

sets traps. The young are much more easily caught than the old, and the adults gain caution by seeing the fate of those which are caught. Tools are also used by some of the higher apes. The chimpanzee uses a stone to crack a nut resembling a walnut, and the Abyssinian baboons fight troops of another species, and roll down stones in the attack before they finally close in a hand-to-hand encounter. The idea of property is common also to every dog with a bone, to all birds with their nests, and notably in the case of rooks. Nor can a certain kind of language be denied to the brutes. The dog communicates his feelings by barks of different tones, which undoubtedly raise in his fellow dogs ideas similar to those passing in his own mind.—*Edinburgh Review*.

8. THE SONGS OF THE BIRDS.

There is a beautiful propriety in the order in which singing birds fill up the day with their pleasing harmony. The accordance between their songs and the aspect of nature, at the successive periods of the day at which they sing, is so remarkable that one cannot but suppose it to be the result of a benevolent design. First, the robin—not the lark, as has been generally imagined—as soon as twilight has drawn an imperceptible line between night and day, begins his artless song. How sweetly does this harmonize with the soft dawning of the day! He goes on till the twinkling sun beams begin to tell him that his notes no longer accord with the rising sun. Up starts the lark, and with him a variety of sprightly songsters, whose lively notes are in perfect correspondence with the gaiety of the morning. The general warbling continues, with now and then an interruption by the transient note of the raven, the scream of the jay, or the pert chattering of the daw. The nightingale, unwearied in the vocal exertions of the night, joins his inferiors in sound, in the general harmony. The thrush is wisely placed on the summit of some lofty tree, that its piercing notes may be softened by distance before they reach the ear; while the mellow blackbird seeks the lower branches. Should the sun, having been eclipsed by a cloud, shine forth with fresh effulgence, how frequently we see the goldfinch perch on some blossomed bough, and hear his song poured forth in a strain so peculiarly energetic, while the sun, shining on his beautiful plumes, displays his golden wings and crimson crest to charming advantage. Indeed, a burst of sunshine in a cloudy day, or after a shower, seems always to wake up a new gladness in the little musicians and incite them to answering bursts of minstrelsy. As evening advances, the performers gradually retire, and the concert softly dies away. At sunset the robin again sends up his twilight song, till the still more serene hour of night sends him to his bower of rest. And now, in unison with the darkened earth and sky, no sooner is the voice of the robin hushed, than the owl sends forth his slow and solemn tones, well adapted to the serious hour.

SCIENTIFIC NOTES.

RAIN FALL.—Prof. Henry says that the observations of the Smithsonian Institute, which extend over a period of twenty years, have as yet failed to confirm the popular belief that the removal of the forests and the cultivation of the soil tend to diminish the amount of rainfall.

TELEGRAPH WIRES.—A correspondent has been figuring up the miles of existing telegraph wires. It appears there are 450,000 miles in Europe, 180,000 in America, 14,000 in India, 10,000 in Australia, and 30,000 of submarine cable. Total, 684,000 miles, to which there are additions being made at the rate of 100,000 miles per year.

OPEN POLAR SEA.—The following is a translation of the information received at the Navy Department from Dr. A. Peterman, of Gotha: The telegram dated Oct. 3, 1871, which announces the return of Capt. Weyprecht and Lieut. Payer of the Austrian Army, states that in the month of September an open Polar sea was found from 42° to 60° east of Greenwich to the northward of 78° north latitude. The northernmost point reached was 79° north on the meridian 48° east. Here we found the most favourable state of ice towards the North Pole, with probable connection with the open sea, north of Siberia, toward the east. This appears to be the most favourable route toward the North Pole. Dr. Peterman remarks: the last part of this telegram I cannot understand, but I have reason to assume that Carlland, which was discovered last year by the Count Zeil and Theodore Ven Heughir, extends southward to 78° 12' north. The expedition was made in a small sailing vessel and at the expense of the officers. The *Polaris*, Captain Hall, and for the North Pole, left American waters recently.

She will stop *en route* at St. Johns, Newfoundland, for a supply of fresh seal oil, which takes the place of salt junk in the Arctic regions. Captain Hall will then push forward to his winter quarters in the ice pack which fringes the unexplored open sea around the Pole, and with the return of the sun in May next he will endeavour, by ship or by sledges, to reach the Pole. Another Polar expedition is about to be undertaken by Octave Pavy, a member of the French and American Geographical Societies. He believes that Capt. Hall's proposed Polar expedition is impracticable, and purposes to make an attempt himself to reach the North Pole by way of Behring's Strait. He will leave San Francisco on the 15th of July, thence proceeding to Petropaulovski, in Avatcha Bay, Kamschatka. Furs, dogs, three natives (making, with four Europeans, including a Russian and himself, a party of eight), and every necessary will be procured, and shipping taken to the north of the Gulf of Anadyr, whence the party will journey overland to Cape Jakan, on the north coast of Siberia, a distance of 300 miles. Pavy takes with him a boat made of gutta-percha, covered with canvas, and capable of floating five tons weight. He intends to keep up communication with the Russian post at Cape Jakan, by carrier pigeons, and is in correspondence now with the Russian Government with a view to secure the assistance of their officials in Siberia.

SIBERIAN DELUSION DISPELLED.—Mr. Barry's new book tells a different story about Siberia from the ordinary account of travellers. Parts of the enormous area of that country are almost uninhabitable, it is true, but in the regions through which Mr. Barry travelled the climate was everywhere "temperate and endurable," while a great part of it could boast of "a fine agricultural soil, a rich deep black loam," in which anything would flourish. The roads are "as good as those in any part of the Empire," and there is "plenty of pretty scenery, hill, wood, and water," and the posting-houses are "much better than those of many parts of the centre of Russia. The peasants are far more civilized and better educated than those of the other parts of the Empire." And there "woman takes her proper place, looking after her household and her children," instead of being left, as she is in central Russia, "to do the hard work and slave at field labour," while her lord and master drinks and sleeps. As to the mineral wealth of Siberia, it is something of which but a very small number of people have any idea, for at present only a few spots are worked, and those "most unsatisfactory, and under the worst possible management." It seems that "there is plenty of refined society to be met with in all Siberian towns, and the time of one's sojourn there always glides away pleasantly; and regularity and evenness of the climate being an addition to the enjoyment of life." To any one who is desirous of visiting that attractive country, it may be interesting to know that steamers ply daily from Nijny Novgorod to Perm, "doing the distances pleasantly in a week," and the boats are "kept very clean," their provisions "are plentiful and good, and their tariff of charges is moderate."

IRON AND STEEL.—From microscopic examinations of iron and steel, Mr. Schott, of Washington, infers that he can thus determine their various qualities; the height of the crystal pyramids, relatively to the sizes of their bases, and the arrangement of these crystals differing in different specimens.

BARON KRUPP has constructed a model of a new cannon, which, it is said, will batter down the heaviest ramparts at a distance of 13 kilometres, or about nine miles. For the founding of the monster guns great changes have been introduced in the forges of Essen, and several colossal steam hammers have been set up, the cost of each exceeding four millions of francs.

GERMAN TORPEDOES.—During the war the strictest secrecy was observed respecting the torpedoes with which the German coasts were protected, but now further information has been laid before the public. Electrical torpedoes and those exploded by concussion were both employed. The latter were charged with seventy-five pounds of powder, and sunk to a depth of about three feet below the surface of the water. Those exploded from the shore by means of electricity were loaded with two centners of dualine, a charge which is equal to ten centners of powder. They were sunk at a depth of about eight feet. The torpedoes which the Grille attempted to place under the keels of the enemy's vessels were not a new invention, but the old offensive concussion torpedoes, fourteen inches in diameter, and two feet in length, which did not prove very effective. Indeed the war threw but little light on any question connected with these submarine defences. At Pillau, torpedoes charged with four centners of powder were improvised. A company for laying and exploding these engines of war was formed at Kiel. In sinking and taking them up three accidents occurred, and fourteen lives were lost.