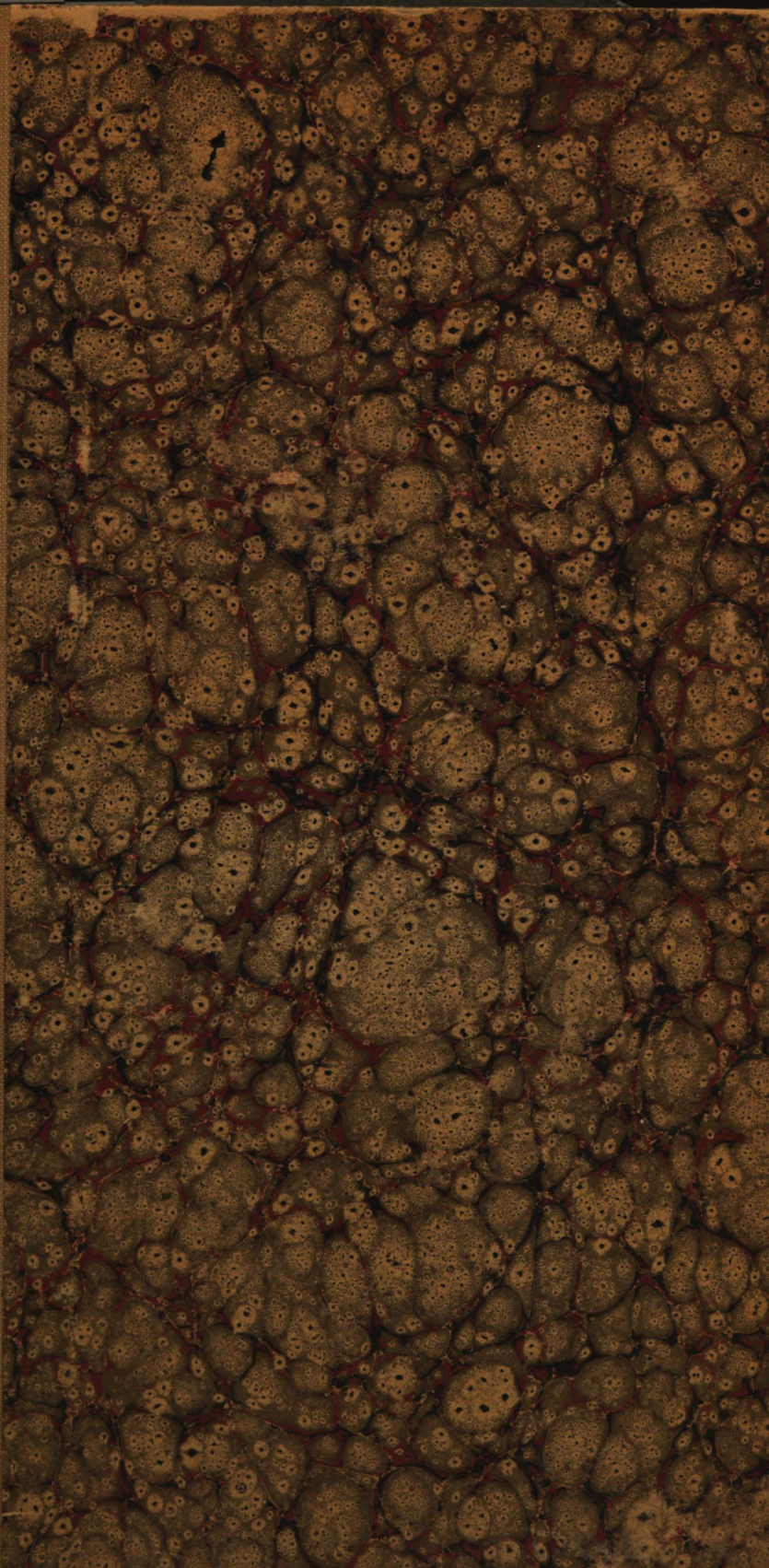


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[From the Proceedings of the Boston Society of Natural History,
June 7, 1871.]

NATURAL HISTORY

OF THE

TRES MARIAS AND SOCORRO.

BY COL. ANDREW J. GRAYSON.

Birds

BOSTON:
PRESS OF A. A. KINGMAN.
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ON THE PHYSICAL GEOGRAPHY AND NATURAL HISTORY OF
THE ISLANDS OF THE TRES MARIAS AND OF SOCORRO, OFF THE
WESTERN COAST OF MEXICO. BY COL. ANDREW J. GRAYSON.

EDITED BY GEO. N. LAWRENCE.

Read June 7, 1871.

In a paper published in the Annals of the Lyceum of Natural History of New York, Vol. x, Feb., 1871, I stated that it was my intention to publish a catalogue of all Col. Grayson's collections made in Northwestern Mexico, together with those of some others. Since then it has been thought best to give separate lists of the birds obtained by Col. Grayson at the Tres Marias Islands and the Island of Socorro.

With the other papers sent me by Prof. Henry, are the narratives of Col. Grayson's visits to these Islands, which I have permission to print with the lists of birds. Little is known or published concerning these Islands, and as they are seldom visited by persons of intelligence, the information given by so accurate an observer as Col. Grayson will be found not only entertaining but instructive. Besides ordinary incidents, observations of the physical features of the Islands, interspersed with remarks upon their natural history, are related in a very attractive and pleasing style.

Col. Grayson made three voyages to the Tres Marias, in 1865, 1866 and 1867, and visited Socorro twice, the last time in 1867.

In April, 1869, Col. Grayson made a voyage to the Isabel Islands for the purpose of studying their natural history, but unfortunately while there he contracted a fever, which terminated his useful life in August, after an illness of about three months.

An interesting account of the principal incidents of Col. Grayson's life is given in the *Overland Monthly* of Feb., 1870.

In making the exploration of these Islands to ascertain their natural history, Col. Grayson was aided by contributions of funds from the Smithsonian Institution and the Boston Society of Natural History.

All the material from Col. Grayson's papers is indicated by inverted commas.

"This beautiful group of Islands, forming the subject of the present article, is situated about seventy miles west of San Blas, and about ninety or one hundred miles south of Mazatlan, in lat. $21\frac{1}{2}^{\circ}$ north, and long. $106\frac{1}{4}^{\circ}$ west. They are respectively named, Maria Madre, the northern and largest; Maria Magdaléna, the middle, and second in size; Cleafa, the most southern, and smaller; and also San Juanito, which is the smallest lying at the northwest extremity of Maria Madre. Deep and narrow passages separate them all, except San Juanito, which is connected with Maria Madre by soundings of no great depth. They range nearly southeast and northwest. With the exception of the hacienda of Don Andres Somilara, to whom the Island of Maria Madre has been leased by the original grantee, they are entirely uninhabited.

"This hacienda, consisting of a few rude huts for the laborers, and a larger one for the Mayordomo, is situated on the east side of Maria Madre, and has been but recently established for the purpose of cutting and shipping the fine timber there abounding, as well as for the cultivation of cotton and other products.

"To these Islands I had long contemplated a visit, and at length an opportunity offering, I sailed from the port of Mazatlan, on the third day of January, 1865, with a friend, upon a very small schooner of only fifteen tons. Imagine our discomfiture when we found her decks crowded with thirty persons, all Mexicans, men, women and children, together with the little worthless dogs which always accompany the lower class of natives wherever they go. They were bound to San Blas, the vessel only touching at the Islands to discharge some provisions for Don Andres. We started with a fair breeze from northwest, which is the usual, or trade, wind of this season.

"The following morning was delightfully clear and calm, and the sea remarkably tranquil. The Islands appeared in sight in the distance, as if rising from the sea, like phantom clouds, and the scene was enlivened by numerous sea birds sailing lazily over the water, or resting in large flocks upon its glassy bosom. Large turtles lay sleeping upon the calm surface, and upon the back of each, a bird of the gannet species was standing like a sentinel.

"A turtle was harpooned by one of the crew, as it lay immediately in our track, and soup for all who had an appetite was served from

the captured prize. Large flocks of sea plover¹ were flying over and lighting upon the sea, busy feeding upon the animalculæ or diminutive shells floating on the surface. I regretted that it was out of my power to secure specimens of these birds, as having seen them frequently before when the sea was calm and always far from land, I wished to know them better; but we had not a small boat to go after them if shot. Gannets were quite abundant following a school of porpoise. A few gulls and terns were flying about, also the dusky petrel, which is always common in these latitudes.

"As the day advanced we gradually neared the Islands, and their magnificent forests were slowly unfolded to view, the ever green foliage extending to the water's edge and densely covering hill and vale. About sunset, we anchored in calm water, in a crescent shaped nook, a cable's length from the shore, fronting the small settlement of the timber cutters, a canoe came out to us and in it we went ashore, happy to be released from the miserable craft and crowd in which convenience or comfort was out of the question. We landed without difficulty, (there being no surf), upon a beautiful shingly beach, over which was scattered shells and snow white coral in profusion. We were received with a considerable degree of suspicion on the part of the proprietor, Don Andres Somilara, and it took some time to satisfy him of the object of my visit. He may justly be called Lord of the Isle, being the pioneer to this primitive region.

"Maria Madre is about fifteen miles in length, by ten or twelve in width. At the extreme southern end there is a salt pond yielding an abundance of salt for exportation, but at present no attention is paid to it. The salt is crystallized or formed by the flow and ebb of the tide, which filters through a narrow sand ridge dividing it from the sea. The pond, which is clean and free from brush and weeds, is about three-fourths of a mile long and a hundred and fifty yards wide. Maria Magdeléna is twelve miles in length and nine or ten in width; it is unoccupied and covered with a grand forest of fine timber. The immense cedar (*Cedrela odorata*) grows in great abundance on this island, not having been disturbed by the wood cutters. This tree makes the finest lumber in the world. It is also common to the coast of Tierra Caliente. Cleofa, the smallest of the three islands, is also well wooded and has a good little port. All these islands, except Juanito, are covered with a dense forest from the water's

¹ Prof. Baird suggests that these were probably Phalaropes (*P. fulicarius*). Ed.

edge to the top of the highest hills. The shape of the trees (of which there is a great variety), is generally straight or straighter and taller than upon the main. There is but little thorny underbrush, so characteristic of the Tierra Caliente.

"The morning of the 6th was bright, the air soft and balmy. As I entered the magnificent forest upon the duties of my mission, it was with no little pleasure I found the woods well supplied with birds, and noticed their remarkable docility. Many of the species were familiar to me, others entire strangers. I was surprised to find some of the species common to the main land, so tame as to be easily taken by the boys with a running noose upon the end of a rod or pole, whilst upon the main they are difficult to approach within gun shot. With but one or two exceptions the birds on these Islands are very tame, and look with but little concern upon the intruder in their shady retreats. Another fact worthy of note is that they are all very fat, so much so as to render the preparation and preservation of the specimens difficult. The papers in which they are enveloped become saturated with oil, while the skins were being dried. The abundance of food that the insectivorous birds find among the vast amount of decaying logs and branches, which harbor innumerable coleoptera and their larvæ, is one cause of their fatness; another is their freedom from molestation by man, and the various species of hawks and other animals of a ravenous nature, which keep them in a constant state of watchfulness on the main shore. If these islands are interesting to the ornithologist, they would be equally so to the botanist and geologist.

"The giant cactus (*Cereus giganteus*) grows here to an enormous size, and seems to vie with tall trees among which it is found. The dark higuera (*Ficus Americanus*) spreads its immense branches, upheld by the roots sent to earth to support them, giving the tree the appearance of the famous banyan.

"The stupendous cedar (*Cedrela odorata*) with its rough bark and pinnated leaves, its huge branches overgrown with curious orchids, is king of the woods, and resembles in its outward form the black walnut.

"The Palo prieto, with its smooth green bark, its tall and straight trunk crowned with fresh looking and evergreen foliage, together with the hardness and durability of its wood, is one of the most beautiful, as well as useful trees of the forest. Here too, the gigantic silk cotton tree (*Eriodendron anfractuosum*) with its spheroid

Pods suspended to its wide spreading branches, is conspicuous. Various other handsome and strange trees interlaced and festooned with the innumerable lianes and creepers, among which the wild hop is most abundant, overshadowing the earth, give to the forest a dark and wild aspect. Scattered through the woods is a species of maguey that exceeds in size any plant of the kind ever seen by me, their long, spear-shaped leaves measuring six to eight feet in length, the head or stalk proportionally large. When in flower, the flower stem reaches to the height of forty or fifty feet, where it branches off like a candelabra. It blooms once in seven years, and then dies. There is a great abundance of this plant growing in certain localities. The San Juanito is partly covered by it. The palms are not represented in the islands, while upon the near coast, below San Blas, they are abundant, particularly the Palma Real.

"Here are hundreds of plants to interest the botanist, many of which I am certain are new. I found the true wild cotton, not growing as a tree, but a plant laden with small bolls or pods, containing a very silky yellowish fibre, and black seed. The bolls were not well opened, but it is doubtless of the same species from which the cultivated cotton has been originally obtained. Wild tomatoes and capsicum are found growing in the woods.

"The physical and geological structure is strange and peculiar, especially so, as differing from any other formation found upon the coast.

"The indications and unmistakable evidences we read upon their surface lead us to the conclusion that the materials of which they are composed once lay at the bottom of the sea, and have been raised to their present form, at some period of the earth's history, and perhaps subsequent to the elevation of the adjacent region composing the main land.

"The stratified formation appears to be horizontal, and but little broken or disturbed, throughout the Island of Maria Madre. The strata are well defined, particularly where there is a precipitous bank or cliff exposing them to view. The composition of these layers is various. The most common is a conglomeration of sea mud and gravel, in which vast quantities of fossil shells and coral are mingled. Some consist entirely of soft sandstone, while in others lime and chalk are found. Large boulders, lying detached and scattered about over the surface, have the appearance of granite, but upon near inspection prove to be solid blocks of coral formation, which, where

they are gradually becoming decomposed, are soft and easily broken. Vast masses of fossil shells, cemented compactly together, form in many places the upper strata. Many of them appeared identical with fresh shells found upon the shore.

"I discovered no indications of volcanic phenomena. Pumice stone is found in some localities near the beach, but its rounded and water-worn appearance shows it to have been drifted there by the waves of the ocean. In fact the regularity of the strata and the general physiognomy, especially of the largest island, shows that they probably have not been subject to any remarkable convulsions.

"The island of Socorro, about two hundred and forty miles west of the Marias, which is about thirty miles in length and fifteen in width, presents a very different aspect. Its formation is entirely volcanic and its strata tilted and thrown into every position, and its high and peaked mountains prove it to have undergone severe convulsions.

"But the Tres Marias seem to have risen gently and gradually from the sea, nearly in the shape they now present, with the exception of the ravines and creek beds formed by the natural courses of the water from copious rains. In ascending the elevated plateau upon the northern and southern end of Maria Madre from the sea shore, we find the country to be as flat as a table for several miles in extent, covered with large trees and rank vegetation. This horizontal formation of the underlying strata retains the moisture in the earth throughout the dry season. It is my opinion, from various indications, that bituminous coal exists in this island.

"Good water is found by sinking a well fifteen or twenty feet. In the latter part of the dry season, I saw young and tender plants growing luxuriantly. The cotton and tobacco planted by Don Andres continued fresh and green throughout the dry season, and of very large growth, also melons, squashes, beans, etc., without irrigation. The shelly debris and vast amount of decaying vegetable matter have created an exceedingly rich and prolific soil.

"How many centuries after the islands made their appearance above ocean's waves it has taken to prepare a soil for its present form of vegetable and animal life, can only be left to conjecture or the scientific geologist to determine.

"The climate is healthy, and free from malarious influences. The usual northwest trades, which are almost constant and of moderate force, serve to cool the air, making a temperature both regular, balmy and pleasant during the year.

"In the dry season heavy dews are frequent, the drops of which I have often seen the birds sipping, for want of other means of quenching their thirst, there being but few *ojas de agua* (springs).

"Thus we see in these islands a little world, whose creation seems to be comparatively modern, and whose fauna and vegetation are in many respects peculiar to itself.

"The following list will represent the birds found upon these Islands. I include no species but those actually seen by me. In a few instances only, when I supposed the birds to be new, I have given their natural history more in detail."

"BIRDS OF THE TRES MARIAS."

VULTURIDÆ.

1. *Cathartes aura* (Linn.). "Turkey Buzzard; Sopilote."

"This widely distributed species is common upon the Islands, where it is a constant resident, or a visitor from the main land. None of the *Vulturidæ* is so well known throughout Mexico and the United States as the Turkey Buzzard.

"I did not see this bird upon the Island of Socorro. Perhaps the Islands of 'The Tres Marias' form its extreme western range."

FALCONIDÆ.

2. *Polyborus audubonii* Cass. "Caracara Eagle; Quelele."

"The Caracara Eagle, or hawk vulture, possesses the qualities of both the hawks and the vultures, and it is rather difficult to decide by its habits and manners to which it more closely approximates. In general appearance it resembles the hawk, and although it subsists mainly on dead animals and other offal, it does sometimes capture young birds, lizards, snakes and land crabs. It generally carries its prey in its beak, but I have also seen it bearing off its food, as the hawks do, in the claw.

"It walks with facility on the ground, and I have often met with it in the thick woods, walking about in search of snakes and lizards. It is very docile, frequenting the vicinity of towns and ranches, and sometime seen in company with the Black Vulture (*Cathartes atratus*).

"The Caracara Eagle is quite abundant in the Tres Marias, which is perhaps its greatest western range."

3. *Buteo borealis* var. *montana* Nutt. "Western Red-tailed Hawk; Gavilan."

"The Western Red-tailed Hawk is quite abundant on the Islands, where it subsists almost entirely upon the Iguana lizard and rabbits, which are very numerous. I also found it in the far western Island of Socorro, situated in lat. $18^{\circ} 35'$, long. 111° , where I saw a pair nesting. This must be the most western boundary of its range. It is a common species in all parts of Western Mexico, and northward to the Rocky Mountains."

4. *Pandion carolinensis* (Gm.). "The Fish Hawk; Aquila pescadero."

"I saw several individuals of this species on the Islands, a pair of which were nesting. This nest was placed upon the top of the large thorny limbs of the giant cactus."

5. *Falco peregrinus* var. *nigriceps* Cass. "The Western or Lesser Duck Hawk; Gavilan."

"I procured one specimen of this elegant species while upon the Island, which I sent to the Smithsonian Institution. When I shot it, it was endeavoring to capture a sparrow hawk (*Falco sparverius*) and had I not stopped him with a lucky shot, the little fellow would have most probably made a breakfast for his more powerful antagonist. This is another instance which I have frequently witnessed of the indifference or impartiality shown by this hawk in the selection of the game he pursues. It attacks with vigor every thing it sees upon the wing, from the size of a mallard duck down, and is the terror of all small birds. The range of this daring falcon, like the Peregrine, must be very extensive, as it often ventures far out to sea. On a passage from Mazatlan to San Francisco, in 1858, on the bark *Carlota*, one of these falcons came to us, more than a hundred miles off the coast of Lower California, and took up his quarters upon the main top yard, or mast head; it remained with us two days, during this time it captured at least a dozen dusky petrels. It was a fine sight to see him dart headlong upon these unsuspecting wanderers of the deep, seldom missing his aim; he would then return to his usual resting place and partly devour his prize. At other times he would let them drop in the sea, after they were dead, seemingly in wanton sport. He finally became tired of this kind of game, and after making several wide circles around our ship, and ascending to a considerable height, took his departure in the direction of the shores of Mexico."

6. *Tinnunculus sparverius* (Linn.). "The Sparrow Hawk; Gavilancillo."

"This common species is also found on the Tres Marias. Its geographical distribution is the entire continent of America."

7. *Hypotriorchis columbarius* (Linn.). "Pigeon Hawk; Gavilan."

"The Pigeon hawk is very common upon the Islands where it finds an abundance of small birds, pigeons, robins, etc., to satiate its appetite."

8. *Hypotriorchis rufigularis* (Daud.); (*aurantius* Temm).

"The year preceding my visit to these Islands, while in camp near the foot of the Sierra Madre mountains, not far from the mining town of Parnico, in the State of Sinaloa, I met with two small falcons, the smallest I had ever seen, which in their movements upon the wing reminded me of the Peregrine falcon. They were very small indeed, seemed to be but little larger than the large swift (*Cypselus*) found in this country, and the motions of their wings were apparently as rapid as that of the swift. They were chasing each other in a playful manner, and while observing their graceful movements, one of them captured a small parrot from a flock which had just settled on the top of a large tree. After striking this most diminutive of the parrot species (*Psittacula*) he came to the ground with it, at the foot of the same tree. I endeavored to procure one or both these falcons, but the mountains were so steep as to render it impossible. In chasing each other, they uttered a sharp whistle as t'chee, t'chee, t'chee. One morning during my rambles on the Tres Marias, hearing this well remembered note, I commenced searching for it with great caution, and soon discovered the little fellow sitting upon a dry branch of a tall tree. Unfortunately both barrels of my gun being charged with fine shot, No. 11, I approached to the foot of the tree immediately under him to lessen the distance as much as possible, but upon firing, he darted downward through the forest (slightly wounded) with the rapidity of an arrow, his wings in rapid motion like the swift. The markings of its plumage, as far as it could be discernible at the distance from me, had the resemblance of the Peregrine. This is undoubtedly the smallest and most beautiful of the Falconidæ, a rare and perhaps but little known species. I still have hopes of again meeting with this interesting falcon with better success."

In a memorandum attached to Col. Grayson's note, Prof. Baird suggests that the hawk seen by Col. Grayson was probably *Hypotriorchis aurantius*. As one of that species was afterwards obtained at the Marias by Col. Grayson, Prof. Baird's conjecture was doubtless correct.

STRIGIDÆ.

9. *Strix pratincola* Bp. "The Barn Owl."

"I did not see this owl on the Islands, but often heard at night its well known hissing scream. It is common throughout Mexico, as also in all temperate North America."

10. *Athene cunicularia* (Molina). "Burrowing Owl; Lechugacillo."

"A few individuals of this species inhabit the Marias Islands, perhaps wandered from the main land. While making a passage from Cape San Lucas, Lower California, to Mazatlan, one of these little owls came on board, so much fatigued as to be easily captured. This is some evidence of its migrating propensities."

PSITTACIDÆ.

11. *Chrysotis levillanti* Gray. "Yellow-headed Parrot; Loro."

"This large and handsome parrot is peculiar to the Islands, where it is very abundant, but is not found upon the main land in this part of the country. In the evenings they may be seen in flocks or pairs, flying very high, going to some part of the island to roost. They are so tame and unsuspecting as to be easily taken, simply by putting a running noose upon the end of a slender pole and slipping it gently over the head while it is busy feeding among the branches of the trees. They breed in the hollows of large trees like all the species. The wood cutters sell them to vessels touching there for timber, doubtless of late some of them are taken to Europe and other parts of the world."

Although this species was not found by Col. Grayson in the neighborhood of Mazatlan, it is not uncommon in southwest Mexico, at Tehuantepec, whence specimens were sent by Prof. Sumichrast; it also inhabits middle and eastern Mexico.

12. *Psittacula cyanopyga* De Souancé. "Love Bird; Catalina."

"The smallest of the parrots, and quite numerous in the Islands, where it is a constant resident. There is a closely allied species on the main land, from which the Tres Marias' variety differs in its larger size, especially of the bill, and in its deeper green color, the bill also is darker at the base, that of the main being entirely white.

"These beautiful little parrots are great favorites with every one. They become very tame and affectionate, but owing to their extreme delicacy, they do not survive long in confinement.

"Their note is rather feeble, and they never learn to utter words like some other birds of their family.

"The general appearance of the plumage is lively green, the tail short and rounded, rump in the male violet blue.

"This and the yellow headed parrot are the only two varieties inhabiting the Tres Marias."

Dr. O. Finsch (Abhand. Nat. Ver. zu Bremen, 1870, p. 353) has determined the species of *Psittacula*, collected at the Tres Marias, by Col. Grayson, to be *P. cyanopyga* De Souancé.

There are but two specimens from the Tres Marias, both females; these differ from those of the main land, of which there are eight of both sexes before me, in being of a darker green, as pointed out by Col. Grayson, they are notably darker on the rump and upper tail coverts, in the others there is a greater prevalence of a yellow shade throughout the plumage; in size and the color of the bills, they do not differ materially from the two localities; perhaps the Marias bird may be considered a darker local race.

TROGONIDÆ.

13. Trogon ambiguus Gould. "Western or Mexican Trogon; Coa."

"Although confident that this variety is peculiar to the Tres Marias, yet its congener upon the main land so closely resembles it, that I can scarcely perceive any specific difference in its general contour. A bird of so feeble flight, and always inhabiting a thickly wooded country, could never have passed from the main land to these Islands. Nature seems to have created it there, as those upon the main, with its magnificent plumage; an ornament to the dark forest, for which it shows the greatest preference. It is more abundant in the Islands than on the main land, and more docile.

"The natives ensnare them in the same manner as the yellow headed parrot.

"With all its resplendent dress, as is characteristic of such birds, its love song is not melodious. The simple and rather hoarse repetition of coa, coa, coa, is heard in the spring of the year, and from this note it has received its name by the natives. Most of the time it is silent, remaining stationary upon the branch of a tree with its head slowly turning from side to side, obviously hunting for some insect concealed under a leaf or the fruit upon which it feeds. When such objects are descried, it darts upon it something like the Fly-catchers.

"Like the parrots, it nests in the hollows of tall trees; its flight is short and undulating.

"Description of a fresh specimen. Bill pale yellow. Bare space around the eye or eyelids red. The entire upper part of this species, with the neck and upper part of breast, are of a rich lustrous metallic, golden green, more intense on the rump, with occasionally coppery reflections, especially on the scapulars.

"The forehead, sides of head, chin and throat are dull black, with (in some lights) a greenish shade.

"The wing coverts are finely mottled black and white. The quills dark brown, with the outer webs edged with white. The entire underparts are of a rich carmine red. The feathers with concealed white just below the red. A white, crescent shaped collar separates the green of the breast from the carmine. The outer three tail feathers are white for most of their length, and dusky towards the base, especially on the inner webs for about the terminal inch, the white is pure elsewhere, finely barred transversely or dotted with black, the two middle feathers are greenish coppery, abruptly tipped for about an inch with black, the remaining ones are similar, but with more of a violet tinge. Feet, pale brownish. Iris brown.

"The colors of females are much duller though otherwise similarly marked.

"Dimensions of the Tres Marias' bird taken fresh. ♂ Total length, 11.50; alar ext., 16.75; tail, 6 in. ♀ Total length, 12; alar ext., 16.75; tail, 7 in."

CAPRIMULGIDÆ.

14. *Nyctidromus albicollis* (Gmel.). "Tres Marias' Night Hawk; Caballero."

"I procured specimens of this goatsucker in the Islands, where I frequently found them upon the ground beneath the shade of rank forests.

"All the birds I shot of this species were excessively fat. Its note is simple and plaintive, oft repeated throughout the night during the love season and says very distinctly caballero, caballero, whence it derives its Mexican name."

PICIDÆ.

15. *Picus scalaris* (Wagl). "Least Woodpecker; Carpentero-cillo."

"This bird is more abundant in the Tres Marias than on the main coast, where it is also a common species. I have met with it along the Tierra Caliente bordering the Pacific coast, from Sonora to Tehuantepec. It seems to thrive better in the Marias than elsewhere, for there it is very numerous and may be seen, or its gentle tappings heard in the quiet woods at all hours of the day, busy drilling into the dried branches and logs in search of borers or white ants, upon which it becomes very fat. I found a nest (in the month of April) of a pair of these little woodpeckers, upon the Island near the sea shore, bored into the green flower stem of a large maguey plant. The entrance of the nest was beautifully rounded, and about twelve feet from the ground. This tall, slender, smooth stem, not more than four inches in diameter, with its soft, spongy wood, afforded a convenient material to work out the nest, as well as a sure protection against the raccoon or other intruders, the long spear shaped leaves armed with spines at the root, preventing the possibility of a near approach to it from the ground without some labor of cutting them away.

"They both evinced a great deal of uneasiness at my presence. As I had no instrument however, to cut away the dagger shaped leaves of the maguey, I left them with their well fortified domicil."

COLUMBIDÆ.

16. *Leptoptila albifrons* Bp. "The Ground Pigeon; Palomo."

"This dove seems to be identical with the species found throughout entire Western Mexico, and is very abundant in the Marias. It is commonly found upon the ground, in the thickest part of the

woods; it also lays its eggs upon the ground, with but little pretension to forming a nest. It is entirely solitary in its habits, rambling about in the woods in search of various kinds of seed upon which it subsists, and occasionally uttering its peculiar coo oo rr.

"Our table was often well supplied with this delicious game. The flesh is nearly as white as that of the quail, very tender and juicy."

17. *Columba flavirostris* (Wagl.). "The Blue Pigeon; Patagonia."

"This is the largest of our pigeons, and abundant in the Marias, as well as in some localities on the main land. It is gregarious and frequents large forests, feeding upon various kinds of berries, acorns, etc., etc. It migrates from one part of the country to another in small flocks. In some seasons of the year the flesh of this bird has a bitter, disagreeable taste, caused by some species of berry or small bitter acorn upon which it subsists.

"Total length of male, 14.5; alar ext. 24 in.; tail, 5.5; tarsus, 1.5; middle to end claw, 1.5; bill, white at tip, red at base; space around the eye red; feet, purplish red.

"General appearance. Slaty blue, tinged upon the lesser wing coverts and upper part of neck and back with rufous, with slight metallic lustre, second and third primary longest;—tail slightly rounded and broad."

18. *Chamæpelia pallescens* Baird. "Little Ground Dove; Coochita."

These birds are not very abundant in the Marias, but upon the main land they are quite common, also found at Cape San Lucas, Lower California.

"On my hasty visit to Socorro Island, I saw several small doves that seemed to be of this variety, but I was unable to procure a specimen, in consequence of a short stay, and sudden departure from that Island. This species, unlike the larger ground dove, builds its nest on the low branch of a bush or cactus.

"Total length, 7 in.; alar ext., 11 in.; tail, 2.75; bill, brownish black, lighter below; iris, yellow; feet, flesh color; nails brown; tail slightly rounded."

TURDIDÆ.

19. *Melanotis cærulescens* (Swain.). "Blue Mocking Bird; Mulato."

"One of the most abundant as well as interesting song birds of

the Marias. They are tame and confiding; allowing persons to approach very near them, often following me in the woods, evincing considerable curiosity, and uttering mimicking cries, and occasionally breaking out into the richest song, awaking the echoes of the silent woods. Like the true mocking bird (*Mimus polyglottus*) this bird is solitary in his habits, showing great aversion to the companionship of its own species, and combats between them are very frequent. The notes of this bird are full and melodious; at all seasons of the year the woods are enlivened by its mellow song, and during the spring or love season, it is particularly so. They make excellent cage birds, are easily kept and soon become reconciled to their prison even when taken at an adult age.

"This bird seems to differ but little from the species on the main land.

"General appearance, dark slaty blue, lighter on the head and neck, with a black streak in front and around the eye. I have sometimes met with specimens in which some of the feathers of the wing and rump had changed to pure white, giving them a singular and unnatural pied appearance.

"I saw one that was nearly white. The black bill, which is gently curved and rather slender, is about as long as the head. ♂ Total length, 10 in.;—extent of outstretched wings, 13 in.; tail, broad, graduated or rounded, 4.5 in.

"They inhabit the densest forests and thickets, spending much of their time upon the ground, turning up the leaves with their bill in search of insects."

20. *Turdus flavirostris* Swain. "Mexican Robin; Merulin."

In general appearance this thrush resembles its allied species (*Turdus migratorius*), the common robin of the United States, and like that bird is also partly migratory in its habits. They frequent the Islands in great numbers, and become excessively fat upon the various kinds of berries which they find in abundance in the Marias. They also breed there. This bird is common on the main land, in the vicinity of Mazatlan, Tepic, Bendaras Bay, Colima and Tehuantepec.

"Prof. Baird says this species is but little known to ornithologists at the present time, none having been obtained by Boucard, Sallé DeOca and other collectors. I have sent specimens from the Marias and main land.

"Iris, reddish brown, feet brown. Total length of adult male,

9.30; alar ext., 15 in.; tail, 4 in.; tarsus, 1.15; bill, measured from forehead, .75; third primary quill longest.

"There is but little difference in the color of the sexes."

21. *Turdus grayi*, Bp. "Grey-breasted Robin, Merulin."

"Is a resident of the Tres Marias, as well as in some localities on the main shore. I procured specimens near Tepic at the beautiful hacienda of Iauja, belonging to Barron and Forbes, in the months of April and May; they were in full song then, and commencing to build their nests among the orange and mango groves that so handsomely ornament the grounds of Iauja. One was here kept in a cage and its melodious whistling notes could be heard for some distance. Their song somewhat resembles the northern robin (*Turdus migratorius*) but is more voluminous.

"The Marias and Tepic are the only localities I saw this thrush; it is however, doubtless much more widely distributed."

22. *Turdus ustulatus* Nutt. "Wood Thrush; Merulincillo."

"I found this little thrush in the month of January, quite abundant in the thickest of the woods of the Tres Marias. It is very timid and shy, more so than any bird I saw upon the Islands; it frequently uttered a low plaintive whistle, and seemed solitary in its habits. I am unable to state whether it is a constant resident upon the Islands, or only a migratory visitor.

"*Special Characteristics.* Third and fourth quill longest, (counting the spurious one); tail nearly even, or but slightly rounded. Upper parts uniform reddish brown, with a faint olivaceous tinge; fore part of the breast tinged with a brownish yellow, becoming paler to the chin; the remaining parts are white; sides of the throat and fore part of breast, with small, distinct, triangular spots of well defined brown; sides of the breast more obsoletely spotted, and sides of body washed with olivaceous yellow-brown. Under wing coverts yellowish brown, the basal portion of the entire inner web of the secondaries pale yellow or buff. When the wings are outstretched, and particularly when the bird is in flight, this shows a broad and rather faint (although distinct) whitish band across the wing. Bill, brownish, under mandible yellow at base. Length, 7.50; wing, 3.75; tail, 3; tarsus, 1.12."

23. *Mimus polyglottus* Linn. "Mocking Bird; Censontli."

"I saw a few individuals of this interesting and well known songster, which were very shy and seemed to be lost or out of their range; perhaps wandered from the main land. This is not improb-

able, as during a voyage from Guaymas to Mazatlan, and midway the Gulf, a fine male bird of this species came on board of our craft, so much fatigued as to be easily captured."

AMPELIDÆ.

24. *Myiadestes obscurus* Lafr. "Iilguero."¹

"In the Marias this bird is more frequently to be met with, and not so wary as on the main land; confining itself to the hilly portions of the Islands, where at all seasons its strange medley of song may be heard in the evening and morning.

"They are great favorites with the Mexicans, and we often see them in cages, in different parts of the country. They make good cage birds, and sing well, their notes, however, are very singular, reminding one of a discordant music-box.

"The general colors of this Iilguero is reddish brown on the upper parts; breast and sides pale lead color, chin and throat white, with a narrow black streak on each side of the throat, extending backward from the base of the lower mandible, about half an inch; a white ring around the eye; abdominal region and under tail coverts, white; bill, black, short, and rather depressed; feet, black; eyes black. Total length of male, measured fresh, 7.90 in.; alar ext., 12.50 in.; tail, 4.10 in.; tarsus, 1 in.; 3d and 4th primary quills longest."

MNIOTILTIDÆ.

25. *Granatellus francescœ* Baird. Rev. Am. Birds, p. 232.

"Rose-breasted fantail; Rosillo."

"This handsome little bird is one of the new species discovered by me in the Marias. I always met with it among the low underbrush in the dark recesses of the forest, hopping about among the decayed logs and brush, near and sometimes on the ground, busily searching for insects; at every move it has a peculiar way of jerking up and spreading its pretty fan-shaped tail, at the same time the head motionless, and bent towards the ground, the wings recumbent, as if intensely looking for some little beetle or grub there concealed. Its notes are a feeble t'cit, t, cit. Its habits solitary."

26. *Parula insularis* Lawr. Am. Lyc., N. Y., Vol. x. p. 4.

"Tres Marias yellow-throated Warbler; Silvestre."

¹ Pronounced Iilgaro.

"This lively little sylvia may be seen and heard in every tree, often repeating its delicate little song, at the same time busily searching among the foliage for apterous insects, and darting after passing flies."

TROGLODYTIDÆ.

27. *Thryothorus felix* Scl. "Tres Marias Wren; Reyezueto."

"Seems to be identical with the one found upon the main land, which closely resembles it. The Island species is a little larger, but the notes are similar. It is very common in the Marias, where it is a constant resident, and the only species of wren found there, where its lively song chimes in with the other songsters of the woods at all hours of the day. Total length, 6 inches."

TYRANNIDÆ.

28. *Myiarchus mexicanus* (Kaup). (*Cooperi* Baird). "Cooper's fly catcher; Alguacil de moscas."

"A few birds of this species inhabit the Islands; I usually saw it among the low bushes, darting from its perch after flies and other winged insects. They are very silent, seldom uttering a note.

"Total length, 9 in.; tail, 4; tarsus, .95; bill, brownish black; under mandible paler at the base; feet, black; iris brown."

At the request of Mr. Sclater, the type of *M. mexicanus* was sent him by Dr. Kaup, and was found on examination to be the species generally known as *M. cooperi* Baird, of which it has precedence, thus sustaining the specific value of my *M. cinerascens*, which has by many been referred to *M. mexicanus*.

29. *Myiarchus lawrencii* (Giraud). "Lawrence's fly catcher; Alguacil de moscas."

"This little fly catcher is very abundant in the Marias, where I met with them every day, in all parts of the woods. These Islands must be their most natural and favorite abode. I do not remember to have met with it on the main land. Length, 7 in.; alar ext. 9.75; bill and feet, black; iris, brown."

30. *Empidonax difficilis* Baird. "The lonely fly catcher; Tristecillo."

"Is common in the Marias, as well as on the main coast; and also in California. The accustomed places of resort of this solitary little bird are the most retired and secluded dells of the forest, where, be-

neath the canopy of the natural and shady grottos, formed by the overlapping branches intermingled with innumerable lianes, convolvulus and other creeping plants, it sits upon some low twig, watching for a passing fly; or it may be seen frequenting some secluded and shady little brook, near the surface of which it often darts upon the skimming water flies, ever and anon uttering its low and plaintive one syllabled note.

"General colors brown olivaceous above, with the entire under parts bright yellow, intense on the throat and chin; a conspicuous, pale yellow ring around the eye; also two bands across the wings of a light yellowish tinge. Bill dark brown above, yellow beneath, rather broad and depressed; feet dark brown. Total length, 5.20; tail, 2.25."

31. *Elainea placens* Scl. "Little golden crowned fly catcher; Coronillo."

"This species is rather rare on the Tres Marias."

COTINGIDÆ.

32. *Hadrostomus aglaïæ* var. *affinis* (Elliot). "Rose-throated fly catcher; Rosieler."

"In the Tres Marias, this bird is only found in the thick woods, where it is seen searching for insects, sometimes darting after them when on the wing, at other times looking for them among the leaves and branches not unlike the warblers. Its notes are feeble and but seldom uttered, and its habits solitary.

"The colors of the upper parts are dark plumbeous, inclining to dark brownish or nearly black on the tail. The top of the head with a broad, rather flattened crest, is black, shading into brownish on the forehead. The lower part bluish gray, slightly tinged with brownish on the abdomen and crissum; chin ashy white; upon the throat and fore part of breast, is a broad patch of bright carmine or rose color, a distinguishing contrast to the otherwise rather dull plumage. The wings are dark brown, edged externally with plumbeous. The bill is nearly black above or very dark brown, the under mandible, bluish horn color; feet, bluish grey, nails, bluish grey; iris dark brown."

"♂ Total length, 6.60; alar ext., 11 in.; tail, 2.75; second, third and fourth quills longest. Body robust; head, large; bill, strong, slightly decurved, and rather compressed towards the tip.

"The colors of the female are different, the entire under parts are of a pale brown or rather buff color, an obscure band of the same passes entirely around the neck, posterior to the nape; the forehead is tinged with the same hue. The top of the head and back is a dull brown, with a plumbeous tinge; tail, brown; wings, reddish brown; the crest is as broad, but shorter than that of the male, and of a darker plumbeous brown than the back."

Specimens from the Tres Marias agree closely in color and dimensions with specimens from Jalapa, being somewhat smaller than examples from some other parts of Mexico.

ICTERIDÆ.

33. *Icterus graysoni* Cassin. "The Tres Marias Oriole; Calandria."

"This superb oriole is one of the most beautiful of its kind, and is entirely confined to the Islands of the Tres Marias, where it is the only representative of its genus.

"There is a closely allied variety on the main coast (*Icterus pustulatus*) but in comparing the two, the difference in the markings is at once observable, as also the larger size of the Island bird. The Tres Marias oriole proves to be a new and interesting species to be added to the already long list of the *Icteridæ* at present known.

"The nest of this oriole, like all of its congeners, is pensile; generally suspended from the extreme end of a slender, decumbent branch or twig, in some shady spot, where it may swing to and fro by the breeze free from entanglement with other branches. The nest, which is purse-shaped and about twelve or thirteen inches in length with the entrance near the top, is composed of a long, narrow grass or the fibres of maguey leaves, which are very strong and elastic, and lined with silk cotton; it is firmly and well woven together, and would be difficult to pull apart; it differs a little in form from those found in the vicinity of Mazatlan.

"Few birds surpass the oriole in discovering the hiding places of the various kinds of insects and their larvæ, upon which it feeds. With its exceedingly sharp bill it searches and probes every crevice in the bark and leaves of trees, and with unceasing industry, the number it destroys in one day alone must be very great. Thus we here see beauty and elegance combined with utility, in the place assigned to this species in the great economy of nature, in checking

the accumulation of the insect kind. During my stay upon the Islands, I often saw them clinging about decaying logs or branches sometimes with their heads downwards, busily engaged in piercing the rotten wood in search of wood worms or borers and white ants; it also feeds upon various kinds of fruit, Pitahaya (*Pitajia cactus*) they are very partial to. In the Islands of the Tres Marias these birds become excessively fat, finding there an abundance of food; with nothing to molest them in their peaceful green island home."

TANAGRIDÆ.

34. *Pyrrangia bidentata* Swain. "Tres Marias Tanager; Burion."

"I found this species abundant in the Islands, where it is a constant resident. I have nothing especial to note of its habits."

VIREONIDÆ.

35. *Vireo hypochryseus* Scl. "Tres Marias Vireo."

"This species is quite common in the Marias, where I found it in all parts of the woods, from time to time uttering its cheerful little song."

FRINGILLIDÆ.

36. *Cardinalis virginianus* (Linn.). "Cardinal Grosbeak; Cardinal."

"This bird is remarkably abundant upon the Marias, where it is a constant resident. It is not so numerous on the main and adjacent land.

"I was surprised to find this old and familiar acquaintance in this remote region, upon the very confines of its wide-spread geographical distribution, where its bright red plumage, its beautiful crest of crimson, its charming song, and above all its fondness for the habitation of man, — recalled the almost forgotten associations of my earliest boyhood days, in a far distant land."

37. *Chrysomitris mexicanus* Sw. "Mexican gold-finch; Canario."

"This is another species found in the Island which is also common to the main land."

TROCHILIDÆ.

38. *Circe latirostris* (Sw.) "Shiny Green Humming Bird; Chopa-flores."

"I found but two species of humming birds in the Islands, and these were quite numerous. The present one is decked in a brilliant plumage of shiny green upon the upper and lower parts, with the exception of the front part of the head and chin, where the green shades into an invisible dark blue—these colors in some lights give forth bright metallic reflections, more beautiful than the purest emerald; the wings are a purplish brown and considerably recurved; the tail, which is moderately short, is forked, the feathers of which are broad and dark; shiny green above, with a slight obscure tip of lighter color; the crissum white, with dark invisible green marks upon the under tail coverts. Bill, compressed at base; where it is orange red, both above and below, the rest black; it is slightly curved or arched, and .75 in. in length. Total length of bird 3.5 inches.

"The nest of this lovely species, which I had the good fortune to discover, is equal in interest, and as beautiful in form, as the bird itself.

"This elegant little structure I found attached to a slender twig, and shaded with its leaves, about five feet from the ground. The situation was fronting the sea, but a few paces from the water's edge, where the first beams of the morning sun dissolved the dews. Its form is cup-shaped, and composed of the down of the silk cotton tree (*Eriodendron*), intermingled with the down of other plants and spider webs, the whole exterior neatly studded with diminutive whitish lichens; it contained two newly hatched young, but little larger than flies."

Col. Grayson's description, as given above, differs from *C. latirostris* in making the front blue and the tail green, whereas in that species there is no blue on the front, and the tail is steel blue; in all other respects it agrees with *latirostris*; as Col. Grayson says he obtained but two species of humming birds at the Marias, and I find in his collection from there only *P. Graysoni* and *C. latirostris*, I can only conclude that his description is intended for the latter species, and the errors were made by some inadvertence. Col. Grayson states that neither of these species inhabits the main land, but in his collection from Mazatlan, no doubt made subsequently, I find a spe-

cimen of *C. latirostris*; *P. Graysoni*, however, has not been found elsewhere than at the Tres Marias.

39. *Pyrrhophæna graysoni* Lawr. "Cinnamon-breasted Humming Bird; Chopa-flores."

"In my visit to the Tres Marias it has been my good fortune to discover this new addition to the large group to which it belongs.

"This rather large humming bird is very abundant on the Islands, where they seem to be continually at war with each other; in fact they attack every bird, and even the butterflies, should they approach some chosen flowering plant which they guard unremittingly as their own treasure. As they dart like a golden sunbeam through the woods, they often utter their shrill note of t'weet, t'weet, t'weet.

"Sometimes combats between them become of a desperate nature. One day while watching a number of them in active motion around some tobacco flowers (of which they seem to be very fond) two fine males after darting at each other for some time, at length came to a deathly struggle, high above my head; they finally clinched each other, each having one of the mandibles of the other in his mouth, at the same time scratching with their little claws, and using their wings with the greatest force, and in this situation, whirling round and round they fell to the ground near my feet. During this terrible conflict, in which passion and desperation were exhibited, I observed them for a few seconds and then gently placed my hat over both; even after they were thus captured, and I held one in each hand, they evinced a desire to continue the war.

"I have seen this species frequently darting from its perch upon passing diminutive flies like a real fly-catcher. I found the gizzard, when examined, always well filled with them and other minute insects.

"Neither of these species have I seen on the main land; it would seem, therefore, that they belong entirely to this locality, where perhaps other species may yet be found.

"Here amid such luxuriance of flowers and leaves, and wild entanglement of climbing plants and vegetable glory, it would be surprising if no others should be discovered in this favored spot, where the flowers seem to vie with the brilliant tints of the 'brave little humming bird.'

"The bill of this species is long, but slightly arched, depressed at base, where it is orange-yellow above and below; the rest black the wings a little recurved, and of a purplish brown, tail with broad

feathers and slightly forked, is of a deep cinnamon red, tipped with black and green reflections; the balance of the upper parts golden green with metallic reflections, slightly tinged with rufous on the forehead. Entire under parts light cinnamon red, or rufous. Iris, brown; feet dark brown. Total length, 4.75; alar ext. 6.5; bill, 1.02; tail, 1.75."

- 40. *Thalureia luciae* Lawr.
- 41. *Florisuga mellivora* (Linn).
- 42. *Cyanomya guatemalensis* Gould.
- 43. *Petasophora thalassina* (Sw.)
- 44. *Chlorostilbon insularis* Lawr.

The last five species were obtained at the Tres Marias by Capt. J. Xantus, and none of them were observed by Col. Grayson, nor did Mr. Xantus obtain either of the two found by Col. Grayson.

ALCEDINIDÆ.

- 45. *Ceryle alcyon* (Linn). "Belted Kingfisher; Pescadero."

"I met with this species along the sea shore, sitting upon the rocks, solitary and rare. It appeared to be accidental in the Tres Marias, although I observed one or two individuals upon every visit I made to the Islands. It is common upon the main land in this locality."

HÆMATOPODIDÆ.

- 46. *Hæmatopus palliatus* Temm. "Red billed Oyster catcher; Agarrador.

"Common on the sea shore of the Marias, as also on the main coast, from whence perhaps it visits this locality."

CHARADRIIDÆ.

- 47. *Ægialitis semipalmatus* (Bp.). "Little Plover; Frailecillo."

"I procured one specimen of this bird on the shores of the island."

ARDEIDÆ.

- 48. *Ardea herodias* Linn.
- 49. *Herodias egretta* (Gm.). "Garza."
- 50. *Garzetta candidissima* (Gm.). "Garza."

"The above three species appear to be only accidental or straggling visitors to the shores of the Marias. Common on the main land.

51. *Nyctherodius violaceus* (Linn.). "Yellow-crowned Night Heron; Garza."

"I procured a few specimens of this heron in the Marias, some of which were in adolescent plumage; this led me to suppose that a few individuals may breed there. I found it in about equal numbers in the Socorro Island. It is a common species upon the main land."

LARIDÆ.

52. *Haliplana fuliginosa* var. *crissalis* Baird, M. S. "Black-back Tern; Sooty Tern."

"Numerous in the vicinity of the Islands of the Tres Marias; it breeds upon the small island of Isabele, near San Blas. This species is never seen near the main shore, usually keeping far out to sea. I have never met with it in any other locality, but the southern part of the Gulf of California in the neighborhood of the Marias. It appears to be semi-nocturnal. It is a constant resident in the localities above cited."

This differs from *H. fuliginosa* in having the under tail coverts tinged with ashy, instead of being pure white.

"This comprises the list of land birds discovered by me during my comparatively short stay upon the Marias; doubtless a farther investigation may bring to light other species from this interesting locality.

"Various species of sea birds common to these latitudes are seen along the shores and rocks, which I have excluded from this catalogue as not being strictly inhabitants of these islands, but noted wanderers of the sea."

"Of mammals, I discovered but two species of any importance; one a rabbit, apparently a new species and very abundant, and the common raccoon.

"A small species of bat is found, and I also saw indications of wood mice, and was informed that a small species of opossum inhabits the woods, being but little larger than a common mouse, perhaps related to (*Didelphys tristriata*)—an allied species of one I found in Tehuantepec."

"Among reptiles, there are two or three species of tree snakes, and

the Mexican anaconda is sometimes met with. Various species of lizards are abundant, among which a very long one, two feet in length, known as the iguana, is very common; scarcely a hollow tree in the woods but is occupied by some venerable hermit of this species, who may be seen basking in the balmy air just in front of his door, into which he darts when you approach too near. They are all harmless. This species appears to be different from those found upon the main land."

"Of Shells, there is but one variety of land shells, which, however, exists in great abundance. It has six whorls,—increasing regularly, streaked longitudinally and irregularly with white and bluish horn colored stripes,—average length, two inches. I found many of these shells during the dry season, in hollow trees and knot holes; in this situation I always observed that the shell itself had closed its door with a gummy substance, evidently intended to exclude the dry atmosphere, thus hibernating until the rains awakened them again from their winter sleep."

"NOTE. About half past ten o'clock P. M., Jan. 25, 1865, an unusual large and magnificent meteor passed over the Island, in a northeast direction, exploding near the surface of the water, about twenty miles distant. There were two or three very loud reports, not unlike the bursting of bomb shells, accompanied with a rushing sound, caused perhaps by its passage through the air. The Island was brilliantly illuminated for a few seconds during its passage over, the altitude of which did not seem to be very great."

EXPLORING EXPEDITION TO THE ISLAND OF SOCORRO, FROM
MAZATLAN, MEXICO. BY A. J. GRAYSON.

"Socorro is the largest of the group known as the "Revillagigedo Isles," and is situated in Lat. 18° 35' and Long. 111°. It is about twenty-eight or thirty miles in length and twelve in width; its greatest altitude 2,000 feet; the shores are bold and rocky, and as there are no sand beaches, to make a landing in any of its coves, even in calm weather, is attended with great difficulty if not danger.

"The entire island is rent and torn by volcanic action, to such a degree as to render travelling in the interior very laborious.

"The "Revillagigedo Islands" were so named by Capt. Collnett, in 1793, in honor of the Mexican Viceroy. Capt. Collnett was commander of the British vessel captured by the Spaniards at Nootka Sound in

1788 or 1789, and carried to San Blas as a prisoner, where he was confined some time, but was released by order of the Viceroy, then in the City of Mexico.

"The Island now called Socorro (Succor) was discovered by Hernando de Guxalvo in 1533, and was by him named "Santo Tomás," which name it bears on all the ancient maps and charts. It derived its present name from the timely relief which it afforded to a ship's crew suffering severely with the scurvy, who were completely restored to health by the use of that valuable antiscorbutic, the prickly pear, which was found in abundance on the Island. This was in the latter part of the last century.

"On the second day of May, 1867, about 5, P. M., we sailed from the port of Mazatlan on board the sloop "Republicana," of twenty-five tons, commanded by Capt. Garcia, a Mexican.

"My companions were my son, Edward Grayson, and my Mexican servant, Christobal, a boy of fourteen years, to assist me in making my collections of Natural History, etc. A Mr. Anderson accompanied the expedition, representing other parties, for the purpose of examining the Islands as to their utility for farming and other purposes; my object being to make a more thorough research of its natural history, than I had done on a previous visit. The wind being fair but light, we made a good offing by dark, and headed for Socorro Island. At 12 M. of the 3d, Lat. $22^{\circ} 50'$, Long. 117° , the mercury was 85° Fh. in the cabin, and very warm on deck, there being no shade. On the 4th we sighted the "Tres Marias" Islands, bearing south of us. We continued four days in sight of these Islands at a distance of thirty miles from them, with calms and light winds. We amused ourselves fishing, in which we had considerable success, — there being soundings for some distance northwest from these Islands. A small green humming bird paid us a visit, of the species I found abundant on the Islands when I was there three years ago, and excited our astonishment that it should venture so far from its green retreats; it remained but a few moments, apparently examining our vessel, when it suddenly departed for its island home."

"The blackbilled terns were numerous on these soundings, as well as guillemots, petrels and gannets. Occasionally a tropic bird (*Phaeton*) came around with its long tail feathers glistening against the sky. But none of these birds came near enough to be shot. With our scoop net we procured a number of floating sea snail shells, buoyed upon the surface of the water by means of a thin substance full of

little air cells, which resembles sea foam. The shell is very fragile, has three whorls, and when disturbed ejects a purple fluid; we saw many of these shells floating on the sea in calm weather, between the Marias and Socorro Island. On the 9th the Tres Marias Islands had disappeared below the horizon. Numbers of black-billed terns fly around to-day of which we shot and prepared two specimens; at 12 o'clock M., Lat. $20^{\circ} 38'$, Long. 108° , the mercury stood at 86 Fh. in the cabin. From this time forth the voyage was very monotonous, until the 14th, when we at last sighted the Island of Socorro, at half past 6 P.M., bearing west, my son being the first to see it.

"By this time the wood for cooking purposes had entirely given out and our provisions were also getting low,—we had neither pickles nor vinegar, nor dried fruit nor vegetables of any kind; nothing but dried beef and hard bread, with a little coffee and tea, and all on hand would not last more than twenty days even with strictest economy at that, notwithstanding according to the charter contract, there was to be provisions for two months. But I came to the determination, that if we reached the Island, I would live upon fish before leaving it until the object which brought me there had been accomplished.

"For four days, the wind headed us off from the Island most provokingly, or rather from a landing place. We first endeavored to go around the north side, but found it too difficult on account of head winds; we then tried the south and after beating against the wind and a strong current, finally reached the cove marked on the chart as Cornwallis Bay. In this cove, I had been two years previously.

"Although it is a very unsafe anchorage, yet it is the only place we could find fit to come to anchor, in which we might lay with any show of safety. The shores of this cove are rough and rocky, upon which the sea breaks in the calmest weather. There is no beach to land upon, instead of which, at its head, are heaped up round water-worn stones, and its sides are bold and precipitous. We did not see when sailing nearly all around this Island, any beaches or a better place to land than this little cove, which opens broadly to the southwest.

"On the 19th of May, seventeen days from Mazatlan, we ran into this little bay with a fair breeze, and delighted with the green trees at the head of the cove and the song of birds among them. But the captain appeared to feel a great deal of uneasiness at the general

appearance of things. He let go the anchors as he thought a little too near the shore, and the breakers so near and all around, filled him with fear; and just when we felt that all was safe and our voyage at an end for the present, he ordered the anchor to be hauled up and at the same time the main sail hoisted, with the intention of beating out against a head wind; his excuse was that the anchor would not hold. But this movement proved fatal to our craft. Before headway could be made, she was driven in by the wind and swells among the breakers near the shore; both anchors were again "let go," but it was too late, her doom was sealed. We made every effort to haul her out by kedging with the small anchor, this being taken ahead with great difficulty in the little skiff and dropped—we would then pull upon the chain; but futile was the effort. Her centre board had already struck and broken off and her keel was thumping on the rocks as she surged heavily at her chains, which threatened every moment to part.

"We now turned our attention to saving the water and provisions; the former giving me the most anxiety. As for the latter I had no fears, as fish of excellent quality swarm around the shores and are easily taken with hook and line. We still had hopes of saving the sloop when the sea became a little smoother, as she was not yet much damaged. We however, made preparations for landing everything we could. A rope was fastened to a point of rocks about twenty-five yards distant, to facilitate our landing, and the skiff was pulled back and forth just when the sea would give us an opportunity of jumping ashore; much caution had to be used in this exploit, the sea breaking furiously at times upon this rock.

"Mr. Anderson being sea sick, from which malady he suffered the entire voyage, was first put on shore, afterwards my son and the boy Cristobal were landed, in order to receive the different articles as they were thrown to them from the skiff. The water casks were all hoisted on deck in order that should the sloop break up, they would float ashore; the provisions, guns, ammunition, and other articles most needed for the expedition were all soon safely landed.

"I remained on board till all these things were on shore. Cristobal, who had gone a few steps up the cove, suddenly cried out to me with demonstrations of the most lively joy, "*agua, agua-dulce,*" pointing at the same time to an ugly pile of rocks upon which he was standing.

"There indeed we found a small spring of warm water gushing out

of a seam in the solid rock that forms a precipice on the western side of the cove; it was partly concealed by a pile of rocks and boulders, which is often covered by the tide, and the spring so low down would naturally be taken for tide water running back into the sea.

"The uncertainty of the length of time we would have to remain before being rescued from our exile, for it is well known that vessels seldom pass near this island, rendered this discovery of the highest importance. The contemplation of the hardships, toil and intense suffering in searching for water in a locality where it seemed extremely doubtful of success, filled my mind with the greatest anxiety, but it was now dispelled by this unexpected discovery, and I felt pretty certain that the preservation of our lives depended upon it. This I became more and more convinced of, as we made frequent and laborious excursions without being able to find it elsewhere.

"During the day the sea became rougher, and the small anchor chain parted and nearly all of the sloop's keel broke off. She still held by the larger anchor.

"All the articles landed were taken up to the place selected for our camp, beneath the shade of the trees, which at the head of the cove are of profuse growth. As soon as it was dark, being much fatigued by our day's work, we retired to sleep. About two o'clock, A.M., we were aroused by the loud shouting of one of the sailors left on board the sloop. We hurried to the spot and found she had broken the chain and was already hard and fast upon the rocks close to shore, rolling and thumping, and the water casks which had broken loose were dashing about over the deck most frightfully, endangering the legs of the poor sailor. On the 20th, every movable article that remained on board was taken off; this was safely done, because at low tide one side of the vessel could be reached without the aid of the little skiff, which was now hauled up on shore for safety. Nearly everything was saved, even the clock, cooking stove, culinary utensils, implements, sails, etc., all of which; the smallest articles, we prized and treasured up for some future necessity, in anticipation of a long abode amid the wild solitude that surrounded us. We arranged our camp in order, beneath the strange trees, the trunks and branches of which are bent and crooked into every conceivable shape. The wide spreading branches, thickly clothed with leaves, were ample protection against the intense rays of the sun.

"This tree seems to belong to the *Euphorbiaceæ*. When the bark

is cut a thick milky sap flows freely, and very soon becomes congealed, which would doubtless form caoutchouc; it bears a fruit resembling small green apples, and also contains a profusion of milky fluid. This fluid is poisonous to the skin; some of the party were poisoned by it. These are the largest trees upon the Island, and the largest of them would not measure quite three feet in diameter at the root; but the branches which commence near the root are long, and horizontally inclined toward the ground, the leaves are ovate and smooth, of a delicate green color, the fruit also smooth, contains clusters of hard seed inside the pulp, the flowers are without petals or fragrance. Specimens of this tree, together with all the plants collected and packed up, were unfortunately left behind. Other shrubs and plants found upon the Island are of a scrubby nature. Among the branches of the trees around our camp, the little warbler (*Parula*) and a busy, happy little wren, sing from morning till night. The new mocking bird, too, occasionally gives us a touch of his melodious song, sometimes imitating the scream of the *Buteo montanus*, and the pretty parakeets with their grass green plumage are chattering and whistling all through the grove. Numbers of the little towhee finch (*Pipilo*) that pointed out the water to Cristobal, came around us picking up the crumbs of hard bread thrown to them, and drinking and bathing in a basin of water placed on the ground for their special use. All these birds were remarkably tame; they confidently came around us, and seemed to be as much pleased with our society as we were with theirs.

“Our camp was now put into systematic order. We constructed seats of boxes, and out of the hatch covering of the sloop we made convenient tables, also swinging shelves for drying specimens upon. The stove was put up for cooking, and an excellent fish (called by the Mexicans *cabreca*), was caught with hook and line, just as needed for the table. This species is very abundant and fat, some of the largest would weigh from ten to twenty pounds; they are oblong in shape, with large mouth, and of mottled brown and grey color, swim near the bottom and are very voracious. There are several other species in great abundance, some of which are very pretty. One kind is of a brilliant bluish green color; another species resembles the gold fish. Many of these fish are new to me, and may be to science, but I was unprepared for preserving specimens of this nature for the want of alcohol.

“As our small stock of provisions would soon be exhausted, we

came to the conclusion that fish would be our principal means of subsistence; under these circumstances, however, we were in good spirits, and went to work as though nothing had happened, in making collections and exploring the Island.

"The climate is very uniform and balmy, in the shade the thermometer varying only from 70° to 75° Fh., and almost a constant breeze from the west or northwest. On the 21st we went some distance exploring and hunting. My son discovered the signs of the hogs, a pair of which I left here two years ago, from the number of tracks large and small seen, they have increased. This was a happy discovery, as we could now have lard to fry our fish. He captured a very small owl and a new dove, both new species I think. I found the country exceedingly rough and barren of trees, with the exception of a few scattering ones in the gorges, though otherwise clothed with low brush, of a species of *wormwood*, also coarse grass and weeds; these, combined with the sharp volcanic stones, made my progress tedious and irksome. I found no indications of mammals of any kind, and no new species of birds other than those found in our little green cove. Shot two hawks (*Buteo montanus*) and returned late in the evening very much fatigued.

"May 22. Preparing specimens all day. We captured all the birds, with a few exceptions, by means of a running noose fixed to the end of a slender pole, which is cautiously slipped over the victim's head, and with a sudden jerk the bird is secured alive; this extraordinary mode of catching birds I learned from the Mexicans on the Tres Marias Islands. About one o'clock in the night I was awakened by my dog growling and showing signs of uneasiness, when I heard some large animal walking around among the leaves and brush. I remained quiet, endeavoring to make out what it could be; it made a circle around our camp as if to get the wind of us. I at length heard it blow, which I recognized at once to be that peculiar snuff generally made by the hog family on certain occasions of alarm. I was soon satisfied as well as gratified, of this fact, for on calling to her familiarly, she came fearlessly into camp, and to my joy proved to be the same black sow that I had left here only a pig two years ago, and equally as tame now as then. She seemed to be glad to see us, welcoming, as it were, the return once more of human beings to her lonely home. She had grown to be a large hog, very fat, and far advanced in pregnancy. She remained with us constantly during our stay and gave a domestic appearance to our camp.

We left her there when we came off, where she may continue to increase the breed, for the benefit of some future castaways. We never could find the others, though we saw their numerous tracks. Day after day some of us were occupied in exploring the interior of the Island in various directions, which we always found to be very laborious and tedious, particularly as we could find no other water or new specimens of birds or mammals. The sailors and the captain were engaged in making a wall around the little spring for the purpose of keeping the tide from running over it, which it often does. The water of this spring when first coming out of the rock is warm ; it is good soft water, however, and when cooled is good for drinking.

"We kept the casks saved from the wreck, filled for fear of accident. Over the spring we marked with white paint, on the steep rock out of which it flows—thus—water ~~is~~—in Spanish *agua*, thus any one visiting this place would be sure to find it. This is the only water we found upon the Island, but it is very likely that it exists in some places higher up the mountain, in the deep impenetrable gorges, which we saw but did not enter.

"We travelled over a large portion of this Island, and found its general aspect excessively rough, lonely and forbidding. There are but few varieties of plants, as of birds ; but these are nearly all new to me. A stiff, unyielding brush, with occasional bunches of prickly pear, augments the difficulty of walking over the rough, stony surface. Large tracts of lava run to the sea on the south side, from the extinct volcanoes, leaving unmistakable evidence of their fury. These lava paths and craters can be distinctly seen from the ocean a few miles from shore. Our shoes were soon worn out by these sharp rocks, and some of our party were compelled to make shoes, or rather a nondescript between a shoe and a moccasin, of seal skin, which happened to be on board the sloop.

"On the morning of the 28th I started out early and alone, prepared to ascend the mountain and penetrate as far as possible the interior ; hoping to find something new and worthy of a place among my collection, as well as to learn more of the topography of the country. After travelling for a few miles over volcanic ridges, intercepted with brushy gulches and vast piles of crumbling sharp stones, I at length reached the head of a small, deep valley, which is overgrown with scrubby brush and an occasional small or stunted green tree ; this dry valley or gulch runs toward the southern shore of the Island ; two deep gorges are here confluent, coming from

towards the mountain peak that stands near the centre of the Island ; these gulches are very rocky and enclosed with precipices on both sides. I descended with some difficulty into this valley, for the purpose of going up one of the gorges mentioned ; they had a fresh green appearance in their narrow windings, in which water might be found ; and where there is water, there would be found most likely the objects of my research ; I observed the small ground dove (*Chæmepelia?*) passing up these gulches, may be to some watering place.

“On attempting to explore these wild and mysterious regions, I found the difficulty too great, on account of the tangled brush and the rank coarse grass that grew among it ; there were also many strange looking holes, which had the appearance of having once been the vents of an interior fire, now extinct. The ground sounded hollow, as I stumbled over these places, and a horrible sensation came over me as I thought of the danger of falling through into some dark cavern, from the gloomy depths of which there could be no return to light. With these obstacles surrounding me, the idea of penetrating this gorge was abandoned for the present. Before again ascending the ridge I set fire to the grass, for the purpose of clearing away these impediments, and would at another time make the attempt with a better chance of success. The fire soon spread with great rapidity, making clean work of brush and grass. Immense columns of black smoke ascended to the clouds and might be seen fifty miles at sea, were a vessel within that distance. On again reaching the summit of the ridge I proceeded on my course up the mountain, making my way the best I could over the rough ground. I had become very much heated and out of breath, there was no shade to invite repose, the scenery around looked dry, hot and wild in the extreme. I met with but few solitary birds, such as the little ground dove, mocking bird and little wren, and these had a gloomy, listless look, conformable to the sombre solitudes, which could call forth no song from these silent creatures ; indeed, scarcely any animal life could be seen ; sometimes a small blue lizard basking on the rocks, or a solitary grasshopper started from the grass, was all the living things to be encountered in my rambles of that day. In my route up the mountain, and upon an adjacent ridge, I beheld a large and isolated rock, which had so strange an appearance that I was led to examine it more closely. At a distance it looked like a part of a broken wall of some vast ruin. A mile or so of tedious walking

brought me to it, when I found it to be about sixty feet high, forty or fifty feet in length, and only about ten feet thick at base, standing perpendicular upon its edge and perhaps welded to a solid mass of the same formation below the surface of the earth where it stood. On examining its rough exterior I found it to be glazed over the entire surface, as if but recently taken seething from some huge melting furnace; the whole mass had the appearance of a large block of dull, yellowish porcelain, equally as hard and flinty; in places a slight tinge of pink was perceptible.

“From this point an extended view of the wild scenery lay before me with its broken and rent forms of gulches, fissures, ridges and rude heaps of black rocky scoria. The lava paths could be distinctly traced, running to the sea. Some very curious forms are produced in the jagged rocks that stand like sentinels along the rock-bound shore. One of these is the “Old man of the rocks,” at the extreme southeast point of our little bay. These rocks are exceedingly sharp and rough, extending some distance into the sea, and making a very dangerous reef. Upon one of these isolated rocks is the colossal figure of a robust man in a sitting position, with arms folded and head thrown back, gazing forever upon the eternal sea, whilst the breakers are dashing furiously against its pedestal.

“While resting near these rocks, my eyes suddenly rested upon a dark speck to the northwest. I was soon satisfied after a second look, that it was a sail, and apparently heading towards the Island with a good breeze. The smoke which I had raised and now spread far and wide had doubtless been seen. I started to camp as fast as the nature of the ground would permit, in order to signalize her should she come near enough to our cove. I felt, however, indifferent as to her coming in, as I had not satisfied myself of the full and complete exploration of the Island, and I was not quite ready yet to go.

“By the time I reached the camp none of my companions had seen her, although she had arrived abreast of our cove, five or six miles off, and under full headway was sailing past. Signals of smoke was made as soon as possible, by firing the dry grass on the surrounding hills, while my son Edward, with a white flag, ran out on the extreme point of rocks. The sight of this flag brought her to. She came within about three miles and sent a boat to see what we wanted. The sea was very rough and was breaking furiously in the cove. As the little boat neared the shore, I felt the chances of

getting off in her very doubtful; the only place that we could embark was a bluff point of rocks, upon which we had made the first landing, but the waves were now breaking against this with great force. The boat, however, came near this point, and when an opportunity offered, her stern was backed up to the rocks. Eddie, supposing the mate, who was in the stern, wished to come ashore to make some arrangements about taking us off, reached him his hand to assist him in jumping ashore, but instead of doing so he pulled my son into the boat, and one of our sailors jumped in after him. She pulled off immediately to keep clear of the breakers.

"The mate then informed me that the bark was the A. A. Eldridge from San Francisco, bound for Valparaiso, and that he would return for the rest of us. I went to camp and packed up such things as could be taken off. But after the boat returned the mate told me he would not take the smallest package in the boat, and if our lives were saved we ought to be thankful. Upon these conditions I hesitated about going, but as my son was already on board there was no alternative; especially as he, the mate, said he would not return again, fearing to lose the little boat. The idea of going to Valparaiso was out of the question, but I would not be separated from my son, and so determined to go, the mate crying out that he would only give us five minutes to decide. There was no time to be lost, and unavoidably leaving everything behind, we jumped into the frail boat; the sea was growing more stormy, and amid the roar of breakers, heightened by the thundering of the waves into a cavern, we pulled out of the cove to the bark. Captain Abbott (her captain) treated us with genuine hospitality, and I shall always remember him with grateful feelings. He agreed to land us on the Tres Marias Islands. I prevailed upon him to send the boat for some of my things left behind which I prized the most, particularly the Natural History collections. But when the boat returned nothing could be brought off but the two boxes of specimens; the little boat came near being stove against the rocks in this last attempt.

"Thus the expedition was suddenly and unexpectedly brought to an end. It was my intention, had we not been wrecked, to have spent a much longer time in examining this as well as the adjacent Island—but "*diis aliter visum.*" Darkness had now begun to shut out from view the lessening shores, as we sped on our course to the Marias. The mountain and clouds were brightly illumined by the flames of the burning grass and brush, which had spread in every

direction, recalling to the imagination the long ago, when the volcanoes were in action, and the lurid lava blazed in all its desolation over this solitary Island, where it still remains as these convulsions have left it, in all its primitive grandeur and its wild solitude. Year after year the grass springs up on its hills uncropped by the herd; the song of the birds are only heard by their mates; the fishes gambol and sport in the little bays undisturbed, and old ocean, as in countless centuries past, still roars and foams upon its lonely shore.

"In three days we reached the Marias, where we remained four days. I made daily excursions in the woods for birds, but found nothing new, but what I had collected on a former visit to this locality.

"We sailed in a small schooner for San Blas, in order to get a vessel for Mazatlan, where we arrived in twenty-four hours from the Marias, ragged, dirty and without money. This place is noted for the unhealthiness of its climate and the tormenting insects that infest it. The natives, too, have a bad reputation, and it was much against my will to go there, but it could not be avoided, and I cannot help but feel, from the strange coincidents which had transpired, that a mysterious agency had directed us to this fatal spot, where my beloved son should meet with an untimely and most cruel death, by the rude hand of some unknown assassin. For what cause this shocking deed was committed, and by whom, in this land where the murderer goes free, will in all probability forever remain a profound mystery."

LIST OF SOCORRO ISLAND BIRDS COLLECTED
BY A. J. GRAYSON, MAY, 1867.

PSITTACIDÆ.

1. *Conurus holochlorus* var. *brevipes* Baird. Ann. Lyc. N. Y., Vol. x, p. 14. "Socorro Parrot."

"This parakeet is quite abundant and evidently belongs to this locality, which it never leaves; they are to be met with in flocks or in pairs. In the mornings they left the cove in which we were encamped, for the higher regions of the interior to feed, returning again in the evening to roost. This cove, in which the trees are larger and the shade more dense than in other parts of the Island, seems to be their favorite resort. I saw them at times walking about on the ground beneath these trees, apparently picking up clay or

gravel; they are remarkable tame, exhibiting no fear in our presence. Three cages were soon filled with them, which were caught by hand, and their constant whistling for their mates brought many of them into camp, perching upon the cages and elsewhere; they feed upon a hard nut which they find in the mountain gorges, and on account of the inaccessible localities where this fruit grew, I was unable to find it. The powerful jaws of this parakeet would indicate the fruit to be very hard."

TURDIDÆ.

2. *Harporhynchus graysoni* Baird. Ann. Lyc. N. Y., Vol. x, p. 1. "Socorro Thrush; Mocking bird."

"Not very abundant, but seems to be well distributed over the Island. It has all the characteristics of the true mocking bird in its habits (*Mimus polyglottus*). Of solitary disposition, it attacks every bird of its own species that approaches its usual haunts.

"One took up its quarters in our camp, and was certainly the tamest bird of this genus I ever saw; he appeared to take pleasure in our society, and attacked furiously every bird that came near us. He doubtless regarded us as his own property, often perching upon the table when we were taking our meals and eating from our hands, as though he had been brought up to this kind of treatment; at times ascending to the branches over our head, he would break forth into loud and mellow song, very thrush like. In the still hours of the night while roosting in the branches near us he would sometimes utter a few dreamy notes, recalling to mind the well known habits of the true mocking bird."

FRINGILLIDÆ.

3. *Pipilo carmani* Lawr. Ann. Lyc. N. Y., Vol. x, p. 7. "Socorro Towhee finch."

"This is an abundant species, found in all the thickets of the Island. Many of them took up their abode in our camp, picking up crumbs about our feet, as tame as domestic fowls. They delighted in bathing in the water we had placed in a basin on the ground for their use, and frequent combats took place between them for this privilege.

"It was through the agency of this species that water was discovered in a locality where we had not the remotest idea of finding

it, and for this providential service, he was a welcome visitor and a privileged character.

"I found them at times feeding upon small seeds of plants; but more frequently on the ground scratching up the dry leaves in search of insects. Their notes are rather feeble, resembling slightly, in this as well as habits and general appearance, their congener of the Eastern States (*P. erythrophthalmus*).

"From those examined, I found that the breeding season was near at hand."

TROGLODYTIDÆ.

4. *Troglodytes insularis* Baird, Ann. Lyc. N. Y., Vol. x, p. 3. "Socorro wren."

"This busy little wren is the most common bird I met with upon the Island, and everywhere its cheerful song may be heard in the trees or among the brambles and rocks. Like all the birds peculiar to this Island it is very tame. I often saw it feeding upon dead land crabs, and I may here remark that all the birds inhabiting the Island, with the exception of doves and parrots, subsist more or less upon crustacea."

COLUMBIDÆ.

5. *Zenaidura graysoni* Baird, Ann. Lyc. N. Y., Vol. x, p. 17. "Solitary dove."

"Of all the birds I met with on the Island, these seemed to be the most lonely; not a flock or even a pair were ever seen together. They are remarkably tame, perhaps more so than any bird of this order. One was captured by hand as it came into our camp and perched upon the rude table on which I was at work; its melancholy look appeared to be in keeping with the solitude of, and its sombre plumage corresponding with the grey brush and brown volcanic rock composing its wild home. In form and appearance, when alive, it resembles the common turtle dove.

"The first specimen seen and captured was by my son, Edward Grayson, whose name this evidently new species should bear, not for this discovery alone, but for the assistance often rendered in making my collections, and more particularly on this expedition, in which he was indefatigable, even to enthusiasm, in aiding its progress as well as the advancement of science, in the course of which he came to an untimely death."

6. *Chamæpelia pallescens* Baird. "Little Ground dove."

"This is a very common species on Socorro Island, as well as Tres Marias and main land, from whence they may have wandered to this spot, where they continue to breed and remain permanently."

STRIGIDÆ.

7. *Micrathene whitneyi* (Cooper). "Socorro Owl."

"REMARKS. Iris bright yellow. Tarsus and toes dull yellow and covered thinly to the end of toes with hair like feathers. Bill dark bluish, the tip and inner edge of upper mandible white. Tarsus short and claws very sharp and delicate.

"Three specimens of this handsome little owl (perhaps the least of the entire genus) were captured. The first was caught by my son among the thick growth of trees that surrounds our camp, who came running into camp, saying 'here is the prettiest little owl we have ever seen.' It was caught with a running noose attached to the end of a long rod and slipped over the head of the unsuspecting day dreamer. Nearly all the birds were captured in this way. Contents of stomach, bits of small land crabs."

MNIOTILTIDÆ.

8. *Parula insularis* Lawr. "Warbler."

"REMARKS. This bird seems to be identical with the Tres Marias species, and is quite common on the Socorro. Is a little larger than the Marias bird."

FALCONIDÆ.

9. *Buteo borealis* var. *montanus* Nutt. "Western Red Tailed Hawk."

"This is the only hawk found upon the island, and here it is quite common, being a constant resident, rearing its young, and subsisting exclusively upon land crabs, which they find in great abundance, and an easy prey. Their claws are much blunted, doubtless caused by the frequent contact with the hard shell of this crustacea. This, and the night heron, are the only large landbirds found upon the Socorro Island."

ARDEIDÆ.

10. *Nyctherodius violaceus* (Linn.). "Yellow-crowned Night Heron."

"Upon this remote island, where there is a scarcity of fresh water, I was surprised to find this well-known species. Here its natural haunts are entirely wanting. Here there are no lagoons or mangrove swamps to skulk in during the day; and the croaking of frogs, its favorite prey, is not heard. All is dry, and destitute of such localities suited to the nature of fresh water birds. I saw solitary ones in the day time perched upon the rocks in the interior of the island, and on one or two occasions, were started from the dry grass, where they were concealed. Hardly a night passed that I did not hear the well-known quak of this heron, as they came to our spring to drink.

"From the appearance of the male bird on examination, and the presence of the young one shot, they doubtless breed here to some extent. Feed entirely upon crabs."

LARIDÆ.

11. *Haliplana fuliginosa* var. *crissalis* Baird. "Black Bill Tern."

"REMARKS. This tern is very numerous in the vicinity of the Tres Marias, and the little Island of Isabella, near San Blas, upon which they breed. About the Revillagigedo group they are only scattering, and replaced by another species—a *black tern with a hoary forehead*, which are quite numerous in this locality. Although I shot some of these from the deck of our vessel, yet I was unable to procure a single specimen; because the sea was too rough to launch our frail little skiff. I shot many other sea birds which I was unable to get on this account. Had we not been so unfortunate in losing our vessel, it was my intention to have visited the rocks and islands adjacent to Socorro, for the purpose of collecting the various species of sea birds and eggs. But this misfortune put an end to further researches in this channel—much, very much indeed to my regret."

SULIDÆ.

12. *Sula cyanops* Sundeval. "Revillagigedo Gannett."

"REMARKS. Bill pale violet; iris brown; bare space at forehead and base of the under mandible, purple red; feet do.; bare space around the eye, violet blue; bare space of chin and throat, jet black; toe nails white; nostrils indistinct. Contents of stomach, flying fish. The ovarium contained nearly developed eggs; the sternum I send

with the specimen. The plumage of the sexes are about the same, immature birds grey on the upper parts, the color of bill and feet, paler."

"Inhabits the region about the Revillagigedo Isles, have not met with it elsewhere. Another species, nearly answering to the description of *Sula bassana*, is found in large numbers about the Tres Marias and upon the Island of Isabella; they breed upon the rocks and on the sand of this little Island, they lay but one egg—white, and nearly the size of a goose egg, both parents assist in incubation."

13. *Sula piscator* (Linn.). "Booby, or Bobo."

"Shot near Socorro. A common species in the tropical Pacific. Breeds on the rocks."

Some species of this genus are very difficult to determine satisfactorily; the Socorro examples were examined by Prof. Baird, who states that they are probably the species above named, as they agree quite well with the descriptions given of them.

PELECANIDÆ.

14. *Pelecanus fuscus* Linn. "Brown Pelican."

Among the papers relating to Socorro, I found the description given below of a new lizard, by Prof. E. D. Cope; on communicating with him concerning it, he replied that no account of it had ever been published, consequently it now appears for the first time.

DESCRIPTION OF THE COMMON LIZARD OF SOCORRO.

BY E. D. COPE.

***Uta auriculata* Cope.**

Scales above minute, except six carinate, dorsal rows, of which the median of each three is larger than the others; these increase towards the rump and diminish anteriorly. Abdominal scales smooth, in twenty-three rows. A dorso-lateral, dermal line on each side is covered by rounded scales larger than those of the adjacent regions. Two pair supranasal plates; four internasals, the posterior large as the rest combined, and equal anterior division of the two, into which the prefrontals are divided, and which lie on each side of

it. Frontal transversely divided. Interparietal larger than parietals, a little longer than broad. Temporal region granulated; a crest of short acute scales on the ridge of the os quadratum above the large tympanum.

Total length (tail reproduced) 6.90 inches; end of muzzle to vent, 2.90; length of hind foot, .92 inches; muzzle to posterior margin tympanum, .70; width cranium at supratympanic crest, .45 inches.

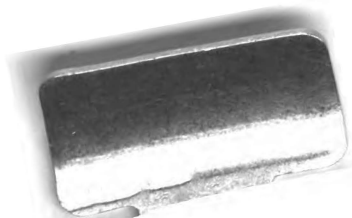
Color blue above, with eight pairs of black spots between scapular and crural region, which are more or less connected across the median line. Another series of black spots alternating on the sides. A large black crescent on scapula on each side; gular region cross-banded with blackish.

This is the seventh species of this genus now known, which all belong to the Sonoran district, though two of them, *U. ornata* Bd.; and *U. Stansburiana* Bd., Gird., occur in Texas.

NOTE. Specimens of the only land mollusk collected at Socorro by Colonel Grayson, were submitted through the Smithsonian Institution to Mr. Thos. Bland, who determined the species to be *Orthalicus undatus* Brug. From the note by Col. Grayson on the species found at the Tres Marias, Mr. Bland infers it to be the same as that from Socorro.



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