VICTORIA NATURAL HISTORY SOCIETY

The VICTORIA NATURALIST

Vol. 1, No. 4 October, 1944

Monument erected to P. Gregor Mendel
in honour of his great discovery.

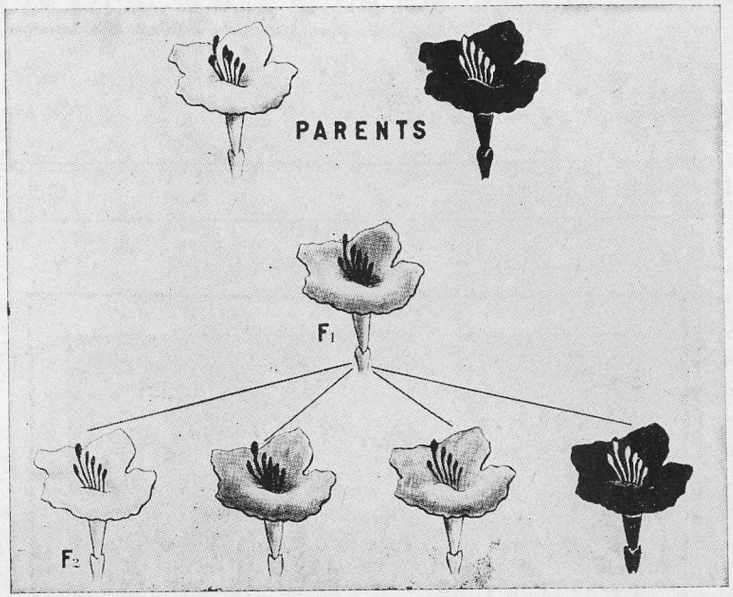

Fig. 1. A cross between a white-flowered four-o'clock (Mirabilis jalapa) and red-flowered four-o'clock, giving pink in the first generation F1, and one white, two pink, one red in the second generation F2.

THE VICTORIA NATURALIST

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Report of September monthly meeting:

The first fall meeting was held in Provincial Library Reading Room on Sept. 12th, about forty members attending. In the absence of Archdeacon Connell, Mr. Jeffree Cunningham presided over the meeting.

The Chairmen of the various groups reported on the summer's outdoor activities. Mr.Winkler gave the report for the Geology section. Mr. Downes, Mrs. Woodward and Mr. Cunningham gave resumes of their respective groups' summer field trips, and in the absence of Archdeacon Connell and Mr. White, Miss Perry summarized the field trips of the Botany and Ornithology Groups. Archdeacon Connell and Mr. White have asked to be relieved of the Chairmanship of these groups. Because of his duties as President, Archdeacon Connell finds that he has not sufficient time to devote to the Botany section. Mr. White will be out of the City until spring. Mr. Palmer has kindly consented to take on the Chairmanship of the Botany Group and Mr. Clay the Ornithology Group. The members of the Society wish to express their gratitude to Archdeacon Connell and Mr. White for the time and work they have expended as Chairmen of these two Groups. Mr. Winkler has kindly consented to act as Chairman of the Geology Group until the return of Mr. Matthews.

Mr.Cunningham then turned the meeting over to the members for discussion as to future activities both in regard to group and monthly meetings. The desire was expressed that short lectures be given in each subject for the small group meetings during the winter and the program of the monthly meetings consist of a lecture applicable to each group in rotation, the first to deal with Botany.

At a subsequent meeting of the Executive, it was decided that each Tuesday night throughout the

winter there would be group meetings, excepting, of course, the time around Christmas and the New Year. If possible these will be listed in advance in the Naturalist. The general meetings will be held as usual on the 2nd Tuesday of each month. On page 54 of this issue, will be found a list of future meetings with pertinent data.

At the conclusion of the meeting, a colour film of the Amphibians of British Columbia was shown. This was the premiere of the movie which was directed by Dr.Carl. It showed the various species of amphibians and the young of some, in their natural habitat. The use of colour in the film enables the spectator to see how well-camouflaged for self-protection these animals are. For example, the salamander which inhabits dead wood is coloured dark red, whereas the frog which sits on lily-pads in a pool is green. A different sort of adaptation to natural environment is found in the digging mechanism of the spade-foot toad which inhabits the dry regions of British Columbia. One of the most exciting scenes of the movie showed the tongue action of the frog in slow motion as he ate a live earthworm. Although especially designed for school children, this film has universal appeal.

SPECIAL NOTICE:

The Executive has gone to a great deal of trouble to arrange interesting Group Meetings; as this Magazine is the only medium whereby the members will be notified of these meetings, it is for the members' own benefit that they take special note of the Time, Place and Subject of these meetings that appear on Page 54. Please note also that two outdoor meetings have been arranged.

------- BIRD-BANDING ------

Bird-banding, on this continent, may be said to date from 1920, when the U. S. Biological Survey took over the project which had been carried on, in a small way, since 1909. In the following pretty tale, the French naturalist, Buffon, recorded the earliest known case of banding. "In the 18th century, a collar was (supposed) to have been placed on a Swallow at Basle, Switzerland, bearing the inscription "Tell me pretty bird, whither goes thou in the winter?" and the bird returned the following spring with the answer "To Anthony at Athens".

At the present time, there are, approximately, 1700 banders listed with the Fish and Wildlife Service of the U.S.A. This organization, which succeeds the U.S.Biological Survey, issues all bands for this continent. The Canadian Parks Board keeps a duplicate of all records of returns in Canada. To do any banding requires a permit from either the American or Canadian governments. No more permits are being issued during the war, chiefly because of the difficulties in providing bands.

For those who do not know the modus operandi, the following explanation of bird banding is given. Each band, which is made of a light but durable metal, has a number stamped on it as well as an inscription "Notify Wildlife Service Washington, D.C." (Older bands refer to Biological Survey). The small bands carry as much of this information as space permits. A record is kept of all bands issued. Every bander has to make periodical returns giving the number of the bands used, place, date, and species with, where possible, the sex and age. This is on special forms which are then filed in Washington (and Ottawa).

Anyone coming across a banded bird should send in the number of the band, place found, date of finding,

to Washington and will receive in time (a rather slow process now owing to war conditions) the information already on file; similarly, the bander will be notified of the recovery.

It will be readily seen that banding provides the means of much information as to the movements of both individual birds and the species as a whole. Very remarkable results have been obtained. Perhaps the most spectacular have come from the Duck tribe, a family which has received great attention from banders and which provides, through hunting, an unusual proportion of returns. For example, in the state of Utah, 5,916 ducks were banded between the years 1914-1916 and 1926-1933. At the end of the 33-34 shooting season, 824 records ranging from Alaska to Mexico and from California to Ohio, were received. The report (Lincoln) of the Smithsonian Institution 1932 shows that over 40,000 Mallards had been banded with returns of over 8,000. A few years later, the information thus obtained assisted the Wildlife Service very materially when into the problem of restoring the Ducks, by means of refuges, etc. In connection with duck banding, some good work was done at Chilliwack by the Provincial Game Board which, to my recollection, showed that the hunting pressure in the Lower Fraser Valley was very severe.

Obviously, it is only the few who have opportunities to band ducks in the thousands, but a surprising number of birds has been banded by private individuals who have quite limited areas in which to work. One of the records must be held by Mrs. Avers as reported in "News from the Bird Banders", (the organ of the Western Bird-Banding Association. During the years 1937-1943, 6458 birds of 65 different species were banded, but this was at Pomona, California, where conditions lend themselves to trapping. The total number of birds banded by members of the above Association in 1943, which includes B.C. and the western states, was 11,293

in 1939, the totals were 47,609 of which B.C. contributed 2,427. The rest of the U.S. and Canada is divided into three other areas.

If returns at all comparable to the duck returns were general, the results would be very satisfactory. However, as the following figures show, the general returns do not total one per cent. Of 3,284,142 birds reported as banded from 1920 to 1939, only 202,913 returns have been received. After allowing for all the species which have been banded by the thousands, returns for the small birds, which furnish the material available to most banders, must be negligible. However, through this negligible per cent, it has been possible to form conclusions. It is now generally recognized that the average life of the small bird (Song Sparrow) is around three years; also that the mortality among young birds is so great that the yearly survival, per nest, to the following spring, is seldom more than one.

Much valuable information has been obtained through banding with coloured rings and studying the actions of birds through the whole year. In this way, it has been proved that birds do not mate at all permanently, but may change partners from nest to nest. Much has been learned about the territory maintained against strangers by male birds. In many other ways, banding has assisted greatly in the intensive study of bird life.

Bird-banding brings one to a very close association with the live birds in which one takes a personal interest. When a bird appears in the trap bearing a band, there is a real thrill in finding out what the band says, even if it records only the previous handling of that particular bird.

Theed Pearse,
Courtenay, B.C.

------ HEREDITY ------

The science of the quality of life as it passes from one generation to generation is in many respects the greatest and youngest of all sciences. Scientific breeding with both plants and animals has become a powerful and indispensible tool for making agriculture more efficient and more flexible in meeting new demands and supplying the needs of men for food and raw materials. It has become a major branch of the science of life, taking its place beside modern chemistry and medicine as a means of conquering some of the chief difficulties and dangers that beset man and giving him greater abundance. As time is measured in the age of the earth or of man, the scientists who deal with heredity came on the scene only a few minutes ago but already they have managed to do a great deal.

Mendel

The man who had the most influence in making the science what it is today is generally conceded to be Johann Gregor Mendel, a monk who crossed garden peas in his monastry garden in Brunn, Austria, now Brno, Czechoslovakia. Mendel did a simple but revolutionary thing that apparently had not occurred to previous workers who had been trying to solve the secrets of inheritance. He carefully sorted the progeny of his parent plants according to their characters and counted the number that had inherited each character. By doing this, he discovered that when the things he was studying were handed on by the parents, they were distributed among the offspring in definite mathematical radios. For the first time, Mendel established definite laws of inheritance.

Mendel's method of making crosses between parents which differ in their hereditary constitution and

studying the transmission of specific characters to the following generation is still the normal method in genetics.

First, as a very simple instance of such procedure, let us consider the garden flower called four-o'clock (Mirabilis jalapa). When we cross a red-flowered plant with one with white flowers, all the offspring--that is, the first generation--will have pink flowers. If now we inbreed the pinks--that is, fertilize the pinks with each other's pollen or their own--we get a second generation showing three distinct types (see illustration Fig.1, page 42). There are red-flowered plants precisely like those of the original red parent, white-flowered plants like those of the pure white strain, and pink-flowered plants like the first generation pinks.

If the experiments are carried a generation farther, the purity of the red is the striking fact that reveals itself. If the reds are self-fertilized or pollinated by other reds, all of the progeny will also be red; thus these plants, although only in the second generation from a cross, breed true for the colour character of one of the original plants. Also, if the whites are self-fertilized or pollinated by other whites, all of the progeny will be white. But the pink plants do not breed true when self-fertilized; that is, crossed with pinks they throw reds, pinks, and whites. Reds and whites will always breed true, and are said to be pure or homozygous, for colour, while pinks will throw both reds and whites as well as pinks. A pink that breeds true is an impossibility, and is said to be mixed, or heterozygous in its inheritance of colour. The pink is called a hybrid. When we cross pink with red, we get approximately equal numbers of reds and pinks.

An illustration (Fig.2) showing the inheritance of hornlessness in cattle is on Page 55.

In the next issue we will attempt to explain results like these by taking a glimpse at a typical cell of plants and animals and examine it with a microscope to see the stained bodies in the nucleus, chromosomes which carry the determiners (genes) for the character of an individual.

W. R. Foster,
Provincial Department
of Agriculture.

BIRD NOTES:

House Finch (Carpodacus Mexicanus)

These birds, first noted as a breeding resident in Victoria May 28th, 1937 (The Condor, Vol. XXXIX p.225) by Ian McTaggart Cowan, have shown a considerable increase in number this year, and many nesting pairs have been noted in the James Bay District through to Fairfield. It might be well to note here that since the large trees have been cut down in MacDonald Park, and the Crows have had their nesting sites removed, the small birds throughout that area have multiplied greatly; whereas in Oak Bay the reports are the reverse, and unless something is done to stop these ever-increasing predators in nesting in that section, there will be still further decrease of the smaller birds. Crows nest even in the trees along the boulevards in Oak Bay.

Editor.

----- THE PACIFIC COAST NEWT ------

(Triturus granulosus)

During their breeding season, which lasts from April through June, the Pacific Coast newt, may be found in large numbers in some ponds and lakes near Victoria. They can be collected by dipping along the bottom of the water with a net. At this time of the year, secondary sex characteristics are conspicuous in the males. Their skin becomes exceedingly smooth, the tailfin is enlarged, and black pigment appears on the inner surfaces of the thighs and on the toe-tips of the hind-legs. The external appearance of the breeding females is not much altered.

Specimens from Glintz Lake near Sooke ranged in colour from dark brown to light tan on their backs, and from pale yellow to bright orange on their ventral surfaces. In some of the males examined, a dark brown band crossed the cloaca at the base of the tail. This band is never present in the females. Measurements of over fifty animals show that the average length (6.1 inches) of the males is an inch greater than that of the females.

The females deposit their eggs singly on the leaves of Elodea or similar water plant. They may lay several dozen eggs. With their hind legs, they arrange several leaves to form a "nest" for the reception of the egg. The actual laying process, lasts for about three minutes, during which time the female lies motionless with her hindlegs clasping the "nest".

The egg, which is about 1.8 millimeters in diameter, is dark brown on top and ivory-coloured underneath. It is surrounded by four concentric jelly capsules. The outer capsule has a sticky surface which enable the egg to adhere to the plant on which it is laid. The innermost capsule is applied tightly to the

egg. Although deposition of a single egg to a capsule is the rule, exceptional cases of "twins" were noted.

Embryonic development takes place inside these capsules until almost three weeks after the time of laying when the larvae hatch. At this stage, the larvae are free-swimming animals about 12 millimeters long, having gills, wide tailfins, and forelegs. They have a semi-transparent, cream-coloured skin with many small black pigment cells scattered over the body in a distinctive pattern. They have been living on the yolk stored in the eggs. When this food supply is depleted, the young must forage for themselves. Their diet usually consists of the very small animals living in the water.

When the larvae attain a length of about 6 centimeters, they prepare to emerge from the water and assume a terrestrial mode of life. During this process of metamorphosis, the gills and tailfin, which are not necessary for life on land, disappear. The skin, which is shed in four successive molts, becomes rough, dark, and opaque. As it climbs out of the water, the metamorphosed animal bears little resemblance to the aquatic larva.

Mary R. Watson.

------ THE CARROT RUST-FLY ------

The carrot rust-fly is perhaps the most annoying and destructive pest introduced in recent years with which gardeners have to contend. It is a native of eastern Europe but has been present on this continent for a long while. It made its first appearance on the Pacific coast about ten years ago and in 1939 was reported troublesome in the Fraser Valley, finding its way to Vancouver Island not long after.

Unless an effort is made to capture the fly by sweeping a collecting net through carrot foliage it

is not likely to be seen by ordinary observers. It is a small, slender, shiny, black, two-winged fly, about one quarter of an inch in length with pale yellowish head, legs and wings. There are three generations each year. The first generation appears in April and May, the second from July until August, and the third in September and October. Within a day or two of emergence the fly commences to lay, minute, oval, white eggs on the crowns of the carrots or in the soil close by. If the carrots are very small the maggots hatching from these eggs may eat off the tips of the roots, causing the plants to wilt. In larger carrots the flesh is bored into, causing narrow, rust-coloured tunnels. After the slender, yellow maggots are mature, they turn to oval, brown, cigar-shaped pupae in the soil from which the flies emerge a month or more later.

Control of this pest often entails considerable trouble but the best results are obtained by sowing carrots between the time of appearance of the first and second generations, that is, from the beginning to the third week in May according to the earliness or lateness of the season. After the carrots are well grown they should be protected from the second generation of flies in July and August, by applications of crude napthalene scattered along the rows and broadcasted over the patch at the rate of 1 lb. to 100 feet of row (a handful to a square yard). Crude napthalene is a black, granular, oily material and much cheaper than the flake form. If sowings are made when the flies are present three applications at weekly intervals will give good control. The use of Napthalene should be discontinued one month before the crop is dug to avoid flavoring the carrots.

W. Downes,
Convener.

NOTICE OF MEETINGS

MONTHLY MEETING

Tuesday, Oct.10th: Provincial Library Reading Room.
Speaker: Mr.W.P.D.Pemberton
on
"Unusual Local Native Plants."
(Illustrated with slides.)

INDOOR GROUP MEETINGS

Oct.17th: Zoology & Entomology - - - - Mr. W. Downes
"Life History of Insects"
Mr.Downes' Office, 545 Superior Street.

Oct.24th: Ornithology - - - - - - - - - Mrs. Woodward
"Bird Structure & Plumage."
Biology Lab.,Victoria College, Joan Cres.

Oct.31st: Geology -- - - - - - - - - - - Mr. Winkler.
"Geology of Southern Vancouver Island."
Biology Lab.,Victoria College, Joan Cres.

Nov. 7th: Marine Biology - - - - - - -Mr.Cunningham
"Tide-pool Life."
Biology Lab.,Victoria College, Joan Cres.

OUTDOOR FIELD MEETINGS

Saturday: Geological Outing to Goldstream to study the effects produced by Leech River Fault.
Oct. 7th: Lunches and suitable footwear should be taken as trip involves 5 mile hilly walk. E. & N. Train at 10:10 a.m. Purchase return tickets. Convener: Mr.Geo.E.Winkler

Saturday: FUNGUS FORAY to Hudson Bay Woods.
Meet at Mt.Tolmie Bus Terminal at 2 p.m.
Oct.21st: Members to bring containers for the collection of mushrooms.
Convener: Mr.G.A.Hardy.

All indoor meetings are at 8 p. m.

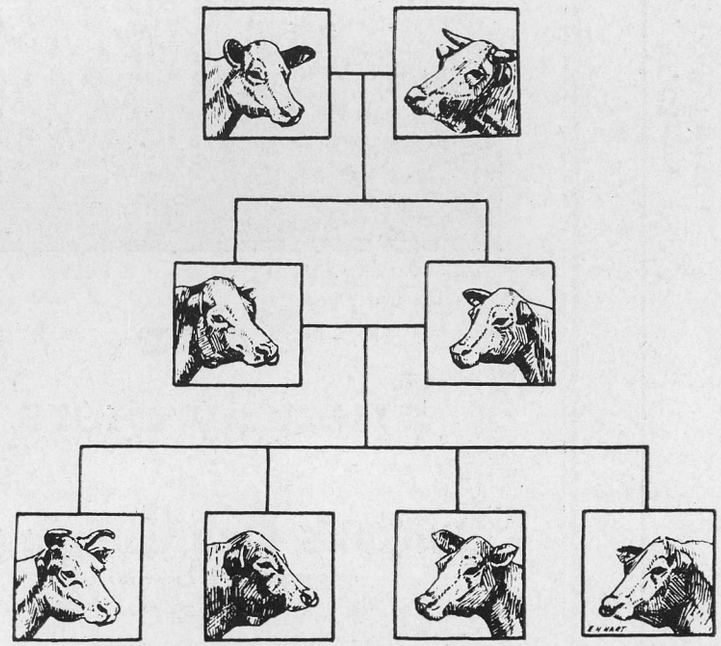

Fig. 2. Diagram illustrating the inheritance of hornlessness in cattle. A pure hornless cow is mated with a pure horned bull. The progeny are all hornless in the first generation, but are hybrid for hornlessness. If we intermate these hybrid animals, the progeny will be in the proportion of one horned, two hornless but hybrid, and one pure hornless. (After Whitney.)

To

Mr. J. O. Clay,
139 Beach Drive,
Victoria, B. C.

VICTORIA NATURAL HISTORY SOCIETY

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Annual Subscription: Single, $2.00; Family, $3.00

NOTICE OF NEXT MEETING

The next meeting of the Society will be held in
READING ROOM OF PROVINCIAL LIBRARY, PARLIAMENT BUILDINGS
at 8 p.m. on Tuesday the 10th October, 1944

Dec. 5 Birds

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