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Notes from a Journal of Research into the Natural History of the Countries Visited During the Voyage Of H.M.S. Samarang, Under the Command of Captain Sir E. Belcher, C.B.

By Arthur Adams, Assist. Surgeon. Attached To The Expedition.

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"look who list thy gazeful eyes to feed
With sight of that is fair, look on the frame
Of this wyde universe, and therein read
The endless kinds of creatures which hy name
Thou canst not count, much less their natures aime,
All which are made with wondrous wise respect,
And all with admirable beauty deckt."

SPENCER ; Hymn on Heavenly Beauty.

(p.444 Quelpart)

During this year, the *Samarang* was engaged in surveying the large island of Quelpart, and the numerous group of smaller islands constituting the Korean Archipelago; and as our opportunities of examining some of the more interesting ethnographical peculiarities of the singular people inhabiting this little-known region of the globe were rather numerous, I shall here offer a slight sketch of those manners and customs, which, at the time, were regarded by me as worthy of note, and as such committed to paper for the amusement of friends at home.

The Koorai or Koreans are said to have come originally from a country to the northward of Pe-tche-li, and although now forming a separate nation, governed by a king, they are, in a measure, tributary to China, as before the conquest of Korea by the Chinese, they were the subjects of the Japanese empire. In personal appearance, they resemble the natives of Siberia and Tartary. Like most Mongolians they have a tawny skin, prominent cheek-bones, some obliquity of the eyes; a rather prominent 445 nose, thick at its base, and wide at the nostrils; strong, well-developed jaws, and long, lank, straight, black hair; but like some tribes of northern Asia, their beard is tolerably thick, and their eye-brows bushy. Their physiognomy is less effeminate than that of southern races, their average stature being greater, their bearing bolder, their Tartar-like features more prominent and striking, and their beards and moustaches being frequently long and flowing. One of the most striking peculiarities which all who have seen them have noticed, is the method of confining the hair of the head in a delicate network, beautifully formed of a fine material resembling Coir, and of a glossy black colour. The hair being all drawn upwards towards the crown of the head, is tied at the summit in a neat and rather graceful topknot, without the help however of pins, as at Loo-Choo and the Mei'a-co-shimahs. The young unmarried men and boys, however, have the hair parted in the middle, gathered behind, and descending in two long plaited tails, that hang down the back somewhat in the fashion of those of the sons of Han. Frequently a white band of bark or leaf is worn across the forehead, to restrain the loose and straggling hairs.

Their costume, though formed of a uniform peculiar to China, Japan, and all this part of the world, varies considerably from all other nations in unessential details. The Mandarins, or chiefs of the better class, wear long gowns or mantles, with loose hanging sleeves, having red or green cuffs. These robes are often of silk stuff, and have a very pleasing and picturesque appearance. Their pantaloons hang in a rather loose bag below the knee, 446 their gaiters or socks are of white linen cloth, and their neat leathern shoes are very much pointed and turned up at the toes. Their hats are of enormous size, with very broad brims, and are of a slight and slender texture, being ingeniously made of a network of bamboo, stained black. The crown is very peculiar, high, and conical, and two or three peacock's feathers appended to a curved ivory ball on the pointed apex, hang gracefully over the capacious brim. The hats of the Mandarins are usually furnished with strings of large amber beads, to fasten them under the chin. An under tunic of white, and a broad silken sash, usually complete the dress of these grandees. They generally carry, moreover, a small piece of black bamboo, with a coloured riband twisted spirally round it, which is their wand of office, and on which their rank is written. The soldiers wear a

plaited string from the crown of their hats, with a quantity of red horse-hair depending from it at the hind part of the brim. In winter time, some of the lower orders wear huge fur caps, made of wolf or lynx skin; and the heads of others are covered with enormous brown or black sombreros, fashioned from a kind of felt, while many again affect huge cone-shaped hats, covered with painted oiled paper. Serfs and husbandmen are very loosely clad, and go about with the legs and fore-arms bare, and wear grass sandals on their feet. Both men and boys have a habit of carrying long staves, which gives them an appearance, when seen at a distance, of being armed with spears. The females we saw were very ugly, very dirty, and much more degraded in appearance than the men.

The natives of Korea, or more properly of Chaou-Seen, 447 are but little advanced in civilization, owing doubtless to the repugnance they have to hold any intercourse with other nations, not even their neighbours, the Chinese, being permitted to settle in their territory, and their trade with that country and with Japan and Tartary is exceedingly limited. They invariably repulsed us in the same spirit on our attempting to invade the sanctity of their towns and villages, not even allowing us to enter within the walls of their cities. With the same exclusive feeling and jealous alarm of foreigners, they also evinced a great objection to receive anything from us as presents. During our surveying duties, where it was indispensably necessary to land and erect marks, they frequently showed symptoms of hostility, and when not opposed in a determined manner, were inclined to assume a hectoring demeanour, threatening and commanding us to retreat; but we always found that their courage consisted chiefly in a system of intimidation. They are, however, very good-humoured, and seem to enjoy anything like a joke exceedingly. All appear to be passionately fond of spirituous liquors, nor can I say much for their morality of conduct. They are great smokers, carrying continually in their hands a long-stemmed pipe, with a diminutive brass bowl, which they fill and empty at brief intervals. [* The pipes of the Indo-Chinese races, including the Tartars, Chinese, Koreans, and Japanese, are provided with a small metallic bowl, and usually a long bamboo stem, for with persons who are in the habit of smoking at short intervals all day long, a large bowl would be inadmissible. By inhaling but a pinch of tobacco on one occasion, they extend the narcotising influence of a larger pipe over a greater space of time. Nations that smoke larger pipes adopt some other material for the bowls, as metal would become too hot—thus the Chibook of Turkey is made of "Samian ware," a kind of red-brown clay; the Meerschaum of Germany is formed of a yellowish-white steatite; the pipe of Holland is of porcelain, and that of our own island of unglazed clay. Among the Bashee group, and more particularly on the island of Ibayat, the natives form very elegant and commodious pipes from different species of shells, the columella and septa of the convolutions being broken down, and a short ebony stem inserted into a hole at the apex of the spire. A pipe of this manufacture, in my possession, is formed from the *Mitra papalis*, and I have seen others made out of *Mitra episcopalis* and of *Cerithium* and *Terebra*. At the Cape of Good Hope I procured some pipe-bowls, made by the Kaffirs, from a black and from a green stone, but without sculpture. Old Indian pipes have been found in America also fashioned out of green stone. The sailors belonging to the Samarang having lost their pipes in the Sarawak river, set to and in a very little while manufactured excellent pipes from different sized internodes of the bamboos that grew around them.]

448 Their arms consist of bows and arrows, spears, and a few rude matchlocks, constructed in the Chinese fashion; and in some of their walled cities they have forts strongly built of stone, and mounting guns. When they wish to intimidate their enemies, and make a great show of martial power, they collect all the heroes, with their swords and spears, and assemble by hundreds, mingling their shouts with the discordant sounds of gongs, trumpets, and a harsh shrill instrument resembling in noise the bagpipes. I have heard some among them, however, play very plaintive melodies on the flute, with much taste and proficiency.

They do not appear to be a maritime people, their boats being neither large nor numerous. As in China and Japan, the use of oars is unknown among the Koreans, the boats being always propelled by means of sculls, the boatmen standing over the loom, and bending his body backwards and forwards. I have seen as many as ten 449 men working at one enormous long scull. For landing in the surf and among the rocks they employ a sort of catamaran or raft, with an elevated platform large enough to contain eight or ten persons, which is sculled in the manner of a boat. In some instances they employed these rafts to destroy our surveying marks, when our boats, giving chase, would pursue and capture them, often giving rise to very laughable scenes "When a man becomes troublesome or offends in any way, he is brought before the chief Mandarins, who first abuse him, and then order him to be seized and thrown down, when he receives a certain number of severe blows with a flat baton (formed like an oar and about six feet long), on the bare hams. Many carry about them severe traces of this bastinado practice in the forms of scars and ulcers.

On our approach to a village, the poor frightened inhabitants first drive away all their bullocks beyond the mountains, generally, however, leaving one of the leanest behind as a tempting lure. This being effected, they then assemble in crowds upon all the highest hill tops, until they are assured of our pacific intentions, when they cautiously descend and approach, and begin curiously to examine our persons, admiring the fine texture of our linen, wondering at our gold bands and buttons, and still more at the pinkish tinge of our skins, and the brown colour of our hair. On one occasion we landed in a beautiful little bay where there was a village, and

along the shore a wood of large-sized fir-trees. By an offer of cloth and sweet wine the Captain obtained permission to cut down some of them; but no sooner did the carpenters lay the axe to the base of one of the finest, than an old 450 man interposed, with gesticulations and tears in his eyes making us signs that the trees were his. On our men proceeding in their work, the poor fellow grew quite frantic, clasping now the trunks of his beloved trees, and then the knees of those who were felling them, using every possible sign and gesture to save his firs from destruction. He was however eventually pacified by bottles of sweet wine.

The same custom occurs along the coast of Korea, as among the Malays, namely, lighting beacon fires on the summits of the hills and projecting points of land, to indicate the movements of a supposed enemy. La Perouse alludes to the same procedure where he says: "It is probable we occasioned some alarm on the coast of Korea, for in the afternoon we perceived fires lighted on all the points."

The large island of Quelpart or Quelpoert, which we circumnavigated and surveyed in the boats, is the most southern island of the Korean Archipelago. The proper name is the same as that of Korea, namely, "Chaou-Seen," and it is somewhat remarkable that the name of the principal city, King-Ka-Tou, is the same as that of the peninsula. Quelpart may be said to be an oval ironbound island, covered with innumerable conical mountains, topped in many instances by extinct volcanic craters, and all bowing down before one vast and towering giant, whose foot is planted in the centre of the island, and whose head is lost in clouds. The whole surface, including the plains and vallies between the hills and even that of the mountain-flanks, is carefully, richly, and most beautifully cultivated and covered with a pleasing verdant vegetation, laid out in fields divided by neat walls made of piled-up 451 stones. It is surrounded on all sides by "black waves, bare crags, and banks of stone," covered with limpets and Chitons, and tenanted by troops of dusky cormorants. As we coasted along the land, crowds of wondering natives appeared on every hill-top, staring at the adventurous strangers who had come to visit their far distant country, and perchance disturb the peaceful tenor of their lives. In many parts along the coast the rocks are very lofty, and quite perpendicular, and are adorned in many instances with splendid waterfalls,

"Where a wild stream with headlong shock
Comes brawling down its bed of rock
To mingle with the main."

In one part only was the coast level, and huge heaps of weeds lay along the shore. Numbers of meagre Cormorants sat in long black rows upon the stones; flocks of dappled wild Ducks were feeding at the margin of the water; a species of Tern, with a long black crest, was hovering above the surf, and at some distance from the shore were hundreds of large white Gulls, sweeping the surface of the sea.

A large and beautiful open blue Campanula was very conspicuous in many parts, as were also the handsome yellow Liliaceous plants allied to *Hemerocattis disticha* and *H. fava*, which grew chiefly on acclivities, and the large and showy Tiger-lily (*Lilium monadelphum*). There was also a small and pretty Hyacinth with delicate blue blossoms; two or three species of Juniper, many of Oak, three of Fir, several of Thuja, two kinds of Hazel, and one of Myrtle. The Fumitory, the Lychnis, the wild Onion and Silverweed were common everywhere. La 452 Perouse speaking of Quelpart, observes: "Unfortunately the island belongs to a people to whom all intercourse with strangers is prohibited, and who retain in slavery all who have the misfortune to be wrecked on their shores. Some of the Dutch sailors of the 'Sparrow-hawk/ after a captivity of eighteen years, during which they had received severe bastinadoes, found means to steal away a bark and get to Japan, whence they reached Batavia, and at length Amsterdam." He observes, moreover, "this island which is known to Europeans only by the loss of the Dutch ship 'Sparrow-hawk' in 1635, was at that time under the dominion of the king of Korea." Mr. Gutzlaff, who visited some of the islands of the Korean Archipelago, with much truth makes the following regretful remark: "Walking," he says, "over these fertile islands, beholding the most beautiful flowers everywhere growing wild, and the vine creeping among weeds and bushes, we accuse the 'lord of nature,' man, of shameful neglect; for he could have changed this wilderness into an Eden."

In many parts of the Archipelago, the hamlets and houses of the more wealthy members of the population are delightfully situated, being frequently embosomed in groves of umbrageous trees with running rivulets beside them, and all around and towering up behind, gently swelling hills covered with verdure, and with herds of oxen grazing; and when placed near the sea-side, there is generally a fishing-boat close at hand. Their houses consist of a sitting-room, a sleeping-apartment, and a shed used for culinary purposes, where are observed large earthen vessels for holding rice and water. In their towns are frequently seen rudely carved stone 453 images, and it may be observed that a very striking similarity exists between these graven boundary stones of the cities of Quelpart, and the Hermae of the ancient Greeks, and the Termini, or Lapidis Terminales, of the Romans. The earliest form in which the divinities of classic mythology were represented, was an unhewn stone, which afterwards assumed the modification of a square block, and subsequently grew, when the art of Sculpture became more elaborate and refined, into a polished pedestal, surmounted by the head of the favourite deity.

These were placed in the front of temples, and other public buildings, and at the corners of streets and roads, and frequently received the tribute of divine honours. Whether these Korean Hermae were regarded with religious veneration by the inhabitants of Quelpart, I am unable to state, but I may point out the remarkable fact of the existence of similar sculptured posts in the Dyak villages of the island of Borneo, where they occupy the same relative positions and probably serve the same purpose. Lieut. Kolf, in his Voyages of the 'Dourg,' a Dutch Brig of war, states that among the Arafuras inhabiting the Ami islands, one of his officers found "an image rudely formed of wood, together with a post on which different figures such as snakes, lizards, crocodiles, and human forms were carved, and which the owner stated to be intended for preserving the house from evil spirits." Crawford, in his history of the Indian Archipelago, alludes to the existence of images of a similar nature in Java: "In the least civilised parts of the island, as the mountains of the Sundas, and particularly the eastern province of Banyuwangi, there are found a variety of 454 images extremely rude and ill-fashioned, and which, frequently, by the extensive decomposition which their surfaces have undergone, appear of greater antiquity than those already described. These are, in all probability, representations of the local objects of worship among the Javanese, before they adopted Hinduism, and which probably, as is still the case in Bali, continued to receive some share of their adoration, after that event." The appearance of the basaltic columns that adorn the perpendicular sides of many of the islands was very grand and imposing, simulating in several instances ruined monasteries, old time-worn buildings, and picturesque cathedrals, with high fretted pinnacles,

"rocks sublime
To human art a sportive semblance bore,
And yellow lichens coloured all the clime,
Like moonlit battlements and towers decayed by time."

On the rugged acclivities of several steep, rocky islets, hundreds of Stone-flowers, as the sailors call them, (*Lycopodium lepidophyllum*,) were expanding their rose-like heads in every direction, and the grey summits were often garlanded with graceful hanging festoons formed of the wild vine and various other climbers.

Pines of several species, oaks, maples, rhododendrons, brambles, azaleas, roses, violets, camellias, myrtles, mulberries, junipers, eugenias, mallows, sages, hypericums, asters, gnathaliums, and hundreds of other plants are observed in these islands; the parasitic *Cassythis filiformis* is found clinging to the low bushes, and weaving them together in an almost impervious mass; the larch and the willow, the *Ficus tinctoria* and the *Diospyros*, the Bamboo 455 and the Cycas are spread abundantly over every part; a few labiate and scrophulariaceous plants were visible, and several species of *Chenopodium* and *Asclepias* were common everywhere. Grasses and compound flowers were not very numerous, but I observed a pretty good sprinkling of Cryptogamia, especially among the ferns and lichens. On the sides of some tombs on a little island near Quelpart, a species of hymenopterous insect of the family *Eumenidae* builds a neat hemispherical nest of the size of a filbert, composed of clay and comminuted grass made into a kind of mortar; the interior is lined with a smooth polished plaster, and contains a single larva with the body slightly bent upon itself.

On one small island where we watered ship, there were fields of Tiger-lilies, and in another part barley was growing, and clumps of dark-green pine-trees overhung the precipitous side where masses of lichen-stained rocks lay crowded and jumbled together. The whole surface of the island was covered with huge boulders and loose stones overgrown with vegetation. In one part was a large square enclosure with low solid walls of piled-up stones, containing the graves of two individuals, known as such by the most grotesque tombstones I ever saw in my life. As the sun was shining brightly and the day very warm, insects were numerous, more especially the *Diptera*, which were far more brilliant and in larger numbers than I had anywhere seen, even in the tropics;

"these little bright-eyed things,
That float about the air on azure wings,"

were pitching on the leaves, whirling round the flowers, 456 and hovering gaily about the bare, sunny sides of the big stones, with the greatest vivacity, imparting much liveliness to the entire scene. In another part of this pretty islet, however, the appearance of affairs became slightly changed, and this occurred in a dull swampy morass where huge reeds grew, and where, as you stooped down and looked curiously, as I did, among their tall, slender culms, dozens of lurid-looking vipers might be seen trailing their slow length along the surface of the ground, and winding their sinuous way quietly into the dull distance of the pigmy forest. It was in truth a noisome place, "redolent," as Dickens would say, "of all sorts of slabby, clammy, creeping and uncomfortable life." Frogs, however, towards the evening were numerous and cheerful, and the glow-worms lighted up their tiny lamps, but still the gloom of that dark spot where the vipers so abounded continued for some time to haunt my mind. It seemed to be a scene such as Spencer must have presented to himself, when he described in his "Faerie Queene" the subsidence of the waters of the Nile after the fertile slime, according to his ideas of the

spontaneous generation of animals, had covered the plains:

"wherein there breed
Ten thousand kinds of creatures, partly male,
And partly female, of his fruitful seed;
Such ugly monstrous shapes elsewhere may no man reed."

In some parts of Korea the land exhibits the appearance of parks and meadows, with clumps of firs and other trees, among which may be noticed the oak. The *Vitis Indica* is seen trailing among heaps of stones; the Composite begin to appear, among which may be noticed a *Coreopsis* 457 and an Aster; a few Cacti mingled with Sedums, aromatic *Labiatae* and *Scrophularineae*, and here and there a Cruciferous plant, caused the vegetation to assume somewhat the appearance of what we are accustomed to see in Europe, but strangely mingled with such tropical forms as *Euphorbiaceae*, *Leguminosae*, *Rhizophora Mangle*, and *Hibiscus tiliacus*.

The scenery of these islands reminds one very much of our own woodland haunts; for, when the sky is bright, and the sun is powerful on the ground, the retired dells, and plains, and shady nooks are instinct with life. Gaudily-tinted butterflies sport around, feathered warblers twitter in the trees, and crowds of insects spin about the flowers. Among the birds, "Great Nature's happy commoners," were seen the modest Pigeon, cowering in some deep recess; the Flycatcher and the Butcher-bird, busily intent on prey; the showy Woodpecker, fluttering in its pride, and clinging to the boughs in every kind of fantastic attitude. Troops of white, long-necked Herons ranged themselves along the padi-fields, greedy after frogs; nor were "lingering notes of sylvan music" wanting, as the evening drew on apace; a bird with a note like the nightingale, and a species of Thrush, warbled very prettily and at early dawn, the Lark, that glorious ininstrelbird, sang loud and joyous. Many other birds, well known in England, were busy in affairs of love. The Raven sat quietly perched upon the stunted trees, or croaking as he sailed familiarly around us; the Wren, the Sparrow, and the Blackbird were common in the thickets; the Kingfisher glided by the narrow brooks; the Swift and the Swallow clung to the rocky cliffs, or wheeled in circles 458 through the air; the Cormorant sat grave and judge-like on the coral reefs; the Seagull screamed about the ripple of the tide; and Ducks and Divers were disporting themselves on the waters of the bays. Most of these, however, were of different species from those that inhabit the countries of Europe. When I first saw the Wren in this faroff region, it instantly recalled scenes familiar to me in childhood by the mere force of association, for certain animals are always connected in our minds with peculiar haunts and localities. We never think of the Chamois, but we fancy him clinging to the cliff; of the Antelope, but we imagine her bounding across the plain; of the Tiger, but we ruminate on drear and lonely jungles; of the Wolf, but we dream of forest gloom; or the Hyaena, but we picture to ourselves grave-yards and desolate burial places. The Spoonbill, the Quail, the Curlew, the Titmouse, the Wagtail, and the Teal, are also met with in the Korean Archipelago.

I have but few words to say with reference to the fishes of this group, the habits and economy of these scaly denizens of the deep continuing to remain almost a sealed volume even to the Naturalist. Solitary and retiring, they elude the scrutiny of curious man in the vast regions of old "ocean's grey and melancholy waste," or when "but dimly seen" up rivers and in shallow bays, or playing among the coral reefs, such is in general the rapidity of their movements, that the most eager scientific eye cannot trace the nature of their proceedings.

The fishes of the Eastern Seas glitter with gold and silver, their sides are marked, banded and spotted with the most vivid colours, and as they cleave the transparent 459 water round the coral reefs, sporting playfully or resting motionless on their vibrating pectorals, they fascinate the eye fully as much as the large gaudily-coloured Lepidoptera do upon the land.

Among the Islands of the Korean Archipelago the children use the dried spiral eggs of a species of Skate, or some other cartilaginous fish, as rattles, having first introduced a few small pebbles to assist in making a noise. Beautiful azure Serrani and party-coloured Scari people the calm waters within the coral reefs. Thousands of other rock-fish are also met with in every possible variety of colour. One species swims in shoals, and is of the deepest and most brilliant ultramarine blue; others are vivid yellow, while many again are striped, banded, or furnished with crimson tails or bright green fins, reminding one of the fish Milton alludes to, which

"show to the sun
Their waved coats dropp'd with gold."

Various species of *Carassus*, *Coboeta*, *Lenciscus*, and other genera, were observed by us among the islands.

The Entomology of these islands doubtless is very rich in new species. The large black and white butterfly *Hestia Leuconome* is common both among the Korean Archipelago and in the Meia-co-shimah group. It wanders lazily along on heavy flapping wings, a little above the low trees, in shady places. On thistle-heads an elongated polished green *Cerambyx* is seen, which diffuses a very powerful odour of attar of roses, like the

agreeable perfume emitted by the *Cerambyx rosalia* of the Pyrenees. Another very common beetle is the *Pristonocerm caeruleipennis*, a beautiful blue insect with a yellow head; while on the ground, 460 in shady places, a splendid new species of Carabidae (*Carabus monilifer*, Tatum, [* Ann. and Mag. Nat. Hist. vol. xx, p. 15.]) is met with in considerable bundance. Dull green *Cetoniida* are also numerous among the grassy parts of the islands; and a species of *Passalus* is found among the dried Algae along the strand. In the evening *Lampyridae* and several species of Stagbeetles (*Lucani*) fly about in company with *Geotrupes* and *Aphodii*. Hundreds of the long-horned, beautiful, little *Adelae*, day-flying Moths, with wings that in glossiness and brilliancy resemble burnished steel, were flying in companies of thirty and forty in rapidly revolving circles above the low bushes, thus disporting themselves in the heat of the noon-day sun, contrary to the usual custom of nocturnal *Lepidoptera*. Some other insects, as *Oecocophorae*, *Sesiidae*, or diurnal hummingbird-Hawkmths, and various *Uraniidae* have the same habits. Flying heavily about the lower bushes, or clinging to the stalks of the tall grass, were several species of *Trochilium*, some very handsomely marked, and others apparently similar to those of Europe. A species of Earwig, very closely allied to our *Forficula auricularia*, but somewhat larger, was observed to be common among the dead leaves that cover the ground in the pine-woods; and here the huge *Dynastida* and *Onthophagi* of the tropics seemed to have given place to the numerous sub-genera of the *Geotrupidae* of more temperate regions, and I began to recognise many forms belonging to this extensive family once familiar to my eye in England. A Spider, belonging to the genus *Attus*, was observed by me among the thousands of dead *Truncatellae*, that occupy the holes and 461 corners of the rocks in every part of these islands, which forms a convenient abode in these small shells, lining them carefully with a fine silken tapetum. Near the seacoast, a minute species of *Pagurus* was found occupying these little truncated univalve shells, crawling about by thousands. Our spider, however, is unable to move about with its borrowed house in the manner of those pirate crabs, but either sits sedentary in its den, or ventures forth at intervals on its predatory hunting excursions.

Among the rocks of a small islet near Quelpart, the largest of the Korean islands, there is a species of Spider which forms a very ingenious dwelling, which may be compared to that of the Swallow, whose nest affords such an important article in the gastronomy of wealthy Mandarins, (the *Hirundo esculenta*.) but adhering to the rough surface of the rock in a reversed position, resembling a watch-pocket upside down. It is composed of a substantially-woven silky material, and firmly secured by means of a glutinous secretion. The ingenious little builder and proprietor of this strange castle in the air, lets himself down by a rope-ladder, or, to speak less fancifully, by a fine spun web, which he manufactures for the purpose out of the substance of his body as required, he himself serving the purpose of a weight; "deducit stamina, ipso se pondere usus," as Pliny observes, when treating on these animals in his chapter "De Araneis." In the eaves of the thatched houses of the Koreans, I observed that a large black-coloured species of hymenopterous insect forms long cylindrical holes, lined with comminuted straw made into a kind of mortar by being mixed with a glutinous secretion; at the bottom of this tube the mother deposits 462 her eggs, which are shut out from any external communication by means of a thin partition made of a substance resembling "papier mache." Another Wasp constructs a mud hut for its future progeny against the sides of the walls, having a small round perforation on the lower part, which serves as a door.

A milk thistle with long spiny leaves, is rather common on some of the islands of the Korean Archipelago, on the large purple flowers of which I frequently found one or two specimens of a species of *Aromia*, which diffuses a powerful odour of attar of roses. In markings it approaches to the *Polyzomis bifasciatus*, but differs from it in having the thorax spined and in other characters. Among other insects met with by me in these islands, were a dark burnished green *Eumolpus*; a bronze-brown species of *Silphodes*, allied to *S. Philippinensis* of Westwood; a new species of *Dorcus*, and a *Lucanus* allied to *L. Saiga* of Olivier; a new species of *Bolboceras* (*B. Koreensis*, Adams and White), with a black thorax, and black and brown elytra; an *Adoretus*, of a rusty-brown colour, allied to *A. ranunculus*; a new species of *Mononyx*, of a dull blackish-brown, which hides in the sandy soil, and when caught feigns death; and a *Scutigera*, found under stones, and which when disturbed runs with great celerity. Besides these may be added a species of *Scarites*, entirely of a shining coal-black colour, which is very active, running about all day among the heaps of seaweed thrown up along the beach. When approached it burrows rapidly in the sand, bites very severely, and makes vigorous efforts to escape. It is a most predacious creature, feeding greedily on the *Talitri*, *Gammari*, and other small Crustacea 463 that abound in these situations. I have watched them enter the holes in the sand, and on giving them insects of any description, they would seize them savagely with their powerful jaws, and rapidly tear them in pieces. I have found this same insect lying concealed in the burrows of a small *Ocypode* that perforates the sandy soil in all directions, and which most probably forms part of the prey of this carnivorous insect. Many other *Coleoptera* besides the *Scarites* appear to have the same habit of burrowing in the sand; as the *Hesperophilus arenarius*, and some species of *Bledius* and *Dyschirius*. At the back of the Isle of Wight I have observed a large beetle with similar habits.

Several handsomely marked varieties of *Stomatella rubra*, besides the *Stomatella auricula* and

sulcifera, and *Stomatix phymotis* and *duplicata*, were found strewn on the beach of some of the coral islands, mixed with a species of *Crepidula*; and in the deep water between some of the wall-sided basaltic islets a rich harvest of *Terebratulæ* including two large characteristic new species of a beautiful and delicate red-rose colour. The former shell occurred in great numbers, and was observed washed up along the coasts filling the holes of the rocks; thus proving that typhoons and violent tempests in their agitation of the sea penetrate to very considerable depths below the surface, requiring these delicate shells to be anchored for further security by a byssus to the stones at the bottom. Submarine agitations have been known to reach to a depth of 200 feet, and so violent in their operation as to break rocks in pieces. A single valve of a large and interesting new species of Cockle (*Cardium* 464 *Bechei*, Adams and Reeve) was obtained by the dredge from the same locality, and in the straits separating Korea from the island of Kiusu, one of the Japanese group, a specimen of the remarkable *Fusus pagoda*, together with several scarce *Nuculæ* and some *Murices*, among which was a magnificent new one I propose naming in honour of Sir William Burnett, were procured. The rocks of the Korean islands were covered with a large kind of *Monodonta* which boiled with a little salt, were excellent eating; adhering to the stones was a *Mytilus*, which, when masticated, was of a peppery taste; and the mud-flats in the neighbourhood of fishing-wears, were covered with the *Cardium Sinense*, and a species of *Bullæa*; while the rare *Lingula tumidula*, Reeve, was found buried a little below the surface.

The *Cryptostoma* generally inhabits very deep water. It is cautious and timid in the extreme, contracting its body on the slightest touch. When, however, it fancies itself secure and unobserved, it gradually expands its shapeless form, protrudes its long large foot, and explores the surface on which it crawls, with a small finger-like process, in the manner of a leech before fixing itself. It progresses with a tardigrade movement, sliding like a *Limax*, on its ventral disc, the short tentacles exerted, and the posterior lobes of the mantle dilated. It is closely allied to *Natica* in every particular.

The *Eburna* is leisurely in its movements, exerting its tentacula and crawling with a slow and measured pace. It is, however, quick and rapid, when alarmed, in perceiving the enemy, and immediately retracts the soft parts within the shell. Swainson states it has no operculum, 465 which is not correct. The mantle of this species is of a dull, dirty pinkish white, covered with large irregular shaped, reddish-brown blotches, distributed in no regular order; the siphon is marbled with the same colour, but of a lighter shade; the tentacles are dull pinkishwhite. Living *Eburna* are very common in the China sea. They generally live in a muddy bottom, and in about fourteen fathoms of water. The Chinese fishermen along the coast frequently bring them up in their nets, together with *Dorippe*, *Dromia*, and other Crustaceans; and I have seen them carefully set apart in the stern of their craft, as if for the purpose of being eaten.

Among the islands of the Korean Archipelago, the coral-beds are very splendid, and appear, as you look down upon them, through the clear, transparent, water, to form beautiful flower-gardens of marine plants. The *polypi* which protrude their hydra-forms, are coloured green, blue, violet, and yellow, which gives the corals a very different appearance to the dry, calcareous masses seen in museums, and calls to mind the exclamation of St. Pierre: "Nos livres sur la nature n'en sont que le roman, et nos cabinets que le tombeau." Indeed few sights of nature can exceed, in beauty and interest, these submarine parterres, where, amid the protean forms of the branched corals, huge madrepores, brain-shaped, flat, or headed like gigantic mushrooms, are interspersed with sponges of the deepest red, and huge asterias of the richest blue. But as Spencer very properly observes,

"Much more eath to tell the stars on hy,
Albe they endless seeme in estimation,
Than to recount the seas posterity :
So fertile be the floods in generation,
So huge their numbers, and so numberless their nation."

466 Among these numerous small islands of the Korean Archipelago, *Sponges* are very plentiful, and in some spots may be collected in almost any quantity. They are also easily studied here in a living state. Apathetic and immovable, Sponges may be said hardly to exist; nourished by permeating canals, which pervade in every direction their porous bodies, they have properties but no instincts, attributes but no sensations. Their living and gelatinous crusts show no vital energies, save the ceaseless vibration of innumerable cilia, that properly belong to animal existence. Mechanically the surrounding fluid moves in through myriads of pores and larger vents, and then they grow rooted and immovable, and gradually assume their specific forms and full dimensions. Soft and delicate, they love the deep still waters of the tropic seas, where, in obscure recesses, they propagate, and grow, and die. Among the islands I enumerated ten or twelve well marked species which are most likely new. Some were flat, and split into numerous riband-like branches, others were round and digitated, others filiform, elongated and cylindrical, while some were in the form of hollow tubes; others form delicate lace-like aggregate cells, others wide cancellated infundibuliform cups. Some again have broad scalloped rounded leaves, and others dense white branch-like foliations, some are hard and horny, some quite solid with

calcareous spicula, and others loose, light, and very expansible.

Various singular species of the fleshy-lobed *Sarcophyta* and handsomely coloured varieties of *Tubastraea*, with numerous other showy-looking Corallines were common on all the beaches.