

# "Little Rills and Waters Numberless"

By ROBERT CONNELL

AT the conclusion of a recent article on the rivers and creeks of our end of the Island, I promised to continue later with some of the streams west of Kirby Creek. As I then said, with Tugwell Creek we enter a region of running water, a land which may be described by Wordsworth's phrase as "a region of little rills and waters numberless." There are, in fact, three major attractions held out by the West Coast Road to the traveler: the sea fresh from the wide Pacific, the forest flora, doomed alas! to perish before very long at the hand of, exploiting man, and, the streams that "dance their wayward round" from the hidden places of the hills.

After passing Coal Creek, a number of streams are crossed, but the first notable one is Sandstone Creek, with its curious bed where the bridge spans it, so free from the pebbles and boulders usually seen. Above the bridge two streams. The left hand, looking upstream, is marked by the channels and pools cut sharply in its steeply-sloping bed. The other brings you on a scarcely perceptible grade to a charming little amphitheatre, at the head of which the stream cascades through a notch in overhanging cliffs of sandstone, where the maidenhair fern flourishes, into a little pool. The Maidenhair Falls, so named not only for the ferns, but for the shape of the little cascade, have long been well known to the residents of Jordan River village for their beauty and grace and the charm of the quiet recess in the forested hills. Here the maidenhair attains a great size in the dense thickets and nowhere can the deer-fern be seen to greater advantage, its fertile fronds rising vertically two feet above the encompassing sterile ones.

## Interesting Fossils

ABOVE the waterfall the stream is running on a fairly level bed, and here at one time some interesting fossils were found in detached blocks of sandstone. It seemed strange to come across the remains of animals once extremely abundant in the seas, but now almost extinct. They belong to a group known as brachiopods, "quaint marine animals," as Professor J. Arthur Thomson calls them. Rightly so, for while they look like relatives of our ordinary bivalves, their internal anatomy and larval state shows them to be really related to the great family of worms. Appearances are proverbially deceptive, and are certainly so with the brachiopods. They are fairly plentiful today in the waters around Brochie Ledge, off Victoria, and occasionally you may come across one attached to the "roof," or holdfast, of a bladder-kelp. If you do and you take the trouble to examine it, you will find that it resembles an ancient lamp of Roman and Greek times, having at one side a small hole. It is through this that the animal projects its stalk and attaches itself to the kelp holdfast or whatever object it may be on the sea-bottom. If you open the shell, you will find something quite different from the interior of ordinary shells like a clam or an oyster.

On a curious framework, resembling somewhat a paper-clip, are two long coiled arms with tentacles, in turn provided with fine hairs that by their movement set up currents and so bring to the mouth the minute particles of food suspended in the sea water. Further, an examination of the shell substance under the microscope shows that it is perforated by small canals which in cross-section show as little spherical openings. These brachiopods are amongst the earliest fossils found, and attained their earliest development in the days when the limestone that forms the ornamental facing of the new wing of the Empress was being laid down in the Silurian-Ordovician seas of what is now Manitoba. Today they have

sadly diminished in numbers, species and comparative importance.

## Thing of the Past

I MENTION this particularly because it gives the reader an idea of the varied interest attached to these streams, which in the cutting of their course through the rocks, not infrequently reveal the hidden things of the past. Other fossils occur up here to challenge the geologically inclined to research and thought, and in Summer the botanist will find an equally interesting field for his investigations whether he devotes his attention to the identification and classification of plants or to the associations and environments in which they are found.

Beyond Sandstone Creek there are some small streams, notably Black Creek, in whose beds the fossiliferous rocks are also exposed. But we may pass over these and come at once to Jordan River. The name is so distinctly Biblical that it comes as a surprise to many to find that it is one of the names that mark the work of exploration carried out along this coast in the late eighteenth century by the Spanish explorers whose work is duly and properly acknowledged in the memorial cairn on Gonzalez Hill. Seen at the mouth where the bridge crosses it, its broad and quiet waters, especially at high tide, remind one of the Sooke and little suggest its character behind the great cliffs between which it emerges on this last portion of its course.

To reach its source you must follow its valley till you come to the great dam at Camp Five, swing to the east and then from Camp Ten climb by a mountain path the side of Mount Valentine, 3,200 feet, and striking across the broad summit, descend into Jordan Meadows, some 1,800 feet above the sea. Here in a basin some seven miles long, encircled by forested summits, is the wellhead of the Jordan. At one time the basin must have been occupied by a single lake, but today this survives only in Trout Lake at the north end. The remainder of the Meadows is a mixture of lakelets and pools connected by natural channels, of peat bogs, and of drier areas where the coarse pasturage is cut by deer paths. Occasionally low rocky ridges run out from the surrounding heights where the mountain hemlock and the yellow cypress give a distinctive character to the tree flora.

## The Sphagnum Moss

THE water in the pools and their connecting channels has the brown color that comes from peaty soil, for the bogs, or muskegs, once covered what is now dry land. The great contributor of solid matter is the sphagnum moss. Its vertical growth culminating in the fresh green of its living portion and the character of its cellular structure bring the water below in constant contact with the atmosphere, as one can see by the moisture of the moss surface. It is interesting to note that this moist surface has a distinctive flora of its own. It is the familiar home of that curious insectivorous plant, the sundew, which makes up for deficiencies in the diet its permanent environment provides by enticing, trapping and consuming the small insects that visit it. It entices them by the red-staked and crystal-globed glandular hairs on its round leaves with their suggestion of agreeable food, it entraps them on their alighting by turning downwards and over them these hairs; and it consumes them by the ejection of digestive juices that absorb the nutritive parts of their bodies, leaving the remainder to dry and be carried away ultimately by the air. The tiny white flowers that are carried on a slender stalk above the leaf rosette at the base play a comparatively small part in the plant's economy, being relatively short-lived and without special at-



The Old Bridge at Jordan River Mouth.



The Old House at Jordan Meadows.

tractiveness. Their height above the deceptive and destroying leaves ensures the safety of such flying insects as may visit them. The sundew's name expresses the appearance of the leaves with their globe-tipped hairs like tiny drops of dew.

A common companion of the sundew on the sphagnum surface is the bog-cranberry, a slender trailing plant with small narrow leaves, turned over backward at the edge and whitish underneath. The reddish flowers, small and inconspicuous as the plant itself, produce a red fruit of an acid quality and delicious when cooked, superior in my opinion to the imported Eastern cranberries.

The older part of the bog, that is, toward the edge where soil is developing, is also the home of the swamp blueberry and the Labrador tea, and although I have not seen it there, as my visits have been too late for the flowering season, the kalmia, or swamp laurel, is sure to join these other two.

## The Swamp Orchid

ON the moist sides of the ponds and streams the tall swamp orchid makes charming groups, growing to a height of five feet or more with a long slender cluster of pure white,

sweet-scented flowers, perhaps the most conspicuously beautiful object in the Meadows. Hidden in the herbage grows an interesting white-flowered gentian, Douglas, its blossoms numerous and small compared with those of the blue swamp gentian. These are examples of the flora of the wetter parts. Where it is drier a great part of the area is covered with burnet or sanguisorba, a plant growing about two feet high with leaves very like those of the rowan or mountain-ash, and with long-stemmed flowers of a dark purplish red arranged in cylindrical spike-like heads an inch long and three-quarters in diameter. A herbaceous perennial, it belongs to the rose family. It, or rather a closely-related species, is well known in the British Isles, where it has, I believe, considerable value as a pasturage plant. Certainly the deer of Jordan Meadows seem to appreciate it.

The surrounding hillsides have a delightful flora of their own. The salad of the coast is replaced functionally by the tall blueberry, and specifically by a dwarf relative, the teaberry, so small as to be little noticed. A low-growing lily, the queen-cup, with pure white flowers, and, later, dark blue fruit, is one of the most attractive plants of mid-summer, when the

open forest floor is starred with its blossoms. In moist glades the yellow turncap lily attains a larger size than in the lowlands, and in the beds of the mountain torrents the golden flowers of one of the arnicas are conspicuous.

The Jordan leaves the Meadows at the south end, through a narrow opening in the forest wall after passing through a series of pools, the last of which is encircled by a deeply worn deer track. The pools and stream are alike abundant in trout, whose flesh is darker than that of those that occur in the clearer waters below the great dam, and rather rarely in the Summer at least a pair of wild duck may rise startled from the secluded waters. There is a deep stillness over the Meadows, broken only by the occasional notes of a bird or by the faint rippling of the infant stream over such a bit of rocky bottom as at the crossing near the old house. For long years the Meadows heard the sounds of settlement: the blows of the axe and the falling of trees. A house arose, a barn and other outbuildings. The furniture was made of the yellow cypress, and some of it still stands in the old rooms, now half filled with the debris of hunters' beds. A little Summer house and some garden pansies running wild amid the grass tell the visitor that the mind and hand of a woman gave a touch of the aesthetic to the pioneer life.

## On to the Sea

SO through the gap in the forest the Jordan departs from the Meadows on its journey to the sea. The gap lies in a valley cut through the great wall of rock we crossed by Mount Valentine, and when the other side is reached the Jordan picks up Bear Creek, or what is left of it, from the earth-dammed reservoir at Camp Ten. Then the waters run westward to the reservoir at Camp Five. The traveler meanwhile, along this portion of its course, follows a trail partly in the valley and partly on the hillside on the south. The trailing raspberry and the dwarf cornel or bunchberry dot the ground with white blossoms, and he may hear a bear feeding in the blueberry thickets or even see one come out on the trail and, catching the stranger's scent, disappear abruptly into the cover.

At Camp Five the Jordan is met by Wye Creek, flowing from the west, and as its waters emerge from the great cement dam they are seen to be running once more to the south. From the summit of Survey Mountain, referred to in a previous paper, this valley has the appearance of a broad trench cut mile after mile across the landscape in the comparatively soft rocks of the ancient slaty shales and schists and along the direction of their strike. But from now on the Jordan crosses the strike of the Metochon volcanics.

A descent into the actual bed shows how much the river has been diminished in body and so in force by the diversion of the water from the reservoir to the long flume that leads to the power-house at the sea. The great grey boulders are but the beginning of the train of them that marks the Jordan's bed from here to tidal water. There is still, it is true, enough water for a few trout, but the glory of the river has departed. However, its lowness has a compensation for the botanist, who can thus examine for some distance the flora of the western bank, here at least more prolific in variety of species. But first, before descending, I would call attention to an alien plant whose light yellow flowers brighten the banks of the little railway and the local road in this immediate vicinity. It is a British wild plant, the corn marigold, an annual species of the genus to which the ox-eye daisy and our garden chrysanthemums belong, and I understand was imported into the village at the sea from the misty Island of Skye and has since come up here. To Skye it came long ago as an

importation from England. Such are the peregrinations of plants!

## High-Bush Cranberry

ON the opposite side of the Jordan we shall find the high-bush cranberry, relative of our garden snowball. A rather showy representative of the louseworts, with pinkish flowers and a curiously turned horn-like proboscis in front is common. Two members of the heath family the false azalea and the copper-bush, grow in the thickets. The baneberry, distinguished for its close bunches of polished scarlet or white berries, is plentiful, and our native aralia, the devil's-club, may be met with. On the most barren soil grows Bongard's saxifrage, with toothed leaves and an open inflorescence of pretty white flowers, a plant interesting because of its production on the branches of the inflorescence of numbers of tiny plantlets which in due course, provided with leaves and so equipped for life's struggle, drop to the ground and take root. Writing away from home and without notes to refer to, these are the things that chiefly I recall.

To follow the river south is much too slow and laborious a business, so the narrow railway track is taken. Gradually the river is seen to sink lower and lower in its valley, while above it, through the thick forest, can be seen great perpendicular cliffs of rock whose taces have fed through the centuries the bed of the stream with massive blocks of basalt. A number of small tributaries come in from the east and pass under the railway and flume. Chief of these is Alligator Creek, whose name is not due to the semi-tropical monster but to our little grey lizard, to which popular speech has whimsically given the name of "Northern alligator." This stream is larger than the others and in the rainy season is a forceful enough torrent, but I have only seen it at low water, when it comes winding down through a tangle of boulders, like the Jordan on a diminutive scale.

## Among Wild Fruit

ALONG our way at midsummer the air is richly scented with the flowers of boykinia, here at this season the most abundant of flowering plants. But most pleasing from another point of view, the hot and thirsty traveler, on a late June or early July day, is the abundance of wild fruit. The salmonberry, the high blueberry, and the wineberry or red huckleberry here develop their respective fruits to a size I have never seen equalled elsewhere, and their size is paralleled by their flavor. Not only does the pedestrian appreciate this richness, but the bears do also. It is not surprising to be told that as many as half a dozen together are sometimes seen on these berried hillsides enjoying the harvest of fruit.

The Jordan may be reached again with ease at the Sunloch Mines, but this means going south past Camp Two, with its small reservoir, and then taking a trail that leads upstream parallel with the river. Here another narrow railway was built years ago, and it is along its gradually disintegrating grade the trail leads. The river can be heard far below, and as the mines are neared glimpses of its waters, as they go tumbling over the boulders in snowy cascades, can be had. At the mines it is possible to get down to the river bed, which has not improved with distance, and is more than ever a mass of stupendous boulders. The river falls over a rocky wall into a pool just below the point where a shaft enters the cliff on the opposite shore and a little way in passes under the bed of the stream.

Both coming up this trail and from the West Coast Road beyond the bridge, glimpses can be had of the last canyon of the Jordan, below which it emerges at the level of the sea and becomes tidal. Peaceful and quiet is the last reach except where a truckful of great logs crashes down into the water to form part of some seaguing boom.