

Correspondence.

Chicken Surgery.

To the Editor of the Scientific American:

The result of a little experiment which I have recently tried may be of interest to some of your subscribers. It was original with me, though I have since learned that it had been tried before.

A full-grown pullet became "crop bound," and after trying for several days unsuccessfully to force the contents of the crop along in its regular channel, I finally decided to try another method of relief. I wrapped her with innumerable turns of twine, tightly pinioning her wings and legs to her body, then placing her on her side on a narrow board, I tied her down firmly. Then, by tying back the longer feathers and plucking five or six small ones, a space of about one-half inch wide and one and one-half inches long was made bare. Then with a very sharp lance I cut a gash about one inch long directly through into the side of the crop, removed the contents, using a button hook for the purpose, washed the edges of the cut, sewed up the crop, and then sewed up the skin.

Scarcely a drop of blood was drawn, and by feeding the subject on soft food for several days she soon recovered.

D. H. DECKER.

Washington, D. C., Dec. 27, 1890.

The Cartesian Diver—a Simple Modification of the Experiment.

To the Editor of the Scientific American:

For experiments with the Cartesian diver, I use a large flat bottle and a small vial, such as is used for homeopathic medicines. I completely fill the bottle with water. I then fill the vial about half full, a few trials determining exactly how much to use, and invert it in the bottle. The bottle is then corked, the cork being put in with more and more of force, followed by repeated careful loosening of it, until the vial barely floats. Then, taking hold of the bottle and pressing the sides, the volume is decreased, and the vial descends, rising again when the pressure is removed. This method of showing the transmission of pressure is not new, but I think it is not generally known.

I believe, however, that the following modification of the experiment is original with myself: Having corked the bottle so that the vial will barely descend, and remain at the bottom, I find that pinching the flat bottle edgewise, instead of flatwise, increases the volume of the bottle enough to cause the vial to rise to the top. The force needed in this latter case is, of course, greater than that required in the former.

One who has never used this simple apparatus will be astonished at the remarkable sensitiveness to pressure which may be obtained.

CLARENCE M. BOUTELLE.

Decorah, Ia., Jan. 1, 1891.

The Obliquity of the Planetary Orbits.

To the Editor of the Scientific American:

In an article from *La Nature*, printed in your issue of Oct. 4, 1890, the opinion is expressed that "the only plausible hypothesis to explain the inclinations of the axes of planets upon their orbits" is that at some time they have been struck by comets. The writer, no doubt, infers this from the ring theory of Laplace. If the sun, at the time of the formation of a planet, were a perfect sphere, it is difficult to see how the planet could be formed, by natural causes, in any other way than as a ring. But was the sun a sphere? It seems to me much more probable that, during its nebulous state and during the generation of the planets, the sun was an irregular mass of vapor, some parts being more distant from the center than others. Such higher parts, situated toward its equator, but not necessarily in it, would have a greater velocity than the general surface, and thus would be compelled by centrifugal force to separate, one after another, from the main body, to become planets.

If this be so, they were thrown off, not in rings, but in masses, the largest ones first, as on the separation of each one the sun would become more regular in form and the protuberances smaller. These bodies, thus torn from the main body, would not be likely to assume revolution on axes exactly perpendicular to their orbital motion, and I would thus account for the obliquity of their orbits. In the meantime the parts of the sun toward its poles, having less rotary velocity than the equatorial parts, would fall more rapidly toward the center, and thus contribute to its spherical form.

There is no sign anywhere of ring planetary formation, unless in the case of the rings of Saturn, and perhaps that of the asteroids, which may be fragments of a broken ring. But we see that in neither of these cases was a globe the result.

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[This theory is fully as plausible as the one advanced by Leotard in the article on "The End of the World," in our issue of October 4. Yet both, being of accidental nature, do not accord with the uniformity of axial and

orbital inclination of every individual body forming the solar system, the only exception being the system of minor planets, which seem to be the remains of an accident to some large planet originally occupying a normal place in our system. The axial positions and orbital relations of all the bodies of the solar system, from the sun to the remotest planet, seem to be due to the slight perturbations from the irregular flight of comets, meteors, and of interplanetary gravitation through the vast myriads of years that have elapsed since the dawn of their individualities.—

EDITOR.]

The Destruction of Animal Life and its Consequences.

MRS. N. PIKE.

Everything that has life preys on other life is an old truism—from man to the smallest animalcule; but mainly for subsistence—an inevitable law of nature; but with few exceptions man is the only animal whose bloodthirsty instincts urge him to wholesale slaughter of races, either from a sheer love of killing or greed of gain.

There are few of the lower animals that are not of some use to man, and the wholesale destruction of any useful creature will surely be repaid fourfold. Nature will ultimately assert her rights, and generally metes out severe penalties for our abuse of them. If the sportsman, with his boasted reasoning powers, would only exercise them when bent on making a score, or the merchant when sending out his emissaries to bag game large and small irrespective for trade, much serious loss and future scarcity would be avoided. But when did either ever pause, where sport or gain were in question? I will quote a few instances where grave consequences are already developing themselves from the reckless slaughter of beast, bird, fish, and reptile life.

See the devastation such men as Gordon Cumming and others have made among the great elephants of Africa and Asia. Many are yearly killed for their tusks as ivory is one of the principal exports in eastern and western Africa. Yet how many have been slain yearly wherever they have been in reach of the sportsman, for the sake of boasting that so many have been killed before lunch or dinner, and the huge creatures left for the wolves and vultures! Slowly, but surely, are elephants receding from man to the vast tracts as yet unknown save to a Stanley or a Livingstone in Africa, and to the dense jungles of India, where man has difficulty in following them. At their present death rate the twentieth century must see the extinction of the last of the giant pachyderms that have flourished on the earth.

Where are the vast herds of bisons that once spread over two-thirds of this immense continent? Butchered by thousands, not as they once were for their flesh and hides for the support and tents of the aborigines at certain seasons, but in sheer wantonness by the white man, till, if the remnant be not well cared for, they will be soon but relics of the past fauna of the country. Fortunately the buffalo has found a home in Australia and takes kindly to its new habitat. Then there are the elk, moose, caribou, and common deer, all fast disappearing, owing to the incessant warfare against them. Equally with the bisons of America, the great marsupials are being exterminated in southern Australia, either hunted down for sport or to protect the grass of the sheep runs from being devoured by them. Now, people are awakening to the fact that kangaroos are of the greatest use, both for their flesh and hides, and there is consternation over their rapid decrease; and unless care is taken to breed and protect them elsewhere, they will take their place with the mammoth and dinornis of bygone ages. Our only marsupial, the opossum, from the insatiable appetite of the negro for its savory flesh, and the excitement of its chase, will soon be a *rara avis*. The coon is known for its cunning ways and fondness for persimmons, but it is not a generally accredited fact that a family of opossums are the best hunters a farmer can have on his land, especially for large grubs, boring beetles, and other insects, which they seek for persistently.

Look at the yearly massacre of the whales and other great marine mammals. From their fecundity there would be abundance of all these animals for every purpose of commerce, but the cupidity and avarice of men are killing the goose for the golden egg but too surely. A most notable instance is the *Rhytina gigas*, or Arctic sea cow, one of the most useful animals in the far North. Many a shipwrecked whaling crew has been kept alive by its flesh, and so abundant was it in the 18th century that the southeast of Behring's Island was named Cape Manati, a name it still bears, but only as a record of what was, but is not. The young ones weighed over 1,200 pounds and a full-grown one between 8,000 and 9,000 pounds, and were invaluable to the Kamtschatskans, as their fat never turned rancid, and even one was a godsend on that inhospitable shore, as every part of the creature was useful. Little more than a century elapsed from its discovery before it was extinct.

The sperm and finback whales once were so plentiful

in the ocean world that their pursuit gave employment to thousands of people. A few years ago over 900 vessels were engaged whaling from New Bedford, Mass., and the destruction of these leviathans of the deep has been so great that they are now very scarce in many seas where they were formerly abundant.

Every report from the seal fisheries brings news of the limits of the range of these valuable animals being contracted under the most relentless persecution. The still more precious sea otter is so rarely found that unless stringent laws as to their capture are made and enforced, the beautiful creatures must soon be exterminated. So it is with the fish products of the ocean. Every device that man can invent is used, not to meet the demand for wholesome food, but to sweep them in by shoals as long as they last. A case in point is the menhaden, caught in such vast numbers for rendering into oil, etc., that it is supposed bluefish and others that feed principally on them are gradually leaving us to seek elsewhere their favorite nutriment.

In bird life the same waste is and has been carried on. See the great auk and other birds, rare and beautiful, supposed to be extinct, and would be now unknown save for their record in books or a specimen in some museum. Ducks, geese, and many other wild marsh birds are scarcer every year now—once so plentiful. In England a raid was made on the blackbirds, bulfinches, and other fruit-loving birds till there was danger of their extermination. Very soon the farmer found out, when he had killed each bird he could get a shot at, that his orchards were being devastated by every kind of insect pest. It was hard for him to believe that such deplorable results could follow from killing the birds; but when convinced of it, he was only too glad to have them back, even at the cost of some of his cherries.

So it is here. The insectivorous birds are being so ruthlessly destroyed. The boys are bad enough, but every man of every nationality thinks because he has a gun (perhaps for the first time in his life) and America a free country, he is at liberty to slaughter every living thing that bears fur or feathers. See the pretty woodpeckers of so many species, how indefatigably they work on our trees, sounding step by step, and when they hear the note of warning, in goes the sharp bill till the insect is found, and they never cease till the tree is cleared. Thus they fulfill a double mission, working for their own sustenance and befriending man at the same time. Many a noble orchard has been saved by the very birds every sportsman aims to destroy. Think of the flocks of bright birds that are sacrificed yearly to the rage for feathers for ladies' hats, etc.! Land and sea shore are both laid under contribution, woods innumerable, where once the joyous notes of the varied song birds resounded, are now silent forever, and the true lover of nature feels the loss keenly, while many a fallen giant shows how insidiously its enemies have worked till it was laid low, with no little industrious friends to save it. Insect devastation is burdening the agriculturist with a load almost beyond endurance—then save the insectivorous birds. Over two millions of birds are killed annually for the milliners! Surely there are lovely flowers enough, our legitimate ornaments, and more appropriate to feminine beauty than feathers, so that the fashion for them will, I trust, die out; and it might but for the imperious Dame Fashion.

Of all created animals, I suppose the alligator is one of the most repulsive and ferocious. Every one for years that could get in a shot has fired at the huge saurian, till in some parts of the South it is becoming scarce. Yet, ugly brute as he is, he fills a not unimportant place in nature, and his loss is being felt, whether slain for his skin or mere sport. In the vicinity of the rivers and lagoons where alligators once swarmed in Florida are extensive corn fields, and these the creatures frequent for their favorite rodents that they are expert in catching. The wholesale destruction of alligators has caused the rats to infest the corn fields to such an extent that the consequences are already serious, and I see the governor of Louisiana is issuing a decree for their protection—a wise man in his day.

To leave the larger animals: Instances are occurring every year to show that even reptile life has its uses; many quite unsuspected by us, who are often willfully blind to what goes on around us, or, worse still, we allow our prejudices to warp our judgment. As a rule, the old fiat "every man's hand against them," is literally carried out, where snakes are concerned. Yet in mercy to us, thousands have been made harmless to man, and not only so, but useful to him. Let a common garter, black, or milk snake show but the tip of his tail, when he is pursued till slain, as if he were a rattler or copperhead. Yet their principal food is rats, mice, beetles, and others so destructive in the harvest fields. As all the above mentioned snakes are non-venomous, spare them by all means. I could cite fact on fact, but trust I have said enough to rouse those who have the power as well as the will to try and stop the wholesale destruction going on in all animal life, either for sport or profit, for it surely will be sooner or later followed by the gravest consequences to man, and in the near future too.