THE GENESEE RIVER.

BY REV. BROWNELL ROGERS, A.M., CONQUEST, N.Y.

THE Genesee River rises in Potter County, Pa., about seven miles south of the State line. The average elevation of the highest hills in this county is not far from twenty five hundred feet. The valley of the Genesee reaches southward between the basins of the Susquehanna, on the east, and of the Chautauqua Allegheny, on the west. The water-shed between these three basins lies in the townships of Allegheny and Ulysses.

The river flows north-northwest into Allegheny County, New York, to the town of Caneadea, where its direction changes to north-northeast. This direction is held until the river reaches Lake Ontario. The total fall is about twenty-two hundred feet. Its entire length is not far from one hundred miles, but flowing so nearly northward it cuts across all the formations of the New York system from the Catskills to the Medina sandstone, these formations in this part of the State having a nearly uniform east and west strike. Yet, notwithstanding, there are but two localities where these formations are generally exposed, viz., at Portage and at Rochester. True, there are a few other places where the rock is uncovered, as at Mapes, and at Belmont, Allegheny County, New York, but these are only limited exposures, and do not at all compare with the gorges at Portage and at Rochester. It is this fact that makes the river such an interesting study; for these two gorges — the one at Portage about three miles in length, and the one at Rochester about seven — are post-glacial; the remainder of the course of the river being in a pre-glacial valley, which is nearly filled with drift. This old valley was several hundred feet deeper than at present, for the drift has been penetrated at various places two, three, and even four hundred feet before the bed-rock was reached, while on the hills, either side of the river, rock is struck a hundred feet or more above the present level of the water. Indeed, many of the tributary creeks have uncovered the native rock for some distance back from the river.

During the glacial epoch this old valley was undoubtedly filled with ice, for the terminal moraine forms the water-shed of Potter County. During the retreat of the ice, halts were made in at least three different places, allowing the accumulation of drift in greater quantities than elsewhere, thus damming up the already nearly-filled valley.

The first of these dams is about eight miles north of the State line, in the town of Willing. It was not so high, though, but, on the further retreat of the ice northward, the water easily found a way over the obstruction. This was on the western end of the dam, consequently this end has been almost entirely washed away. There are remnants, however, on the side of the valley at an elevation corresponding with the eastern end, which is left almost entire The second great glacial dam is at Portage. Here the drift formed so complete a barrier that the river was turned out of its course. But, instead of turning back again and flowing southward as the Allegheny River did, the Genesee was simply turned to the west, and re-entered its vallew below the dam. In plunging over the precipice, back into the old channel, strata of various degrees of hardness were exposed, the erosion of which has resulted in the formation of the present cañon, with its series of three water-falls. At the upper falls the walls of the gorge are two hundred and fifty feet high. Here the river makes a perpendicular fall of sixty feet; half a mile below, a perpendicular fall of one hundred and ten feet; and one and a half miles farther down, a broken fall of eighty feet. The summit rock at the lower falls being so soft, many changes have been produced in the falls during the last eighty years. A little south of Rochester the valley was again so completely filled as to turn the river out of its course, and again it turned to the west, cutting the gorge below the city, and north of the outcrop of the hard Niagara limestone which forms the summit of the falls at the head of the gorge. The depression occupied by Irondequoit Bay is the mouth of the old valley where it emerged from the Ontario plateau, but the valley itself is traced far out into the lake, where it opened into the old Erigan River. Had the Genesee valley not been so completely filled up throughout its entire length, we undoubtedly would have had another lake similar to Seneca and Cayuga Lakes, all of these depressions being the results of pre-glacial erosion. Sodus Bay and Fair Haven sustaining the same relation to these depressions as Irondequoit does to the valley of the Genesee.

ODDITIES IN BIRD LIFE.

BY C. W. SWALLOW, WILLSBURGH, OREGON.

The water ouzel (*Cinclus mexicanus*) is a very peculiar specimen of the feathered race. Here we have a bird that, from its habits, long legs and teetering motion, may easily be mistaken for a sandpiper. It may almost be called duck-like, as it is so much at home in the water, wading, swimming and diving with ease, and even walking on the bottom under water in search of food. From its shape and song it is somewhat wren-like; then again, from its bill, its song and some other points, it is quite thrush-like. The bird is not especially noted for its musical ability, yet when its sweet trills and warbles are heard in the wild forest near some rocky stream, where song-birds are rare, it is certainly charming to one that loves bird notes.

The ouzel, or American dipper, as it is sometimes called, is a western bird, found along the mountain streams between the Rocky Mountains and the Pacific coast. The birds are bluish-slate in color, darkest on top of head, back and wings. Tail nearly black. The winter plumage and young have the feathers of the throat and underparts and some of the wing feathers white-tipped, giving some specimens the appearance of being quite gray. These odd birds are about 7 inches long, with 11 inches extent of wings; wing, 3.5 inches; tail, 2 inches; tarsus, 1.1 inch; bill, .7 inch, horn-blue, yellowish at base; feet and legs yellowish. The nest, placed by or under the upturned roots of a tree or an overhanging rock or like situation, is a well-made, dome-like structure of moss and rootlets, with the entrance on one side. One nest that I examined had the entrance nearly concealed by a swinging door of moss, evidently placed there for that purpose. They are said to lay about five pure white eggs.

Perhaps one of the most odd of American birds, in habits as well as appearance, is the evening grosbeak (*Coccothraustes vespertina*). Although seemingly very widely distributed, it being reported from the New England States to Oregon and from Mexico to Canada, yet little if anything seems to be known of its breeding range and habits. Last winter, 1891 and 1892, it was quite a common bird in the vicinity of Portland, Oregon. I often observed a flock of about a score which came to a certain locality nearly every morning for a number of weeks to feed on the buds of the vine maple. I noted them from December, 1891, until April 25, 1892. This winter I have failed to see or hear one in the same localities, although it has been a much more severe winter, and would naturally lead one to expect northern birds to be more abundant than last winter, which was remarkably mild.

These birds utter a clear, bell-like chip, when flying, and occasionally when on trees; it seems to be a call note. The largest specimen I have measures as follows: Length, 8 inches; extent of wings, 13.85; wing, 4.5; tail, 3; tarsus, .75; middle toe with claw, .95; hind toe with claw, .65. They have a very heavy, cone-shaped, greenish-yellow beak about .8 inches long, by .6 broad, and .65 deep at base. With their odd colors of yellow, black and white, these birds may remind one of the setting sun, night and snow. They have a black crown patch nearly enclosed by yellow on forehead and stripes over the eyes running back to the nape; a few black feathers at base of bill; neck, sides of head and throat brownish-olive, shading into yellow on the rump and underparts; wings and tail black; secondary coverts and some of the secondaries white, producing a large white blotch on each wing; under tail coverts yellow; feet and claws light brown; closed wings reaching to within about one-half inch of end of tail. The winter habits of the bird seem to be very much like the pine grosbeak (*Pinicola enucleator*), which is quite common in the eastern States some winters.

Another species that would be included as oddities is the chats (*Icteria*), represented in the eastern States by (*Icteria virens*)