

Correspondence.

The Snows of Mars.

To the Editor of the SCIENTIFIC AMERICAN:

During the past few months your valued publication has contained a number of interesting articles on various phases of Mars, its probable climate, etc., and the idea generally comes to the surface that the supposed snows of that interesting planet may, after all, be chemical snows, and not crystals from the frozen vapor of water.

While we must not forget the fact of our present nescience relative to the actual conditions on the distant surface of our interesting neighbor, have we any just reason for assuming that the temperature of that planet is too low for the abundant and rapid transformation of the forms of water such as we know them?

Here in the plains country, where the intensely clear sky and high altitude favor radiation and absorption in a high degree, it is no unusual thing to see numerous large and abundant crystals of frost (a feathery snow, in fact) fall from an almost cloudless sky when the mercury is at zero or below. It is a much more common thing to see snows of half an inch in depth evaporate and totally disappear when the mercury is anywhere from zero to 20° below, and the writer found that a cake of ice about 18 inches square, when hung up in the shade on the north side of a fireless building and with the mercury at zero or below, lost about four ounces per day under those conditions.

It is a very popular mistake to suppose that evaporation ceases at the freezing point, and, for aught we certainly know to the contrary, the process of crystal forming and condensation may, under somewhat changed conditions, go rapidly on under negative temperatures below the deepest reach of our terrestrial thermometers.

E. W. BLACK.

North Loup, Neb., January 5, 1895.

Birds and Their Persecutors.

As matters go now, unless some stringent measures are taken, the birds of Europe will, in the next century, be as extinct as is now the dinornis. The ornithophil societies of France and Switzerland have more than once written to me that unless birds be protected in Italy they must perish all over Europe, since so great a variety of races wing their way to the south in winter, and there are ruthlessly murdered. Switzerland says that millions of her birds (insectivorous songsters) leave her for Italy in autumn, never in spring to return. No representation of this fact produces any impression on Italians; they do not believe that birds aid their crops and clean their vines. They wish to eat them; they are impervious to any other considerations, and so they continue to destroy lovely and useful little lives, butchered to lie in rotting heaps in the market places or be sold at two farthings a head. In autumn numerous tribes of northern nesting song birds come southward, and their piping and trilling is heard for a week or two in the fields and hedges, under the willows of watercourses and among the furze and chestnut scrub of the hills. Then it is silenced. Trap, or gun, or net, or poison have done their work. The huge low-spread nets called panatoie capture hundreds in a forenoon. There is no distinction or discernment in the wholesale murder. The decree is, Let every winged thing die.

Along the little streamlets, by the banks of rivers, among the reeds and rushes, anywhere where there is water, men wait at daybreak to snare or slay the birds as they come to drink; and again at sunset, when the birds, large and small, fly down to slake their thirst, the same brutal foes lie hidden to destroy them. As are the dog s'lives in the cities, so are the birds' lives in the country. They are hunted from dawn to dark. Even within the towns the birds are no safer; the blackcap and merle, the linnet and chaffinch, the bullfinch and goldfinch, which would be numerous in Italian towns were they let alone, are caught by nooses or shot without pity.

The thistle seed so eagerly sought and eaten by the goldfinch should make that beautiful bird precious to those who have neither sight for his plumage nor ear for his song. The grubs and larvæ of injurious insects turned up by the bills of blackbirds and nightingales should render them sacred to those to whom their melody says nothing. All the tribes of finches are invaluable as grub hunters and aphid eaters on the grounds where they feed and breed. Italian agriculturists bitterly bemoan the fact that their fields are ravaged by insect hordes of every kind, that their fruits drop off unripe, and that their vegetables are eaten to the root by snails and caterpillars, and through the root by wireworms and grubs. There is, indeed, a close time in most countries, but it is too short to be effective; it begins too late to protect birds in their amorous season, when they are most easily approached and taken, and ends too soon to save the later young broods from being seized or shot while scarcely fledged.

I have repeatedly seen during the close time linnets, finches, grosbeaks, and nightingales hawked wild in

the streets of Rome by boys who held them at the end of a string, and flung the terrified little things into carriages or shops, or on to people's shoulders, on the chance of sale.

Mosquitoes, flies, wasps, moths, caterpillars, large and small, and the red ant, which swarms in houses and devours all kinds of food with incredible rapidity, all these are a hundredfold more numerous than they were in bygone years; while the great ash-colored locust appears in millions, which cover and desolate whole districts, leaving no green blade or leaf alive. Whose is the fault? Who lets the larvæ-eating and the insect-killing birds be murdered in the very season of their usefulness? Who lets the swallows, who would rid the air of winged pests in their graceful circling flight, be shot down in scores as they flash in the morning sun or skim the water at eventime for a bath and drink? I have known hundreds of swallows and martins come to make their nests as April brought them home, and I have known these innocent and useful returning pilgrims destroyed almost entirely before June was passed, two or three at most being left of the happy bands which had come back so joyously and trustingly to the roofs of men. The penalty for slaying a swallow or martin could not be placed too high. All day long and until it is quite night this bird seldom rests, and in his buoyant flight is ridding the air of men's worst pests.

There is a horrible night method also of taking nesting birds which is common in all parts of Italy. Men tie lanterns to long poles and shove the lights up into the trees, or vines, or bushes, with much noise and hooting; the shifting lights so terrify the birds, wakened out of their sleep, that they fly madly to and fro, and fall an easy prey to their persecutors.

This is considered a very amusing diversion, and children are allowed as a treat to crush the skulls of the little birds snared in the nets. The duke and duchess are as eager for these noble pastimes as their plowman and his wench. The amusement of the uccelliera pleases high and low alike. The prince and cardinal find a great glee in its stupid butchery, as do the country lout and city cad. The patrician woman claps her jeweled hands, and the sleek ecclesiastic purrs with pleasure as the victims are snared, caught, and either killed or caged.

Legislation as regards birds is environed with many difficulties. It is hard to know how a law is broken over miles of wild country, within park walls along solitary shores, and on lonely hillsides. But great good would be effected if birds were prohibited as food; if all nets, traps, gins, bird lime, and call birds were made illegal; and if punt shooting and night netting of water birds were forbidden. In Italy, if birds were not allowed to be brought within the gates of a town, their slaughter and capture would be much diminished, and if the gun tax were raised, the crowds of cads who ravage the country fields would be greatly lessened. If the uccellario and panatoie of the richer classes were made unlawful, the numbers thus sacrificed would be also much diminished. As many as six or seven hundred birds of all kinds are frequently caught in one morning by these means on a single field or in a single shrubbery.

Consider the marvelous life of a bird and the manner of its whole existence. Men must truly be brutes not to be moved by wonder and admiration before a creature so ingenious, so courageous, and so persecuted. Consider the powers of that little mind of which the inner light flashes from the round, bright eye; the skill in building its home, in finding its food, in protecting its mate, in serving its offspring, in preserving its own existence, surrounded as it is on all sides by the most rapacious enemies. Consider its migration. Men are proud of the steamships and railway trains of the overland route between Europe and India, but what merit have they beside the flight of the bird from Northern Europe to Southern Asia? Alone, unaided, opposed by many adverse circumstances, and frequently blown back by weather, it yet crosses continents, seas, and deserts, till it reaches its winter home by Nile, or Ganges, or Euphrates; and yet again, when spring is in the air, returns over those thousands of miles to make its nest in some Norman croft, or Rhenish hedge, or English orchard. The migratory flight of the bird is the greatest miracle of nature. It is sad and amazing that it is regarded by man with entire indifference, and merely utilized by him for his own gain or diversion.

All the tendency of modern life is set against the continuance of what is called "wild life"—i. e., such forms of life as have continued to exist in a natural state, without artificial aids or restrictions; the only forms which are really beautiful.

When left alone it is such a lovely little life—cradled among the hawthorn buds, searching for aphidæ among apple blossoms, drinking dew from the cup of a lily; awake when the gray light breaks in the east, throned on the topmost branch of a tree, swinging with it in the sunshine, flying from it through the air; then the friendly quarrel with a neighbor over a worm or a berry; the joy of bearing grass seed to his mate where she sits low down among

the docks and daisies; the triumph of singing the praise of sunshine or of moonlight; the merry, busy, useful days; the peaceful sleep, steeped in the scent of the closed flowers, with head under one wing and the leaves forming a green roof above.

In winter, doubtless, it is hard work for him to keep himself alive and warm; but the bird is a little philosopher, and he wears a waterproof coat. Pious people rob him of his natural food in hedge and thicket that they may decorate their churches with holly and mistletoe and bay, and when the frosts are long and the snow is deep the non-migratory bird suffers greatly; often, indeed, the cold kills him, if he escape the gun and the trap. But in southern countries, like Italy, he fares well if he be let alone; and in northern countries people might easily help him if they would but spare him some grain, some seed, some crumbs of bread, some bones of meat hung in the branches where he can reach them and animals cannot.

Every invention in the programme of what is called civilization is against the creatures of wood and water and air. The beaver is almost extinct, the mole is incessantly hunted, the hare is harried to death in every country; the steam plow, the steam reaper, the steam engine drive before them millions of once happy and woodland-born creatures; and the birds suffer more than any other living thing. The great electric lights of the lighthouses on the coasts and islands slay hundreds of thousands of the birds of the sea and of migratory song birds, as they dash in headlong flight against the revolving glare, and fall dead from the shock on the rocks below. When the tired flocks of the air land on some seashore, worn out with fatigue, half dead with thirst, obliged to seek a day's repose before continuing their flight, the human brute receives them with stick and net and gun. There is no hospitality for the winged traveler; if he stoop to drink, if he pause to rest, if he plume his ruffled feathers on a tussock of grass, his enemy is down on him, the two-limbed human brute, who is more cruel than any bird or beast of prey. There is no sympathy with his courage, no aid to his weariness: even a drop of dew or a wayside seed is begrudged to him. He must perish, to be ground between the yellow teeth of peasants, or, perchance, lie dead in crates, or be skinned, that his pretty plumage may be worn on the heads of female fools. Every rush-covered islet on a stream, or a lake, or a broad has its murderous punt shooting. Every stretch of waste land or belt of common wood has the caterer for the fashions of women, spreading his toils or setting his mirror traps for the songsters and the swallows. Every child is brought up to torment and hunt down the birds. No holiday seaside excursion is complete to the city cad and his "flame" without wounding some winged creature and seeing it struggle helpless in the surf of its native shores. Sometimes, if shot on the shore and taken in rough hands, its wings are torn off to adorn the Sunday hat of some 'Arry's girl, and the bleeding, mutilated body is thrown back alive into the salt waves.

Science is not the criminal here. The offenders are the whole public, of nearly all nations, who for greed, for sport, for dress, or for mere brutal horseplay, destroy all over the world the loveliest and the most marvelous of all the children of Nature.—Ouida, in the Nineteenth Century.

Injury to the Orange Crop.

Florida oranges, which have been wholesaling at about \$2 a box, have advanced to \$4 and \$5, with a prospect, so Garden and Forest says, of a still further advance for good fruit, if any can be secured. The cold wave which visited Florida in the last days of December was the most disastrous known in the history of that State. Ice formed an inch thick as far south as Lake Worth, and in many other sheltered places where orange groves had heretofore been safe the fruit was frozen solid on the trees. The loss to the fruit growers, as well as the merchants, transportation companies, the packers and all those in any way connected with what promised to be a most profitable season has been almost as serious as if the State had been swept over by fire. Owing to the drought of last summer, the orange trees bloomed late in the fall, and there was promise of a large crop of late fruit. Of course, this is all destroyed, and the fruit buds for next year's bloom are probably ruined. Many young orchards are killed, and many of the old trees will be cut back seriously. The salable oranges now arriving in this city are those which had been picked and were in packing houses before the cold wave. Some oranges which were caught by the frost in transit bring little or nothing. Grape fruit now sells at \$6 a box at wholesale, and the price is steadily advancing. To meet the deficiency caused by the disaster in Florida, large orders have been cabled for Messina and Palermo oranges, and Sicilian fruit now here is commanding high prices. Oranges are already selling in the groves in California at an advance of \$1.50 a box. Apples and other fruit have not yet felt the effects of the scarcity of oranges, but all kinds of winter fruit will probably be dearer as they are called upon to supply the deficiency.