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[*Paper I*]

LETTERS FROM THE MENAGE SCIENTIFIC EXPEDITION TO THE PHILIPPINE ISLANDS

By DEAN C. WORCESTER and FRANK S. BOURNS

[The following letters were written by the two young men who went out as leaders of the Menage Scientific Expedition to the Philippine Islands. This Expedition was fitted out and maintained from the summer of 1890 until the close of 1892, by Louis F. Menage, Esq., a citizen of Minneapolis and a member of the Minnesota Academy of Natural Sciences. While these letters were written as reports to the Academy of the progress of the work of the Expedition, they form so interesting an itinerary of exploring scientists and so instructive an account of a collector's adventures in a strange region, that they are published for wider reading. Mr. L. A. Griffin has selected for publication here only the paragraphs pertaining to the scientific aspects of the work of the Expedition.

After leaving the Philippines, Mr. Bourns spent some time in Borneo for the double purpose of taking notes on the relations of the Borneo fauna and that of the islands which had been so successfully explored and of securing some oranges for the Academy. His account of "An Orang Hunt in Borneo," written for another use by the Academy, is so interesting and so fitting an associate to the letters that it is given a place at their close.—C. W. Hall.]

I.

Salay Davo, Guimaras (opposite Iloilo),
Philippine Islands, December 12, 1890.

Gentlemen of the Minnesota Academy of Natural Sciences,
Minneapolis, Minnesota:

Since our arrival in the Philippine Islands, Sept. 6th, we have been anxiously awaiting the letter promised us from the Bishop of Minnesota to the Archbishop of Manila and instructions as to which of the methods of preparing birdskins we should follow. But as mail up to October 28th has arrived and no communication from you has reached us, and as it is past the end of the first quarter, we have decided not to delay longer in writing you, and accordingly have the honor to submit the following report.

We were subjected to a great deal of annoying delay in Manila, on account of the non-arrival of our letter from Spain. Since our visit here in 1887 the laws regarding firearms have been greatly changed, making it much more difficult to import them and nearly impossible for a foreigner to obtain permission to use them. Just as we had obtained permission to pass our

goods at the Custom House and to procure proper licenses, a Royal Order from Spain was received by the Governor General. This fortunate arrival aided us greatly. Not only were our requests promptly granted, but in addition we were given a special letter from the Governor General to the Governors of all the provinces which we intended to visit. This is not only a letter of introduction but is also an order to the effect that all our reasonable requests be granted and our safety be looked after by the Governor of the province to whom the letter might be presented.

Besides this letter we obtained one from the Rt. Rev. Netter, acting Archbishop of Manila, addressed to the resident priests of the Philippines. This letter will be, and has already been, of great service to us, as in many of the smaller and more out of the way places the priest is the only white man to be found and is therefore a man of much influence.

Being thus well supplied with letters and papers from both civil and ecclesiastical authorities, we were prepared to start out on our work. We decided for our first trip to visit Panay, Guimaras, Negros and Siquijor, but as the boat did not leave for three weeks, we were compelled to look out for some suitable place near Manila where we could put in the intervening time. It was difficult to find such a place as all the region around Manila is under cultivation and for our work we must be near the forest. Finally we met an American named Thomas Collins, who told us that he thought his place would just suit us. He was engaged in the wood business at a small place called Quisao, about forty miles from Manila on the eastern side of the great Lake of Bay. His wood boats were going and coming every week, making it easy of access, so we accepted an invitation to visit him.

Taking small river boats (*bancas*) at Manila, we went up the Pasig river to the lake, where we found one of Mr. Collins' *cascas* or wood boats awaiting us. It was evening when we reached the boat and three o'clock A. M. before we set sail, but the wind being favorable, by noon of the next day we were at Quisao, and soon comfortably established in Mr. Collins' house and ready for work. The forest was farther off than we had expected to find it, and could only be reached by two hours' hard tramping, but we decided to make the best of it.

Unfortunately it was still the rainy season and we were in consequence much hindered by the weather.

We stayed there from September 27th to October 15th, working as much as the weather and our strength would permit, and then started back to Manila. We started Wednesday in order to have plenty of time to catch the regular monthly boat leaving Saturday for Capiz, the town in North Panay we wished to visit next. We expected to reach Manila in twenty-four hours, thus leaving us ample time to make all necessary preparations for our projected five months' trip in the Central Islands.

But we soon found that Philippine weather and Philippine boats, especially of the casco variety, are not to be depended on. A heavy storm drove us upon a rocky shore. The experiences of the next three days were not pleasant, but we escaped being wrecked, and reached Manila on Sunday morning, missing, as we supposed, the boat for Capiz. On our arrival however we were pleased to find that the same storm which had delayed us had also delayed the steamer, but that she would sail at three o'clock that afternoon. We had five short hours in which to make our preparations, but succeeded in getting the boat just as she was starting out.

The results of our work in Luzon show very significantly that much remains to be done in these Islands. Luzon is better known from a geological point of view than any other island in the group. One hundred and seventy-seven species of birds were already recorded, yet during our short stay in a locality close to Manila, which has been frequently visited by ornithologists, we obtained eight species of birds not previously recorded from that island.

The total number of species obtained by us was sixty-one; the number of specimens, one hundred and seventy-one. We also obtained a fine lot of alcoholic material. We shot the largest iguana of which we have any knowledge. It has been stated that these creatures never exceed five feet in length, but the specimen mentioned measures five feet and four inches. On dissection two full grown chickens were found in its stomach. A venomous snake nine feet and four inches in length, which we shot, we have preserved in alcohol.

We were disappointed in not finding land shells abundant,

but hope to be able to obtain a good set on our trip to north Luzon.

Our steamer reached the mouth of the Capiz river at eleven o'clock Monday night. We were landed on the shore with all our baggage about twelve. By two however we had everything safely under cover in a nipa house, and soon after had our hammocks strung. Next morning we sent our baggage by boat up to Capiz, while we went overland, a distance of about three miles. We went directly to the tribunal or town house and finding a large room suitable to our purposes, moved in. After making our calls on the various officials, we began to look around for forest. The surrounding country was low and swampy, and planted almost exclusively with the nipa palm. The long leaves of this palm furnish an excellent thatching material, very generally used, while the blossom stalk furnishes a favorite beverage called palm wine or tuba de nipa. This wine is very similar to the tuba de coco, or wine obtained from the cocoanut palm. The tuba de nipa however, besides being used as a beverage, is very largely used in the manufacture of a stronger distilled wine or even of alcohol, and many stills for its preparation may be found around Capiz.

We had been previously assured that we should find good forest around Capiz, but in this we were disappointed. Wednesday, acting upon the advice of the priest of the town, one of us went on horseback to Panay, a small village eight or ten miles away, expecting to find good forest there. In this we were again disappointed, the region around Panay being very similar to that around Capiz. No time was lost however as the small boys of Capiz proved to be very enterprising, and in return for a few coppers supplied us with wild cats, birds, iguanas, monitors, snakes, lizards, etc. For over a week we worked from early morning till late at night, and only got our work finished when we refused to buy any more specimens. Living *Viverra tangalunga* and *Paradoxurus philippinensis* were brought in and as we had an abundant supply of fresh meat we kept them alive for some time, and made interesting observations on their habits. We were glad to obtain iguanas in the way we did. They are so tenacious of life as to be able to run for a considerable length of time after having the heart cut out, and it is therefore exceedingly difficult to obtain them with a

shotgun without injuring them greatly as specimens. We obtained perfect skeletons of two of the largest size, and skins of half a dozen others. As it takes half a day's work either to skin or to skeletonize one of these animals, we hope that those prepared may prove acceptable to the Academy.

At the end of a week, another trip on horseback was made in search of forest, but like the previous one was unsuccessful. It was evident that forest was not to be found within ten miles of Capiz. On Friday, October 31st, acting on the recommendation of the Governor of the province, we started for Balete, a small place some thirty-five or forty miles away. The Governor assured us that virgin forest surrounded the town.

The first day's journey was by sea, the night being spent in a small town called Batan. In the morning we transferred our baggage to a small river boat or faroto and continued our journey. We followed the Jalo river up to Balete, where we were well received by village authorities, and gladly accepted the invitation of the native priest to stop with him.

A short investigation satisfied us that there was no more forest around Balete than around Capiz. We had however, on our way up the river, passed several large colonies of fruit bats, and upon these we now prepared to descend. Within a week we put up forty-four skins and four skeletons, besides some thirty birds and considerable alcoholic material. Unfortunately five of the skins and the four skeletons were destroyed in a rather peculiar manner. It is quite a common custom in the Philippines to keep pigs in the parlor, but we did not suppose that our host the priest followed the custom. We were mistaken however, for on our return from a two days' hunt down the river we found that five of the skins and the four skeletons which we had left nailed to the wall a little too near the floor had been destroyed by the priest's pet pig.

On Monday, November 10th, with a light outfit, we embarked in two small river boats, and started up the river, determined to reach the forest if possible. The river soon became so small that it was very difficult to get along, even with our small boats. The boatmen were often compelled to draw the boats by hand over long rifts or small waterfalls. After eight hours of this kind of traveling we reached the house where we were to stop. It was the last house of any size on the river

and is the property of a native of some means, who is engaged in growing hemp on the mountain sides. We were still distant about a three hours' walk from the forest, but were as near as we could get with our baggage.

Our first day's hunt convinced us that we had struck good ground, so we settled down for ten days' work. The forest was too far away to make it practicable to go there, shoot our birds, return, and skin them the same day, so we adopted the following plan of work:

One of us accompanied by a guide would start early in the morning for the woods. At noon a messenger from the house would take him his dinner and a supply of loaded shells, and carry back the birds shot that morning. At night he would again be sent with food for supper and breakfast, and would take back the birds shot in the afternoon. A small hut on the edge of the jungle furnished a shelter for the night. The next day the same operations were repeated, the hunter returning at night. But few paths could be found, most of them leading along the river or its branches. In consequence the hunter's clothes were wet all day, and this, combined with the hard tramping over rocks or through the jungle, made two days of this work all that could be endured without rest. So for the next two days the work would be changed, thus making it possible to obtain birds from the distant forest.

But the work was beginning to tell on us. The region was noted for being very unhealthy and the food supply was running low. Two or three days exhausted the supply of chickens, and then we were compelled to depend upon our guns for meat. Bread or beef had not been tasted for three weeks, boiled rice being our staff of life. Four days before we left we purchased our host's parlor pig, and then lived quite well on pork and rice. At the end of ten days we returned to Balete and from there went directly to Capiz, arriving at midnight, November 23rd. On the following Thursday we took the boat for Iloilo, arriving Saturday, November 29th.

During our entire stay in Panay, we were much hindered by rain, but for the next six months we expect to be free from that trouble.

While our collection of birds from Panay is not numerically large, we never put in the same length of time more profitably,

so far as scientific results are concerned. We obtained about 250 specimens, representing about 80 species; about 60 of these we were able to identify with considerable certainty.

We were greatly surprised to find *Aethopygia magnifica*, abundant. This, the most beautiful sunbird of the Philippines, has heretofore been supposed to be confined to the island of Negros. The female we found very difficult to obtain, but we succeeded in getting three specimens. We are under the impression that it is still undescribed, and would be glad to receive definite information on the subject. We also have a fine series of specimens of *Cinnyris Guimarasensis*, including both male and female. This bird was shot new by us on our previous trip, and was supposed by Dr. Steere to be peculiar to Guimaras. The female however was not obtained, so that we now have it for the first time. In addition to the above we have four species which we believe to be new to science. They are: (1) A small kingfisher of the genus *Ceyx*. (2) A flycatcher of the genus *Zeocephus*. (3) A flycatcher, probably of the genus *Setaria*. (4) A frogmouth of the genus *Batrachostomus*. The latter is of special interest, being a Bornean genus. One species is already known from Palawan and another from Mindanao, but the finding of one in the central Philippines is a great surprise.

In general, our work on the birds of Panay seems to show a closer relationship between the birds of Panay, Guimaras and Negros than was previously supposed to exist.

Our most valuable find however was among the mammals. We obtained a single specimen of a *true cat* from Panay. The specimen obtained is a young female, but will be sufficient to establish the species. The animal is well known to the natives under the name *maray* or *maral*. From the natives we obtained a good description of the adult male. The only record known to us of a cat occurring in the Philippines is in Wallace's "Island Life," where *Felis*, sp. unknown, is noted as existing in Palawan. We believe that neither *Viverra tangalunga* nor *Paradoxurus philippinensis* were previously recorded from Panay.

Maccacus philippinensis was abundant. We send the skin of one large specimen, the skeleton of another, and several skulls. In addition to the fruit bats we send specimens of other species, one of which we hope may prove to be new.

We also send what few shells we could obtain. They were very rare where we were and even a high offer to the natives failed to bring in a satisfactory supply.

Our alcoholic collection comprises specimens of fresh water fish, reptiles, amphibians, crustaceans, preparations of the alimentary canal, etc., etc. We cannot at present give even an approximate estimate of the number of specimens, but the collections from Luzon and Panay fill an eight-gallon cask. We shall ship most of the above at the earliest opportunity, retaining only such specimens of the birds as we need for the purpose of comparison and study.

It may seem strange that we should spend so much time in searching for forest. Many of the islands like Palawan, Mindanao and Mindoro are completely covered with jungle, while others such as Luzon, Panay and Cebu have been under cultivation from before the time of the Spanish settlement, and in them it is difficult or even impossible to find virgin forest. But from this very difficulty, the results, when once the forest is reached, are such as to prove highly satisfactory from a scientific point of view.

On our arrival in Iloilo we apparently were both in good health. But on the very night of our arrival Mr. Worcester was taken down with a fever peculiar to the country, known as "febre pernicioso." This fever was undoubtedly contracted in the mountain region beyond Balete. Fortunately medical assistance was at hand, and serious results were avoided. Although our plans were interrupted to some extent and some time was lost, we are once more in condition to resume work. From here we expect to go to Negros and Siquija, returning to Manila in time to visit Mindoro in the dry season. There we expect to spend three months.

We shall have the honor of reporting to you again at the end of our Negros and Siquija trips.

The last mail brought us the certificate of membership. Allow us to take this opportunity to thank you most heartily for the same.

We remain, gentlemen,

Very truly yours,

DEAN C. WORCESTER,
F. S. BOURNS.

II.

Manila, March 19, 1891.

We have the honor to submit the following report of the second quarter's work of the Menage Scientific Expedition.

On December 26th we sailed from Iloilo for the town of Bais, a small place on the eastern coast of Negros, where we arrived on the 28th. We at first thought of settling down in Bais for a couple of weeks and making a collection of sea shells, but found it impossible to get a suitable house. Just at this time aid came to us from an unexpected source. We received a call from a Spanish gentleman who introduced himself as Senor Ignacio Simo. As we afterwards learned, he is the son-in-law of Senor Joaquin Montenegro, the wealthiest sugar planter in this part of Negros.

Senor Simo said that he had heard of the trouble we were having in finding a house and he wished to offer us the use of a small house situated on their plantation. We were very glad to accept this offer and moved out that afternoon. Instead of a small house, we found a large and well furnished one, usually occupied by Senor Montenegro's son, which had been vacated for our especial use. More than this we found that we were in reality the guests of Senor Montenegro and his family. They aided us in every way possible, furnishing us with men, horses, or carts, whenever we required them. Their kindness was greatly appreciated as it not only made it pleasant for us, but facilitated our work greatly.

We worked there for two weeks and then moved into the mountains. Our friends furnished us with twenty-two or twenty-three men, so we were able to take all necessary baggage and food. We went back about a three hours' journey and took up quarters in a native house conveniently situated on the bank of a small mountain stream. We were well located as the forest came up almost to our doors.

The people of the region are all savages, called by the Spaniards Monteses (Mountaineers). They are of course Malays, but have not been converted to Christianity and retain many of their old manners and customs. For instance, one of the old customs which still clings to them is observed when one of their number dies. In the belief that the departed spirit

will be lonesome without company, the nearest male relative arms himself, starts out, and kills the first person he meets, black or white. Fortunately the health of the community was good during our stay. Our friends strongly advised us to take along a few soldiers, for the moral effect upon the people, but as we considered that the moral effect would be to make them think we were afraid of them, we deemed it not best to do so. We had, as guides, our host and his son, and experienced no trouble whatever with the savages, though on numerous occasions while hunting in the forest we met parties of them fully armed with their knives and spears. After two weeks of work in this place we returned to the plantation, again being furnished with carriers by our friend Senor Montenegro. The next two or three days were spent in arranging and packing our collections. On January 30th we left Bais for Dumaguete, which place we left two days later for Siquija.

During our stay in the mountains we were able to work to the best possible advantage, the forest being near at hand and our guides familiar with all parts of it.

We obtained 285 birds, of 69 species, 12 of these being new to Negros, and two of the 12 new to us. The first day out we were fortunate enough to obtain a sunbird of the genus *Aethopygia* (*Aethopygia bonita*, Bourns and Worc) which has certainly never been described. It is one of the smallest and most brilliantly colored of the Philippine sunbirds. As it feeds in high trees it was very difficult to shoot. Careful and persistent work during our entire stay brought three male and two female specimens. This find was a surprise, as the sunbirds are much sought after by collectors on account of their brilliant plumage, and the chance of discovering new birds belonging to the family is very small.

Our other new bird is a kingfisher of the genus *Ceyx*, of which we have as yet but a single specimen, a female. Its peculiarities are small size and high color. We also found in Negros the small *Ceyx* discovered in Panay, though it was by no means as abundant as in that island. We were fortunate also in obtaining four specimens of the cat described in our previous letter. Of the four, two, a male and a female, are adult, one is two-thirds grown and one a kitten.

In one respect we have been particularly unfortunate during

our six months' stay. That is in regard to the weather. When we reached Negros we supposed we had left the wet season behind, but during our entire stay in the mountains it rained daily, ending in a sort of cloud burst which raised the stream to such a height that we feared we should not be able to get out in time to catch the steamer for Dumaguete. By actual count the path from our house in the mountains to the plantation crosses the stream thirty-four times, and on the day we went out, though the water had fallen greatly, it was waist deep at most of the crossings. This last grand effort of the elements seems to have exhausted the water supply and we have since had good weather.

From Dumaguete to Siquija we traveled in a small native boat. The journey was pleasant, lasting eight hours, very good time considering the facts that we were heavily loaded and that currents were for the most part against us.

We were soon established in our old quarters in the tribunal, buying birds, shells, etc. We had many friends and acquaintances there, and knowing what we wanted, and that we gave coppers in exchange for birds and shells, they soon were hard at work collecting, and we were as hard at work preserving specimens of all kinds. The people are very poor, a man's daily wages being only five coppers. Many, finding they could make more than that collecting birds and other specimens, spent their whole time at it.

The second day after our arrival Mr. Bourns was taken ill with fever. A liberal use of quinine however stopped it at the end of the third day. Although it showed a tendency to return on one or two occasions, it did not come again in full force until we reached Dumaguete, where it was easily stopped by the use of a very efficient fever remedy which we have, but which we had unfortunately left behind when we went to Siquija.

After a seventeen days' stay in the town of Siquija we moved back into the mountains to a small place called San Antonio, five or six miles from Siquija and about 975 feet above the sea level. We were comfortably established in an old deserted "convento," once occupied by a priest, but since his departure left to go to ruin. The house was large and well arranged for our work, and, although rather too well ventilated, it served our purposes

admirably. After two weeks' work in and around San Antonio, we returned to Siquija, and on Friday, March 6th, sailed for Dumaguete.

The results of our work at Siquija are very satisfactory. The number of birds previously known from the island was 54. To this number we have added 27, of which at least four are new to science. They are: (1) Another kingfisher of the genus *Ceyx*. It is the most brilliant-colored representative of the genus yet discovered. We have three specimens, two males and a female. (2) A kingfisher of the genus *Halcyon*, very similar to *Halcyon Winchelli*, but brighter in color, and showing one or two other differences. We have but a single specimen, a male. (3) A very remarkable crested cuckoo, belonging to a genus unfamiliar to us. It is unlike any cuckoo we have ever seen from these islands. We regret we were unable to obtain but a single specimen. (4) A cuckoo which has become protectively modified. It so much resembles a small hawk found in the island that we mistook it for the latter when seen on the wing.

We left San Antonio, arrived at Siquija the same day and on Friday, March 6th, embarked for Dumaguete where we arrived just in time to see a steamer bound for Iloilo (our destination) sail out of the harbor. We fortunately caught a boat on the following Monday. Although we had only 220 miles to go, it took five days to make the journey. The boat stopped at several small towns in Negros and Cebu and in each case several hours.

One of the stops however proved of great value to us. The island of Cebu has been under cultivation for so long that very little forest is now left, and that is being rapidly destroyed. The eastern and southern parts of the island are entirely destitute of anything approaching virgin forest, and but very little is found in the northern and western portions. So difficult is it to find forest, that collectors have done very little there, as is shown by the fact that only fifty-five birds are recorded.

At one of the places where the boat stopped to load sugar, a bit of forest could be seen a mile or two back from the coast. As the boat was to stop several hours, one of the party took a gun and went on shore. The results of a four hours' tramp in the woods show clearly that Cebu is still a good field for a naturalist.

Of ten birds shot, six were new to Cebu and one of these may be a new species.

We shall revisit the place probably about a year from now. Mr. Pickford, an English planter living there, says it is about the only part of Cebu where good forest can be found, and that in a few years none will remain. This gentleman also offered to aid us in any way possible, at any time when we desired to visit the island.

We are now making preparations for our Mindoro trip. It is the most dangerous trip we have yet to make, with the possible exception of the proposed trip to Sulu and the interior of Mindanao, but on the other hand, it is one of the most promising. The island is inhabited by savages, and is very unhealthy. As we have on previous trips succeeded in managing the savages, we think that we can do so this time. We are going into the island in the dry season when the fever is least prevalent, and hope to avoid sickness, but shall not neglect to take along a good supply of medicines. All provisions will have to be taken from Manila, as in the interior it is impossible to get other food than rice or sago, with perhaps an occasional jar of wild honey. Such a bill of fare, as we found by bitter experience, is not calculated to withstand the influence of the climate.

Three months will be spent in the island, during which time we shall probably be beyond mail facilities. On our return to Manila we shall report to you in full regarding the work done in Mindoro.

We remain,

Very truly,

DEAN C. WORCESTER,
F. S. BOURNS.

III.

Sulu, October 5, 1891.

I wrote to Mr. Menage by the last mail, but delayed my letter to you, in order that I might be able to state fully the results of our work here.

This island is undoubtedly the most dangerous place in the Philippines, and this fact has been a great obstacle to us. We have been obliged to hunt together, to keep an armed guard

of friendly Moros with us, and to confine ourselves pretty strictly to one region in our hunting. We found on our arrival here that the Moros were not nearly so well provided with firearms as we had been informed, and that they were as a rule very poor marksmen. We also found that their reputed regard for Englishmen was strictly confined to *unarmed* Englishmen, that they were crazy to get hold of firearms, and would kill a man of any nationality for a gun. So we have gone in fighting order. We had little to fear from an open attack, but they could easily hide in the woods and shoot us at short range.

Our instructions from the Governor were brief and significant: "If you meet an armed Moro, order him to put down his arms and retire. If he does not instantly comply, shoot him." Our usual good luck has stood by us however, and we have confined ourselves, in our shooting, to natural history specimens.

The Spanish authorities have been very kind, giving us all possible aid in our work, and in spite of difficulties, the results have been very satisfactory. Before leaving home I compiled a list of Sulu birds, but could find only twenty-seven recorded. Immediately on our arrival I began to make inquiries as to whether other naturalists had been here. I finally heard of a person who was here in 1886. Whether my list includes the results of his work I cannot tell. If it does, we have added fifty-eight species to the birds known from the island. There is no virgin forest however within a day's journey of town, and it is simply out of the question for us to go farther away than that. As it is we have had one or two close shaves. On October 1st ten Moros are reported to have laid an ambush for us on the path we had always taken before. By the merest chance we went another way that day, and they caught a Tartar in the shape of a lot of soldiers, who were out hunting for some cattle that had been stolen the night before. Last Saturday we caught sight of a single Moro sneaking up on us with a rifle. He sprang into the high grass the instant he saw we had discovered him, and made his escape.

* * * * *

We have a great puzzle in the small blue kingfishers of the genus *Ceyx* from this place. They vary from the form with indigo-blue back to the form with silvery-white back and not a vestige of blue about it. One seeing only the two extremes

would not hesitate about separating them, but with the series of specimens that we have it is a hard matter to decide what should be done. It is one of the cases where it would be convenient to "throw the intermediate forms out of the window."

Reports as to Tawi Tawi are most encouraging. The natives are friendly, we are assured that we shall find virgin forest at our very doors, and that there are fifty birds there for every one here. The Spanish authorities agree that the island has never been visited, and the natives agree that the birds there are different from those here. Theoretically they ought to be, and we hope to break the record both on number of specimens and number of new species. Present indications are that Tawi Tawi will prove one of our best islands, if not the best one of the group.

The drawbacks are scarcity of food, and the prevalence of malarial troubles, but we have plenty of provisions and plenty of medicines. From Tawi Tawi we shall return to this place, and I will report again at that time.

Some valuable Moro arms have been presented to us by Spanish officials here in Sulu. We shall make a much more complete collection of arms, articles of dress and utensils of one sort or another before our final leave.

Very truly yours,

DEAN C. WORCESTER.

IV.

Sulu, November 12, 1891.

Your letter of September 11th was waiting for us on our return from Tawi Tawi a week ago, and was very gladly received. On the 9th of October we arrived at Tataan, in the island of Tawi Tawi. The entire north coast of Tawi Tawi is uninhabited, except at Tataan which is a small Spanish military post, kept up merely to maintain their claim to the island. There is a small fort, large enough to accommodate one company of soldiers, who are under the command of a Lieutenant. There is also a Governor, an army Captain, who combines the office of Governor, "Commandante" of the post, Administrator of the Post Office, Captain of the Port, and I cannot say how many others. The present incumbent is a very genial gray-

haired Spaniard, who treated us kindly during our stay and showed us every courtesy. Outside the fort stand the house where the Governor lives, the house formerly used by him, which fell to our lot during our stay, and the house of the official interpreter. Scattered over the neighboring hills are a few small clearings where some poverty-stricken Moros cultivate wild rice. They are without exception escaped slaves, and come from Balinbing, a pirate settlement on the opposite side of the island. Dependent on Spanish protection, they are entirely harmless, so that there is no danger in hunting near Tataan. The Governor and Lieutenant above mentioned, with a European Sergeant, are the only white men on this great island. The southern coast has always been notorious as a refuge for pirates. There are several settlements there at present, of which Balinbing is perhaps the most noted, but all the places are under the surveillance of Spanish gunboats, and as the only path across the island, which runs from Tataan to Balinbing, has fallen into disuse, we felt perfectly safe.

The house we occupied was a large one, made in the usual way, and containing but a single room. Fifteen minutes' walk brought us into virgin forest. Our first few days of work were disappointing, as we had hoped to strike an entirely new set of birds in Tawi Tawi, and it seemed as if they were going to turn out to be identical with those of Sulu. But as birds that were extremely rare in Sulu, so that we could not get satisfactory sets of duplicates, were very common here, we felt that we could put in our time profitably. Some very pleasant surprises awaited us, however. The first was a pigeon, of the genus *Ptilopus*. There are several "bloody-breasted" pigeons in the Philippines, but this one differs strikingly from all the others in having a beautiful orange spot on the breast, in place of the usual red one, as well as in the coloring of the back. It is a magnificent bird, and we decided at once that our trip to Tawi Tawi was a success, even though we got nothing else.

We did not have to remain content with this bird, however. There are three species of "racquet-tailed" parrots known from the Philippines. They are rather closely allied, and distinguished by the shade of green, the amount of blue on head, etc. Well, I shot what I supposed to be the Sulu "racquet-tail." As my man picked it up I noticed what seemed to be a great blood spot on

the back of its head. This surprised me greatly, as I had killed it with fine shot, and had been particular to fire when its head was concealed by a branch. Closer examination showed that what I had supposed to be a blood spot was a bunch of red feathers, squarely in the center of the blue spot on the head. It is a most singular modification, and it seemed at first as if it must be a freak, but this red blotch is universally present on the heads of male birds, and the new *Prioniturus* from Tawi Tawi is the most remarkable, as well as the most beautiful, species of this genus yet discovered in the Philippines. We were able to secure a good series of specimens in fine plumage.

A few days later I went to what is known as "the big river," some six or eight miles inland, to hunt for kingfishers. I expected to find *Ceyx argentata*, or some closely allied species. I did find a new red *Ceyx*, and also, to my great surprise, a new *Alcedo*. Both of these are fine birds. The red *Ceyx* resembles, in a general way, the red *Ceyx* from Basilan, though sufficiently different in coloring to leave no doubt whatever of its being a different bird, but the most remarkable thing is the change in habits. The Basilan bird is strictly a woods bird, subsisting entirely on insect food, and never found along streams. The Tawi Tawi bird is invariably found along streams, feeds on crabs and shrimps, and is so reluctant to leave the water that it is comparatively easy to shoot one after once seeing it. The *Alcedo* was a great surprise. Only one species, *Alcedo Tegalensis*, has hitherto been known from the Philippines. This ranges over the entire archipelago, and occurs in Tawi Tawi. I was so much surprised to find this new bird there that I marked the first few specimens "*Ceyx*" in spite of appearances; but I saw enough of the bird and its habits before leaving to satisfy me that it is a true *Alcedo*. We got good series of both these fine kingfishers. We also obtained a single specimen of a new black and white pitta. This was killed at the very close of our stay by Mateo, and he got so excited when he saw it that he shot it very badly, and I was obliged to make an alcoholic specimen of it. These are birds of which we can speak with considerable certainty.

We also have the following: A sunbird most resembling *Cinnyris Juliae*, of Basilan, but differing from any specimens we ever secured in the greatly increased amount of red on the

breast. It is probably distinct, but may be only a variety. An oriole, resembling *Oriolus Sturii*, of Basilan, from which it differs in having under-tail coverts invariably streaked with black. Only one of the specimens we obtained in Basilan was so marked. It also has a gray throat, not seen in Basilan birds, and a rather brighter black, probably a variety. A Phabotreron, somewhat resembling *Phabotreron amethystina*, from which it is however readily distinguished. This may prove to be a new species. A kingfisher identical in coloring with *Halcyon Winchelli* of Basilan, but differing constantly in form and size of bill. We do not know what to make of this bird. A kingfisher which greatly resembles the beautiful *Halcyon coromanda* of the north and east, with which it may prove identical. I am not prepared to say, as we have not seen a specimen of *H. coromanda* for more than a year. In any case we have secured some fine specimens of a very valuable bird, not hitherto known from the southern islands. A kingfisher resembling *Halcyon pileata*, probably identical with it, but the latter has previously been known only from Balabac. We got only two specimens of *H. pileata* during our year's work before, and I do not remember the bird with sufficient distinctness to feel sure.

In general I may say that we confined ourselves to the rare and interesting birds, and let the common ones go. We obtained a starling, probably *Sturnia violacea*, of which we could get no specimens before. We got a splendid series of the beautiful *Aethopygia* that we first found here in Sulu. We obtained a fine series of specimens of the small blue *Ceyx* which has puzzled us so much, varying from a bird with brilliant deep-blue back to one with a silver-gray back and no blue on it at all. This is the most remarkable variation I have ever observed. Other fine birds we have in abundance. We obtained in all nine distinct species of kingfishers from the island, besides several varieties. Luzon is the only other island known to possess as many, and the list has been completed there only by years of work by half a dozen different naturalists.

We put up four hundred and eleven skins. Mr. Bourns was ill during the first eight days of our stay, otherwise the number would have been larger. We could not get the slightest evidence that the island had ever been visited before. We were able to record eighty-nine species of birds. We never did so

well in this respect before, either on our former trip or on this one. Our nearest approach was in 1888 in Samar, where five of us recorded eighty-five species in one month. Samar, like Tawi Tawi, had not been previously visited.

Wild hogs are so abundant as to give us fresh meat nearly every day. Deer are entirely wanting. In this respect Tawi Tawi differs from Sulu, Basilan and the northern and central islands, and resembles Balabac and Palawan. The difference is difficult to account for.

I now come to the curious mammal of which I enclose description. Shortly before we left for Tawi Tawi the Jesuit priest here, Padre Marche, informed us that just before our arrival he had made a trip to Tawi Tawi, and had bought of the Moros there a curious animal. He said it had the face of a bear, the hands of a monkey, moved like a sloth, and was called "cocam" by the natives. He sent it as a gift to Padre Sanchez, the priest in charge of the Jesuit museum, in connection with the college at Manila. I believe nothing of this kind has been found in the Philippines before, and it makes an important addition to the rather meager list of Philippine mammals. It is evidently one of the Lemuridae, but as generic characteristics are not given in the book I have, I cannot go farther.

I am very sure the creature is nocturnal. We had a hard time to get a single specimen, but I have got track of a place where it is abundant. We expect to return to Tawi Tawi, and may obtain additional specimens. I partially skinned the specimen we have and then preserved it bodily in alcohol, so that the skin can be saved and an anatomical study made if desirable.*

Thursday, November 26, 1891.

We find it impossible to reach Cagayan de Sulu at this time, as the steamer stopped there coming down, and will not do so going back. We can however reach this island readily and more cheaply from North Borneo, later on, so it will make no difference in the end.

We shall arrive in Manila a month sooner than I expected unless the Calamianes should prove rich enough to warrant a two months' stop. I shall probably write next from Manila.

*Description published in *Zoologischen Anzeiger*, No. 389, 1892, by Henry F. Nachtrieb.

We have been unfortunate in the matter of our pictures of the "cocam." They had to be instantaneous, with one exception, and we misjudged the sun, and took them too early in the morning. I enclose one picture, which shows the creature asleep.

We have passed the time very quietly since I wrote the first part of this letter. We have killed a fine female deer, and a good wild boar, as well as some birds, but have spent most of our time in attempting to photograph Moros and learn as much of their beliefs and customs as possible.

The former task has been a most difficult one. They believe that they are sure to die soon if their pictures are taken, so we have to steal most of them. Instantaneous pictures can be taken only between eleven and one, at this time of year, and it rains at that time three days out of four.

As regards information concerning their beliefs, customs, etc., we have been most fortunate. We got into the good graces of one of the Moro dignitaries in attendance on the Sultan, and he was very glad to trade us the information we desired, for tales concerning the wonders of America. We have learned things in this way that we could not possibly have learned in any other. In fact, he has told us one thing which a Moro is forbidden to tell on pain of losing his head. I think we shall be able to give you some interesting facts concerning the Moros, on our return, and to show you some pretty fair pictures, as well.

We expect to sail for Paragua in the morning. We are well rested, free from fever, and ready for hard work once more.

Very truly yours,

DEAN C. WORCESTER.

V.

Puerto Princesa, Palawan, P. I.,

January 26, 1892.

As Mr. Worcester is at present very busy with other matters and the time before the closing of the mail is limited, he has asked me to write you, giving some account of our work in the island of Palawan.

We arrived upon this island December 1st, and had no trouble in finding a good house near the edge of the town, where we were

soon established. Our first work was to care for four specimens of *Tragulus* obtained at Balabac while the boat stopped. We secured in all seven specimens, of which we now have three in the form of skins and four as skeletons. They were all obtained by exchange, we giving a few ordinary but brightly-colored birds for them. We were very fortunate in obtaining these specimens, as this little deer does not exist in Palawan and we were unable to stop at Balabac beyond the usual halt of the boat.

The month of December was spent here in town, collecting all the birds we could get. We were very successful, as we obtained 550 specimens, of which we used in exchange for various things, probably fifty.

This month we have also obtained some birds, so that in all we have something over 600 specimens, of 99 species. Of these 25 were not obtained by us on our first trip, but we now fail to get eleven that we previously captured. Most of these however are water birds of wide range and little value. The only valuable birds that we know of, not in our present collection, are two hornbills. We were fortunate in getting a very fine specimen of *Polyplectron napoleonis*, or, as it is called here, the "royal peacock." On our previous trip we were unable to obtain a single specimen, while now we have at least a dozen males in fine plumage and an equal number of females. The male of this species is probably the most showy bird found in the Philippines. Among other rare birds obtained are, *Aethopygia Shelleyi*, *Arachuthera dilutior*, *Prionochilus Johanna*e, *Zeocephus cyaneiceps*, *Tiga Everetti*. As to new birds, we cannot write definitely as our list is incomplete, lacking some thirty species. We have one bird from the mountains that interests us greatly. It is a small, nearly tailless, brush or ground bird and the single specimen we have was caught in a lasso set for the royal peacock.

At the end of the first month's work, having a good set of birds of the island, we set out for other parts, to follow up reports that were brought us of a mountain goat and a very large monkey. We also hoped to be able to get more of the mammals of the island than we could get by staying in town. So on New Year's day we started, in company with a Spanish friend and a number of Tagbanna (native) carriers, for a small settlement named Tagbaroos, situated about ten miles up the coast and

quite near the mountains. The natives of Tagbaroos had reported to us that at a distance of a day's march from their town there existed a mountain goat. As their knowledge of the animal was very slight and we greatly doubted the existence of the animal, we sent our trusted hunter, Mateo, in advance to see if he could find any evidence. Mateo is the Malay who returned to America with Dr. Steere in 1874 and was afterwards his chief hunter here. He was gone three days and a half and reported that there was no evidence whatever of the existence of a goat in the region he visited; in fact, the country was not suitable for such an animal.

Upon the receipt of this news we decided to divide our forces, one remaining in Tagbaroos to take care of the peacocks, squirrels, wild cats, etc., that were being brought in daily by the natives, and the other going back to Puerto Princesa and from there across the bay to another native village, called Igwahit, to start the people there also on a hunt for birds and mammals. At the end of a week's time we were to unite in Puerto Princesa, to get our home mail and then start out together for Igwahit. This plan we carried out. The lot fell to Mr. Worcester to go to Igwahit, and with Mateo and one servant he left on January 5th. During my stay in Tagbaroos I was kept fairly busy with peacocks, animals, etc., and felt fairly well satisfied with the week's work.

On arriving at Puerto Princesa on January 10th, I found Mr. Worcester already there and was delighted with his account of operations across the bay. He reported that the natives had taken hold of the work in earnest and the village was engaged in setting snares or hunting animals. For two days both he and the two servants had been busy from morning till night, when a native came along and reported that they had captured a large snake and asked if he would buy it. They were in the woods hunting for porcupines and had found this snake in a hollow log and had, with great trouble, captured it and dragged it to the nearest house, where they had it tied to the posts beneath the house. After a very few questions Mr. Worcester perceived that if the snake was as large as they reported, it was an exceedingly valuable specimen, so he immediately agreed upon a price and early next morning with a servant he set out for the house.

On his arrival at the house he was pleased to find that the snake exceeded by six inches the length given by the man, actually measuring 22 feet and 6 inches in length by 24 inches in circumference. With small trouble the powerful animal was chloroformed and then killed. Then came the task of skinning it which was no small one, I assure you. But the work was done, the skin taken off, carried to camp, cleaned and salted before dark. The weather was so favorable that by the end of a week it was well preserved.

We congratulate both the Academy and ourselves on having obtained a snake of this size. That snakes even much larger than this exist here there is no doubt, but we have now spent nearly two years and a half in the tropical jungle and never before have we seen a snake that even approached this one in size. In Mindoro we secured one thirteen feet and eight inches in length and, although we hoped, still we never expected to get one over twenty feet long. But the snake was not the only thing secured at Igwahit. Together we went there the day the mail arrived, and all of that week we were busy putting up birds and animals. Some of these are worth notice.

1. The flying squirrel (*Pteromys*), of which we obtained thirty-two skins and some skeletons. This squirrel, of which we heard accounts in 1887, is a very pretty animal, a typical flying squirrel, from twenty-two to twenty-eight inches in length, varying to almost pure white. In most cases we have preserved all the bones, so that skeletons can be made in case they prove more valuable than the skins.

2. The ordinary squirrel, *Sciurus Steerii*, of which we have a number of skins, etc., and some specimens in alcohol.

3. *Tupaia* (sp.?), known here as the besin. It is abundant and we have a number of specimens.

4. A species of *Histrix*. In 1887 we obtained a single mounted specimen of this porcupine, by exchange in Manila. We now have seven skins and three complete skeletons, besides most of the bones to go with the skins.

5. Six skins and one skeleton (besides extra bones) of the "pantut."* I can give you no other name for this curious animal. In general appearance it resembles a huge mole. Its fur is very dark brown, almost black, and quite glossy. The legs

* *Mydacus Marchei* Heut, is the name standing in Occasional Papers, vol. 1, p. 61, Preliminary Notes on the Birds and Mammals collected by the Menage Scientific Expedition to the Philippine Islands, by Frank S. Bourns and Dean C. Worcester, 1894.

are short and the feet are armed with long claws for digging, the claws of the front feet being much the longer. The eyes are small, the ears inconspicuous and the tail almost lacking. The snout is very like that of a pig, and from what the natives say, the animal gets its living in much the same way as does the pig. The most noticeable feature of the peculiar animal I have not yet described nor can I. It is the odor, and it is fortunate that I cannot so describe it that you can get an idea of what it is. It is powerful and comes from the liquid contained in two small sacs placed just under the bones of the rudimentary tail. The natives here say that this animal, with its powerful odor, has driven out of the island both the deer and the little *Tragulus*. This of course is a mere superstition, as we know that both *Tragulus* and the pantut exist in Balabac. Most of the specimens that we have were caught in lassos.

6. The "manturong," of which we have a single specimen. This also we are unable to classify. The body is covered with coarse hair of a dark gray color. Eyes dark and bright, ears tufted and small, tail long and very broad at base. The head resembles that of a raccoon. Unfortunately the animal had broken off most of the front teeth, so that we could not get a good idea of the dentition.

7. A rare specimen of the melu (*Paradoxurus philippinensis*). We have specimens from most of the islands visited. Here we have obtained one that differs from all others we have seen in being pure black, the color usually being brownish.

Of most of these animals we have a good number of specimens. Also we have alcoholic specimens of the whole animal, or of parts of it.

The only animal of importance we feel sure exists here, which we did not get, is a species of cat which, from the description given us, is very much like the one we obtained in Panay and Negros.

As already mentioned, stories were told us of the existence of two other animals, a mountain goat or, as they called it, "manda rata," and a large monkey or "pakduh," and it was to prove or disprove these stories that we put in the last week of our time here. The whole country round about is mountainous, the highest peak near Puerto Princesa being called Pulgar. The Spaniards in the town informed us that the mountain had never been climbed and was inaccessible, that various attempts

had been made, but that no one had ever succeeded in getting a third of the way to the top.

The natives also said that the mountain had never been climbed, even by their own people, but they gave us the reason, the fact that the "pakduh" or large monkey lived up near the peak, and they were afraid to go up there. We did not have much faith in their stories, but the opportunity was a good one, for determining the existence both of the "pakduh" and of the "manda rata," or goat, because if the goat existed at all in this part of the island it would very likely be on this wild mountain.

So it was that we decided to make an attempt to climb Pulgar. The details of the ascent probably would not interest you. Mr. Worcester started on a day ahead and established a camp at an altitude of 2,000 feet, the highest point ever reached by the natives. There I joined him the following day and the next morning we set out for the peak. One man with a large woods knife went ahead to clear a path and others followed carrying blankets, provisions, etc. It was hard work, but was by no means so bad as represented, for by two o'clock P. M. we were at the summit. Our success was undoubtedly due to our good fortune in striking a ridge, which we were able to follow to the very top. On all other sides, with possibly one exception, the mountain appeared to be inaccessible. We spent the rest of that day and a part of the next on the peak, but failed to discover any indications whatever of the existence of goat or monkey.

The monkey is undoubtedly a myth, and although it is possible that the goat exists in the northern and more rocky part of the island, it is certain that it does not exist on Mt. Pulgar, nor could it. The mountain is very rocky but is entirely covered with vegetation, which, although stunted at the top, is thick, almost impenetrable to such an animal, and not at all suited to it.

We should like to visit the northern part of the island, as, from all accounts, it is quite different from this part, but are unable to do so. The steamers do not call there and at this time of the year it is almost if not quite impossible to make the voyage in a small boat.

Our trip to Pulgar was not without some results however, as we were able to secure a good collection of ferns and mosses.

As the mountain has never been visited before it is not improbable that there are new species in the collection.

We also found a number of species of shells that we had not obtained below, some of which may possibly be new.

We have in all over 650 specimens, of about 17 species, of which about 150, of 14 species, come from the mountains, the remainder of three species, being the common shells found about the town.

We also obtained a few butterflies while at Igwahit. Among them we have five specimens of a very rare and beautiful species. A German collector who is now here values it so highly that he considers it a good week's work for one of his hunters, if he can catch a single specimen.

We are now awaiting the steamer to take us to Culion, an island situated between Palawan and Mindoro. It is one of a group called the Calamianes. Very little is known about its fauna and we can get no information except that shells are abundant and a species of deer exists there. The largest island of the group, Busuanga, is wooded and it is not improbable that we shall cross over to it. We hope to find something new or interesting during our proposed month's stay. Thence we shall go to Manila, from which point Mr. Worcester or I will write you again.

Yours very truly,

F. S. BOURNS.

VI.

Calapan, March 8, 1892.

Since writing you last we have been in Culion and also a week in Manila. Our time in Culion was very short, three weeks of working time. We found very little forest, and that of poor quality and hard to work. The birds and mammals are very similar to those of Palawan. Among the birds there were varieties that, in some cases, might be marked enough to form new species. We cannot say that we have them new however, as, much to our surprise, we learned that the French naturalist, March, was there in 1885.

After a week's work near the town we moved to the centre of the island and for ten days occupied a small native house. Here we hunted birds with poor, and deer with good, success.

We put up fourteen skins of animals of both sexes and all sizes. We never saw anything equal the abundance of deer. We killed them with rifles and with shotguns, and caught them alive with dogs, and one of the party actually succeeded in catching a very young fawn, with his hands alone.

All told we got about 140 birds. An interesting mammal captured was a fine specimen of the Manis, a scaly ant-eater. It is identical with the one found in Palawan. We were able to get only a single very poor skin of native preparation. We secured two specimens of a squirrel which we never before obtained, but presume Mr. March got it before us. We also gathered a number of land shells of good species. Some are identical with Palawan forms, while others are peculiar to Culion or rather to the Calamaines group.

But by far our best success was with large snakes, of which we got two. The first, which is also the larger, we caught while in the interior. We had been told many stories about large snakes, so when we got among the savages we offered a substantial reward to anyone who would find and show to us a large snake. Soon after our arrival, two savages came to the house and said they were ready to take us to the "house" of a big snake, not over a mile and a half away. So we prepared ourselves for work and set out. We were conducted to a large hollow log, lying on the bank of a small stream, and through a crack in the log, we could see a portion of two coils of what seemed to be a snake 16 or 17 feet long. We stopped up both ends of the log, enlarged the hole near the snake, and after some trouble, succeeded in getting several strong rattans around the animal's body. Then the hole was still farther enlarged and we began to pull. That caused the snake to move and we soon saw that we had a larger one than we at first supposed. At first the snake braced the coils so that we could not stir it but finally the strain on its neck became so great that it relaxed its coils and with a rush it was hauled out into the bed of the brook. It was not at all active, so, after admiring it for a few minutes, we killed it by a knife thrust into the heart. It measured 22 feet and 8 inches by 22 inches in greatest circumference.. In the log we found a mass of 89 eggs which the animal had been covering.

It took us the rest of the day to skin it, but by dark we had the skin at the house. The next day we returned and cleaned

the bones, so that we have both skin and complete skeleton. ,

The day we left Culion a snake 19 feet and 11½ inches in length was brought in. We had just started to skin it when the boat came in, so we were obliged to take it on board and skin it there.

We considered ourselves very fortunate to obtain a large snake in Palawan and never expected to get another of the same size. We were therefore very much pleased to obtain two more skins and a complete skeleton for the Academy.

During almost all the time in Culion we were very much handicapped by the fact that Mr. Worcester was troubled with his eyes. What the trouble was we do not know, nor could the doctor in Manila inform us. This trouble prevented him from doing any outdoor work, with the exception of one day on our arrival, and the two days when we were working on the snake, when he went out, against his better judgment. I am pleased to say that he is now much improved and expects to be well in a few days.

We spent a week together in Manila, during which time we were very busy indeed. We had occasion to call on the Governor General, and were very courteously received. The readiness with which the several requests we had occasion to make were granted was very gratifying.

We were unable to finish all of our business in the week before the semi-monthly steamer left for Calapan, so Mr. Worcester stayed to attend to it. He will go to Batangas by steamer and then cross to Calapan by small boat, reaching here five or six days later than the steamer.

* * * * *

With regards to all, we remain

Very truly yours,

F. S. BOURNS.

VII.

Manjuyot, Negros, May 21, 1892.

You may perhaps remember this as the place where the people catch pearly Nautili in deep-sea traps. It is, so far as I know, the only place where they are trapped, and when I was here before I was informed that May was the only month in which they could be obtained to good advantage. Since then we had shaped

all our plans with a view of getting back here at this time, and it is needless for me to say that to date we have not preserved any specimens, though I hope soon to do so.

The statement that the pearly nautili can be taken only at this time seems to be untrue, as the inhabitants here say they took fifty odd in a few days' time, some four months ago, and ate them. A lot of fine fresh shells are shown in evidence. They seem to have no doubt of being able to get them now. I arrived here day before yesterday and already have everybody setting baskets. It is now too soon to hear from them.

I hope also to be able to obtain specimens of the wild cat, but cannot expect to do much else, as there is no forest within reach. I may possibly be able to get a number of species of land shells through business men who have natives at work in the mountains of the interior.

Our trip from the time we left Mindoro until Mr. Bourns reached Cebu and I got here to Manjuyot was unexpectedly short. We reached Manila in the afternoon of Monday, May 9th, and left again the following Saturday morning. During our short stay in Manila we had to repack nearly all of our collections, as we had been unable to get good cases and barrels in Calapan. This, with the work of shipping our collections and arranging an exchange with the Jesuits, made every moment more than full. Indeed, we were obliged to spend nearly all of the last night before our departure in the work of packing our equipment and supplies in order to get away.

On my arrival at Iloilo, where I had planned to spend several days, I found there was but one steamer making the run to Bais and that left in the afternoon, so I had to make another desperate rush.

We took upon ourselves the exchange of a timaran with the Jesuits, for material from their museum. They have always been very kind and courteous, and in several instances have rendered us service of great value, notably when we were having trouble with our things in the custom house on our arrival here. They have been very anxious to get a timaran, and as they had much material valuable for the Academy's collections from these islands, we felt that an exchange could be made to good advantage to both parties. The specimen we gave them was an old bull, and

perfectly preserved, yet I am sorry to say it was somewhat torn by bullets, being shot through both the head and body.

They gave us in return a collection of two hundred and fifty species of shells, mostly sea shells. We do not set a high value on this collection as most of the species are common, but it will help a good deal when it comes to the identification of the shells we have already sent home. Our exchange was chiefly for arms, implements, ornaments, articles of dress, etc., of savage tribes, largely those of the interior of Mindanao. We also obtained four wooden idols, from the same region. A good many of the articles in question are not to be found except in this collection of the Jesuits. We are to receive, also, a collection of land shells, and to take such specimens as we desire from their set of Philippine birds' eggs. We did not have time to complete the exchange, nor to pack the material. Everything is securely stored however and will be sent home when we reach Manila.

In addition to the foregoing we got a fair set of birds, small but good, including a single specimen of a sunbird which is entirely new unless obtained by Dr. Platen at the time of his visit, and this is, I think, improbable. We secured a fine lot of Mangyan material, including a partial skeleton with a good skull of a man, and a woman's skull in excellent preservation. These were obtained in deserted houses and may be of some ethnologic interest.

We found two very rough images cut out of soft stone by the Mangyans. They were in the woods, near the shore of Nanjan Lake. One was erect, sitting on a large boulder. The other was lying on the ground with its head broken off. What they were made for we could not learn. We appropriated them. We send a bow and poisoned arrow. The latter should be treated with respect.

Two large python skins were sent in the last shipment of material. One is dry, the other in one of the barrels with timaran skins. The skins of a cow and a calf timaran were utterly ruined, owing to natives getting too ambitious, and killing three timaran in one day. We threw the cow skin away, saving only the skeleton. The calf skin we sent, as the taxidermist may want to use some of the hair from it, and it took up little room.

The other skins are strictly first-class in every way, and much more valuable than the dry skins we sent before. This shipment

was by the "Jennie Harkness," an American ship bound for New York. If she makes the trip in 150 days, starting at this time of year, she will do well. Like the last ship, the "Jennie Harkness" goes to the National Cordage Co.

Stirred by our success, the Spaniards have made two attempts to get timaran in Mindoro. One of them failed utterly, and the second seemed in a fair way to, when we came along.

Wednesday, May 24. I am very glad to be able to report that the stories about pearly Nautili at this place prove to be entirely true. The natives brought in two night before last, five last night, and my only fear now is that they will bring them in faster than I can preserve them. I wish I knew how many could be used to good advantage, but shall have to use my own judgment in the matter.

Sincerely yours,

DEAN C. WORCESTER.

VIII.

Toledo, Cebu, June 25, 1892.

* * * * *

Mr. Bourns is at the present moment quite busy with one of the attacks of fever which we have come to consider a part of the regular order of things. I hope however that this will be a light attack of short duration, as is usually the case. The fever which has troubled Mr. Bourns, Mateo, and one of our boys was undoubtedly contracted in Mindoro. Personally I was very fortunate in being ill but once while there, and have had no return.

* * * * *

Work, since our arrival in the island of Cebu, has been most satisfactory in its results. Mr. Bourns arrived here sometime before I did. He found that the beautiful strip of forest in which we had expected to work had been entirely cleared off during our absence. He spent most of the time before my arrival in scouring the country on horseback, searching for a favorable place to work, and succeeded in finding one just before I arrived.

We are quartered in a small native house, or rather hut, where we suffer much inconvenience from our confined and narrow quarters, being obliged to eat and sleep in the one small room where we skin and dry our birds. We are near the forest

however, which is the chief desideratum. Good food is abundant and cheap, and we are greatly indebted to Mr. Pickford, an English sugar planter living near by, for much kindness received. Mr. Bourns stayed with him before my arrival, and we have a standing invitation to come to his house at once if we get run down, and stay as long as we like.

The number of species of birds known to exist in this island before our arrival was fifty-five. These might well be divided into two groups. One, including nearly all the species, consisted of the very common birds frequenting the open fields and groves of palms in well cultivated country. These are worthless to us now, as we have all the duplicates we can hope to handle, the species being nearly all widespread.

The other group included a few peculiar birds found about the year 1876 by an English naturalist. From that day to this no one has been able to rediscover them. We had never even seen specimens, and knew them only by name.

We have found almost every known species, including all of the rare ones but one. The latter is a small owl, of which the only specimen known was shot by myself when we were here before. This can be obtained only by accident.

We have also found just forty species never obtained in this island before, and this in spite of the fact that the island has been visited by nearly all the naturalists who have worked in the Philippines.

We failed almost completely to get the birds we wanted on the occasion of our visit in 1888, and so are the more rejoiced at our success now. This will prove one of the most valuable sets of birds obtained by us, not only because the species are rare or unknown at present, but because it is probable that within ten years the last bit of forest will have been cleared from this island and many species will become extinct. I think we got here in the nick of time. We cannot pile up the number of specimens as rapidly here as in some places, for it is rough, hard country to hunt through, and birds are scarce, but those we do get are worth having.

I may say, also, that we are "on the trail" of another big snake. He is reported to be a foot in diameter when not gorged with food, and we have offered ten dollars for him if he comes up to contract size. This would break the world's record, and if

we should get it you had better send it to the "World's Fair." I think you would capture first prize. It is very doubtful if we get him however, as he hides in caves and the natives are not over anxious to crawl into dark holes to look for him. I cannot honestly say that I blame them.

Personally I do not fear the big snakes half so much as I do the venomous ones. A beautiful specimen of a species, the bite of which is said to be fatal in an hour or two, has just been brought in. These creatures give us the crawls always, when we get hold of them, and we are half afraid to go into the woods for a week afterward, but soon grow indifferent again. I had hoped there were none here, and was not so glad to see the specimen as I ought to be from a strictly scientific point of view.

We are glad to know that the Academy is pleased with the big snakes already sent. They ought to make something of an attraction when well mounted. I hope the first skin is in Minneapolis before this.

* * * * *

Yours very sincerely,

DEAN C. WORCESTER.

IX.

Manila, September 1, 1892.

We are once more in Manila unpacking, repacking, shipping and generally preparing for another period of work in the "provinces." For the last two months, or since we wrote you last, we have been at work in Cebu and Samar. When we wrote we were very much in doubt as to the length of our stay here, but since then we have received a letter from Mr. Menage, in which he informs us that he has agreed to our proposition to extend the time of the expedition for eight months. This is very gratifying to us and we fully appreciate, as must the Academy also, the generosity shown in thus enabling the expedition to complete the work. As members of the Academy and of this expedition we feel that we are very fortunate in having so liberal, public-spirited and staunch a supporter as Mr. Menage. We hope and expect that the results of the work will fully justify the heavy outlay involved.

Our work in Cebu resulted very satisfactorily. We succeeded in reaching fairly good woods, and secured a good set of birds.

As there remains very little forest in Cebu, birds are difficult to obtain and some have not been found since their discovery years ago. We were very much pleased, therefore, to get good sets of such birds as *Phyllernis flavipennis*, *Oriolus assimilis*, *Prionochilus quadricola*, etc. These birds are even now rare and valuable, and as time goes on they will become more so because the forests of Cebu are rapidly disappearing and in a few years will be gone. We obtained two or three that are probably new, and some others that, although not new to us, are new to science, being identified with new species before obtained by us in Negros, Panay and Siquija. Among these are two small kingfishers of the genus *Ceyx* and a small sunbird. Another interesting find was that of *Aethopygia magnifica*. This, one of the most beautiful of the sunbirds, was discovered by Dr. Steere in 1874, in Negros, and up to the time of our arrival here was supposed to be confined to that island. As we wrote at the time, we found it in Panay in October of 1890, and now we find it in Cebu. It seems quite strange that it should have escaped notice in Panay and Cebu from 1784 to 1890, and we are very glad that we have been able to add it to the fauna of these islands.

We are able to report also the existence in Cebu of the "maral" or wild cat, of which you have several specimens in your possession.

On our arrival in the city of Cebu we found awaiting us a fine lot of the Venus' flower basket, *Euplectella*, which had been collected in compliance with orders left by us some weeks previous.

In Samar we were also quite successful. It was from Samar that so many new birds were obtained by the Steere Expedition in 1888, and as very careful work was done at that time we had very little hope of new birds. But as the birds from Samar are very valuable, we went cheerfully to work, and in order to be near the woods built a small house near the hills, a distance of three or four miles from town.

Living thus on the edge of the woods we were able to get an early start each morning and to spend a longer time in the woods than is usually the case. We were thus enabled to get a large, though not a complete set of the known birds. Two, or three of the birds that we desired escaped us. When we were here in 1888 there were many trees in blossom or fruiting, and from these

we could frequently get birds that are usually very difficult to obtain. This time the trees were not fruiting, and that advantage was lost to us. We did obtain however three birds that we feel sure are new, and this more than repaid the loss of the known birds. We were enabled to add several to the known list of Samar birds.

An unusually good set of the large hornbills from Samar, including both skins and skeletons, was secured. Our good fortune in capturing these birds was largely due to the discovery, by our Philippine hunter, Mateo, that these birds will answer to a call. The call is an imitation of their own note, being a short "haw" given in a deep bass and very short. It was very amusing to hear the replies of the birds and see them come flying down to find out the cause of all the disturbance. We also secured a good series of the smaller hornbill *Penelopides*.

On our arrival in Manila, we made the exchange with the Jesuit Museum and secured a fine collection of shells, Moro arms and utensils, native idols, charms, etc. We were much pleased to get hold of this material, as most of it is very valuable and difficult to obtain.

We have just made another shipment of sixteen cases, four kegs and one bundle. You will find in this shipment the birds collected during the last three months; alcoholics, including all of the specimens of the pearly Nautilus collected by Mr. Worcester in Negros; the Venus' flower basket from Cebu; a large number of land shells from Negros, Cebu and Samar; all of the material obtained by exchange; a lot of bows, arrows, etc., from Mindoro and Culion, and a collection of pottery purchased in Manila. The shipment is a valuable one and will interest not only the members of the Academy but others as well.

It was our intention, when we reached Manila, to go directly to North Luzon and the Babuyan and Batanes islands; but we learned that during the rainy season we could not work to advantage, so we were compelled to change our plans entirely.

Mr. Worcester, with Mateo, goes to Romblon, Sibuyan and Tablas, then back to Manila and down to Culion and, about January first, up to North Luzon and the adjacent islands. I go to Sulu, Tataan (Tawi Tawi), Cagayan de Sulu, and then without returning to Manila cross over to Singapore and into Borneo.

In this way we are enabled to avoid the worst part of the rainy season and cover the ground we desire.

It is of course not so pleasant this way, as we are compelled to be alone. But the work required it, so we made the change. I don't expect to speak English again until I reach Singapore in December.

I shall write to you from time to time, as will Mr. Worcester, so you will be posted as to our work.

Yours very truly,

F. S. BOURNS.

X.

Romblon, October 23, 1892.

I am waiting for a steamer for Manila which will very likely arrive before I can finish this letter; but I will at least begin. Mr. Bourns wrote the last letter we have sent you, from Manila, just before we separated. Since that time I have visited the islands of Romblon, Tablas and Sibuyan.

I arrived in Romblon seven weeks ago to-day, and was very shortly in a comfortable house. Romblon is an island almost entirely under cultivation, and I had not hoped to be able to do much here, expecting merely to make it a base of operations in visiting Tablas and Cibuyan. A steam launch left for Cibuyan shortly after my arrival, but I could not take it, as it was necessary for me to make my usual call on the Governor, and there was no time to do so before the launch left. A heavy storm of wind and rain set in at once, and lasted with little interruption for two weeks. The launch was unable to get back from Cibuyan, and I was stranded here.

I was able however to put in my time to much better advantage than I had expected. There is one bit of forest near the town, and we were so anxious to see what could be found that we hunted without much regard to the weather. The first day's work resulted in the discovery of two new birds, a "fruit-thrush"* and a flower pecker.† These were the only new birds we got, but we shot a good many old ones that were well worth having. We are well pleased, in these days, with an island that gives us even two new birds. We found forty-five species here. These three islands are famous also for their land shells, and this wet season is the very time to get them.

**Iole cinereiceps* B. & W.

†*Dicaeum intermedia* B. & W.

I shortly had all the small boys of Romblon in my service, and during our two weeks' stay made a large and, I think, a very complete collection of the land shells of the island. In Tablas and Sibuyan we made fine collections of shells also. We have about eight thousand specimens.

The shells are brought in alive, a few at a time. To sort out the good from the bad, bargain for the good ones, kill the animals and remove them from their shells, wash the shells, and then wrap each one in paper, and pack them all, has been a good deal of an undertaking. The shells are a very fine set, right through, and as we got none of these species when in the Philippines the first time, I think they will be valuable to the Academy, both for exhibition and exchange. Each of these three islands has its own set of shells.

Just two weeks from our arrival in Romblon, we left for Tablas, on the steam launch. We established ourselves in a town called Badajos. The forest was conveniently near, birds and shells were abundant and we put in two very profitable weeks. We were fortunate in having uninterruptedly fine weather during our entire stay. We found immediately two species of birds of great interest. One is a new *Diarurus*,* the other a flycatcher. I am not prepared to say that the latter is new, as there has been a species of this genus, *Philentoma*, recorded from the Philippines for some years, and while I have never seen a specimen of the bird, nor a description of it, the name fits, and I am inclined to think that we have found out at last where "*Philentoma cyaniceps*" came from. If not, a fine new species of the genus is discovered. The two new species found in Romblon are also abundant in Tablas. We shot a single specimen of an owl likely to prove new, and found seventy-four species in all. I have always feared that the birds of this island might prove identical with those of Panay. Prof. Steere felt so sure they would be the same that he did not think the island worth visiting. Fact is better than theory, however. The island differs from Panay not only in the occurrence of a number of species of birds entirely distinct from Panay representatives of the same genera, but in the absence of whole families, as hornbills and woodpeckers, as well as in the absence of deer, which abound in Panay.

We were very fortunate in making connections on returning from Tablas. Arrived in Romblon one evening in a native boat,

we left the next morning, in the launch for Sibuyan. The distance from here to Tablas is short, and the passage reasonably safe in the native boats, but it is much farther to Sibuyan, and the passage at this time of the year a very dangerous one for sailboats of any description. Had we not caught the launch we should have been obliged to wait until it made another trip.

We got to work without loss of time, and shortly found several interesting species of birds. The three which especially attracted our attention are a woodpecker, a kingfisher and a "flower-pecker." We found a magnificent flycatcher which has the colors of *Cyanomyas coelestis*, but the splendid crest on the head is longer than in any specimen of *C. coelestis* I have ever seen, and that bird has never been found in any of the islands near these. We secured sixty-four species of birds in all, and they are a queer set, quite different from those of Romblon and Tablas. I should have been glad to remain in Sibuyan another week, but we had to choose between leaving at the end of two weeks and the risk of being stranded for some time, and it seemed best to go.

Since our arrival we have been busy packing our specimens and rearranging baggage preparatory to another trip, so that we may be able to make a quick move in Manila if it is necessary to do so. I now expect to go next to Masbate.

The result of our work for the last seven weeks may be briefly summed up by saying that we have discovered a number of species of birds, possibly new; have made a larger and more varied collection of land shells than we ever did in the same length of time before, and have found what birds and animals exist in three islands where the birds and animals had never been studied before, and concerning which nothing was previously known.

The fauna of this island was probably once identical with that of Tablas, so far, at least, as birds and mammals are concerned. The present differences have been brought about by the destruction of the forest here. The fauna of Sibuyan is quite distinct. All three islands are poor as regards number of species, the difference being apparently made up, in many cases, by the great abundance of representatives of the species which do exist.

Manila, October 30, 1892. Our steamer was four days late in Romblon, and we had to wait all that time with baggage

packed, which was exasperating. We arrived here Thursday noon, and leave tomorrow (Monday) morning, having had barely time to do the necessary work here.

We are in the best of health, and hope to rush business in Masbato and Ticao. Shall be back here in five or six weeks and I will then report again.

We very heartily appreciate Mr. Menage's generosity in allowing us the extension of time, and hope that both he and the Academy may be satisfied with the results of it.

With many thanks for your kind expressions and good wishes,
Very truly yours,

DEAN C. WORCESTER.

XI.

Manila, December 8, 1892.

Since my last letter to you I have spent five weeks in the island of Masbate. The month of November is usually the worst in the year here, and this year has been no exception to the general rule. We had one typhoon, rain often fell uninterruptedly for days at a time, the fields were flooded and the paths nearly impassable from mud.

However, we raised the number of species of birds known to inhabit the island from 32 to 102, and made some valuable finds, the best of which is a fine species of *Cittocincla* entirely new to science.* The discovery of this bird was a great surprise, as I did not in the least look for a representative of the genus in the island. Many of our specimens are both interesting and valuable, and we are now in position to put Masbate in its proper place among the other islands.

I hoped to visit Ticao, but was unable to do so, as the sea remained so rough as to make it impossible to get across. Ticao is a small, heavily wooded island close to Masbate, and probably has the same fauna, but it would have been interesting to make sure.

We made a hard attempt to get specimens of the spotted deer of Masbate, riding clear across the island to reach the place where they are found, but when we arrived at our destination we found the grass where they feed and hide to be higher than our heads, and, though we hunted in the pouring rain for four days, obtained but one young specimen.

**Cittocincla supercellaris* B. & W.

The rain was favorable to the collecting of land shells, and we were very successful, getting a large collection, among which are several large and fine species not previously known from this island. One of our land shells from Sibuyan proves to be new. Unfortunately we could secure only a single specimen, but the Academy will at least have the only one in existence.

I leave day after tomorrow for a second visit to the Calamianes. I hope to be able to reach the forest said to exist in the interior of Busuanga, and to find there some birds we did not find in Culion. I propose to spend several days at first in putting into practice my ideas about securing specimens of big snakes, though I do not care to make any promises as to results. I expect also to visit the Tagbanao burying caves, and make a collection of skulls at least. I probably shall not be able to report myself for some time, but hope to have good news to communicate. Mateo and I are both strong and in the best of health, and if the weather improves, as it ought to in December, I think we can give a good account of ourselves.

Yours most sincerely,

DEAN C. WORCESTER.

XII.

Sebangan, Borneo, January 12, 1893.

As I am just about to start on a month's trip, away from all mail facilities, I shall drop you a line now. I am much gratified to hear that you feel pleased with the collections so far received. That, when they are all in, they may be satisfactory is the end toward which we are working. As I have already written both you and Mr. Menage about my Sulu and Tawi Tawi collections, I will not repeat much here. There are one hundred and eight cases in all, which I hope you will receive in good condition. The Moro arms, clothes, etc., I did not send, as I had not the collection made when the other boxes were shipped. They are now in Singapore and will be sent with my Borneo collections.

I arrived in Kuching, the capital of Sarawak island, Borneo, on December 17th. By advice of Mr. Maxwell, the Resident of Sarawak, I decided to try the Sadeng River, as the orang-outang (here called the mias) was reported to be abundant there. I left on the first opportunity, embarking on the 23rd on a small

coal schooner bound to the Sadeng coal mines. Christmas was spent at sea, pitching about in the schooner. We reached Sadeng on the 26th. A week about Sadeng convinced me that it was not the place for my work, so on January 2nd I loaded all of my goods on a small boat and started for the Sibuyan river. On reaching the mouth of the Sadeng river we met bad weather and were compelled to turn back. Not to lose time, I decided to make a short trip up a small river that empties into the Sadeng almost at its mouth. The baggage was unloaded and put in a small empty house on the bank, and on the 4th, with a light outfit and provisions for a week, I started. That night we reached a Dyak house, where I was very hospitably received. I was presented with a fowl and four plates of rice (one from each family) and in return presented each of the leading men with a little tobacco, with which I had of course supplied myself for this special purpose. Then we talked ordinary orang-outang (mias). The men were of the opinion that a mias might be obtained on a hill, an hour's walk from the house. So I decided to try it on the following day. After another two hours' talk on various subjects, I spread my sleeping mat and tried to rest. Very poor success however, as the floor was hard and the people talked and laughed till past midnight. It is the season of the rice harvest and they were all busy pounding, winnowing and assorting rice.

In the morning, with one Malay and two Dyaks, I started for the hill. The path was through the swamps and was very hard indeed to travel. A misstep sent one into soft mud from one to three feet deep. It was a rather long hour's walk, but we reached the hill at last and began to look for mias. One Dyak went on one side while the other with the Malay kept with me. About the middle of the forenoon we heard the report of a gun, the signal agreed upon, and retraced our steps until we came up with the Dyak. He was following two mias that he had found on the edge of the swamp below. They were in very high trees, but no tree is too high for a Winchester, and soon I had both mias on the ground, dead. They fell with a great crash and the larger one struck so heavily that some of its bones were broken. They were not of the largest size, evidently a young pair just started out, but were in good condition and furnished good skins and skeletons. The following day we continued on up the river to another hill, where we put up a rude shelter as protection against

rain and sun. That afternoon one of the Dyaks brought in a female mias, which we skinned next day. The next two days brought in nothing but a tupia, two squirrels and a few good birds. Two mias were seen by the men but were gone before I could get to them. So I decided to return the next day. Early in the morning it was raining, but about seven it stopped; we broke camp and loaded the boats. With two men I started ahead in the small boat and soon ran across a flock of long-nosed monkeys. I gave chase, and wading through the swamp, up to the waists in water, we ran across another mias, which we secured. Farther on down the river I shot two black monkeys, a female and a young one a month old. We arrived at the house about two o'clock, making a quick trip as we were favored by the tide, this being a tidal river.

I found that a large male mias had been brought in by some Dyaks from the Sadeng. It had been killed for at least twenty-four hours, so that my boy, whom I had left in charge of the house, was not able to save the skin. He saved the skeleton, a fine one, in good condition. Had I been on the spot the moment the animal arrived I might possibly have saved the skin by means of a warm salt and alum bath, but it is doubtful, as twenty-four hours in this climate is usually enough to start the epidermis on almost any animal.

This is a brief account of my work up to date in Borneo. I expect to start in a day or two for the Sibuyan river where I hope to get ten or a dozen good mias, besides other mammals of interest. While there I shall be beyond the reach of mails.

With kind regards to yourself and all inquiring friends, I am,

Yours very truly,

F. S. BOURNS.