

Mistakes of Animals Affect Evolution

By WILLIAM E. RITTER

Dr. Ritter, president of Science Service and professor emeritus of zoology of the University of California, has studied the behavior of animals as a key to understanding human activities. His book, *THE NATURAL HISTORY OF OUR CONDUCT*, has just been published.

Instinct in animals has been glorified by many naturalists. They talk of it in tones of hushed awe, as though all instinctive acts were divinely inspired and therefore could not possibly go wrong. As a matter of fact, however, many things done at the dictates of instinct are done at the wrong time, or in the wrong place, or are repeated to a senselessly unnecessary extent, so that they waste the energy of the animal; or they may even do the animal actual bodily harm. Such wasteful or harmful instinctive acts must obviously handicap the animal in its struggle for a living, and I have therefore called them "maladaptive" activities.

The woodpecker, equipped to store nuts in holes which he has pecked in trees, pecks far more holes than he ever fills, and fills far more than he or his fellows ever empty. If a woodpecker's time and his acorns are worth anything to him (and they certainly are if his life is worth anything to him) this excessiveness of activity is wasteful and may be positively harmful.

The organism tends not only to excessiveness but also to misdirection of otherwise advantageous activities. The woodpecker who stores pebbles instead of acorns has plainly chosen the wrong objects for his activity; judged as a food-storing enterprise this undertaking is a failure, however neatly the pebbles are fitted into the holes.

There are many activities which, though typically promotive of welfare, become positively subversive under some conditions, as when carried beyond a certain quantitative optimum. Eating, no matter how good the food or how much needed, may be carried to excess by any organism.

That the tendency to excessiveness of action is manifest in many kinds of monkeys and apes there appears no room for doubt. A little experimental observation of my own on a half-grown female mandrill is illustrative of one phase of excessive activity. By mid-afternoon on days when visitors were numerous the monkeys would be so "fed up" on peanuts and other things that their

need for food would be wholly gone, and their desire for it and tendency to respond positively toward it almost gone. When a peanut was offered to the individual in question she would slowly and as it seemed absent-mindedly reach through the bars for it, take it in her hand and put it into her mouth, crack it and perhaps eat a portion of the meat, casting aside the rest, or perhaps not eat any of it.

Such was her procedure when no resistance whatever was put in the way of her taking the nut offered to her. But when I held the nut where she could not quite reach it or so tightly that considerable effort on her part was necessary to get it away from me, the whole proceeding took on quite a different character. Anger was manifest in all her mien and effort, eyes flashing, teeth showing, and all arm and body movements greatly quickened and intensified. The most significant thing done under the altered state was to the nut, once it was secured. With steel-trap-like speed it was carried to the mouth, with equal force and speed smashed to bits by a single snap of the jaws and teeth, and the whole mass of fragments, meat and shell commingled, thrown away with a speed and force in keeping with all the rest of the performance. Not the slightest move to eat the nut was made in any of the many instances in which I balked her taking it. Here was a series of acts unmistakably performed originally and basically in behalf of the creature's food necessities, but in a particular situation gone through repeatedly not only without answering in the least to the original purpose, but being actually contrary to that purpose.

Instances of birds becoming extinct "at the hand of man" are only too well known. A fact which has been largely neglected by writers is that the birds themselves have contributed to their own destruction.

Hawaiian natives, birds and men, furnish an illustration. The Hawaiian goose which has undergone the remarkable change of habit of becoming entirely a land goose has at the same time adopted certain habits which make it an easy prey to the native hunters. It attaches itself so rigidly to certain localities for breeding-places that it returns to

(Just turn the page)

Washington's Death

The people who do not take care of colds have a "horrible example" confronting them in the death of the Father of his Country, according to Dr. Walter A. Wells, Washington, D. C., a specialist in disorders of the nose and throat.

Dr. Wells has just reported to the Medical Society of Virginia his findings from an analysis of the existing data on the death of Washington in the light of modern scientific knowledge. The great general undoubtedly hastened his end by not removing his wet clothes when he came home from riding over his estate in the rain at the beginning of his fatal illness. When the cold had settled in the throat, producing hoarseness, "he persisted in using his voice in reading aloud," said Dr. Wells, "thus doing the very thing that would tend to increase the congestion and intensify the inflammation of the parts particularly affected."

"All information available," continued Dr. Wells, "leads us to believe that the malady responsible for his death was an acute inflammatory edema of the larynx, an affliction which attacks the tissue lying beneath the mucous membrane." It is characterized by painful swelling of the larynx, causing great difficulty and pain in swallowing. Diphtheria, acute laryngitis and pneumonia have been reported as the cause of his death by various authorities.

At the present time with such a case, Dr. Wells explained, the operation of opening the trachea to allow the direct ingress of air to the lungs would be performed. There is a chance but not a certainty that it would save the patient's life.

Washington's physicians are not to be blamed, he said, for not performing this operation because its use in such cases did not have the indorsement of the medical authorities of the day.

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PHYSICS

Jazz Of The Spheres

Quotation from *STARS AND ATOMS*—Arthur S. Eddington—Yale University Press.

I am afraid the knockabout comedy of modern atomic physics is not very tender towards our aesthetic ideals. The stately drama of stellar evolution turns out to be more like the hairbreadth escapades on the films. The music of the spheres has a painful suggestion of—jazz.

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Mistakes and Evolution

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them year after year. This the hunters learn and take advantage of for making prey of the geese. The rigidity of habit is the more destructive to the birds in that when the young are being led around by the parents, neither old nor young being able to fly, the old because moulting and the young because not mature enough, the hunters are able to run the birds down and kill them.

Certain species of small Australian parrots (Lorikeets) have become nearly extinct. The musk lorikeets quickly betray their nest by harsh screeching, and only have to be watched for a few minutes in order to detect it.

Of another species, the purple-crowned Lorikeet, we have the following by E. B. Nicholls: "If you fire a gun or shout out loudly the whole flock dart toward the ground like a flash, and fly with amazing speed only a few feet above the grass. The aborigines, taking advantage of that peculiarity, used to build a sort of brush fence, whitewashing it with the pipeclay mixture they used in their corroborees. When the birds passed overhead, the blacks raised a great clamor, and the panic-stricken parrots, dropping to earth, flew into the brush and were caught in hundreds."

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