Forest and Bird

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FOREST SCENE AT TAUPO

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On Lake Manapouri.

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FOREST AND BIRD PROTECTION SOCIETY

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IN ALL SINCERITY

Before Captain Sanderson inspired his fellow enthusiasts to unite and form the Native Bird Protection Society in 1923 (to become the Forest and Bird Protection Society in 1934) there were others who knew that many factors were operating to threaten the very existence of our native birds and forests, but it was left to Captain Sanderson to do something about it. A keen observer, he was a practical thinker, endowed with more than the usual courage. He saw clearly the parlous condition of our birds and forests and he realised that someone had to do something about it. At considerable sacrifice and in spite of opposition he determined to devote the rest of his life to organising protection for the remnants of our indigenous forests and birds.

Today the Society is carrying on the work so ably commenced by him, and although it is still experiencing opposition there is evidence that our work is bearing fruit. A strong body of informed public opinion is being built up in support of our efforts, and, notwithstanding the industrial complexes and somewhat insidious influences of other present-day things and preoccupations, there appears to be an awakening of public opinion which ultimately will become too strong and too insistent to be ignored. We know that a very large proportion of citizens sympathise with our efforts, but unfortunately they are not vocal. It is left to the Society to take action, otherwise it could be a case of trying to save too little—too late.

During the thirty-seven years of the Society's existence important progress has taken place: a special section of the Department of Internal Affairs has been set up to deal with wildlife problems and the section has the assistance of a Government-sponsored fauna-advisory council, the Forest Service has been formed and is now a very important department of State staffed by competent and enthusiastic officers, a Soils Erosion and Rivers Control Council vested with considerable power is functioning under expert control, a consolidated National Parks Act came into force in 1953 and now controls nine parks, the rabbit menace has been dealt with and the Rabbit Destruction Council appears to have performed a very satisfactory job. Protection has been removed from other important animal pests and the means for eradicating these is constantly under review. Waipoua Kauri Forest has been created a reserve for all time, and a ten-year experiment is being conducted with the Tararua National Forest Park. All these and other measures form encouraging evidence of a realisation that conservation of our natural resources calls for action. Nevertheless, we should not let the foregoing lull us into a false sense of progress and well-being. A Government department can be staffed with keen intelligent expert personnel yet be rendered ineffective either by being starved of finance or by political interference or indifference. It is unfortunately true that any department of State can be only as effective as its political head permits it to be. It is, of course, right that major decisions should require the approval of the political head of the department concerned, but it is vital that decisions should not be over-long delayed and that these should be determined by what is right in the best interests of the people of today and of tomorrow. We like to think that Ministers give decisions they know to be right even if giving such decisions seem to impose a threat to their seat at the next election. The country needs such leaders, men who are completely sincere in their convictions and fearless in their determination to see that what is right is done because it is right, regardless of pressure from sectional interests, however powerful. The machinery for conservation of our natural resources is there; it is for the Ministers to see that it is not rendered ineffective by indifference or lack of support. How this is done will be judged by posterity, who will applaud and rejoice—or condemn and lament.

For ourselves, following in the footsteps of Captain Sanderson, we claim to act with the utmost sincerity in order to achieve the objectives of the Society. At the moment we are engaged with a number of problems some of which are fiercely criticised and opposed by those with other interests to serve; we are afraid neither of criticism nor of opposition, we do not even resent it as long as it is offered in good faith. On the other hand, we believe that we are entitled to the support of all those who believe as we do: that *our wonderful natural heritage is worth making an effort to save.*

THE MANAPOURI PETITION

Nearly twenty-five thousand persons signed the Society's petition to Parliament praying that Lakes Te Anau and Manapouri be saved from despoliation and that the National Parks Act be amended to give greater security to New Zealand's magnificent national parks. On Wednesday, 31 August, the Lands Committee of the House sat to hear submissions on the petition: the hearing concluded on Wednesday, 7 September, at noon. Submissions were presented by the Society's President and Executive members, by the New Zealand Scenery Preservation Society, by Dr. J. T. Salmon, Dr. Gerald Fitzgerald, Mr. Harry Cochran, and Mr. Wilson C. Campbell. The various Government departments concerned submitted reports. The committee gave to those taking part a courteous and attentive hearing, but it was faced with a difficult task in being asked to recommend the repudiation of an agreement already signed by the Government, however wrongly. It is not surprising therefore, that, notwithstanding the volume of evidence submitted, at a sitting of the House two hours after the conclusion of the hearing, the Select Committee reported it had no recommendation to make, although it added a rider that the scenic value of the lakes should be protected as far as possible. Nearly the whole of the afternoon was taken up in hearing addresses by Members on the petition, and, in accordance with custom, when no decision has been reached by the House at the tea adjournment, the petition is considered to be "talked out", that is, it lapses, and no further action will be taken. The Prime Minister can, however, direct that the question be reintroduced, and we understand that our petition and Mr. Gerard's motion that the matter be referred back to the Lands Committee for further consideration, has again appeared on the order paper of the House as we go to press.

The same evening the second reading of the Manapouri Agreement Validating Bill commenced and was concluded the following afternoon. During the addresses it became apparent that an overwhelming majority of the Members favoured the plans for an aluminium industry, but a number of them expressed considerable dissatisfaction that the Government had not taken the House into its confidence before the agreement was signed, and some said they were perturbed that no clauses had been inserted in the agreement binding the company to preserve the scenic qualities of the lakes.

In opening the submissions our President said that the members of the Society recognised and sympathised with the need for developing secondary industries in New Zealand, but we had to oppose the proposals in this case because they violated the National Parks Act and established a dangerous precedent.

Mr. P. M. Henderson, Senior Lecturer in Civil Engineering in the University of Canterbury, submitted evidence to prove that the lakes could be used to produce the necessary power without interfering with the level of Lake Manapouri, and with very little interference with Lake Te Anau.

Professor H. R. Gray, Dean of the Faculty of Law at the University of Canterbury, gave evidence that there was really no legal obligation in the agreement binding the company to respect the scenic qualities of the lakes. He submitted that clause 22, and the extracts from correspondence appearing in the schedule of the agreement, purporting to show the intentions of the parties in relation to the preservation of the scenic qualities of the lakes and rivers, are of no value whatsoever in obliging the company to take any steps towards that end, and, he added, "It is submitted therefore that this clause has been intended to create the appearance of obligation without the reality; on any other interpretation it is meaningless".

We had to protest against the agreement with the Consolidated Zinc Corporation because it created a precedent of tremendous importance involving a violation of the spirit and the letter of the National Parks Act. Can any reasonable person doubt that had Parliament been able to discuss the agreement before it was signed it would have contained provisions safeguarding the scenic qualities of the lakes and that, moreover, a precedent fraught with immense danger to the future security of our great national parks would have been avoided?

WELLINGTON CITY COUNCIL AND SUBURBAN WATER SUPPLY BOARD'S FORESTS

Recently, members of the Executive of the Forest and Bird Protection Society accepted an invitation from His Worship the Mayor of Wellington, Mr. F. J. Kitts, to visit the forests under the control of the board. Under the guidance of Mr. P. Klocek, the board's Chief Forester, and Mr. J. Stanton, the party visited most of the areas over which operations are being carried out. In the August issue of the journal last year we published an account of the board's holdings, and naturally the Executive wished to see chiefly the areas being milled and those being planted with exotic trees for timber-production purposes. The bulk of the land being planted with exotics is land milled in previous years and farmed until gorse and scrub took over, and in general is not on slopes supplying water to the board's installations. Mr. Klocek assured members that the board's policy is to retain indigenous forest on all protection slopes and water-catchment areas, and to allow the indigenous forest to regenerate wherever it appeared likely to do so. He told the members that he and his staff were well aware of the need for removing noxious animals from the forests and that all possible steps would be taken to bring that about. The Executive members present were convinced that the board and its staff are keen to preserve the catchment areas so far as is possible under indigenous vegetation, and to use other "gone back" land wisely in establishing in perpetuity timber-producing forests for revenue purposes. The total area for this purpose is a very small proportion of the board's holdings, and is land comparatively close to settled areas which would be a fire hazard if not placed under proper control and development.

Mr. Klocek proved himself a genial and extremely interesting guide, and invited the Executive to visit the areas of native forest under the board's control on the western side of the ranges between the Hutt Valley and the Waikanae-Paekakariki coastal hills. Such a visit will be arranged some time during fine weather. He is a man with a fine record of war service in many countries under different flags, service which took him from Russia, down through Europe to France and England and then to central Africa, as escapee, refugee soldier, and officer.

DEATH DUTIES ON TIMBER

In the editorial of the November issue last year we recommended strongly that the assessment of the timber value of trees on farms for death-duty purposes should be abolished.

In reading his Budget Speech this year the Minister of Finance stated *inter alia* that the Government recognised the value of trees to agriculture and to the country's welfare, and announced that henceforth the value of the timber in the trees would be exempt from death duties.

At the best, levying death duties on the timber value of trees in farm shelter belts and plantations was an iniquitous imposition and a discouragement to those who wanted to develop their holdings wisely. In many parts of the world, woodlots on farms provide not only shelter for stock and protection for water and soil, but add a tremendous total to the country's timber supplies. This is important in a world where timber is becoming more valuable with each passing year. We congratulate the Minister on his decision, which will be welcomed by everybody with the interest of the country at heart. We trust that farmers will now plant trees and more trees.

TREE PLANTING BY DUNEDIN BRANCH

Members of the Society recently spent a busy Saturday afternoon planting a variety of native trees and shrubs alongside a section of the northern motorway. Trees included kowhai, lemonwood and other pittosporums; broadleaf, several ribbonwoods, including *Hoheria angustifolia* and *H. sextostylosa;* the South Island cedar (*Libocedrus bidwillii*); totara; *Podocarpus acutifolia; Nothopanax colensoi;* and the pepper tree (*Drimys colorata*). Flowering shrubs included two species of *Veronica,* several senecios such as *laxifolius, rotundifolius,* and *bennettii* as well as a hybrid type; and *Olearia coriacea, O. macrodonta, O. avicenniaefolia* and *O. waikariensis.* Flax, toitoi, and cabbage trees were also added to the plantation. Several specimens of a number of the species were planted.

The Society was pleased to find that, in spite of the abnormally dry season following last year's planting, only a small proportion had not survived and most of the remainder were growing well.

NOTES FROM THE PRESIDENT

Our Journal. For some time we have known that we should devote more space in the journal to junior members. As an experiment in the August issue we put the least interesting items from the junior point of view in the four middle pages. In all copies issued to juniors these four middle pages were removed and four special pages for juniors substituted. This worked out cheaper than increasing the size of the journal, but it has disadvantages, for adults do not see the junior items, and children of adult members miss the junior items unless they are also members (in which case, of course, they would get their own copy). In an effort to overcome these disadvantages we have increased the November issue to twenty pages instead of the usual sixteen. This adds a good deal to printing costs but it has been made possible this year by a grant from the J. R. McKenzie Trust, to whom I am grateful. I invite those interested to write and tell us what they think about the new set-up. We may not be able to write a personal letter in reply to each one, but we shall certainly take note of all letters.

Branches and sections. Seventeen branches and sections are operating in various parts of New Zealand doing very good work indeed. I have frequently reflected on the obvious need for sections in the Southland and Marlborough areas, and I should be very glad to hear from anyone prepared to take an interest in forming such sections. There is need for a section in the Wairarapa district also. We shall give every assistance to getting sections established.

The speeding years. By the time you receive this the present year will be drawing to a close. It has been one of the busiest years in the annals of the Society. Here at Head Office we have done our best to secure the protection of birds and our remaining indigenous forests. Each year the area of virgin native forests gets less and the position of some of our birds more precarious. Ministers of the Crown recently reiterated that if nothing had been destroyed in this country no progress would have been made. There is reason in all things but I am quite unable to accept the destruction of the past as an excuse for continuing it indefinitely. There must be a point where those who love indigenous New Zealand shall stand firm and say, "Thus far and no further—you shall not proceed". To those who have helped in any way this year, by recruiting members, by giving their time, by donating funds, and so on, I say thank you very much. I hope we shall be able to move onwards as an even bigger and better team next year. Until then, for the Council and Executive, Head Office staff and myself, I wish all members and friends a cheerful Christmas and a prosperous New Year.

The President.

A MANUNUI CORRESPONDENT WRITES:

We have just built our home on the banks of the Wanganui River, where there is plenty of native cover with totara, manuka, etc. For years there have been a pair of tuis here. This year they have a nest in a nearby totara tree.

One very rainy morning I found a baby tui on the ground. It had fallen from the nest. We decided to try to raise it. With an eye dropper we fed it on honey and water, or condensed milk and water. For solids we gave it fresh meat cut up fine. It has thrived and now flies over the house. In fact, today it disappeared and my wife thought it gone. When we came home my wife saw a bird fly from one tree to another. She called it and it flew to her. It was our tui. It is free to go, and it will be interesting to see what happens as it matures.

BIRD-WATCHING AS A HOBBY

By W. D. Campbell, M.B.O.U., with photographic illustrations by H. A. Thompson, B.Sc., M.B.O.U.

This crown octavo book of 138 pages is based on the author's personal observations of English birds and migrants. The text is free from technicalities and is written in a style understandable and interesting to both juniors and adults. Its eight chapters are a veritable feast of bird lore for bird lovers. The chapter headings are: Bird Watching as a Hobby, Structure, The Bird's Voice, Reproduction, Food of Birds, Migration, Classification, Recognition and Identification. Although the book deals specifically with English birds much information in it can be applied to New Zealand birds. —*A.M.J.*

Some Native Trees

Address by Rev. Father C. J. Callaghan, S.M., to the Hastings-Havelock North Section

It is a fortunate occasion when speaker and audience are at one in their wishes. You come to hear about some of our native trees, and that is what I wish to speak of.

All of you, by your presence here, show that you appreciate our New Zealand trees, and want to know more of them. Of the appreciation of beautiful things we may say what a writer said of spiritual matters: that when it is lacking, it is not missed; but, when we begin to possess it, we at once desire more. We move among people who for the most part do not appreciate the beauty of our native flora, for our New Zealand culture is still deficient in that respect. To encourage us to open our eyes, we may consider two things.

First, it is sub-human to be blind to the beauty of our trees. Animals pass by and beneath them all unknowing; and so do many people on our roads today. Yet there is beauty there, and many have taught themselves to see it, and so may we. Folk who go to art galleries and not to the bush may persuade themselves and others that they are cultured; but the sense of beauty cannot be adopted for an occasion or to impress others; and if it seems to be receptive only to the works of man it is suspect. For God is the great artist, and He is the first gardener, as Chesterton says. Through the ages He continues his work, and in our land He has planted a garden which many other lands might envy.

Secondly, the bush is a community of living beings. Each plant has its characteristics, its personality of a sort. I wish to introduce you to some of them, first, some of the rakau rangatira, the lordly trees.

1. The **white pine** or **kahikatea.** Bushmen not botanists named our pines. The kahikatea has no cone or needles. It has a tiny nut, set on top of a kind of fruit. It is a podocarp, which means "foot fruit". The stalk or stem (peduncle) holding the fruit becomes fleshy, forming a kind of berry; so we can think of it as a tiny fruit, with the stone set on top of it. This is the fashion in which the yew carries its seeds. The name of yew is **Taxus,** so our podocarps and dacrydiums are taxads (of the yew family).

This type of seed is seen on the kahikatea, the totara, the rimu. These three are dioecious (single sexed); so it is only on the female plant that the seeds are to be found. They are like tiny Chinese lanterns, the rich crimson of the berry contrasting with the black or dark-blue nut on top of it. The male flowers are small cone-like catkins and are, of course, borne on the male tree only.

These tiny fruits are not concealed, but are set off by the foliage; for both the kahikatea and the rimu have tiny scale-like leaves. These overlie the branchlets and stand out only slightly at their pointed ends; and the totara has thin, needle-like leaves.

The kahikatea is best seen in the early adult stage, say, at 20 to 30 feet in height. Its outline is a regular, tapering cone. Its foliage is of an attractive dark green; its branchlets are numerous and delicate, suggesting the intricacy of a lace pattern. In full maturity its foliage appears greyish, and is massed towards the top in the umbrella pattern usual with our large trees. At this stage the trunk is its most remarkable feature, massive and hardly tapering for a great height. It is our tallest tree, 60 to 100 feet; sometimes 150, with record specimens over 200. Captain Cook was so impressed with one in the Thames area that he recorded its measurements: it was 19ft. 8in. in circumference 6ft from the ground, and 89ft to its first branch; it was straight as an arrow, and tapered little. Its bark is a greyish brown. Like some other trees, the kahikatea has a distinctive juvenile form. Instead of the small scale-like leaf, it then has leaflets growing in two opposite rows along its branchlets and on its stem. These are at first a brilliant green, but later turn bronze as the sapling struggles towards the light. At this stage the juvenile in deep bush is unattractive; but in cultivation, with sufficient light, it need not be so.

All our taxads are rain-forest trees; but the kahikatea especially is a water lover, growing in swamps or by rivers. The Riccarton bush in Christchurch is an instance of a kahikatea forest growing in former swamp land in an area whose rainfall was too low for other types.

This tree when mature sometimes grows buttresses at its base, especially in swamp land. It is a common tree in Hawke's Bay bush in high-rainfall areas· Ball's Clearing is full of magnificent specimens. Kirk has words that apply to that splendid forest: "A virgin kahikatea forest affords one of the most striking sights in New Zealand forest scenery. Straight unbranched trunks rise one after the other in endless series, and in such proximity that at a short distance no trace of foliage is visible overhead or in the immediate vicinity of the observer; the naked and symmetrical shafts, tapering imperceptibly, appear to form dense walls which shut out every glimpse of the outer world." Also within reach of here, White Pine Bush in the upper Tongoio valley is another but poorer example.

The Maoris valued the kahikatea, for birds were attracted to its berries; and they ate the berries and the birds too. They called the yellow heart wood "mapara"; from fallen trunks they took pieces for spear heads; and as it was highly resinous they used it for torches.

2. The **totara** was also a common tree in Hawke's Bay. It has no juvenile form, though its leaves are often longer on seedlings. Mature leaves are under an inch in length, narrow and pointed or spiked. Browsing animals leave it alone; and so do people after they have grasped it once. The leaves grow commonly in two rows along the branches, though as they point different ways this is not readily noticed. The foliage of the mature tree is a dull brown, of young ones sometimes bronze; but young shoots and leaves are a bluish green. The bark is distinctive, being brown and fibrous and deeply furrowed; it peels and hangs in thin papery ribbons, and it can be cut and removed in sections, as the Maoris knew.

The totara often grew in stands where conditions suited it. On the heavier rain belt on the east of Hawke's Bay totara forest was felled for 50 years on end. It is found scattered in mixed bush; but till it overtops the lower growth it does not thrive, as it cannot compete with broad-leaved trees in the sparse and indirect light of dense bush. I fancy it liked best the light but rich soil of old river beds; it is still to be seen surviving in such places in Hawke's Bay and in the upper Hutt River valley, for instance. In early maturity it forms a pleasing rounded mass set on a bare trunk, the image of sturdy and hardy vigour· Though not especially attractive close at hand, it has a sturdy grace of form which is good to see, and which never tires.

Its fruit resembles that of the kahikatea; its berry is bright red, but it often fails to develop, or develops late. A good crop of berries is, I believe, unusual.

It is a noble tree, sometimes exceeding 100 feet in height, with a trunk 2 to 6 feet in diameter. Just as it lacks commonly the pyramidal growth of the other podocarps in the early adult stage, so in advanced maturity it lacks the umbrella effect; rival trunks spread to the sky when unhindered, giving it a vast spread above and gaining for its narrow leaves the maximum of light and air.

There are other totaras. Hall's totara has larger leaves, but is much smaller in height and girth. In these latitudes it grows at higher levels than the true totara, and in the extreme south it is the only form. The two species hybridise; some consider Hall's only a variety. It has thinner, papery bark. In parts of Marlborough there is a form called the narrow-leaved totara.

The alpine totara or snow podocarp grows from 2 to 8 feet only. It forms masses by taking root from its branches, and thus binds the hillside. Its leaves are dark green, thick and leathery, not resembling the totara leaves. Its berries can be eaten—but you have first to climb for them, between 2,000 and 4,000 feet.

3. The **rimu,** as a young tree, with its excessively weeping habit or form, is our finest, and one of the most handsome in the world. It is a **Dacrydium** (which means "teardrop"—a reference, Professor Wall says, to the drops of resin, but more likely to the hanging fruit). Its species name is **cupressinum,** "cypress-like·"

Like the kahikatea, it has leaves reduced to scales, pointed and prickle-like, which clothe the branches and the trunk when young. They are a light pale green, becoming a deeper green later. To its striking beauty of form is added that of colour: in the bush the young rimu has a rich, glowing shade of green that catches and holds the eye. In the mature tree the hint of yellow in the mature foliage helps us to recognise the tree. The mature tree attains a height of 60 to 80 or even 100 feet, and its trunk a diameter of 2 to 5 feet. It is a rain-forest tree, abundant

expecially in Westland, in the centre of the North Island, and in the Urewera, but widely spread. It is often the dominant tree, but it flourishes in mixed forest. Its bark is dark brown, scaling off in large flakes.

4. The **matai** is called **Podocarpus spicatus** (its flowers grow along the sides of a spike of flower stem).

The young tree is hardly handsome, but very striking. While its main stem shoots up straight as an arrow, its branchlets grow at all angles, forming a tangled pattern; and the leaves, growing sparingly on these, give it a half-stripped appearance. The leaves are narrow, less than half an inch long. On the young plant they are reddish brown, often bluish beneath. As it develops, at a height of 12 feet or so, the matai is transformed. Books say that both the Maori and the early settler failed to identify it with the juvenile form, though it is hard to believe; you may find specimens with juvenile growth below and the adult growth above it. It becomes a densely leaved tree of striking and distinctive form and foliage. Its outline tapers, but not so narrowly as the kahikatea; its leaves become a rich dark green, with a hint of blue; the under sides of the leaves are decidedly bluish.

As a mature tree it is easily recognised by its bark; it is dark, and peels off in small rounded flakes, leaving crimson blotches. Even when these fade the peeling gives the impression of numerous rounded dents in the bark. The mature tree is shorter and narrower than our other great trees. Its wood is so hard and lasting that fallen trunks lie undecayed for very many years. One account tells of a log over which broadleaf trees had grown. The broadleaf was calculated to be 300 years old; yet when it was removed the matai was recovered and split for fencing posts. The fruit of the matai is like a tiny plum.

5. The **miro** rivals the rimu as a handsome plant when young. It has been described as fern-like; its long, narrow, curving leaves are a glossy green, soft in texture and gracefully tapering, growing in two rows, spreading like fern leaflets. Its branchlets spread wide, drooping at the tips. I have never seen a plant in the bush that gives so much the impression of being a garden specimen.

As it grows, its leaves change little; they become smaller and tough-looking, but still curve slightly. They closely resemble the leaves of the matai, but are green on both surfaces, not bluish beneath.

Its name is **Podocarpus ferrugineus** (rust-coloured). The bark of the mature tree is dark, peeling off in flakes, and it develops a narrow, rounded head. Its resin is said to be good for wounds, as bushmen knew (a case of healing the hand that bites you). Its fruit is notable. It is like a small plum, crimson, with a waxy powder which gives a delicate bloom. Pigeons are fond of it.

FROM THE DUNEDIN BRANCH

The Fiordland Region

A ruggedly magnificent, yet relatively unknown, part of New Zealand, including Dusky Sound, Breaksea, Malestrina and Dagg Sounds, and Crooked Arm of Doubtful Sound, was described in an illustrated talk by Dr. A. C. Begg last June.

A journey made by Dr. Begg and his party was described and illustrated by colour slides. Commencing from Lake Te Anau, partly by boat and partly on foot, they made their way via Lake Manapouri to Deep Cove and Crooked Arm of Doubtful Sound, to Dagg Sound, and through several heavily forested valleys to a magnificent vantage point overlooking Dusky Sound and revealing northwards a great panorama of mountain ridges extending far into the distance. The slides gave some realisation of the unsurpassed and diversified scenery, of water and mountain, of lake and valley, of bush-clad, almost sheer precipices rising up to 4,000 feet from the water, and of the richness of the rain forest.

The party saw several crested penguins, pied shags, the rock wren, and numerous keas, which sometimes tormented them with their mischievous ways. A number of kiwis were heard, but none were seen, and the party's hopes of seeing a kakapo were likewise disappointed.

Many flowering trees and plants were seen, including ribbonwood, mistletoe, gentian, *Ourisia, Veronica, Donatia, Celmisia,* and several orchids, including *Dendrobium cunninghamii, Earina autumnalis* and helmet orchids; white climbing rata and red rata, *Phormium colensoi* (flax with dependent flowers), and *Cassinia;* also an uncommon *Olearia* which is peculiar to that region,

growing close to the salty water. Of the ferns, apart from the large tree ferns the most striking were some huge crape ferns with fronds three to four feet long, while kidney ferns clustering on a large log were also shown. Huge dracophyllums of a species not found elsewhere were seen near Dagg Sound. Varied and colourful fungi were observed and illustrated, including a large red flower fungus which by means of its carrion odour attracts flies to disseminate its spores. The damp forest abounded in mosses of all descriptions, including the quaint parasol moss. The trees were mainly beech, kamahi, fuchsia, rata and ribbonwood.

Some of the most striking views were those of the lovely Spey Valley at the head of Lake Manapouri, Hall's Arm of Doubtful Sound with Commander Bluff rising sheer from the water, the remarkable high pointed peaks at the head of Vancouver Arm of Dusky Sound and the reverse side of the same mountains seen from Hall's Arm, and breath-taking views from the heights across the vast expanse of mountain peaks and ridges; but equally delightful to the audience were the pictures of small things such as the delicate green of the lesser stonefly resting on a large white flower, and of the mossy Jacobs Creek at the head of Crooked Arm.

N.Z. Animal Life

A wide variety of types of animal life mainly found in the New Zealand forests was illustrated by Dr. R. R. Forster in a talk last July. The speaker introduced his lecture by showing colour slides of the different kinds of environment in New Zealand in which these creatures were found, ranging from the beech forests of Fiordland through tussock country, the bare hillsides of Central Otago and the dry beech forests of Canterbury with little fern or undergrowth, to the lush subtropical rain forest of Westland.

The South Island grey spotted kiwi was shown, and the speaker said that this bird had been recently found to be more common than had previously been believed. A takahe with which Dr. Forster and his companions had become quite friendly had obligingly posed for an excellent photograph. New Zealand is apparently very rich in beetles, no less than 4,000 different ones so far having been scientifically named. The pupa of the largest of our beetles, the huhu, was shown in an old log, all parts of the future adult beetle being seen quite clearly at this stage. An interesting member of the beetle family was shown, so ingeniously camouflaged that it was very difficult to distinguish from its surroundings. Four to five thousand different moths have been noted in New Zealand, but there is a noticeable scarcity of butterfly species. The red admiral, which breeds on stinging nettles, is found only in New Zealand, but the yellow admiral is an introduced species from Australia. The monarch butterfly, which has now spread further south in the country, came to New Zealand of its own accord about 80 years ago. Originally an American species, it is now found in almost all parts of the world.

Numbers of spiders were described, including trap-door spiders, of which there are many kinds native to the country. Some live on the bark of trees, the tunnel being made of silk, and having a trap door at each end. Some are to be found about a foot down in the ground, the trap door being at the top of the tunnel and cunningly concealed. Some trap-door spiders have a body of 1½ to 2 inches long. Wolf spiders, nursery-web spiders, jumping varieties, orb-web and crab spiders were shown and their different habits explained. The largest kind of wolf spider would almost span a bread-and-butter plate, and can be seen to walk across water. A great many other interesting types of insects were seen and described. The weta, of which there are 40 to 50 kinds, although of a very fearsome aspect, is of herbivorous habit.

Frogs, lizards, including skinks, short-toed geckos and the pretty little green tree geckos, and the tuatara—sole survivor of a very ancient line of saurians—were the most interesting of the other slides illustrated.

These insects and other animals are all intimately connected with the plants in and on which they are found, plants and animals (both large and small) together forming a marvellously integrated system.

COVER PICTURE

The picture on the front cover shows some of the forest bordering Lake Taupo. A decision has been made to build a road along the west shore of the lake. Preservation of the bush in this area is of great national importance; for the bush is intimately linked with the even flow of the streams that maintain the level of the lake. On this lake level much of the electricity supply of the North Island is largely dependent.

THE RELATIONSHIP OF MAN AND NATURE *

To subdue nature, to bend its forces to our will, has been the acknowledged purpose of mankind since human life began, but the time has come for a revision of our conception of the benefits and responsibilities of holding dominion over all other created things. A new spirit is abroad as scientists and laymen realise that man and the rest of nature are united and indivisible.

At a time when great elemental forces are clamouring at the bars of our civilisation we need to discard our ideas of "attacking" the forest, "bringing under subjection" the mighty rivers, "conquering" the mountains, and "subduing" the prairie. Instead, we need to make the most of all nature as an ally.

Mankind is welcome to dominate the other forms of life, provided he can maintain order among the relentless energies whose balanced operation he has disturbed. This is a hard condition. Our past is full of sombre warnings of what happens when we fail to meet it. The evidence is in the remnants of great civilisations buried beneath mud and sand.

Only when we recognise that the study of all living things is a profoundly necessary part of human thought do we reach the moment of truth. Then we realise that we are part of a complex stretching back to the beginning of time and reaching out on every hand to the boundaries of the universe. Every one of us is an actor in a great drama in which each plays his part as both cause and effect.

The forces set in motion by every act of every animal and bacterium, by every inch added to the growth of plant or tree, affect the lives of other creatures. The principles which govern these interrelationships are embraced in the science called ecology, a word coming from the Greek for "home" or "estate". Ecology is the study of how the household of nature is kept in order .

This *Monthly Letter* has to do with renewable resources, the essentials of life. Our primitive ancestors made their way for millions of years before they discovered how to use iron, copper, coal, oil, and gold. But never has man been able to get along without food and water. This is why the relationship of all living things has urgent meaning for us.

The State of Affairs Today

In a subject so old, so vast, and so continually new, it seems to be impossible to keep science and social life apart. In fact, we should not try to do so. Continuance of our human society depends upon our ability to heed the science of the rest of nature, and live within its bounds.

There are at least three good reasons for surveying the present state of affairs and learning about our natural environment: (1) our advancing technology uses up resources in increasing quantity; (2) our increasing population puts annually greater pressure upon our living space; (3) our continued existence depends upon our keeping our natural environment productive of the essentials of life.

Over and above the slow changes by natural causes such as climate, the earth has suffered measureless destruction of animals and plants by the uncalculating actions of both savage and civilised men. It was destruction of their environment that caused salmon to disappear from Lake Ontario, and the bison to die off our western plains, and the passenger pigeon to vanish from North America. Forests have been burnt up, soil has been washed away, deserts have been produced, and rivers have been polluted. "We have," said Professor A. F. Coventry to the Toronto Field Naturalists' Club, "for a long time been breaking the little laws, and the big laws are beginning to catch up with us."

The Balance of Nature

Nature has its laws designed to maintain balance. If the number of any living species tends to increase out of proportion, some force will arise to control it. There is an equilibrium in undisturbed nature between food and feeder, hunter and prey, so that the resources of the earth are never idle. Some animals or plants may seem to dominate the rest, but they do so only so long as the general balance exists.

These laws cannot be disregarded without disaster. Nature—which is our word for the total of the conditions and principles which

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* *Reprinted by permission from the Monthly Letter (for May 1960) of the Royal Bank of Canada.*

influence the existence of living things—will not accept ignorance of her laws as an excuse for breaking them. Nature's law does not command us to do, or to refrain from doing, anything. It merely states that if a living being does so-and-so, then the result will be such-and-such. If we wish to avoid disability, pain, and dissolution, we must pay attention to the warning.

Every balance requires checks. Living things are dynamic, always trying to expand. When population grows in an area so as to menace the food supply, predators move in; when their prey is reduced, the predators are driven to other areas in search of food. Before shying away from the "cruelty" of nature, let us look at the necessity which prompts it. Let us suppose there were no control over soil bacteria, the smallest and simplest of all living things. Then, says John H. Storer in his delightful book on ecology *The Web of Life,* under favourable conditions each individual would divide into two about twice every hour. Even if it happened only once in an hour, the offspring from a single individual would number 17 million in a day, and by the end of six days the cells would have increased to a bulk larger than the earth. Or consider the oyster, which may discharge 500 million ripe eggs in one spawning. If all these matured and all subsequent progeny survived, after only four generations there would be a pile of oysters eight times the size of the earth. The balance preserved by nature prevents calamities of this sort.

About Soil and Water

Good soil is a living thing, and its health is a matter of life and death to plants and animals. What folly it is to call silver, gold, and gems "precious" and dirt "base". If there were as great a scarcity of soil as there is of jewels and precious metals, we should gladly give a heap of diamonds to purchase only so much earth as would hold a small violet in a tiny pot. The soil is constantly changing. In the soil we find one of the oldest laws of life known to us: birth, growth, death, decay, and rebirth.

Nothing is wasted in nature. Everything nourishes something else until the bacteria finally get hold of it and return it to the soil after breaking it down once more into inorganic compounds which plants can again transform into protein. The roots of man's physical and mental health spring from the soil. Soil is first of all rock particles, then the organic matter from dead plants and animals, and finally a community of living plant and animal organisms. Roots, insects ,worms, and bacteria build fertility into it, while small mammals plough it and let in the air.

The soil becomes filled with organic matter containing packaged energy from the sun. The hive of living things existing in and on the soil is vitally important. At Rothamsted in England, the oldest agricultural research station in the world, it has been found that the population of invertebrate fauna per acre of fertilised land is fifteen million, of which eight million are insects.

Water is essential to soil development, as it is, indeed, to all living things. Movement is of the essence of water, and the most damaging impact of civilised man on his environment is the shattering of this cycle of movement. The break is caused by the destruction of plant cover, removing the sponge-like texture of the complex topsoil, topsoil which, it is estimated, took five hundred years per inch to build. Breaking the water cycle has wiped out civilisations in Mesopotamia and North Africa and elsewhere, but because of soaring world population we have reached a new crisis. "Never before", says William Vogt in his soul-searching book *Road to Survival,* "has the hydrologic cycle been badly dislocated in the presence of so many hundreds of millions of people."

Waste of water, including unnecessary run-off, or excessive use from any one place for industrial and domestic purposes, or for irrigation, can lower the underground water table, sometimes far away, and deplete or temporarily exhaust the supply. The primary means of increasing and maintaining water reserves is to protect and improve the plant cover on our watersheds. From these areas of drainage the water is fed by run-off and seepage to surface and underground streams. The watershed problem is one of the red-letter problems of the day. Almost everything that has to do with renewable natural resources, with forestry, farming, hunting, fishing, and the economics of production, is tied up with the watershed.

Plants and Trees

It is quite correct to say that all flesh is grass. Animals lack the ability to subsist on the simple elements in air, water, sunshine,

and soil. To perpetuate themselves, they must eat grass or one another. The plant can turn inorganic chemicals into living tissue. No one can deny, then, the importance of plant life to continuance of the human race. Without that silent, endless manufacturing process which goes on in the green leaf under the influence of chlorophyll, sunshine, air, and moisture—the world's primal industry—we should surely die.

Every spring, nature's factory starts again to produce food, harnessing the sun's energy and combining it, with elements from air, water, and rock, into living tissue. From the roots, through the fibres, the sap runs up, carrying water and nourishment to every part of the plant, and in the inside part of the bark it flows down, bringing the foodstuffs which the leaves have manufactured.

Forests are living societies of trees, shrubs, and other forms of plant cover. Although more than forty per cent of Canada's surface is covered by trees, our people are becoming conscious of the need to conserve and expand our forest resources.

Most industrial countries pass through the same three stages of forest history. The first is marked by energetic and often ruthless exploitation of virgin forests. This is generally followed by a period of increasing dependence on foreign supplies. Then the third chapter begins: the effort to rehabilitate or partially restore the domestic forest resources.

Violation of the laws governing the extent of necessary forest cover is one of the most tragic examples of human folly in the face of nature's well ordered system. But it does us no good to place all the blame upon the pioneers. They did the thing that seemed right to them under their circumstances. If they denuded our watersheds with axe and fire, if they used the hoe and the plough where only trees could grow, they paid the price in their own lives through blasted hopes and abandoned farms and niggardly living. It is our part, knowing more of the interrelationships of all nature, to repair the damage where we can, and to make sure that such things do not occur again.

Importance of Environment

What is environment, in the sense of "natural environment"? It includes all factors, natural and artificial, which affect the development of living things. Life is correspondence with environment. Different creatures seek different environments, but everything exists at a specific place under specific circumstances. As human beings, our greatest psychological asset is a sense of confidence in our environment.

The carrying capacity, which is the measure of the amount of life any area of land or water will support under given circumstances, may be altered from time to time by changes in conditions caused by nature or by man's use of the area. It sometimes happens that these changes lead to a precarious existence. The creatures in the area may seem to be leading a static life, but our environment is not a museum display case in which petrified groups are forever removed from contact with nature. Something is always happening, and just a little change, a little more severity, a little more depletion, may bring to an end the existence of groups or all the population. No one knows how many species during the ages failed to meet the challenge of their environment. George L. Clarke, of Harvard University and Woods Hole Oceanographic Institution, says in his textbook *Elements of Ecology* that about 21,000 species of extinct vertebrates and an even larger number of extinct higher plants have been described.

Today it is necessary for mankind to adjust its usage and to manage the earth's remaining resources more creatively if it is to survive. We see the warning in the life history of every forest. Trees such as oaks grow so big that their own seedlings cannot survive in their shade; the oak forest perishes, and is replaced by shade-tolerant trees like the beech, the maple, and the hemlock. Then, as long as the present climate continues, this will remain a beech, maple, or hemlock forest—a climax forest—because these trees have the ability to reproduce under their own shade.

Effects of Human Acts

It is a curious commentary on our sense of values that though we think of mankind as being the highest form of life, the other forms of life almost invariably go into decline wherever we take possession of a piece of the earth.

Civilised man has been more ruthlessly wasteful in his attitude toward the natural world that has served his material interests.

The practical utility of land, water, and forest has been diminished seriously by our determination to allow them to serve no purposes but our own. This exploitation led Maurice Maeterlinck, the Belgian dramatist and writer, to say: "Everything seems to foretell that man, the last comer to this earth, will be the first to leave it".

Through the use of his intellect, man has to some extent escaped from the controls of nature. He has meddled with small parts of a machine of whose total design and purpose he was ignorant. He now faces the hard task of encouraging natural forces to work in restoration of the damage he has done. Because of the danger attending ignorance, we need much more information about nature than we have yet gathered. Even well meant efforts may bring disaster, as witness the experience with deer at Kaibab Forest, on the north rim of Grand Canyon. When, in an effort to increase the population of deer, the authorities killed off great numbers of mountain lions, coyotes, wolves, and other predators, the deer population increased from 4,000 to 100,000 in fourteen years. The land did not have the carrying capacity for that huge number, and consumption of all the food was followed, in two years, by a sixty per cent reduction in the herd through starvation.

Hunting and fishing, formerly practised for the food they yielded, are valued today chiefly for their recreational use. Once in a while we encounter something that is very far from sport, and we see the wilderness in its sourest mood. It is the rampage of a killer who wastes wildlife for what he calls a bag. He gets no satisfaction except that of saying, "Something which wanted to live is dead". The true sportsman knows the spirit of the outdoor world. He follows the rules of the game. He believes in and obeys laws which protect wildlife.

One of the most repulsive of the destructive results of human expansion is the poisoning of rivers, with consequent extinction of fish and of well nigh every living thing except mould and putrefactive bacteria. The fisheries of the lakes, ponds, and streams are among our most important recreational resources. But our rivers are choked with the refuse of civilisation. Our lakes are poisoned by industrial and sewage pollution. The water is dangerous to drink and risky to swim in; the plants are killed which should help to purify the water. Here and there across the continent municipalities are trying to stop the process of pollution. Several shipping companies have been prosecuted for dumping oil in our inland waterways, and a 50-mile zone off Newfoundland's east coast has been declared a region in which oil may not be dumped.

And now we are exercised about nuclear fallout. Its effect upon living things is a matter of debate, but there seems to be reason to believe that fallout will be like another influence superimposed upon all natural things.

It is because of growing awareness of the vital need for knowledge and action that the first national Canadian conference on conservation is to be held next year. Its title is "Resources for Tomorrow".

How is One to Learn?

It is a great loss to travel the countryside and not see it, since contact with nature is a vital part of man's enjoyment of life. Facts about nature may be read in books (like *The Ladder of Life* by A. Gowans Whyte, and *The Great Chain of Life* by Joseph Wood Krutch, both introductory books) and seen on television (as in Dr. Ian McTaggart Cowan's *Web of Life,* the Sunday CBC programme from Vancouver). But after sampling in this way we shall want to go into the woods and sit down.

The centuries of dead leaves that have fluttered to the ground have provided a rich layer of mould, soft as any carpet, with an embroidery of wild flowers to make it beautiful. The drama being played among the trees is without end. In the treetops the robins are singing their absurd but delicious little four-noted songs; saucy squirrels are gambolling in the branches; ants are scurrying among last year's leaves on their mysterious errands. These children of nature are all straightforward creatures with very simple intentions, and every one is supplied with beauties of one kind or another. Watching them, we realise that the mystery of life is not a problem to be solved, but a reality to be experienced and preserved.

Biologists are aware of the need to preserve nature's balance, and of the techniques, but only public opinion nurtured amid such scenes can make the application of these procedures effective. There is no automatic force in nature which will carry human beings forward

irrespective of their own efforts. We need a new creed—to be stubbornly faithful to the facts of life—and a new determination—to contribute our efforts in doing the right things.

Our hope is in education. The problem is not as simple as two plus two, quickly answered and as readily disposed of. This is a problem for statesmanlike people who take a long view, who look not at the next vacation or the next balance sheet or the next election, but at the future of mankind.

Since the beginning, the world has presented challenges to living creatures: to crawl out of the sea to live on dry land, to climb trees and mountains, to change in keeping with changing environment. Every creature is to itself the centre of its own universe, but it must have contact with all surrounding creatures. The challenge to us is nothing less than preservation of our species by restoring and maintaining its essential environment.

We are surrounded by, and we are part of, the external flux of life in an environment of natural forces. An Eastern proverb puts it: "To survive, all men must hold hands". And living things of all sorts are our kin in the wholeness of nature.

If we wish to preserve our present way of life we must come to terms with what is left of natural forest, soil, water, and wildlife, and it will be on terms laid down by nature, not imposed by us. Any wrong which nature may for centuries commit, she has centuries to repair; but we, whose days are short, must walk warily lest we become the victims of the waste land we make.

SOME NEW ZEALAND BIRDS. As published by Price Milburn and Co. this booklet, originally issued as a Primary School Bulletin, consists of a series of interesting, chatty notes by Dr. R. A. Falla on thirty-four native and seven introduced birds, all well illustrated by E. Mervyn Taylor. Dr. Falla has included an interesting chapter on bird watching and bird study. Being free from technical terms the booklet is very suitable for juniors; it is 9 × 6½ inches, in paper cover containing forty pages, and is priced at 5s. 6d.

Although introduced birds are not mentioned in the title their inclusion suggests that having been successfully acclimatised they may now be regarded as New Zealand birds although not real natives. Lovers of native birds may not agree with this suggestion.

The inclusion of the notes on the pihoihoi between those of the introduced starling and mynah without specific mention that it is a native bird may cause young readers to think it also is an introduced bird; had it been named native ground lark in addition to pihoihoi its status would have been clear. The omission of the Maori names of the black shag and of the incidentally mentioned little black shag are perhaps oversights, as all other native birds noted have Maori names recorded. The Maori used the binomial system in naming the shags, kawau being the generic term for all; thus the black shag is kawau-pu, an aristocratic name since kawau-pu is a figurative name for a chief, and the little black shag is kawau-tui, a name suggestive of its fancied likeness to the tui.

Two errors occur in the spelling of Maori names: that of the white-throated shag should be kawau-paka, not kawu-paka (the word kawu is definitely not Maori as the syllable wu in it does not occur in genuine Maori words). For the rifleman the Maori name should be spelt tititi-pounamu, not titi-poenamu, which is a double error (to the Maori tititi signifies repetition of the squeaky note of the rifleman, and pounamu refers to some green in its plumage, pounamu being Maori for green.

As the publishers intend to issue a cloth-bound edition some attention to correction of the foregoing faults may be possible.

—*A. Morris Jones.*

CONSERVATION OF ANTARCTIC WILDLIFE

Delegates to the Antarctic Symposium held at Buenos Aires, Argentina, twelve months ago passed a resolution that the time has come for positive steps to be taken in the protection of Antarctic wildlife, which developed in the presence of an abundant food supply at sea and the absence of indigenous enemies on land. Although it is sometimes necessary to kill seals, penguins, and other creatures to provide food for men and dogs, each season the supply ships supporting scientific bases bring many persons with little interest in wildlife. Careless and uncontrolled actions of these visitors have caused damage to the native fauna. Other harm can arise from well meant but ill advised activities that upset the natural balance of populations (such as destroying skuas in the mistaken belief that this will assist the penguins).

HOW NOT TO GET LOST IN THE BUSH

by R. C. Nelson

It is surprisingly easy to get lost in the bush, and it is better for young folk not to go into thick bush unless they have someone with them experienced in bushcraft. Even if you want to go alone, it is better to have at least two other people with you—three is even better still—because if one gets hurt two can go for assistance while one stays with the patient to look after him and keep him company.

Before setting out obtain your parents' permission and tell them exactly where you are going, and the route you intend to follow going out and coming home, so that if anything goes wrong and you fail to turn up they will have some idea where to look for you. Also, before setting out make sure you are carrying a reliable compass, a watch so that you won't wander away too late, some matches in a waterproof box, a small first-aid set, and some food. If you are hiking over rough country you will need good boots, not shoes, because shoes so easily twist and cause a sprained ankle; only chumps go out for the day without sufficient clothing to keep them warm if the weather turns cold. Pencil and paper are good things to have.

When you start hiking, and as you go along, check your direction occasionally so that you will know the direction back, and sometimes look back because the country often looks quite different from the other side and you should note prominent features to guide you coming back. If you have the least doubt about being able to retrace your steps, go no further.

If in spite of all your care you do get lost, sit down quietly and think things out. If you have a compass and you know the direction you can then quietly back track, but don't separate from the party, and from the moment you suspect you are lost leave plain marks —either for yourselves to use if necessary or for others to find if they search for you. Leave notes if possible. If you are quite lost and really don't know which way to go, light a safe fire and stop there until someone comes for you. Light by night and smoke by day will guide them and the fire will keep you warm. The very worst thing you can do is to go wildly blundering along; it is awfully hard to stay where you are but it is far safer to do so. It is so much more pleasant for you and your parents, however, if you don't wander off well beaten tracks and get lost. Learn the rules of the game by always going with people you and your parents can trust. Then when you have grown up you can tackle difficult country.

JUNIOR SECTION

Dear Children,

I do hope you will write to me with ideas and suggestions. I should like you all to feel that this is *your* section of *Forest and Bird* and that all your letters will receive careful attention.

What about some jokes about forests and birds, somebody?

With school holidays and Christmas not far off, I should like to wish you all a very happy Christmas and a wonderful summer holiday.

Cheerio.

Huia.

It is deeply regretted by the President and all of us at headquarters that we have not been able to help all those children who have taken so much trouble in writing to us asking for pictures and information on birds, trees, ferns, and so on. You see, our problems are that we have not enough books to send to all those who write to us, postage is very expensive, and there are simply not enough of us to cope with all these requests anyway! Most of us are volunteers, that is, we have much work to do which takes up most of our time.

We have, however, been seeking ways and means, and our President has asked me to tell you all about some excellent sets of loose-leaf pictures of native birds that can be supplied at cost price (10s.) to people, such as teachers, scout leaders, and guide captains, who are actively engaged in instructing young people. *New Zealand Forest-inhabiting Birds* is a set of beautiful coloured pictures about 9 × 5 ½inches from paintings by Miss L. A. Daff (you will have seen many of them on the covers of earlier *Forest and Bird* magazines). These pictures, with a white border on a pale grey background, look very nice indeed framed. There is also *New Zealand Sea and Shore Birds,* available to the same class of people for 7s. 6d. The pictures in this set are a little smaller.

These sets are ideal for instruction because each picture on its separate sheet may be paired with a second sheet on which is a description of the bird in the picture. So you see, if a teacher wanted to give a project on birds she could hand to each child a picture of a different bird and the description that goes with it, thus overcoming the problem of not having enough pictures to go round, as often happens when books are used.

By the way, you may be wondering why none of your letters are included in this issue about the new section, as I had promised in our last journal. Well, the reason is that this issue has had to go to the printers before you have even received your August number.

KNOW YOUR BIRDS

When you read this section you will probably wonder why I have included a bird that is not a native New Zealander. Well, there are several reasons, and one is that many species of introduced birds are now very much a part of our landscape and therefore cannot be ignored. Also there are many things that we can learn from studying them at close quarters which will help us in studying some of our more-shy native birds. Above all, the blackbird was chosen because, owing to its habit of coming into our gardens, it must be known to most of you and therefore it is so easy to study and get to know.

THE BLACKBIRD

Introduced into New Zealand. Male: all black (not shiny-black like the starling) with bright orange bill and eye rims; feet dark brown. Female: brown, frequently mistaken for a thrush which, however, has a speckled breast and shorter tail. Young birds brownish.

Feeds on various insects, seeds, and fruits. Runs swiftly on lawn. Tail sways upward gracefully when it alights. One of the few introduced birds that may be seen and heard right into the bush as well as in open country. Does not gather in flocks as does the starling.

Only the male sings. It has a loud alarm note uttered whenever the slightest bit alarmed. For this characteristic the blackbird has been referred to as the policeman of the woods. He so quickly gives loud warning of the presence of cats or other enemies.

The nest is made of grass matted together with mud and lined with finer grass. Eggs are generally found from September to November.

If you want to tame it offer it sultanas. One hears of blackbirds becoming so tame that they will peck at a window for the tidbits which they have come to expect.

THE TUI

"The tui loves to think he is the boss bird of the bush", as one writer has said, and I think there could not be a better description of this energetic bird, who loves nothing better than a chase and will drive even the much larger native pigeon from a favourite tree.

One can't help liking this gay, lively songster, and if we can induce him to haunt our garden by growing his favourite berries or honey-bearing trees, we'll have endless pleasure and entertainment ahead.

Now, at first glance, the tui appears to be black, but when seen in a bright light the shining greenish-purple reflections are clearly seen. The white tuft of feathers at the throat makes the tui easy to recognise. Young birds are blackish-brown and do not have the tuft at their throats.

Its favourite food is honey, but it also enjoys berries and eats insects. It gathers the honey from many nectar-bearing trees and shrubs, by means of a fine brush at the end of its tongue, and it can often be seen clinging upside down, dipping the honey from a flower.

You will notice that it is an altogether harmless and useful bird. Its flight, which is rapid and graceful, can be recognised by its up-and-down curves, and the rustling of its wings can be plainly heard. On fine days two or more tuis may be seen playing in the air, chasing, twisting, and almost turning somersaults in their gay flight.

The tui, which is our finest song bird, is also an excellent mimic, and seems to be able to imitate a great variety of sounds, including the songs of other birds. Though it may sing at any time, its favourite times are the early morning and evening.

The early settlers nicknamed it the "parson bird", no doubt on account of the tuft of white feathers at its throat and perhaps, too, when it puffed out its feathers and started to sing, for the way it would bend its head, first one way and then another as though it were addressing a crowd.

While the female is sitting, the male will be on guard and he will often sing to her from some high tree near by. When the babies have hatched the parents will protect them most bravely and no other bird will be allowed near the nest.

Mr. Turbott tells us in his "New Zealand Bird Life" that "young tuis are perhaps the most curious of all young birds and will form bands of twenty or more apparently for no other purpose than that of roaming the bush to stare at everything in it".

There is a fine picture of the tui on the new poster of the Forest and Bird Protection Society. See the May issue of "Forest and Bird", page 6.

HONEY-BEARING PLANTS

Because there is an article on the tui in this issue, I thought some of you might wish to grow plants to attract this delightful bird.

There is the spring-flowering kowhai which grows into a tree with beautiful golden, honey-filled flowers. It may be grown from seeds or cuttings.

Pohutukawa, which thrives best in the north and by the sea, is a lovely red-flowered tree.

Flax, which you'll know, can be started from the small plants growing around a full-grown bush. There are some attractive varieties with beautiful coloured leaves, bronze, variegated, and pinkish. These flaxes are most suitable for the garden because they do not grow as large as the wild one.

Red-hot-pokers have honey too. These make beautiful garden plants and are easy to grow. There are many varieties, even a magnificent winter-flowering one called Zululandia Winter Cheer. There are so many "pokers" that one could have different varieties in flower at most times of the year. Ask your nearest plant shop or nurseryman about these plants.

OUR WONDERFUL BIRDS

Did you know:

That the kiwi is the only bird in the world that has its nose at the tip of its beak?

That the huias are the only birds in the world where the male and female have markedly different bills? The male bird's beak is short and slightly curved, and that of the female is twice as long. Thus the female can push her long bill far into a hole first made by her mate.

That the wrybill plover is the only bird in the world with its beak on one side? This helps it in searching for food under stones.

RARE BIRDS REDISCOVERED

One bird that was believed to be extinct, and four others classed as very rare, have been rediscovered in an undisturbed scrub forest at an altitude of 4,000 ft. on the island of Kauai, in the Hawaiian Islands.

OIL ON BIRDS' FEATHERS

During the summer you may pick up on the beach a poor sea bird, its feathers so covered with oil that it cannot fly. If left to its fate such a bird will of course die.

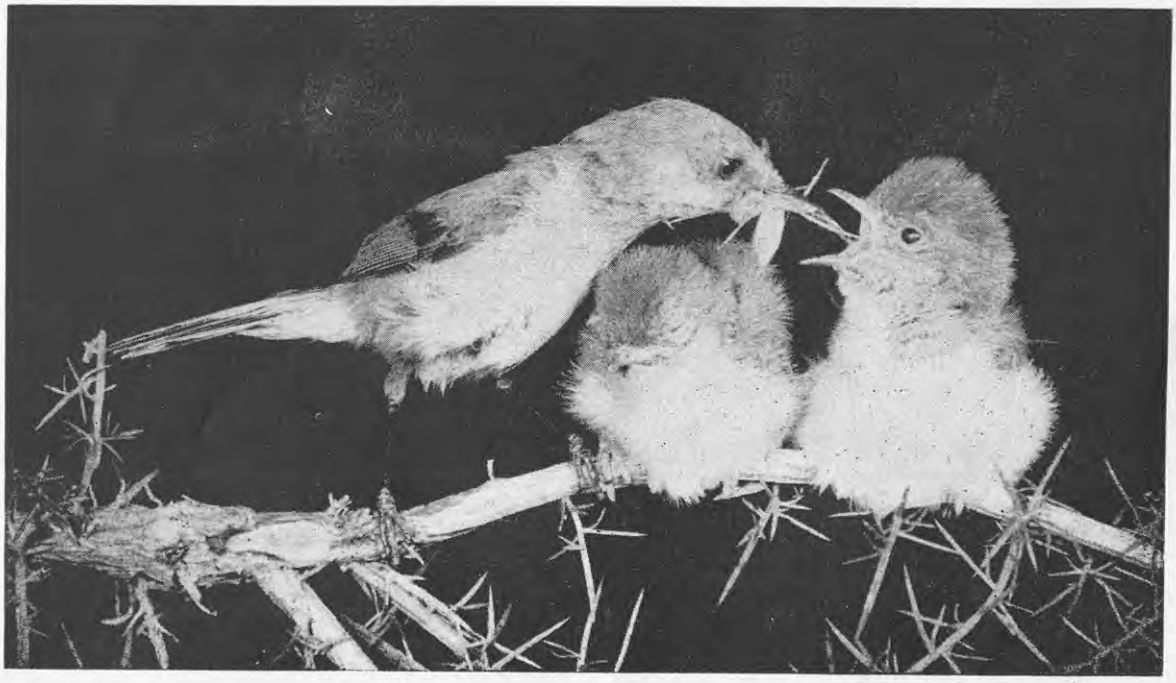
Many bird watchers have attempted to clean these unfortunate birds and it has been found that the thing you must not do is to bath them with soap or detergent. (Petrol or kerosene are even worse because they would probably kill the bird). The reason why soap or detergent should not be used is that they will wash the natural oil from the bird's feathers and then it will lose its power to float. When a sea bird can't float it drowns!

Mrs. Katherine Tottenham, an English bird lover, has found a solution. She says that "a dry shampoo made of fuller's earth and powdered chalk will not take away the natural oil from the bird's feathers". She tells us that she wraps the whole bird in cotton wool except for its beak and keeps it warm. She then feeds it with raw fish or whatever its correct food may be—but she first dips the food in cod liver oil. Next day ,when the bird is warm, rested and well fed, she sprinkles the feathers with the fullers earth and chalk, which, she says should draw out the oil in about 24 hours. In from 7 to 10 days the bird ought to be well enough to be set free at the seashore. Your chemist would probably stock fuller's earth and powdered chalk.

JUNIOR ALONG THE TRACK

TIRAU—While looking for frogs in the swamp one afternoon my sisters, brothers and I were walking around when one of my sisters pulled a piece of wood off a cabbage tree under which was a wasp's nest. After we all had a look at it we made off as quickly as we could. After a while I saw a whiteeye, which was the first I've seen this year. I was six feet away from it when it flew away. It had a greenish back and yellowish chest. I also saw many native ferns, two fantails catching insects in the air, one minah, and three blackbirds, also several dead sheep on which hawks were feeding. We were unsuccessful in finding any frogs.—**Patricia Jenkins, 12 years.**

PUKETITIRI—In the May holidays I went to Masterton. On the way we stopped and saw the takahe. The takahe is a large bird. It is like a pukeko. It has a large red beak and large red feet. The rest of it is bluish. Not many people have seen the takahe. It was once thought to be extinct. The takahe yelp klowp, klowp, klowp. In the cage with the takahe were wekas, a kaka, a morepork, a native pigeon, and some kingfishers.—**Cynthia Whittle, 11 years.**



Grey Warbler Feeding Young. Photo: G. J. H. Moon.

PIRONGIA—Recently, while travelling through Hamilton, we chanced to pass around the shores of Lake Rotorua. As usual in the shooting season, the water was swarming with ducks and swans, but I was rather surprised to see a pukeko strutting around on the shore. It seemed almost as quiet as the ducks when approached. It seems as though this bird had sufficient intelligence to take refuge in the sanctuary while the shooting season lasted. Do you think this is so?—**D. R. Hosking, 11 years.**

NEW PLYMOUTH—On the 25th April my mother, father, three brothers, and myself paid a visit to the Egmont National Park which is not far from our home. We arrived there in the afternoon about half past one all ready to go into the bush. We went into the bush a wee way and saw a lot of native trees and beautiful ferns. We heard many different birds. Some were fantails, grey warblers, waxeyes, yellow hammers, goldfinches, bellbirds, woodpigeon, chaffinches, etc. One of the trees was about 500 years old. It was a giant rata. We had our field-glasses with us and were able to observe the male and female pied tit. The male was black with a white breast, white under the tail and under the tummy. We were very fascinated with the ways in which the bird flew. They would fly from the branches and dive down on to the bush floor.—**Carol Peters, 11 years.**

HAWERA—On our recent holiday to Pukearuhe we discovered in one of the coastal caves a strange penguin. The back and sides of this strange bird were a pinky brown colour with white breast and throat, continuing up to form a strange "eyebrow" tipped with a yellow feather. The top of the head was flat, and the eyes a muddy yellow colour, while its beak and feet were pink. It had no tail to speak of, and the only sound it made was a squeaky hiss. It appeared to have been there for some days by the footprints and seemed to be rather sick and very savage. As we had had a very rough sea a day or so before, I think it must have been washed up. Later, we defined it as a yellow-eyed penguin, found only in the South Island. We were very lucky to see this strange bird, for when we revisited the caves later it was gone.—**Cynthia Greensill, 13 years.**

TIMARU—One evening early last spring I was walking across a paddock of swampy streams inhabited by dozens of pukekos when suddenly I came upon a tiny pukeko chick lying on a sheep trail. The poor wee fellow was as cold as stone. After a rather bumpy ride home we put him on a hot-water bottle, which relieved him enough to enable me to put him in with the ducks. For the first day he had nothing to eat and the ducks pecked him whenever he came near them, but at night when the ducks had retired from their run into their warm straw box he put his head down, waggled his wings, and uttered a queer wheezing noise. About 8 o'clock next morning I ran down to have a look at him, but he was nowhere to be seen. I searched high and low for him but he did not appear. Then I had a look at the ducks but they looked peaceful enough except that one sat a lot higher than the others. All of a sudden the wheezing noise started up again, and an impish head popped up from under a duck. From then on it was easy going to keep him. He mainly ate chick food, lettuce, Farex, and worms, all of which he held in his long toes. His colour gradually changed to a beautiful blue and his beak and legs to a bright red. The trouble he got into with our magpie (also reared from babyhood on chopped-up worms, 100 a day) by pulling its tail was really funny to watch. The three ducks and the pukeko are now back out at the swamp, and the magpie is still making himself a lovable nuisance about the place.—**Justin Calder, 12 years.**

MASONS FLAT—One Sunday while walking through our bush I heard a shrill bell-like note, I looked up and sitting on a branch above me I saw a bellbird. It was yellowish green in colour. It was smaller than a tui. That afternoon I went down to our creek where I saw two pukekos. They were both about 20 inches high. They had long legs, and were blue and black with a white tail. I found out later that they eat the soft roots of water plants. I have seen a pukeko's nest. It is very untidy, about a foot high. I found it among the rushes in our swamp.—**Fay Brooker, 10 years.**

WANGANUI—It was cold and rainy when I noticed Patch (a big black and white cat) dive through the hedge with a sparrow in his mouth. I caught him and took the bird off him, but at the same time I did not expect him to live. He was cold, wet, and badly scratched and mouthed. I brought him inside, wrapped him in cotton wool, and put him near the warm stove. After an hour or so he seemed to perk up a bit and show signs of life. We left him over-night in a warm position, and to my delight, the next morning he was flying around trying to get out. We then took him down to the back-yard and let him go. I often wonder if he is still alive, and if so, where he is.—**Dexter Morgan, 12 years.**

LOVELL'S FLAT—At a beach near Balclutha I saw two parent black oystercatchers with a young one. As they ran away the young one was separated from its parents. It then ran to the foot of a nearby cliff which was a mixture of yellowish and bluish-grey soils. The young bird ran straight to a grey part which was almost the same colour as itself, and it was very hard to see it against this soil, which it so nearly matched. I thought it was very clever of the young bird not to go to the yellowish part of the cliff, where it would have shown up very clearly—**Heather Instone, 13 years.**

WELLINGTON—Where I live there was a valley which was covered with manuka. There were fantails, waxeyes, and kingfishers. Now only 25 per cent of it is left, for there is a tip there. I am now transplanting the native plants from there to our property. I am finding more birds come round our house now. On our one-acre piece of land we have about 950 trees.

When the takahes were on show I went to see them. You get leaflets about them. In the pen with them are the kakas, wekas, pukekos, kingfishers, moreporks, and a pigeon. Takahes are like large pukeko. Paul and Prudence were on show. The man said that they are found on the west side of Te Anau, where there are about 250. They were first found in 1849.

When I was at Waikanae while climbing the Tararuas I saw a great amount of damage done by deer and pigs. While there I saw a very large wood pigeon. We heard a tui, a bellbird, a bush canary, and pigeon. Also, we saw four giant rimus and totaras—**M. Huxford, 10 years.**

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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 of New Zealand (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."

OBJECTS OF THE SOCIETY

To advocate and obtain efficient protection of our native forests and birds and the preservation of sanctuaries, and scenic and other reserves, in their native state, and to enlist the practical sympathy of both young and old in these objects.

The Society invites all those who realise the great economic and aesthetic value of our native birds, and who wish to preserve our unrivalled scenic beauties, to band together with it to carry out these objects.

The subscriptions are: Life Member £15; Endowment Members £1; Ordinary Members 10s.; Junior Members (under 17 or at school) 5s. per annum. Endowment Members are those who desire to contribute in a more helpful manner towards the preservation of our birds and forests. This magazine is issued quarterly to all members without charge.

The Forest and Bird Protection Society of New Zealand (Inc.) is:—

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National Section of the International Committee for Bird Preservation.
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At Pomona Island, Lake Manapouri.

Photo: National Publicity Studios

Grey Warbler and Nest.

Photo: Dr. M. Soper, Queenstown