Aug. 15, 1894	Hawai'i
Dec. 19, 1894-Jan. 1895	Hawai'i
Apr. 9-May 22, 1895	Kaua'i

To compensate for the diaries destroyed, Perkins wrote brief recollections of most of his other trips. These 1936 typescripts chronicle the following collecting trips:

Apr.-May 1892	O'ahu
Sept.-Oct. 1892	Hawai'i
Nov.-Dec. 1892	O'ahu
Nov. 1892-eatly 1893	O'ahu
May-June 1893	Moloka'i
Mat.-June 1894	Maui; Lana'i
June-Oct. 1895	Hawai'i; Kaua'i
Dec. 1895-Jan. 1896	Hawai'i
Feb. 1896	O'ahu
Mar. 1896	Hawai'i
May 1896	Maui
June 1896	Moloka'i
July 1896	Kaua'i
Aug.-Sept. 1896	Hawai'i
Oct. 1896	Maui
Jan.-Feb. 1897	O'ahu; Maui; Kaua'i
1900-1901	O'ahu

Label data from insect specimens in the British Museum (Natural History) and Bishop Museum, and from bird and arthropod specimens available at Bishop Museum were also consulted in preparing this chronology. Mollusca label data were too general to be of value. Labels with obviously erroneous data were disregarded. For example: specimens of *Nesoprosopis* could not have been collected by Perkins on O'ahu in February 1892, as he was then enroute to Hawai'i from England. Such impossible collecting dates probably represent material given to Perkins by Munro and other resident collectors.

Another major information source is the interisland passenger lists published in the O'ahu daily newspapers. This resource is limited in 3 ways: travelers' names were published only for sailings of passenger steamers to or from O'ahu; Perkins seems to have ridden freight steamers when passenger steamers didn't fit his schedule; and passenger lists were not published at the time of Perkins' 19001901 expedition.

Collecting localities, written as in the source (e.g., on the specimen label), are listed in alphabetical order when the day of activity is not known. As was the practice in the 1890s, Perkins did not use the diacritical marks now used in writing Hawaiian. Thus, to avoid creating incorrect or misleading localities, diacritics have not been added to Perkins' place names. Kau and Ka'u, for example, refer to several different places in the District of Ka'u on the island of Hawai'i. Similarly, references such as "near Honolulu" or "behind Waialua" are expressed as Perkins wrote them. Where the locality, as written in the original source, appears to be an obvious copying error or misspelling, the most likely name has been suggested in brackets. One place name is a special case. Kaholuamanu and Kaholuamano refer to the same place high in Waimea Valley, Kaua'i, where early European bird collectors took many specimens. Perkins tends to spell the name with an "0" ending, but both he and others occasionally use the "u" ending. There are appropriate Hawaiian legends to fit both spellings, and each spelling has been listed in the chronology without comment.

Chronology users must make their own decisions regarding the specific locations indicated by Perkins. Some are obscure and not locatable with certainty. For help in determining the locations indicated by place names, the reader is referred to *place Names of Hawaii,* M.K. Pukui, S.H. Elbert & E.T. Mookini, The University Press of Hawaii, 1976; *Reference Maps of the Islands of Hawai'i,* J. Bier, The University Press of Hawaii, 1976-1977; and the series of topographic quadrangles (1:24,000) for the Hawaiian Islands published by the U.S. Geological Survey. Perkins left almost no explanations of his locality names. His shunning of Hawaiian guides may have left him without information regarding more specific designations for collecting sites and led to diary references such as "high forest," and labels such as "forest near Honolulu."

Chronology

In the following chronology each information resource, such as Perkins' diaries, is keyed to a number (see Resources Cited below). Numbers in parentheses following each line in the chronology indicate the resource on which the entry is based.

1892

Mar. 10	Arrives O'ahu from England (7)
Mar.	O'ahu: fieldwork
	Kaala Mts (1, 3, 5, 11, 15)
	Koolau Range, Waialua plains (5)
	Waialua (1, 3, 5, 11, 15)
	Waianae Mts (3, 5)
Apr.	Honolulu (5)
	behind Honolulu (1)
	Kaala Mountains (1, 5, 15)
	Waimea (3)
	Waianae Mts (1, 3, 5, 15)
May	forest near Honolulu (1)
	Nuuanu Valley (1)
June	Waianae Mts (3)
June 3	Travels from O'ahu to Hawai'i (12, 15)
June	Hawai'i: fieldwork
	Kaawaloe *(sic)* (3) [Ka'awaloa]
	Kona (1, 3, 5, 15)
	Kona, Greenwell's property (15)
June 6	Kealakekua (1)
June 20	Kona (15)
June 25	down to Kaawaloa (15)
June 26-27	travels to Kealakekua (15)
June 28	Pulehua (15)
June 29	lower dairy (15)
June 30	Kona (3, 5)
July	Kaawaloa (10)
	Kau (3)
	Kona (1, 3, 5)
July 6	Kaawaloa; below Holokalele pond (15)
July 8	up to Pulehua (15)
July 9	Kona (3)
July 12	Kona (3); Nahuina (15)
July 16	Nahuina (15)
July 17	Pulehua(23)
July 18	Kaawaloa to Pulehua (15)
July 21	Kaawaloa (15)
July 22	Kona (5)
July 24	Kona (3, 5)
July 26	Kaawaloa (15)
July 27	Kona (3, 5)
July 29	Kaawaloa (15)
July 31	Holokalele (15)
Aug.	Hualalai (5, 15)
	Kaawaloa (23)
	Kau (5)
	Kona (1, 3, 4, 5)
Aug. 1	Pulehua to Kanahaha (15)
Aug. 4	Kona (3, 5)
Aug. 5	Pulehua to Hualalai (1, 15); Kona (5)
Aug. 6	Kaawaloa (15)
Aug. 7	Pulehua (15)
Aug. 9	Kona (5)
Aug. 10	Kanahaha (15)
Aug. 12	Kanahaha (15)
Aug. 14-15	Hualalai (15)
Sept.	Kaawaloa (1, 3)
	Kona (1, 3, 4, 5)
	Mauna Loa (4)
Sept. 2	Kona (3)
Oct.	Kona (1, 3, 5)
Oct. 14	Travels from Hawai'i to O'ahu (12, 15)
Oct.	O'ahu: fieldwork
	Honolulu (1, 5)
	mts near Honolulu (1,4)
	Lanihule *(sic)* Ridge (1) (Lanihuli)
	Nuuanu Valley (1)
Oct. 24-27	Nuuanu Valley (1, 15); Honolulu Mts(5)
Oct. 27	mts near Honolulu (1)
Oct. 31	Nuuanu Valley, Konahuanui side (15)
Nov.	O'ahu: fieldwork (4)
	Honolulu (3, 4, 5)
	Mts Honolulu (4)
	mts near Honolulu (1)
	Konahuanui (1)
	Nuuanu Valley (1)
	ridges around Nuuanu Valley (1)
Nov. 1-5	Pauoa Valley to Konahuanui (15)
Nov. 7-10	walks around O'ahu in 3 days (15)
Dec.	Halemano (1, 15)
	Mt Kaala (1)

1893

Jan.	O'ahu: fieldwork
	Halemano (1)
	Kaala Mts (15)
	Mt Kaala (1)
	Koolau Range, Halemano to Waimea Valley (15)
	Waialua (5)
	mts behind Waialua (1)
Feb.	Halemano (1)
	Kawailoa Gulch (1)
	Koolau Range (3, 5)
Mar.	Kaala Mts (3, 15)
	Kawailoa Gulch (1, 3)
	above Waialua (15. 22)
	mts behind Waialua (15, 22)
	Waianae Mts (3)
	Waianae Range, Leilehua (3)
Apr.	Kawailoa (3, 4, 15)
	Kawailoa Gulch (5)
	Kawailoa Riv (4)
	behind Waialua (1)
	Waianae Mts (3)
May	Wailua (5)
May 8	Travels from O'ahu to Moloka'i (9)
May	Moloka'i: fieldwork (1. 3)
	Kaunakakai (5)
	Molokai Coast (5)
	Molokai Mts (5)
	Molokai Plains (3, 5)
May 11	Kaunakakai (15)
May 12	Molokai Mts (3. 5)
May 12-13	Makakupaia (15)
May 14	travels to Kaunakakai (15)
May 15-16	Moloka'i: no fieldwork (illness) (15)
May 17-31	Makakupaia and surrounding area (15)
June	Molokai Mts (3, 4. 5)
	Molokai Mts, lower slopes (3)
June 1	Makakupaia to Kaunakakai (15)
June 2-3	Kaunakakai (15)
June 4	Kaunakakai to Makakupaia (15)
June 5	Makakupaia (15)
June 6-7	Makakupaia- Kaunakakai-Makakupaia(15)
June 8-12	Makakupaia area (3, 15); Molokai Mts(5)
June 13	above Pelekunu (15); Molokai Mts (5)
June 14-15	Makakupaia area (15); Molokai Mts (5)
June 16-17	Makakupaia-Kaunakakai-Makakupaia(15)
June 18-22	Makakupaia area (3. 15); Molokai Mts(5)
June 22-24	Makakupaia-Kaunakakai-Makakupaia(15)
June 24	Molokai Mts (3)
June 25-28	Makakupaia area (15)
June 29	travels to Kaunakakai (15)
June 30	Travels from Moloka'i to O'ahu (7, 15)
July 1-4	O'ahu: no apparent fieldwork (9)
July 5	Travels from O'ahu to Moloka'i (7)
July	Moloka'i: fieldwork
	Kaunakakai (15)
	Molokai Mts (1. 3)
	above Kalawas *(sic)* (1) [Kalawao]
July 9-12	highest forest area (15)
July 13-16	into Pelekunu Valley and back (15)
July 17	travels to Kaunakakai (15)
July 18-19	Kawela (15)
July 20	Kaluaaha (15)
July 21	Kaunakakai (15)
July 21-23	Moloka'i: no fieldwork (illness) (15)
July 24-26	Makakupaia (1. 15)
July 27	travels to Kaunakakai (15)
July 28-29	Kaunakakai area (15)
July 30	to Mauna Loa (15)
July 31	travels to Kala'e (15)
Aug.	Molokai Mts (1. 3, 5)
	Kalae (5)
	forests above Pelekunu (5)
	head of Pelekunu (1)
Aug. 1	Kalamaula, near Kalae (15); above Kalawao (1-)
Aug. 2	head Kalawao; Waikolu to Makakupaia(15)
Aug. 3	Kalae (15)
Aug. 4	Kalamaula (15)
Aug. 5	Waikolu (15)
Aug. 6	Puukolekole (15)
Aug. 7	Kalae (1, 3, 15)
Aug. 8	above Kalawao (1. 15)
Aug. 9-10	Waikolu (15)
Aug. 11	Kahanui (1); Waikolu (15)
Aug. 12	Waikolu (15)
Aug. 13	above Makakupaia (3, 15)
Aug. 15	travels to Kaunakakai (15)
Aug. 16	Makakupaia (15)
Aug. 17	mts above Kamalo (15)
Aug. 18-26	Makakupaia area (3, 15)
Aug. 27	beyond Pelekunu pali (15)
Aug. 28	Waikolu (15)
Aug. 29-31	Makakupaia area (15); forest above - Pelekunu (5)
Sept.	Molokai: fieldwork (3)
	Kahanui (1)
	Molokai Mts (1.3,5)
	above head of Pelekunu (1)
Sept. 1	travels to Kaunakakai (15)
Sept. 3	Kaunakakai (16)
Sept. 5	coast (15)
Sept. 6	up to Makakupaia (15)
Sept. 7	Molokai Mts (3, 5)
Sept. 8-14	Makakupaia and high forest (3. 15); - Molokai Mts (5)
Sept. 15	travels to Kaunakakai (15)
Sept. 16	travel to Makakupaia (15)
Sept. 17-23	Moloka'i: fieldwork (1, 3, 5)
	Makakupaia area (15)
	Molokai Mts (3, 5)

1893, cont.

Sept. 24 Makakupaia (15); Waikolu (1)
Sept. 25 Waikolu (15); Molokai Mts (5)
Sept. 26
(ca.) Travels from Moloka'i to O'ahu (15)
Oct. 9 O'ahu: no apparent fieldwork (16)
Oct. Travels from O'ahu to Moloka'i (15)
Oct. Moloka'i: fieldwork (1)
Kahanui (1)
Kaunakakai (15)
Pelekunu (15)
Nov. 18 Travels from Moloka'i to O'ahu (12)
Nov. 18-
Dec. 10 O'ahu: no apparent fieldwork (9)
Dec. 11 Travels from O'ahu to Lana'i (9)
Dec. Lana'i: fieldwork (1, 3, 5)
Halepaakai (3)
Lanai Gulch (1)

1894

Jan. Lana'i: fieldwork (5)
Halepaakai (3, 20)
gulch near Hayselden's (20)
behind Koele (3)
near Koele (3)
Koele (5)
Mts Koele (1, 3, 4, 5)
Lanai Mts (3)
Jan. 5-6 gulch behind Koele (15)
Jan. 7-8 Palawai (15)
Jan. 11-12 highest peak (15)
Jan. 13 above Palawai (15)
Jan. 14 to Koele, night at Hayselden's (15)
Jan. 18 night at Hayselden's (15)
Jan. 28 to Koele (15)
Jan. 30-31 Waipaa (15)
Feb. Awalua (5)
Halepaakai (3)
Mts Koele (3, 5)
behind Koele (1)
windward side of Lanai (1)
main ridge (15)
coast at Manele (15)
above Waipaa (1, 15)
near Waipaa (1, 15)
above Waipaa looking toward Maui (1)
Feb. 1-20 Waipaa (15)
Feb. 21-22 Awalua (15)
Feb. 23 Travels from Lana'i to O'ahu (15)
Feb. 23-
Mar. 6 O'ahu: no apparent fieldwork (23)
Mar. 6 Travels from O'ahu to Maui (7, 15)
Mar. Maui: fieldwork
Haleakala (1, 5)
Iao Valley (5)
Kahului sandhills (1)
Olinda (1)
Wailuku (3, 5)
Mar. 7 ff. Haleakala (4)
Iao Valley (3)
Mar. 8 Wailuku (23)
Mar. 9 Iao Valley (3)
Mar. 12 Makawao to Haleakala (1, 3, 15)
Mar. 13-23 Haleakala (3, 5, 15, 23)
Mar. 24 travels to Wailuku via Makawao and Pa'ia (15)
Mar. 25-26 in Wailuku and travels to Haleakala via Pa'ia and Makawao (15)
Mar. 27-30 Haleakala (1, 3, 4, 5, 15)
Mar. 31 Olinda (1, 15)
Apr. Haleakala (3, 5)
Iao Valley (1, 3, 5)
Olinda Woods (1)
West Maui (1)
West Maui Mts (5)
Apr. 2 Olinda (15)
Apr. 5-11 Haleakala (1, 3, 5); Olinda (15)
Apr. 12-13 travels to Wailuku and returns via - Makawao and Pa'ia (15)
Apr. 14-15 Maui: no apparent fieldwork (15)
Apr. 16-18 Iao Valley (15)
Apr. 19 sandhills (15)
Apr. 20-21 Iao Valley (15)
Apr. 22 to Wailuku, sees Brother Matthias Newell (15)
Apr. 23 Iao Valley (15)
Apr. 24 sandhills (15)
Apr. 25-28 Iao Valley; Iao ridges (15)
Apr. 29 to Wailuku, sees Brother Newell (15)
Apr. 30 Waihee (15)
May Haleakala (3)
Iao Valley (1, 3, 5)
Wailuku (3, 5)
West Maui Mts (3, 5)
May 1-4 Iao Valley (15)
May 5 sandhills (15)
May 12 Travels from Maui to O'ahu (12, 15)
May 13-14 O'ahu: no apparent fieldwork (9)
May 15 Travels from O'ahu to Kaua'i (15)
May 16 walks from port of 'Ele'ele, Kaua'i to Makaweli (15)
May Kaua'i: fieldwork (1, 3)
mts above Makaweli (1)
Waimea (3, 5)
mts Waimea (1, 3, 4, 5)
May 19-20 Kaholuamanu with G. Munro (10)
May 21-25 Kaholuamano area (15)
May 26-30 Kaholuamanu with G. Munro (10)
June Kaua'i: fieldwork (3)
Waimea (5)
mts above Waimea (3, 5)
June 1-6 Kaholuamano area (15)
June 7 Rests at Munro home (10)
June 8 Kaholuamano area (15)
June 9 Waimea (15)
June 11-15 Hanapepe (15)
June 15 Rests at Munro home (10)
June 16 Travels from Kaua'i to O'ahu (12, 15)
June O'ahu: no apparent fieldwork (9)

1894, cont.

June 25? Travels from O'ahu to Lana'i (9, 15)
June Lana'i: fieldwork (5)
Hale Paakai (5)
July Lana'i: fieldwork (3)
Hale Paakai (I, 3, 5)
above Koele (?Mahana) *(sic)* (1)
Mts Koele (3, 5)
Lanai Hale (I, 3)
Manele (3, 5, 15)
July 5 Hale Paakai (I, 15)
July 13 Hale Paakai (15)
July 13 Travels from Lana'i to O'ahu (15)
July 14-19 O'ahu: no apparent fieldwork (IS, 16)
July 20 Travels from O'ahu to Hawai'i (12, 15)*
July 22 lands on Hawai'i at Punalu'u,
travels by stage to Kilauea (15)
July 22-25 Hawai'i: fieldwork
Kilauea (I, 25)
July 25 travels by stage to Punalu'u (15)
July 26 travels from Kealakekua "up to
Greenwell's" (15)
July 28 Holokalele (15)
Aug. Kilauea (1)
Kona (I, 3, 5)
Aug. 2 Pulehua (15)
Aug. 15 leaves Kona (15)
Aug. 22 Travels from Hawai'i to O'ahu (12)
Aug. 22-
Sept. 1 O'ahu: no apparent fieldwork
Sept. 1 Leaves O'ahu for England (12)

1895

Mar. 24 Arrives O'ahu from England (12)
Apr. O'ahu: fieldwork
Honolulu (5)
Apr. Travels from O'ahu to Kaua'i (9, 10)
Apr. Kaua'i: fieldwork
Koholemanu *(sic)* (3) [Kaholuamanu]
Kaholuamano (I, 3, 4, 5)
Kaholuamanu (5)
Makaweli (I, 3)
Waimea (3, 5)
Apr. 9 ff. Kaua'i: fieldwork (15)
Apr. 11 travels to Waimea for supplies (15)
Apr. 12 Kaholuamano (15)
Apr. 13-30 Kaholuamano area (15);
Kaholuamanu (5)
May Halemanu (I, 3, 4, 5)
Kaholuamanu (3)
Makaweli (1)
Waimea (3,5)
May 1 Kaholuamano area (15)
May 2-3 Makaweli (15)
May 4 return from Koholuwau; Mana (10,15)
May 7 Waiawa to Halemanu mt house (15)
May 8-21 Halemanu area (15)
May 22 travels to Knudsen's (15)
May 25 Travels from Kaua'i to O'ahu (10, 23)
late May
early June O'ahu: no apparent fieldwork (23)
June O'ahu: fieldwork
Honolulu (3, 5)
Konahuanui (3)
June 12 Travels from O'ahu to Hawai'i (12)
June Hawai'i: fieldwork
Kau (3, 5, 15)
Olaa (5)
Puna (3, 15)
June 14-19 Kilauea (3, 25)
Olaa (I, 3, 25)
July Kau (3, 5)
Kilauea (I, 3)
Olaa (I, 3, 5)
Puna (3)
July 18 Hilo (17)
July 22 Puna (23)
Aug. Hilo (3)
Kau (3, 5)
Kilauea (I, 3, 5)
Aug. 4 Kau (23)
Aug. 6 Kilauea (17)
Sept. Kau (3, 5, 15)
Kilauea (I, 3)
Puna (15)
Sept. 17 Volcano House with Z. Atkinson and
party (25)
Sept. 19 Travels from Hawai'i to O'ahu with Z.
Atkinson (12)
Sept. 19-
Oct. 6 O'ahu: no apparent fieldwork (17, 23)
Oct. 7 Travels from O'ahu to Kaua'i (7)
Oct. Kaua'i: fieldwork (I, 15)
Makaweli (3)
Nov. Kaholuamano (3)
Kaholuamanu (3,10)
Nov. 10 Travels from Kaua'i to O'ahu (12)
Nov. O'ahu: fieldwork
Waianae Coast (3)
Nov. 29 Travels from O'ahu to Hawai'i (12)
Dec. Hawai'i: fieldwork
Amaulu, Hilo *(sic)* (3) ['Amauulu]
above Amuala *(sic)* (1) ['Amauulu]
Hilo (3, 5)
above Hilo (I, 3)
Kau (5)
Kaumana, Hilo (3)
Puna (3)
Dec. 19-27 Amaula area *(sic)* (15) ['Amauulu]
Dec. 26 above Amaulu, Hilo *(sic)* (3) ['Amauulu]

*· In 2 letters to C.R. Bishop (23 June and 18 July 1894: Resource 15), Perkins indicates he plans to go to Maui as well as Hawai'i before returning to England; No evidence (label data, interisland travel, etc.) can be found, however, to suggest that Perkins' plan to visit Maui was carried out.

1896

Jan. Hawai'i: fieldwork
Hilo (1, 3,4, 5, 17)
Kaumana (1)
Olaa (3, 7)
Jan. 24 Hilo (11)
Jan. 28 Travels from Hawai'i to O'ahu (12)
Jan. 29-Feb. 6 O'ahu: no apparent fieldwork (11, 16)
Feb. 7 ff. O'ahu: fieldwork
Waianae (1, 3, 5)
Waianae Coast (1)
Waianae Mts (1, 3, 5, 15)
leeward side of Waianae Mts (15)
Feb. 28 Travels from O'ahu to Maui (12)
Feb. 29-Mar. 7 Maui: fieldwork (11)
Mar. ? Travels from Maui to Hawai'i (9)
Mar. Hawai'i: fieldwork
Kona (3, 15)
Mar. 24 Kona (6)
Mar. 26 Kona (11)
Apr. 6 Travels from Hawai'i to Maui (6)
Apr. Maui: fieldwork (11)
Haleakala (3, 5)
Apr. 12 Travels from Maui to O'ahu (12)
Apr. 12-? O'ahu: no apparent fieldwork
after Apr. 18 Travels from O'ahu to Maui (8, 11, 15)
Apr. Maui: fieldwork
May Haleakala (1, 3, 4, 5, 15)
lao Valley (1, 3, 5)
Olinda (1)
May West Maui Mts (3, 5, 15)
June 2 Travels from Maui to O'ahu (7, 12)
June O'ahu: no apparent fieldwork
June Travels from O'ahu to Moloka'i (9)
June Moloka'i: fieldwork (15)
Molokai Mts (1, 3)
June 20 Travels from Moloka'i to O'ahu (12)
July O'ahu: fieldwork
Honolulu (1, 3, 4)
mts near Honolulu (3)
end of Koolau Range (3)
back of Tantalus (3)
July 14 Travels from O'ahu to Kaua'i (12)
July Kaua'i: fieldwork (1, 5, 15)
Lihue (1, 4)
July 21 Lihue (23)
July 26 Travels from Kaua'i to O'ahu (12)
July 27 O'ahu: no apparent fieldwork
July 28 Travels from O'ahu to Kaua'i (12)
Aug. Kaua'i: fieldwork (4, 15)
high plateau (1, 3)
Kaholuamano (20)
Aug. 9 Travels from Kaua'i to O'ahu (12)
Aug. O'ahu: fieldwork
Honolulu Mts (1, 3)
Aug. 18 Travels from O'ahu to Hawai'i with A.Koebele (12)
Aug. Hawai'i: fieldwork (1)
Hilo (3, 5)
Kau (3, 5)
Kilauea (1, 3, 5, 15)
Kona (5)
Olaa (1, 3, 15)
Sept. Kau (3, 5)
Kilauea (1, 3, 15)
Kona (3, 5)
Olaa (1, 15)
Sept. 13 Olaa (13)
Sept. 15 Travels from Hawai'i to O'ahu (12)
Sept. O'ahu: fieldwork
Honolulu Mts (1)
Sept. Travels from O'ahu to Maui (14)
Sept. Maui: fieldwork
lao Valley (1, 3, 5)
Oct. Haleakala (1, 3, 5, 15)
Puunianiau base camp (14)
West Maui Mts (5)
Oct. 18 Travels from Maui to O'ahu (12)
Oct. 19-Nov. ? O'ahu: no apparent fieldwork
Nov. O'ahu: fieldwork
Honolulu (1)
Nov. 20 Travels from O'ahu to Hawai'i (12, 14)
Nov. Hawai'i: fieldwork
Kau (3)
Olaa (1, 3, 5)
Puna (5)
Nov. 23 Puna (11)
Dec. Kau (3)
Kilauea (1, 5, 20)
Puna (3, 5)
Olaa (5, 20)
Dec. Travels from Hawai'i to Maui (9, 14)
Dec. Maui: fieldwork
Lahaina (14)
Haleakala (5)
Dec. 18 Travels from Maui to O'ahu (12)
Dec. O'ahu: no apparent fieldwork (9)
Dec. 30 (ca.) Travels from O'ahu to Maui (14)

1897

Jan. Maui: fieldwork (3, 5, 11, 15)
coast of Lahaina (1, 15)
Mt Lahaina (1, 15)
Wailuku (3)
West Maui Mts (3, 5)
Jan. 5 Travels from Maui to O'ahu (12)
Jan. O'ahu: fieldwork (3)
Waianae (5)
Waianae Coast (1, 3, 5, 15, 20)
Waianae Mts (5)
Jan. 12 O'ahu, in Honolulu (18)

1897, cont.

Jan. Travels from O'ahu to Kaua'i (14)
Jan. Kaua'i: fieldwork (1, 3, 15, 20) [1]
Makaweli (1)
Feb between Hanapepe and Makaweli gulches (20
Makaweli (3, 5, 15)
Waika (10)
Waimea (3, 5)
Feb. 3 Makaweli (23)
Feb. 13 Travels from Kaua'i to O'ahu (12)
Feb O'ahu: fieldwork
Honolulu (5)
Waianae (5)
Feb Travels from O'ahu to Hawai'i (9)
Feb Hawai'i: fieldwork
Hilo (1, 3, 15)
Feb./Mar Travels from Hawai'i to O'ahu (9)
Mar. O'ahu: fieldwork (20)
Honolulu (3, 5)
Honolulu Mts (1)
Koolau Range (3, 5)
Mar. 9 Leaves O'ahu for England (7, 12)

1900

May 30 Arrives O'ahu from England (7)
May (31?) O'ahu: fieldwork
Honolulu Mts (2)
June Honolulu (2, 3)
Honolulu Mts (2. 3)
SE Koolau (3)
Tantalus (3)
Wahiawa (3)
July 1-10 (ca.) O'ahu: no apparent fieldwork (illness) (19)
July 18-20(ca.) O'ahu: no apparent fieldwork (mounting specimens) (19)
July O'ahu: fieldwork
Honolulu (2, 3)
Honolulu Mts (2, 3, 24)
Koolau Range (2)
NW Koolau Range (3)
back of Tantalus (3)
July 21ff. Konahuanui (19)
Honolulu (2)
Aug. Honolulu Mts (2)
Koolau Mts (2, 24)
back of Tantalus
Sept. Honolulu (2, 3)
Honolulu Mts (2, 3)
NW Koolau (3)
Tantalus (3)
Waialua (2, 21, 24)
Waialua Coast (21, 24)
Waialua end of Koolau Range (2)
Sept. Travels from O'ahu to Hawai'i (9
Sept Hawai'i: fieldwork
Hualalai (2)
Oct. Kona (2)
Mauna Loa (15, 24)
Oct. Travels from Hawai'i to O'ahu (9)
Oct. O'ahu: fieldwork
Honolulu (2)
Oct./Nov Travels from O'ahu to Hawai'i (9)
Nov. Hawai'i: fieldwork
Mauna Loa (15, 24)
Nov. Travels from Hawai'i to O'ahu (9)
Nov. O'ahu: fieldwork
Honolulu (2, 24)
Honolulu coast (2)
Honolulu end of Koolau Range (2)
Honolulu Mts (2, 3)
Konahuanui Ridge (2, 24)
NW Koolau Mts (24)
head of Pauoa (2)
back of Tantalus (2, 24)
Dec. Honolulu (2, 24)
Honolulu end of Koolau Range (2, 24)
Honolulu Mts (2, 24)
Konahuanui ridge (2, 24)
NW Koolau Mts (24)
pali back of Maluhia (24
Nuuanu Pali (2, 24)
head of Pauoa (2)
head of Pauoa R (24)
head of Pauoa Valley (2)
Tantalus (2)
back of Tantalus (2, 21, 24)
Waialua (3)
Month unknown Maui: fieldwork
Haleakala (21, 24)

1901

Jan. O'ahu: fieldwork
Honolulu (2, 3, 24)
Honolulu Mts (3)
SE coast Oahu (2)
Waianae (3)
Waianae Coast (2, 3, 24)
Waikiki (3)
Feb. Honolulu (21)
Honolulu Mts (2, 24)
Konahuanui Ridge (2)
NW Koolau Mts (24)
Koolau Range (2)

[1] .. Perkins' 1936 typescripts and label data of a very few insect specimens seem to place Perkins in Hilo in January as well as February. There appears to be ample evidence, however, that Perkins was on Kaua'i in January and early February, and the January Hilo insects may simply be mislabeled, or the gift of another collector, such as Koebele.

1901, cont.			NW Koolau Mts (2, 3)
	SE Koolau Range (5)		SE Koolau Range (3)
	Waimea (3)	Aug.	N Koolau Range (2)
	SE Koolau Range (5)		NW Koolau Range (2, 3)
Mar.	Honolulu (21)		SE Koolau Range (3)
	Konahuanui Ridge (2)		Waialua coast (2)
	NW Koolau (2)	Sept.	Waialua coast (3)
	Waialua (21, 24)	Sept.	Travels from O'ahu to Maui (9)
Apr.	Honolulu (2)	Sept.	Maui: fieldwork
			lao Valley (2, 3, 24)
	Kawailoa (21)		Haleakala (2, 24)
	NW Koolau Range (3)		Wailuku sandhills (3)
	SE Koolau Range (3)	Oct.	Haleakala (3)
	Mokuleia (21, 24)		lao Valley (3)
	Waimea (24)	Oct.	Travels from Maui to O'ahu (9)
	Waimea watershed (2)	Oct. 4-8	O'ahu: no apparent fieldwork
	Wahiawa (2, 21, 24)		(marriage) (20)
May	NW Koolau Mts (24)	Oct.	O'ahu: fieldwork
	Mokuleia (24)		Mts Waianae (3)
	Waialua Coast (21)		Waialua (2)
	Waianae Mts (5, 21)	Nov.	Honolulu (21)
June	Honolulu Mts (2, 21)		Honolulu Mts (2, 3)
	Koolau Mts (4)		SE Koolau Range (3)
	SE Koolau Range (3)	Nov. 15-21	Waianae Mts with S. Wilder (20)
	Pauoa Valley (head of) (3)	Dec.	Honolulu Mts (3)
	back of Tantalus (2)		Waialua (3)
	Waialua (2,21,24)	Dec.	Ceases to collect for the Joint
July	Honolulu (21)		Committee (20)

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