well and is, under the conditions, all that he can be confident of? I would say that neither Mr. Munro or the above authors are specially singled out for this stricture as the practice is a well nigh universal one amongst ornithological writers. It is only by calling attention to an indefensible general practice that it can be corrected.

In GENERAL NOTES, p. 100-101, W. L. McAtee under title "Further Notes on the 'Fishy' Flavor of Birds", shows that this is not caused by the eating of fish. That fish-eating birds are not necessarily fishy in flavor and many species that eat little or no fish are often so characterized. He does not doubt that the food eaten influences the flavor of the eater but regards "fishy" in this connection as a loose term for flavors that have nothing to do with fish.

Under Notes on North American Birds, pp. 81-85, H. C. Oberholser discusses the proposed reduction of our American Green-winged Teal of subspecific relationship with the European form as endorsed by the Committee of the British Ornithologist's Union. He finds that the two are separated by constant characters and show no indications of intergrading. He, therefore, decides that the two are specifically distinct as at present regarded in our Check lists. On contrary grounds he supports Hartet's contention that the American Marsh Hawk is only superficially distinct from the European bird and should stand as Circus cyaneus hudsonius. Similarly he also lumps our Short-billed Gull with the Common Gull of Europe, calling it Larus canus brachyrhynchus. He also finds that the North-west Crow hitherto regarded as a distinct species intergrades with the Western Crow which is only subspecifically distinct from the eastern bird. If this is demonstratable the North-west Crow will have to be called in future Corvus brachyrhynchos caurinus. P. A. T.

FOOD, FEEDING AND DRINKING APPLIANCES AND NESTING MATERIAL TO ATTRACT BIRDS. By Edward Howe Forbush. The Commonwealth of Massachusetts. State Department of Agriculture. Departmental Circular No. 2. September, 1918.

In an attractive little pamphlet of 31 pages, with 30 figures, drawings, and halftone illustrations, Mr. Forbush gives an interesting summary of most of the successful devices which are being used by bird-lovers to attract birds to the vicinity of their city homes and country estates. First and foremost he recommends the elimination of the house cats. As extirpation of the neighbor's felines is not always practicable, he recommends enclosure of the yard by a cat-proof fence. The only always successful fence for this purpose is a fine-meshed wire netting 6 feet high, with a fish-net suspended

from slim poles at the top. Tangles of vines and shrubbery are recommended as places of shelter and retreat for small birds.

The first and greatest need of birds, however, is food, and by judicious and systematic feeding many winter birds may be induced to come around the house and often become so tame that they will eat from the hand. Many birds' lives may also be saved by feeding at exceptional times in spring and autumn, when the weather is unusually cold or wet, or sleety, so that the birds become chilled and weakened and cannot find sufficient food. Whole grain, which can be used for human food, for farm animals or poultry, is unnecessary for small birds, but may be used for game birds. Where weeds are abundant, the smaller seed-eating birds need little else, but where weeds are kept down, or where they are covered with snow, other food should be provided. Many cultivated flowering annuals, such as asters, portulacas, California poppies, etc., bear seeds attractive to seedeating birds.

Chickadees, nuthatches, jays, and some other birds are fond of nut meats, as well as fatty bits of meat, suet, skinned carcasses of small animals, and the like. Suet should be enclosed in crocheted bags, or tied to the branches of trees to prevent greedy crows or jays from carrying off the whole piece at once. Grits, sand, broken plaster, etc., are attractive to birds as an aid to digestion, and they sometimes have difficulty in satisfying their desires for it when the ground is covered with snow. Ground-feeding birds are often necessarily fed on the ground at first to accustom them to food receptacles, but ground feeding is wasteful, the food being spoiled by rain or covered by snow and ice unless it is under cover.

A feeding shelf or table may be set at a window on the south side of the house and supplied from inside, or a moving food-shelf may be hung on a near-by tree. The birds may be watched at close range from within if the window is protected by a sash-curtain. The weather-vane food house is considered the most perfect device for outdoor feeding, and should have a hopper on top that can be filled with seed. The weather-vane food house swings with the wind and always keeps the opening away from wind and storm. Various anti-squirrel and anti-sparrow devices are recommended to those who do not care to feed English sparrows or squirrels. For instance, two pieces of suet may be suspended by a piece of string. Native birds will readily cling and feed, but the sparrows find it difficult. The method employed by Mr. W. E. Saunders, of London, Ontario, is to pour melted tallow mixed with sunflower seeds upon a flat board with a perch to which the native birds can cling, the board being fastened up in an inverted position.

In summer, shallow drinking pools, bird baths, and fountains are attractive to birds. Bird baths should preferably be placed in the shade, with no cover immediately about them to hide the approach of cats, which soon learn where the birds congregate.

To attract wild fowl, a pool, lake, or stream is necessary, but these may be made more attractive by propagating various species of wild water-plants which are eaten by such birds. Grouse are best attracted by feeding them in winter and protecting them against enemies. Nesting places, nesting material, bird-houses, and bird sleeping-places are also discussed.

Each family or group of birds has certain preferences of habitat and certain favorite foods, and Mr. Forbush gives special notes on the fancies and foibles of about forty of the more common species which are susceptible to human attentions, and the whole will repay the study of any person who enjoys the presence of birds around his home. Many of the devices and hints described, would be useful to teachers of nature study or manual training in schools where the pupils are encouraged in the building and setting up of bird-houses and refuges.

R. M. Anderson.

"Position Terrifiante" des Animaux. Siedlechi, Michel, 1919.\* Comptes Rendus, Societe de Biologie. Tome LXXXII, No. 2.

It is a well known fact that when certain animals are suddenly surprised by their enemies or by passers-by which appear dangerous, they assume extraordinary positions, which are most often called positions of combat or terrifying positions. The best common examples are those of the cat pursued by a dog, or of the corba raising up and spreading its neck. Savants have considered this attitude as a voluntary conscious action.

The object of this attitude would be to protect. Weismann mentions, Chaerocampa elpenor, a caterpillar, which he believes frightens the animals which prey on it.

My idea concerning these attitudes is that they accord with the generally admitted theories.

Certain animals such as the large spiders, Seleno-cosmia javanica, or the scorpions, Heterometrus javanicus, when they put themselves in a terrifying position present their weapons of offence (cheliceræ or venomous hooks) they place them in an easy position for attack.

Other animals behave in a totally different manner. The corba in striking its prey does not lift itself up or swell its neck. The brown mantis, Deroplatys desiccata, when it sees a lizard spreads its wings and lifts up its anterior legs, but when it

is about to capture its prey the wings remain closed and the pincer-legs are folded on the thorax.

The European mantids when they are about to fight among themselves seldom assume the terrifying position (Fabre).

The terrifying position is most often without value as a means of defence. We have seen a large lizard, Gecko verticillatus, devour a mantid without hesitation, which had assumed a terrifying position. We have also seen a mantid which was catching a caterpillar, Papilio demolion, assuming a position which resembled closely that of Chaerocampa elpenor, studied by Weismann.

Often this terrifying attitude is assumed even when the animal is not in danger. We have seen a mantis, Mantis laticollis, assume a terrifying position the minute that we lightly jarred the cage in which the animal was held captive. On the contrary, a mantis placed with a scorpion in a large container defended itself in vain with its strong anterior legs, but did not assume the attitude which is called combative.

One of the most interesting things concerning an animal which assumes a terrifying position appears to be the relation which fatigue bears to this phenomenon.

Note.—The first time we noticed the connection between the terrifying position and that of fatigue was exemplified by a large lizard, Varanus salvator, 1m40 in length, which had been brought to us in a basket by a Malayan coolie. The animal was very weak and made no resistance when we placed it in a basin. For three days he was kept there without food; and did not move when touched with a stick. He was taken out of the basin to be chloroformed, but at the moment when the laboratory helper was putting a sack over his head with the chloroform, the animal suddenly assumed a terrifying aspect. The anterior feet were lifted up, its throat swelled, its mouth was open, showing rows of teeth, the tail was lifted up rigid ready to strike and the position it assumed was certainly imposing. But despite al! this, the animal was in so feeble a condition that there was no difficulty experienced in capturing him.

The same animals, which in a full state of vigor do not assume the terrifying attitude, make use of it as soon as they become weak. We have observed the females of the large yellow spiders, *Platythomisus octomaculatus*, which after they had laid their eggs and had constructed their large cocoons upon which they rested; it was then only necessary to approach them to immediately provoke the terrifying position. Resting firmly on the cocoon with the four posterior legs, the animal extended its anterior extremities and produced with these an oscillatory movement of such rapidity that they became nearly invisible. The

<sup>\*</sup>Translated by S. Hadwen.



Anderson, Rudolph Martin. 1919. "Food, Feeding and Drinking Appliances and Nesting Material to Attract Birds." *The Ottawa naturalist* 32(9), 172–173.

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