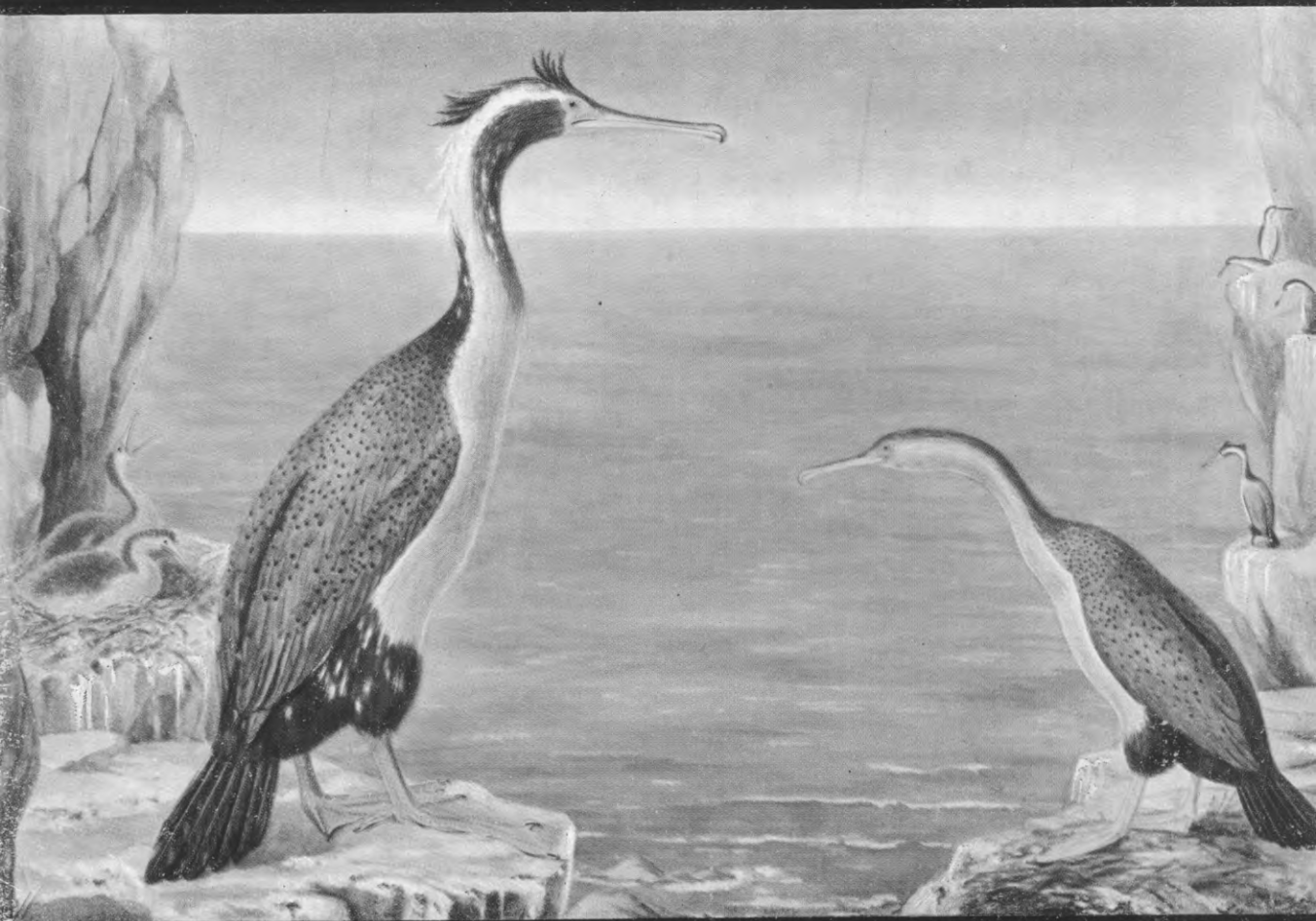




Forest and Bird

Issued by FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND (Incorporated)



SPOTTED SHAG

FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND (Inc.)

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CONSERVATION OF FOREST AND BIRD.

WHENCE AND WHITHER?

YES! Whence have we come, and whither are we heading in conservation of such natural resources as forests, native, and useful imported birds, game birds and trout? New Zealand has seen the introduction of birds and animals and later a war against them as well as against many species of native birds ever since the inception of Acclimatisation Societies. The initial object of these bodies was the importing of English birds in order that the early settlers might see their homeland birds and hear their songs. The common sparrow was brought in to protect vegetable crops against hordes of caterpillars which welcomed the new food, and the birds' success won glowing tributes.

Eventually, these Societies directed their efforts almost solely in the interests of rod and gun enthusiasts. Yet the ancient guess-work practices go on. A species of game bird is introduced experimentally in the hope (too often a vain hope) that it will be able to survive without a suitable habitat in which it can find the essential needs of life—cover and a routine of food supply to carry it in health and strength throughout the year.

The steady decline of native birds, game birds, and fish is, of course, accompanied by the usual cycles of waves of periodical temporary increase or decrease in numbers of a species. When a decline is in progress weasels and other enemies are blamed, but never the shootist or an insufficient cover or shortage of food. When trout shew a marked decrease some native bird such as the black-billed gull, caspian tern, black-backed gull, or shag is usually blamed. The fact that very few species of these latter birds ever frequent rivers is ignored. A shag is a shag, whether protected by law or otherwise. Whether it is a rare species and found only in a very limited range in New Zealand and nowhere else in the whole world does not matter to its relentless, ill-informed destroyers. The mere fact that it is a shag brings sentence of death. At the same time the very people who advocate the killing of shags and destroy them, vaunt their love for our native birds.

Acclimatisation Societies have robbed river-frequenting cormorants of a large part of their hereditary food supply by introducing trout which destroyed most of the native fish. Many trout enthusiasts now wage war on all shags, which surely have a right to live in their native country, and which did live in association with fish for ages upon ages without causing any depletion of the fish inhabitants.

Verily, in this matter many sportsmen are behaving in a most unsportsmanlike manner. They are forgetful of the fact that if all fry lived to become mature fish there would be more fish than water.

Fish, like other forms of wild life, are dependent upon food and cover. A remarkable phase of the observations by anglers on the decrease of trout is that the rapid destruction and damaging of native forests in recent years has not been given due weight. The forest on watersheds decides and controls the nature of the river beds, the spawning grounds, cover, food supplies for fish, and fish-food. Thus, things have drifted on haphazardly ever since the inception of the existing system or lack of system.

The superficial opinion of laymen—only too often biased by their personal pleasure or profit—has been preferred to the intelligent judgment of observant naturalists such as H. Guthrie-Smith and others. The findings of the highest authority on the native plant life of New Zealand, the late Dr. L. Cockayne, were foolishly ignored when he first warned the country about the deer menace. Nay, despite his warning, these forest destroying nuisances were bred and distributed throughout the land with the result that to-day New Zealand is faced with a vast national problem, the gravity of which few realise.

In past years many Ministers have headed forest and wild life administration. Few had even a rudimentary knowledge of matters connected with their charge, but with an eye ever on the next election, they have been bandied about from pillar to post like a shuttlecock by press propaganda, lobbying, deputations and other ruses of the various contending parties. The sad sequel of this old political swirl is seen in loss of native forests and decline of wild life. The time is long overdue for a scrapping of the old haphazardness and a planning of a new regime which will take notice of trained biologists' field observations, otherwise the country will be obliged to suffer a very severe penalty.

When we are dealing with geological matters geologists are consulted. When we are dealing with biological matters we are guided by laymen, which is about as wise as if we consulted a navy for the treatment of appendicitis.

The Minister of Public Works, the Hon. R. Semple, has declared that he is now faced with the problem of finding millions of pounds for river-erosion work alone. Mr. Burnett, M.P., estimates that it will cost £5,000,000 to exterminate deer. It is pleasing to note that these gentlemen recognise whither the country is heading. The final word, however, in the efficient conservation of forests and wild life rests in a full and proper realisation of the need by the general public who, if they were fully informed, would insist upon proper, modern methods. The failure on the part of the public to back up the necessary campaign for efficiency would mean no forests, no game, no fish, and no native bird life. The final result would be national ruin due to disastrous floods and loss of productive soil.

SHAGS AND MORE SHAGS.



OUR SATANIC SHAG

HIS AMERICAN COUSIN'S ECONOMIC EMINENCE

By "A Keen Angler."

Thence up he flew, and on the tree of life,
The middle tree and highest there that grew,
Sat like a cormorant.

IN quoting these lines from "Paradise Lost" one need not follow the immortal John Milton's symbolism, or ponder too deeply the suggestion that the cormorant on the tree of life was Satan. It is sufficient to know that Milton knew cormorants, called in New Zealand shags. He knew their choice of the highest trees to nest in, and of high points to rest on. He knew his cormorants far better than he knew his Satan.

A shag on the topmost point of a dead river-side tree appears to be an aloof creature. Such aloofness may have been useful to the bird in the days of bows and arrows, but is little protection for it against modern small arms of long range and great accuracy. Back in the mountain gorges of various New Zealand streams are tree-top colonies of shags' nests, and thither go the murder gangs of sportsmen armed with their little deadly rifles. Sitting birds are shot through the nest, till the mother head bows and the long neck collapses down the side of the rude structure which serves as home and nursery. The birds who thus die at their post generally stop there, and give the slayer no token whereby he may collect blood-money from the Acclimatisation Society. But other shot birds crash down from great heights, so that the cash transaction can be completed.

The cormorant—or at any rate some species of it—is not really an aloof bird. It is aloof only when hunted—sometimes not even then. It is easily tamed, and trained to catch fish for its keeper. In England the master of the cormorants was one of the officers of the Royal Household. The Chinese still use cormorants to catch fish in shallow rivers. A strap is fastened round the bird's neck and so, without impeding its breath, hinders it from swallowing its capture. "The activity the bird displays under water is almost incredible." That is its only Satanic feature.

THE NOW PROTECTED GUANAY.

Th's almost obsolete industrial use of the cormorant is not its only industrial use. Ex-

cept in a few countries, the cormorant no longer supplies fish for the breakfast table, but it still feeds the pastures and crops of the fields. In the face of all competition from modern competing manures guano remains a colossal industry, and the cormorant of the Peruvian coast—a relative of the New Zealand spotted shag—is claimed to be the greatest revenue-producing bird in the world.

Surely it is no small thing to say that the bird to which, in a cash sense, the industry of the world owes most, is one of these despised shags or cormorants. Yet Robert Cushman Murphy, in the "National Geographic Magazine," sets out to prove that the Peruvian cormorant or guanay is "figuring in dollars and cents, and with reference to effect upon human life and geography . . . king among avian benefactors."

The guanay is a cormorant species related to our sub-Antarctic shags—that is, to New Zealand shags—but the existence of a cool current (the Humboldt current) off the Peruvian coast has enabled this representative of an Antarctic group to live within six degrees of the Equator. Its life has become localised to the Humboldt current and to the strip of South American coast the current washes. The guanays are present literally in millions because the current also contains millions of myriads of small fishes. From the crop and gullet of a dead guanay the remains of no less than 76 anchovies, four or five inches in length, have been taken. If millions of guanay can be carrying each 50 to 100 small fish at a given time, with no exhaustion of fish supply, how many fishes must there be? The fish move in immense shoals, with almost equally immense "rafts" of guanays over them, and with preying fish underneath.

If a shag is to be shot in New Zealand because its crop contains two trout, what slaughter should be inflicted on these guanay fish-murderers in South America?

As a matter of fact, the South Americans allowed the guanays to be made war upon

until their numbers, and the guano returns, fell. Then the South Americans returned to the good old Inca tradition of guanay protection. We can all learn from the aborigines.

Because fish teem in the Humboldt current, because guanays are proportionate in number, because the arid breeding islands are small in proportion to the millions of birds and compel them to nest close together—for these reasons guano accumulates on the islands in such quantity as to provide a huge fertiliser industry, which makes the guanay the greatest revenue-producing bird in the world.

KILLING NO MURDER.

According to Acclimatisation Society logic, the guanays should be put to the sword. Their fish-consumption makes New Zealand shags look like novices.

New Zealand logic always regards killing as murder, but in Nature killing is often no murder at all. For instance, probably there are

more birds and more fish off this South American coast than anywhere else in the world, except perhaps in parts of the Antarctic. Where nature has created a balance between the preying creatures and the creatures preyed on, the predator is no murderer. The gunman who kills him is.

Here, then, is a contrast that excites thought: The Acclimatisation Societies and the Department of Internal Affairs in New Zealand destroy shags to protect fish, but the Peruvian authorities strictly protect the shag, with the result that both fish and shags abound as they do in few other areas. It is a cardinal fact that a plentitude of wild life almost solely depends upon a bounteous food supply. The natural enemy is a most important factor in that it helps in the preservation of the species preyed upon by eliminating the easily caught weak members—the ill-fed, the diseased, the deformed. Thus the natural enemy has its indispensable mission and its place in Nature's scheme.

EVOLUTION.

In nature all forms of life are ever changing. This process has gone on for ages upon ages ever since life came into being on this planet. Plant life sprang originally from minute forms. Ages upon ages produced the present form of trees and this changing process in form is even now taking place. What a great forward step it was when, say, such a plant as a tree fern produced a branch or branches. One such tree fern exists near Shannon which is protected by law. For years past this specimen was unique in New Zealand as showing the evolution of a tree fern into the branching form of more advanced types of trees. Two more such trees have now, however, been located by a junior member of the Forest and Bird Protection Society, Master John Mitchell, of Shannon. The photos below illustrate the appearance of these new finds.



THE SPOTTED SHAG

(*Phalacrocorax punctatus*)

By R. A. Falla.

AMONG the many shags or cormorants of different appearance and habits found in the coastal or inland waters of New Zealand, none is more interesting than the Spotted Shag. It may be distinguished, first of all, by the fact that its distribution is entirely coastal and that it is found frequenting rocky headlands or steep islets adjacent to deep water. Within such range the bird is sedentary and individuals seldom ever stray more than a mile or two from the nesting area.

A glance at the cover illustration will indicate some of the peculiarities of structure which distinguishes this bird from other shags and have, indeed, caused it to be classified as a distinct sub-genus.

It is of extremely slender and delicate build, this being especially true of the bill. The fact that this organ has no hook at its tip and that the throat is relatively small and not distensible, should be sufficient indication to a careful observer that the feeding habits of the Spotted Shag must surely differ from those with which shags and cormorants are in general credited. Stories of the swallowing of large fish, such as trout weighing up to one pound, could not apply to a bird with a beak and throat structure like this one. The fact is that the diet of the Spotted Shag is not only confined exclusively to marine organisms but also to such easily captured and abundant kinds as free-swimming crustacea and the swarming larvae of small fish.

Whatever research would eventually indicate regarding the feeding habits of other shags, they are of definitely no economic import in the case of the Spotted Shag. Recognition of this fact was slow, and for many years the species suffered constant persecution in common with all other species. If anything, it suffered more, for its habits are such that it showed no ability to move from an area of persecution and establish itself elsewhere. It is regrettable that in a few places where Spotted Shags inhabited regions of sheltered water a most interesting and handsome bird has been almost wiped out. The

progressive extermination of this species in the Hauraki Gulf has been rapid during the last few years, and the legal protection now afforded by an Order-in-Council, published in the New Zealand Gazette of 9th January, 1931, has come none too soon.

In 1910 nesting colonies occupied permanent stations in suitable headlands of the islands Tiritiri, the Noises, Rakino, Waiheke Shag Rock, and islets off Coromandel. More than half of these were deserted by 1920, and others have dwindled rapidly. One has been observed by the writer at intervals since 1923, in which year 100 birds were seen there. In 1925 only 40 remained, in 1928 only 25, and in 1931 none at all. The only colony left on the western side of the Gulf at the present time is in a narrow tunnel that pierces a small islet, and from which the birds rarely emerge. On the west coast of the North Island at Te Henga and Oaia islet are inaccessible colonies of Spotted Shags.

The habits of Spotted Shags are the same everywhere. They are comparatively early nesters and, in the Auckland district, assume their handsome nuptial plumages as early as April or May preparatory to nesting in the following month. Nests are precariously placed on narrow ledges, and it is a striking sight to see hundreds of the gaily plumaged birds crowded in against the cliffs with scarcely foothold for each.

Usually three, sometimes four, eggs are laid and the young birds when hatched, like all other shags, are naked and ugly. There are two successive coats of down which finally give place to the first plumage. This is almost uniformly silvery-grey, slightly darker on the upper surfaces of the body. With the assuming of the adult plumage, dark oil-green feathers invade the flanks and fore-neck and, lastly, there comes the conspicuous white neck-stripe. The deeper crest and the filoplumes are of short seasonal occurrence only, and are worn by both males and females for a few short weeks at most.

THE DESTROYERS

RUIN OF MOUNTAIN FORESTS CONTINUES

IN spite of all that has been said and written about the criminal folly of permitting sawmillers and settlers to strip the indigenous forest off the high places, the work of ruin still goes on. There are sawmillers operating in areas of bush more than two thousand feet above sea level, and in some places three thousand feet. These places are forests which should be saved from interference in any form because they are so obviously natural protection forests, saving the soil from erosion, protecting the sources of rivers, shielding the cultivation areas lower down and forming climatic guards, and adorning the country as no works of man can adorn it.

But no restraining hand is laid on the destroyers. Timber felling is going on to-day on mountain ranges which form the collecting areas for town water supplies, and which will be reduced to wild weed-infested desolation as soon as the garment of bush is removed.

In spite of all the appeals made in the newspapers and the publications of the Forest and Bird Protection Society, no scientific plan has yet been formulated for the preservation of our forests. It is next to useless to make a scenic or a forest reserve here or there. These scraps saved from the general ruin are small and isolated and are likely to deteriorate.

There would be some scientific conservation value in a policy which strictly forbade any timber-felling on native forest areas more than, say, a thousand feet above sea level, or above a certain grade of steepness. This would cut out, of course, many timber mills now operating but it would be to the enormous benefit of the country. The King Country ranges, ravaged everywhere, the Kaimai hills between the upper Thames and Tauranga, where the bush is being destroyed as high as 1,500 feet, the Mamaku hills and tableland, the watersheds of the Wanganui, the Mokau, the Waipa, and a hundred other streams; such mountains as Pirongia

and Maungatautari, should never have been touched by sawmillers or the all-destroying farmer.

The haste displayed by Governments in the past in disposing of bush-covered steep ranges to settlers for clearance was responsible for a vast amount of destruction; but the amazing thing is that the lessons of the past have not yet had their due effect. Commercial interests still have their way and work their will.

Those who would save the forests seem singularly helpless. Example, the Waitakere Ranges, Auckland's Blue Mountains. Auckland wants and needs that area of hill and forest as a park, but private interests prevail and the bush is coming down. Immediately it became known that the city desired the bush for the public's use, in rushed the tree-fellers and the miller. Action by the State and by civic bodies to acquire the private interests should have been taken long ago; as it is now, all that will remain for the city and the nation will be a hacked and mutilated ruin of a once glorious place of hills and streams and bush. This fate has already overtaken the Akatarewa water supply ranges, Wellington.

The milling of the bush on Tongariro Mountain, at an altitude of three thousand feet, has repeatedly been described and brought to the attention of the Government. The Tongariro National Park Board could have acquired this from the Maori owners long ago, and saved it for the perpetual benefit and enjoyment of the Pakeha-and-Maori nation. It could have been added to the park area, by negotiation, before the sawmillers reached out greedy hands for it. The money spent on superfluous works near the Chateau could have been devoted to the acquisition of these timber rights, and so have saved a beautiful tract of forest, the natural protective belt along the northern face of the range. But not a word about it from the Board. Does such a body still exist?

THE CHUKAR PARTRIDGE OF ASIA

WHAT WILL IT EXTERMINATE?

An eminent biologist has said that no species of wild life can be successfully introduced except at the expense of some existing form of wild life. Attempts have recently been made to introduce the Indian Chukar with some prospect of success. A single Chukar hen has been said to have laid 136 eggs in one year in captivity. The Chukar will probably establish itself in Canterbury and Central Otago but fail in North Auckland and most districts having a heavy rainfall.

What other form of wild life it will displace, if the imported species gets strongly established, remains to be seen. The following interesting description of the chukar by Gordon H. True, Jr., of the Californian Bureau of Game Conservation, appears in "California Fish and Game" (July, 1937):—

The chukar (*Alectoris graeca chukar*) is one of twenty-two varieties of a single species of partridge that is found from Northern China and Mongolia, through India, Persia and Arabia to Asia Minor and southern Europe. In Asia, this partridge ranges as far west as the Holy Land, and in Europe to the Alps and middle and southern Italy. The species, or rather group of closely related varieties to which the chukar belongs, has a well-known relative in the person of "the Frenchman" or red-legged partridge of Europe (*Alectoris rufa rufa*), and another in the Barbary partridge (*Alectoris barbara barbara*), of the desert plains of North Africa.

The chukar presents a striking appearance with his red beak and feet, black necklace around a white (sometimes buff) throat, and the handsome vertical bars of black and brown on his grey flanks. When seen in his natural surroundings, however, he blends so perfectly with the background that he may escape detection by the keenest observer through the simple expedient of just "sitting tight."

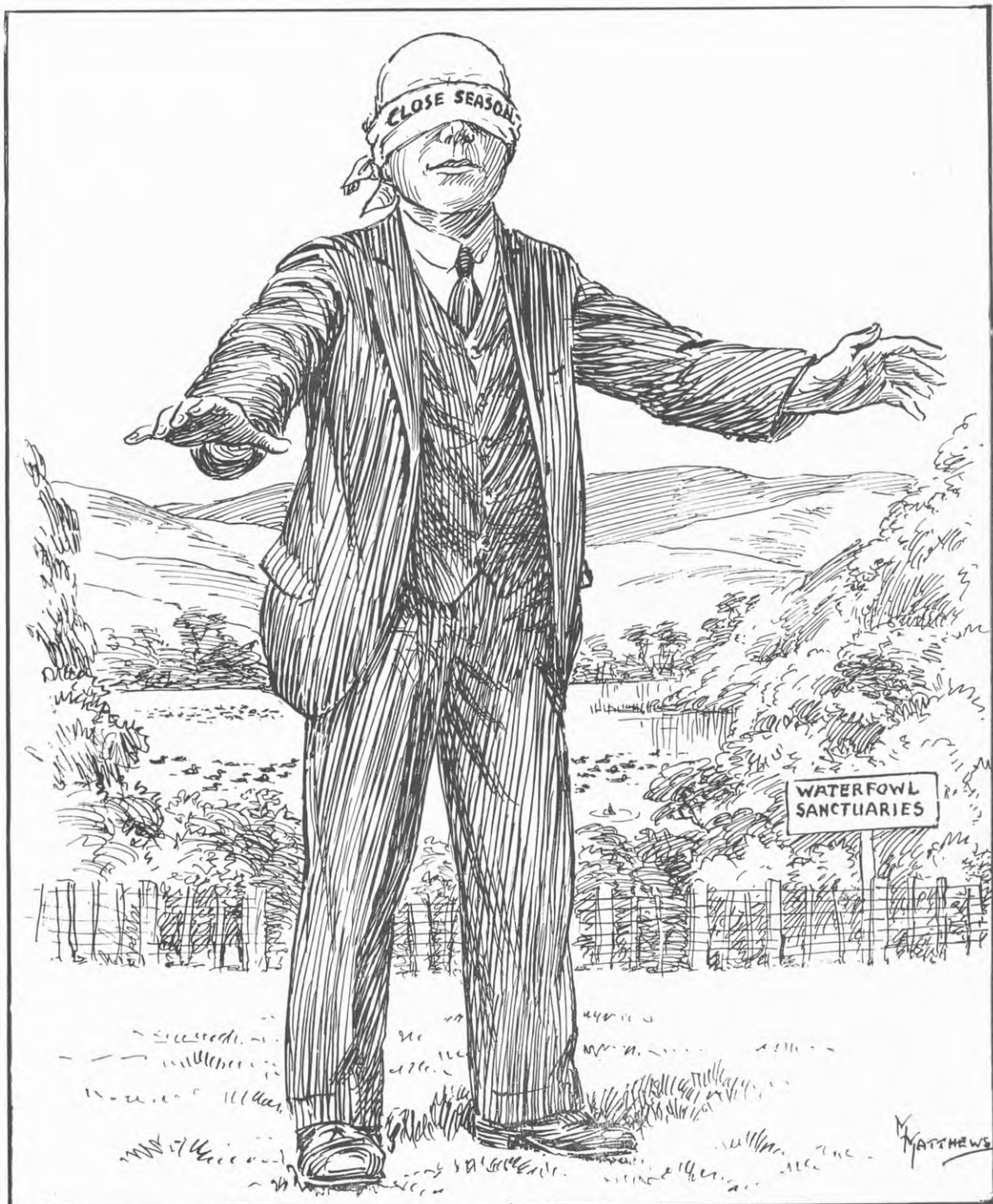
In choice of habitat, the chukar is one of the most versatile of birds. Hume, in "Indian Sporting Birds," states that, "in one place it faces a temperature of 150 degrees F., in another braves a cold, about daybreak, of a little above zero; here it thrives where the annual rainfall exceeds 100 inches, and there flourishes where it is

practically arid." Apparently the only climate that a chukar can not stand is the incessant damp of a rain forest. It is found at altitudes ranging from sea level to 16,000 feet. To quote again from Hume, the chukar is equally at home "on open grassy hillsides in the hot, low valleys; on stony screes covered with a light growth of barberry bushes and amongst snows at 12,000 feet. It is this ability of the chukar to survive under such a variety of conditions that has encouraged its introduction into California—a land of contrasts where this bird must certainly find a favourable environment.

In India, the chukar breeds in April or as late as September, depending on the altitude. A pair of birds will naturally take up housekeeping much later at an altitude of 16,000 feet than they will at a 1000-foot elevation. The nest is built in a hollow scratched in the ground which may or may not be lined with grass or leaves. The nest may be built in the open or in the protecting shelter of a stone or bit of herbage. Sowerby in "A Sportsman's Miscellany" remarks that the nest "is very hard to find, usually being carefully hidden amongst the boulders and scanty scrub at the base of cliffs in narrow ravines and gorges." A chukar hen will lay on the average a clutch of fourteen eggs. The eggs are yellowish white and speckled to a varying degree with brown.

Sowerby states that "young hatched in June are fully fledged by the end of August. By September the chukars are fully grown and ready for shooting." During the fall months, the pairs, with their rapidly maturing young, gather into coveys of from thirty to several hundred birds. They remain in coveys throughout the winter, breaking up into pairs at the beginning of the next breeding season.

The food of the chukar consists of reeds, small fruits and berries, leaves, green shoots and some types of roots. They also take insects and insect larvae when they are available. Chukars are very fond of cultivated grains but seldom enter fields in which crops are standing. They prefer to glean in the open fields after the harvest.



The bandage, symbolising a half-measure, delays the Hon. W. E. Parry's view of the real remedy to prevent the extinction of native duck — many permanent efficiently managed water-fowl sanctuaries.

THE GREY DUCK

NEED FOR REAL SANCTUARIES

THE plight of the grey and other species of native duck is yearly becoming more and more desperate. Overshooting, the destruction of natural habitats, the importation of black swan, mallard and other foreign competitors, concentration of shooting on waterfowl owing to the rapid decrease of upland game birds during many years such as pheasants and quail, have all been factors in depleting the numbers of native waterfowl.

Various expedients have been suggested to avoid the inevitable finale—the placing of all native waterfowl on the list of absolutely protected birds. Amongst the various suggestions put forth have been the destruction of hawk and pukeko and the closing of the shooting season for one or two years.

The killing of the natural enemy in a wholesale manner is perhaps the usual remedy occurring to the non-biological mind, which does not take into consideration the fact that hawks, for instance, are the arch enemy of rodents and that rats take a tremendous toll of ducklings, so much so that one competent observer, who has unique opportunities for making accurate observations, concluded that no less than 90 per cent. of the ducklings hatched in his district fell a prey to rats.

A close season, although it is necessary as a primary measure, falls far short of the need. Such procedure, because of the very ineffective field administration of wild life matters in New Zealand would merely result in shooting of the increase, upon the resumption of legal killing, despite bag-limit restrictions.

What then is the real remedy for the present state of affairs with regard to our disappearing native waterfowl? It is, of course, plain to anyone with any knowledge of real conservation that large-scale efforts should be made to re-establish the natural habitat on a comprehensive scale by setting up a chain of efficiently-designed and managed waterfowl sanctuaries throughout the Dominion.

The following description of a sanctuary in Utah and how it is proposed to administer it, as explained by George H. Nichols in "Bird

Lore," will illustrate what is meant by an efficiently-managed sanctuary:—

A WILDFOWL UTOPIA.

By George H. Nichols.

On a perfect early June day, at the height of the nesting and brood-rearing season, in the most nearly perfect part of the year in that locality, we travel westward out of Brigham City, Utah, to visit the ideal and nearly completed Federal Government wildfowl sanctuary, the Bear River Migratory Bird Refuge.

The road to the Refuge leaves this northern Utah city on Forest Street, traversing, from almost immediately outside it, the low alkali flats which were at one time the bed of ancient and mysterious Lake Bonneville, a scant remnant of which is now the Great Salt Lake. Three shore-lines, marking different levels of the old lake, can plainly be seen to the left, after a turn southwest. Highest of these—almost 1000 feet—shows the Bonneville line, a few hundred feet below, the Stansbury, and, low at the base of the Wasatch Range, the Provo level, all named for early explorers.

Our road extends through a distance of six to eight miles, well rounded above the flat to facilitate wet-weather travel. The soil is almost bare, deprived of all growth except a scant mantle of wire-grass.

Sluggish old delta channels with barren banks appear, unusual to the West where rivers mainly are confined to narrow canyons and valleys, their waters rushing and leaping. In the Mississippi Valley such slow streams as these would be lined and overhung with swamp elms, ash, maples, birches, and sycamores, and would bear the name "bayous."

Marshlands begin to appear now, interspersed with numerous barracks-like structures which in season house the members of duck clubs. These clubs are the forerunners of the Government's present work of reclamation for wild life. Most of them have been in existence for many years. One of them bears the modest, shrinking name, "The Millionaires' Duck Club."

The terrain becomes increasingly marshy now, and water-fowl life more abundant. The low buildings of the project appear and we follow for a short distance along the banks of the main stream of the Bear River, turgid and muddy, and soon find ourselves in the midst of the Government village, 15 miles, or a little more, from our starting-point.

We present our credentials to the refuge's superintendent, and are immediately taken in charge and introduced to the small administrative staff. The intent of the Government in the preservation of wild life is fully outlined and many of its methods explained. We are then conducted through the group of buildings, preliminary to a tour of the nesting-grounds, the most interesting proving to be the power plant and the as-yet-incompleted research building for the biological staff. The complete power-plant furnishes the refuge buildings with heat, light, and refrigeration, operated from a natural gas-well. As pure water has not been obtained, a distilling plant is used. A filtration plant furnishes water for all other purposes. The building for scientific research houses apparatus to be used in the study of wild-life plagues such as have decimated the flocks in past years. Methods of feed-growing and all factors contributing to the well-being of the feathered inhabitants are studied.

We are shown a great store of various wild plant seeds which must have been gathered with infinite labour from many distant points, to be used experimentally to supply a variety as well as an increase of food-supply.

A great room of glass tanks, located in tiers, one above the other, for experimental and observation purposes is a feature of the research plant.

Steel towers, 100 feet high, with mounted telescopes, stand out prominently in the refuge, for the observation of flights and the apprehension of poachers. There are warehouses, cottages for employees, garages, and other buildings, constructed with the appearance of permanency and utility usual to Government buildings.

A raised area of about 10 acres, which is to be parked with lawns, trees, driveways, and paths, is being formed by CCC workers about the buildings. The top-soil of this island is hauled about 20 miles. This is made necessary on account of the alkalinity of the soil of the locality. Here is also under construction a

lagoon, fed by the river, which will be surrounded by a high fence and in which will be kept on display specimens of the wildfowl life of the region.

The trip through the nesting-grounds is made on roadways on the top of the dikes, of which there are more than 40 miles. They are 150 feet thick at the base and about 8 feet high. The territory encompassed amounts to over 60,000 acres. Several miles of the fresh-water side have been beached with fine gravel. Grit is as essential to the well-being of wild fowl as to domestic fowl. At the mouth of the river the main dike contains forty spillways to keep the water at the desired level.

Our conductor, the superintendent, has explained to us the qualifications which are considered for the selection of employees. They are, he says, experience in similar work, such as game-warden, and special adaptation. Courses are now given as preparation in colleges. As we are shown about we are able to observe the meaning of special adaptation—the careful watchfulness of the mother hen coupled with the same amount of affection for her charges.

Driving out upon the first dike to begin a 10-mile tour, the most interesting imaginable, our guide demonstrates all this special adaptation. His care with the nests of Teals, which he searched out, standing smilingly by while our unaccustomed eyes fail to locate the nest 2 feet away, although it contains 9 eggs almost as large as pullet eggs, shows to us what he had meant.

We note now, all along the way, the peculiar circumstance that all the nests are located on the north and west sides of the dikes. Our guide can give no reason for it but it is noticeable that, of the nearly eighty species of classified water-fowl, all are located thus. Some are concealed in weeds and grasses; others, as those of the Avocet, lie carelessly exposed upon the bare dirt.

The uproar of the marshes is almost unbelievable. The vast numbers of feathered inhabitants living here do not preserve the stillness usual to wild life in contact with man. Here they live as they did before the coming of their human enemies, without the restraint of fear. Constant chattering and piping, squawking and honking, the flapping of wings and the impact of meteor-like bodies on the surface of the

water, produce indescribable confusion of sound.

We pass around 10 miles of diking that return to our starting-point. During the trip we see myriads of birds: Pelicans, Geese, Ducks of many kinds, Swans, many varieties of the Snipe and Plover families;; Coots, Cranes, Egrets, Grebes, and others, interesting and uninteresting. Most of these birds are now nesting here, breaking the habits of many generations. A few varieties stay only to rest and feed. Islands are being thrown up in the more isolated places for the use of the more timid birds who will not nest where there is possibility of danger. There are thousands of Pelicans but they still rear their grotesque young on distant islands in Great Salt Lake. There they transport the mud fish, which is their diet, for a hundred miles or more from fresh-water lakes partially digested in their gullets.

Many of the species represented in increasing numbers have been threatened with extinction. Egrets, whose beauty of plumage has been the means of great loss in numbers through gentle woman's love of ornamentation, have secured a new lease of life through the interest of hard-hearted congressmen and senators.

Many game-birds, now well endowed with the self-protective instinct, are increasing by Government benefit. Avocet, Curlew, and the like are reproducing here in thousands. A few specimens of Jack-snipe were seen. The same is true of numerous others.

The interesting thing of the refuge is the tameness of nearly all the bird-life there. The knowledge of safety gives the birds an entirely

new aspect. Even the familiar trick of simulating a broken wing or leg to draw attention from the nest is almost lacking. Once or twice a half-hearted attempt at such cajolery is made for our benefit but is soon given up as not worth the effort. Mostly the little fellows sit quietly on their nests, or walk away a few feet, scolding us mildly.

One could watch for hours the different bird characteristics. The Grebe children out for a ride on the parent bird's back; the well-studied pose of the Heron representing himself as a harmless post or bunch of grass to the unwary fish or frog until the lightning-like stroke ends a career; the number of species showing traits not usually ascribed, as the maternal instincts of different males who sit upon the eggs after the female has laid them, and even the rearing of the family by dad while mother gads about, interests us by the unfairness of it all. The idea might spread!

We see a representative part of this great project, and we are impressed how much wild life is worth preserving. There is evidence of considerable outlay, but the benefit appears great and maintenance will be negligible. We are glad to learn that several such organisations are projected throughout the nation or are already in operation.

Visitors to this refuge have not been encouraged in the past, partly on account of the great amount of construction, and in greater part to preserve its usefulness as a refuge. It is hoped that it will be possible, upon the completion of proper facilities, to grant privileges as well as to furnish guides to all who care to take this "scenic trip."

Grey
Duck.



PARENGARENGA, FROM WHICH GODWITS MIGRATE

The Harbour Should be a Sanctuary

(By E. T. Frost.)

PARENGARENGA HARBOUR, which opens out into the sea about ten miles south of the North Cape, is a most interesting sheet of water to the naturalist, abounding as it does in bird and fish life.

The waters are beautifully clear, and for the most part the beaches and tidal flats are clean, and at low water can be ridden over on horse-back. The water is delightfully warm, especially on a calm summer's day, as the tide makes over the flats that have been exposed to the sun.

The littoral on the south side of the harbour entrance is composed almost entirely of pure white sand which glistens like a snowfield. Here is obtained the thousands of tons of sand used in a year for making glass.

TAME WADERS.

Bird life is most interesting. Naturally, the waders are plentiful, as they can find abundance of feed, such as small shellfish and crustaceans. They become very tame if not molested. Right through the past autumn and winter, until the nesting period, blue herons and pied stilts were numerous. One heron and a pair of stilts seemed to pan out a section of beach in front of the writer's house and became very tame.

The heron would land on the launch and punt moored at the wharf and walk about quite unconcernedly. The stilts could be approached within ten yards.

It was a lesson in patience to see the heron fishing. Standing motionless, it awaited the unwary small fish, which it picked up with a very quick thrust of its sharp bill.

As the tide makes over the flat, a couple of caspian tern follow up, and are continuously pouncing on the unwary fish, right up to high-water mark.

CUNNING RED-BILLED GULLS.

The receding tide leaves shallow pools where the sagacity of the beautiful red-billed gull in obtaining a meal can be observed. Standing in a film of water, one quarter to half an inch

deep, it starts to dance, working its little feet at an amazing speed, all the time gradually moving backwards.

The pounding of the little feet evidently disturb the marine worms which lie just beneath the surface, causing them to disclose their position, for every now and then the bird picks up a morsel and then continues its dance.

IDEAL PLACE FOR GODWITS.

Of course, the godwits make the principal interest of the harbour. Thousands of them fly up and down, following the rising and falling of the tide to feed on the flats. Mingled with them occasionally are other migrants such as knots and sandpipers. The godwits start on their return journey to Siberia about March. Last year, on 10th March, large flocks were to be seen taking off and flying in a northerly direction over the high hills at North Cape. Six months later, to the exact date, the writer noticed several large flights drop into the harbour over the ranges.

What a harbour for a sanctuary! What an everlasting monument for a Minister of the Crown to make in assuring a place of safety for these famous migrants, that are so sadly persecuted, now that travel is made so easy for shooters by good motor-roads. It is absolutely necessary that these birds should have some sanctuaries if they are to be saved from extinction. This most northerly harbour offers a splendid opportunity for an act of justice which should have been done long ago.

VANISHED FORESTS.

With the exception of a few small areas left in gullies, the whole of the country around the harbour is devoid of forest, but at one time it must have carried magnificent kauri forests, as the deposits of kauri gum have been enormous. This forest was destroyed in prehistoric times when this part of the island was of much greater area.

As usual the hand of man has completed the destruction until at present even firewood is

very scarce. Sixty years of firing by gum-diggers has almost ruined the area. Dry, hard baked hill slopes are to be seen in many directions and there is hardly shelter enough to enable birds to nest. Consequently most of the native birds have vanished.

MAN BANISHES THE BIRDS.

The weka is gone, and only here and there can be found the fern bird, which succumbs easily to fire.

Dotterel are more plentiful, as they keep to the shores of the harbour.

A few pigeons are to be found in a small bush near the North Cape, but they are threatened with extermination by law-breaking pot-hunters.

The native lark (pipit) is scarce, probably owing to the numerous wild-cats which roam over the area in hundreds, the progeny of animals left behind by gum-diggers.

An out-of-the-way place is this Parengarenga Harbour; yet it is becoming easily accessible because of road improvements. Therefore, the hope is fervently expressed that it will be known soon as New Zealand's first sanctuary for godwits.

THE FEATHERED CHOIR.

Dawn comes and with the dawn there comes
the calling

Among the trees of many voices,
As birds proclaim their messages enthralling,
And not the least one but rejoices.

They waken to the joy of recognizing
New life, as morning comes in splendour;
Bright-eyed, alert, each sun-lit moment prizing,
They greet their mates with flutings tender.

Sweetly may come the perfume of the roses,
Their glowing red like dawn-spires showing;
But bird-song more the spring of joy discloses,—
Motion and life with music flowing.

In praise of life's renewal universal
Fulfilling bliss beyond desiring,
Around the earth proceeds the glad rehearsal
As myriads awake to choring.

—W.P.M., in *The Christian Science Monitor*,
June 2, 1937.

LABOUR LENDS A HAND.

THE National Association of Audobon Societies is a powerful combination aiming primarily at bird protection in America, but nevertheless extending their activities to many countries.

Mr. Robert Cushman Murphy, recently elected President, writes as follows in the Association's official publication, "Bird Lore":—

"The conservation movement, ordinarily thought of as wholly altruistic, frequently receives unexpected support from sources motivated by 'enlightened selfishness.' For example, a West Coast labour union has recently delivered an ultimatum that threatens to tie up Japanese ships in American ports unless Japan compels her own fishermen to cease fishing on the high seas for salmon which, at the appointed season, make their spawning runs up North American rivers. The aim is neither unreasonable nor unprecedented, for years ago, as a result of arbitration, Japan, Great Britain and the United States terminated the pelagic fishery for fur seals in the North Pacific. The present protest with regard to salmon is the second instance within a year in which organised labour has attempted to play a role in wild-life conservation. Only last autumn a strike of Scandinavian seamen forced the British anti-arctic whaling fleet to reduce its catch.

"In many parts of the world, the past decade has seen a general expansion of labour influence in public affairs. To a considerable degree, organised labour has concerned itself with urban problems and has maintained an urban point of view. But as knowledge of the inter-relations between man and all other forms of life becomes more widely disseminated, it is inevitable that labour should take a vital interest in the fundamental causes of proper land-use and sea-use. No group of people has a greater stake in wild-life resources than has labour; no group would more promptly and deeply suffer through the exhaustion of such natural wealth."

FOREST AND BIRD SOCIETY BADGES.

Metal badges nicely designed in gilt and nephrite green enamel are now being issued by the Society, at the price of 1/6, or in silver and paua shells at 7/6 each. These latter make handsome brooches.



SOME NEGLECTED NEW ZEALAND TREES

By B. C. Aston.

(Continued from November, 1937, issue.)

HOHERIA.

THE family of plants known as Malvaceae is important in containing the genus *Gossypium*, producing the cotton of commerce, and the genus *Hibiscus*, containing the Indian hemp plant and many highly decorative tropical and sub-tropical shrubby species. The family is known to gardeners as supplying the mallows (hollyhocks). The New Zealand representatives of Malvaceae are the ribbonwoods and lace-barks. Several of these are esteemed as among the most beautiful of New Zealand flowering shrubs, for the large white flowers, often massed together, and the handsome foliage. The best of them, the South Island ribbonwood (*Gaya lyalli*, now *Hoheria glabrata*), and the Marlborough ribbonwood (*H. ribifolia*) are completely deciduous in nature. The latter is greedily eaten by the New Zealand wood pigeon and by wild sheep. The neglected plant of this group is *Plagianthus betulinus*, which Cheeseman describes as a "handsome leafy tree, 30/60 ft. high, with a trunk sometimes 3 ft. in diameter." In the young state it forms an unattractive straggling bush with interlaced tortuous branches, and is another example of the desirability of propagating by cuttings from the mature trees, a method already advocated for other plants passing through an unattractive juvenile state. The flowers are greenish and massed together in dense panicles, but the whole tree is most attractive in the adult state, and well worthy of extensive planting in open spaces and large

gardens on account of the beautiful foliage and symmetrical outline. In nature it is found on river terraces, growing well as isolated individuals in exposed positions, and it is apparently very hardy. All the New Zealand trees of the family are easily raised from seed, and sometimes from cuttings. The seed must be gathered as soon as ripe, as it is attacked by some grub.

PUKANUI.

VERY little use has been made in New Zealand, except in the north, of the fact that the giant-leaved Pukanui (*Meryta Sinclairii*), a small tree with the largest leaves of any New Zealand tree, can be successfully grown in more southern localities where the conditions are favourable. Several are growing in private gardens in Wellington, but it has not as yet been used in street planting. It is slightly affected by light frosts, but is eminently suitable for planting in situations near the sea or in breezy and frost-free pockets in the hills. The leaves are often 30 inches long and up to 10 inches broad. The tree is from 12 feet to 20 feet high, and the mass of leaves forms a dense canopy which excludes every ray of direct sunlight. In Auckland City it is largely used in parks and reserves. The plants are easily raised from seed or cuttings. The tree belongs to the family "Araliaceae"—the ivy-worts—and hence the flowers are greenish and inconspicuous. The fruit is, however, a succulent black berry, and is no doubt distributed by birds.



TALE OF THE LONESOME PINE

(By Hugh Ross.)

THE PASSING OF THE FOREST PRIMEVAL.

[This is a story of man's stupid slaughter of native forests on steep watersheds—the tragic loss of natural capital in the vain quest of a passing profit.]

ALREADY it was dark in the hollows, but on the hillside facing the west, where grew the Lonesome Pine, a little pale twilight yet lingered. A star or two, brighter than their fellows, pointed the frosty blue sky. Chill as the breath of an iceberg a wind came sweeping along the hillside, searching among the stumps and decaying forest trees—trees that, felled by the white man's axe, lay in aimless confusion, rotting—wasting. . . . The wind went on, and rustled the leaves of a small patch of bush in a rocky gully. Borne on the wind came the mournful cry of a more-pork.

In the bush-patch the birds, already abed, lifted heads from wings and listened. Again More-pork called; again. To-night, however, his voice sounded different; sounded more melancholy. Tomtit, snug in a lawyer bush, turned to his neighbour. "Listen," he said. "Listen to More-pork; he's got a cold."

"And not to be wondered at in the least," answered the neighbour, a small silver-eye who was trying vainly to shelter behind a leaf. "On a night like this he's lucky if he doesn't freeze. Winter must be coming on in earnest," he finished, edging closer to his leaf.

"Winter coming on? I believe you're right, Silver-eye." The speaker was a Bell-bird up in a Red-maple. "Winter—I wonder if we'll manage to find enough food to keep us alive until summer comes round again?" "I will," said Tomtit confidently. "Lots of grubs among the stumps—if a fellow can only get at 'em," a little wistfully.

"There aren't too many flies about, though," a Fly-catcher remarked. "Very, very few, in fact; and I can remember when I could catch all I wanted." "Before the bush was cut down?" asked Bell-bird. "Yes, before the white man took away—our home." Other voices joined in: "There was food for everyone then. And we never noticed the cold so much, either. We

were sheltered from the storms and winds, too. Now—it is terrible."

Tomtit, whom nothing ever daunted for long, chuckled, saying: "Fancy it being cold enough for old Morepork to catch a cold."

"He's jolly lucky to be able to catch anything at all these times," shivered Silver-eye, as he shifted uneasily on his perch. And then he got the fright of a lifetime, for More-pork himself, who had arrived like a phantom of the night, said softly: "Oh, no, I haven't got a cold at all. . . . Tomtit was wrong. I merely changed my call; that was what was wrong."

"But your voice sounded husky," protested Tomtit. "What *did* you call out, anyway?" he asked suddenly.

"I said, 'Poor Pine, Poor Pine.' He has just been telling me his life's story, and I felt very sorry for him. He has had a dreadful time of it since all his friends were cut down. A worse time, I believe, than we birds. In fact," said More-pork sadly, "he is dying. Listen, everyone, and I will tell you what he said."

"I went to him to-night," said More-pork, as he settled down comfortably on a branch, "on quite private business; I wanted his permission to build a nest in his trunk. It was really an ideal site. The wind had blown one of his branches off, and in the place where it had grown — sheltered, too —," More-pork sighed.

"Lonesome Pine was silent for sometime after I'd put my notion. Considering it, I thought. 'More-pork,' he said slowly at last, 'did you always have a lot of trouble finding a suitable place to build a home?'

"Only since all the bush has been felled," I replied. "Before that it was easy enough."

"'Before the bush was cut down, yes,' he answered, 'and to think, More-pork, that five years ago all this hill-side was green and yellow with trees. Five years, and look at it now.'

(Continued bottom next page.)

WEASELS.

THE need for much extended field work by trained biologists is demonstrated by many of the observations of that noted naturalist, Mr. H. Guthrie Smith, appearing in "Tutira." Weasels, for instance, appear to be frequently northward bound. They become numerous in some localities at times and then disappear *in toto*. Pukeko, kiwi and weka have been known also, as they did at Tutira, to disappear from or flow into localities. Mr. H. Guthrie Smith writes:—

The earliest weasel was seen on Tutira in 1902. Between that date and 1904 they had overrun the country between Tutira and the southern edge of the Poverty Bay Flat. Everywhere I heard of them. On every road and new-cut bridle-track these two seasons I met or overtook weasels hurrying northwards, travelling as if life and death were in the matter. Three or four times also I came on weasels dead on the tracks. These weasels, alive or dead, were or had been travelling singly. The only party I heard of was reported by Mr. J. B. Kells, then managing Tangoio. In firing a small dried-up marsh, he dislodged a large number; according to his statement, they "poured out" of the herbage. For a short period weasels overran like fire the east coast between Tutira and Poverty Bay, and then like fire died out. I traced them by personal observation to the very edge of the Poverty Bay Flats, then, like the Great Twin Brethren, "away they passed and no man saw them more." Nowadays on Tutira I do not hear from shepherds or fencers of the weasel once in six years. I have not seen one for twenty years. There is something ridiculous in the fact that the weasel should have arrived on the station before the rabbit, and that later, when rabbits had become numerous, weasels should have practically passed out of the district—that the cure, in fact, should have preceded the disease.

I have myself known seven or eight healthy young lambs killed in a night within a short distance of one another, each with a small puncture in the throat.

Returning in March, 1919, after five years absence owing to the war, I found that pukeko (*Porphyrio melanonotus*) and weka (*Ocydromus greyi*) were practically gone from Tutira; the former, which used to feed in hundreds

about the swamp, had been reduced to three pairs on one spot and three pairs on another; the numbers of the weka had declined in an equal ratio. There had been no poisoning with grain and no shooting, for during these anxious years my brother was never away from the place. The damage, I found, was generally attributed to weasels; that they had been seen here and there was cited in corroboration of this belief. It may be so, but there are facts that do not dovetail into this theory. I say nothing of not having personally seen either weasels or signs of weasels during twelve months since my return, but why, if they have destroyed weka and pukeko, have the numbers of the small pied tit (*Petroica toitoi*) hugely, astonishingly increased during these five years? Why have Californian quail certainly also increased? Why do starlings, blackbirds, thrushes, minahs still, as formerly, swarm on the station? Possibly light may be thrown on the problem by remembering that twice during my residence great irruptions of weka have passed through Tutira. Is it possible that for a third time weka may have, as formerly, followed a moose trek and not returned? Is it possible that for some reason unknown, pukeko have also migrated in a body? Were their runs at last overstocked?

(Continued from previous page.)

"Together we looked at the hill-side; picturing it as it was then; seeing it as it is now, and the contrast was heart-rending. The marvellous colour of trees was gone—forever. The evening pean of the Bell-birds was absent. Proud trees, their tops hidden in fleeting wreaths of mist peculiar to bush-clad ranges, no longer raised their green crowns. Only was present a chaos of twisted, broken, rotting trunks, fire-blackened and pitiful. Gorse and biddi-biddi, that never could have survived if the trees had been standing, waxed abundant on all sides. Tutu, too, with an appalling rapidity of growth, had romped over the lifeless trees and jagged stumps in some places. Here and there the unchecked fury of the winter rains had caused wash-outs, large enough to have formed a grave for dozens of the trees. In a few short months man had destroyed that which it had taken nature thousands of years to achieve.

"'And it is all so useless, so wasteful,' said Lonesome Pine."

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FOREST AND BIRD PROTECTION SOCIETY

OF NEW ZEALAND (Inc.)

APPEAL FOR BEQUESTS.

Is there any cause more worthy of bequests by public-spirited citizens than the objectives of the Forest and Bird Protection Society, which is working wholly and solely for the welfare of New Zealand, present and future? Here is a suggested form of bequest:—

"I give and bequeath the sum of to the Forest and Bird Protection Society (Incorporated), and I declare that the receipt of the Treasurer for the time being of the said Society shall be a complete discharge to my executors for the legacy hereby given to such Society."

The work and record of the Society, the personnel of its membership and Executive are a good guarantee that the best possible use will be made of such bequests.

CALL FOR SANCTUARIES.

The Society would also welcome the responsibility of administering suitable sanctuaries for land or sea birds, provided that a small annuity is added for the payment of a caretaker. *Such sanctuaries could be named after the donor, and would thus be a perpetuation of his name as a saviour of New Zealand's forest and bird life.* It is suggested that such sanctuaries should be administered in a manner to ensure their return to their original and natural conditions as nearly as possible.

OBJECTS.

To advocate and obtain the efficient protection and preservation of our native forests and birds, enlisting the natural sympathy of our young, unity of control of all wild life, and the preservation of sanctuaries, scenic reserves, etc., in their native state.

Affiliated with the Society for the Preservation of the Fauna of the British Empire (Patron, His Majesty King George VI.) and with the International Committee for the Protection of Wild Birds (President, Dr. T. Gilbert Pearson).

Recognising that it is essential for all those who desire to save our Forest and Bird Life to band together, I enclose herewith my subscription of £..... as a subscriber to the Society. I shall be glad to receive the quarterly magazine, "Forest and Bird," without further charge.

SUBSCRIPTIONS:

Children	.....	.....	£0	1	0	per annum
Ordinary	.....	.....	0	5	0	" "
Endowment	.....	.....	1	0	0	" "
Life	.....	.....	5	0	0	