

Bits of Worms Like Whole Ones

Zoology

"Turning big ones into little ones" is a simple job with rocks and other inanimate objects. One simply uses a hammer or an ax. But with most living objects such a process of fragmentation is also one of destruction; the pieces are not of the same nature as the original whole, but are just dead bits. That philosophy is so elemental that we usually do not even think about it; to mention it sounds rather nonsensical.

But certain marine worms contradict it successfully, according to Prof. Wesley R. Coe of Yale University. These worms can be cut down to one ten-thousandth of the original size, and still be miniature worms, exactly like the original copy except for their diminished bulk. Except for certain limited regions, any part of the body will yield pieces that will shape themselves into new worms. Twin effects can be produced by partial lengthwise splitting. Nothing seems to hurt the astonishing creatures; in fact, they often throw off bits of tissue that do naturally what Prof. Coe's scalpel did for them in the laboratory.

Even though the piece of worm that is cut off or thrown off contains no digestive or other organs, new ones form themselves spontaneously. A head and tail end differentiate themselves, sense organs develop in the former, as much of a brain as a sea worm needs develops, and the little one is just as good as a

big one, and all it needs to do is grow—unless it decides to get a divorce from itself and start two or more new little ones.

Salamanders Keep Eyes

A quick reversal of a degenerative evolutionary process was made when the young of cave salamanders, creatures with permanently closed and useless eyes, were raised in lighted quarters and grew up with their eyes open. This experiment was reported to the American Society of Zoologists by G. K. Noble and Sarah H. Pope of the American Museum of Natural History.

Larvae of this particular species of triton have normal eyes, adults have degenerate retinas and eyelids that are fused together, except near the center, where they usually overlap. Fifty-eight young, reared in the light from 35 to 345 days after they shed their skins, still have open eyelids; 25 control animals kept in darkness show all stages in the fusion of the lids, the experimenters reported.

Apparently, the degenerative process does not always take place in nature, for one specimen has been found in nature with open eyes and retinas complete.

Oysters Mate At Long Range

Oysters, unlike many of the higher animals, do not come into direct contact during the mating process. The female discharges (*Turn to next page*)

Traces Jews' Travels by Speech

Philology

The swarming thousands of New York's East Side are not "just Jews" to the student of languages. They are a complex of race-branches, re-assembled in this American New Jerusalem, and each individual betrays in little turns of his speech, or in peculiar words he uses, the pilgrimage of his ancestors. Prof. Max A. Luria, of the College of the City of New York, has made a special study of the dialects of the Spanish Jews of his city and presented a summary of his findings before members of the American Association.

When the Spaniards reconquered their land from the Mohammedans, they expelled all the Jews as well as the Moors. These banished Jews, who have come to be known as the Sephardim, wandered into many lands in Europe and the Near East, but

never quite lost their identity, even when in close contact with their co-religionists of other races. The Spanish dialects which they still speak show close relationship to the Spanish of the twelfth and thirteenth centuries. Changes in the meanings of certain of them show Turkish influence. And in some of the words a dropped letter, or a change in the pronunciation of the final vowel sound, will tell in what town a man's ancestors lived half a thousand years ago.

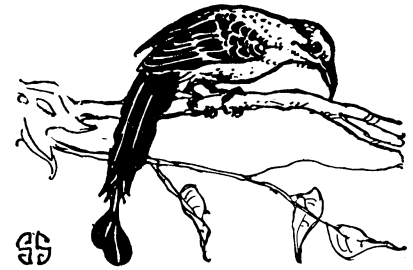
"Sheikh" Elizabethan

The ladies of Queen Elizabeth's court knew about sheikhs, for it was in that age that the Arabic word for the head man of an Arab group was introduced into English. Prof. Philip K. Hitti, of Princeton, speaking before the Lin- (*Turn to next page*)

NATURE RAMBLINGS

BY FRANK THONE

Natural History



A Feathered Prometheus

The natives of the great forests of Brazil have an interesting legend about one of their birds, a large, beautifully-colored creature known as the Juruva. The most conspicuous mark of the Juruva is its peculiar pair of long tail-feathers, very ornamental appendages, except that out near the tip there is a gap in the vane of each feather, nothing but the bare midrib connecting the broad end with the rest.

The tale, according to Dr. R. von Ihering, well-known Brazilian naturalist, is as follows: Once upon a time all the fires on the earth went out, and nobody could cook or keep himself warm any more. Only in one place, on top of a high mountain, did a few glowing coals remain, and the people down below could see that even these were growing fainter and fainter, and would soon be cold. No man could climb the mountain fast enough to reach this precious last reserve of fire before it was dead. Everyone was in despair. What could be done?

Then the Juruva, friend of man, volunteered to bring a coal, to rekindle the fires on the hearths in the valleys. Swiftly the bird flew over the treetops on the mountain slope. He reached the glowing coals on the summit. They were too hot for him to take in his beak, so he picked one up between the long feathers of his tail. Down the mountain he flew as fast as he could go, dashed into the village where the anxious people waited, and dropped his priceless burden on a heap of straw. Thus were the fires of men rekindled. But the Juruva had burned away his tail-feathers where he had held the coal, and this gap remains near the ends of the feathers in the tails of all his descendants.

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Organized, Not Organic

Philosophy of Science

WILLIAM E. RITTER and EDNA W. BAILEY, in *The Organismal Conception: Its Place in Science and Its Bearing on Philosophy* (Univ. of California Press):

Some biologists are somewhat piqued by the serious proposal made by Whitehead to call all sorts of existences, atoms and molecules not excepted, *organisms*. Some scientists are quite willing to speak, in a half-metaphysical sense, of atoms and molecules as having life, especially psychic life; but they feel it is going too far to talk about them as organisms. We share this latter feeling somewhat, but not from any sense of sacrosanctity of the term organism. It is rather a question of whether the organization of an atom has enough attributes-in-common with the defining attributes of the simplest living being to warrant admitting the atom into a class of natural objects which has been so long and usefully recognized as has that of organic nature, in contrast to inorganic nature. We have reached a stage in our interpretation of nature wherein we ought to rid ourselves of the supposition that any part of nature is really unorganized, or inorganic; but this is very different from saying we are no longer justified in distinguishing between not-living, or inanimate nature and living, or animate nature. We need to recognize that all nature is organic, but that one vast subdivision of it is composed of inanimate organic beings while another vast subdivision is composed of animate organic beings.

The biological naturalist hesitates about accepting as alive systems organized on the plan of the solar system or the atomic system until there has been discovered something more tangible than has yet been reported connecting the central bodies (sun and proton) and encircling bodies (plants and electrons); and until something resembling metabolism, reproduction, and response to stimuli is made out for these systems.

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No cases of tularemia have been found in New England or New York as yet.

An airplane route from Cairo to Jerusalem covers in less than three hours the journey which the Israelites made in forty years.

Zoological Meetings—Continued

her eggs into the water, and the male his sperm, and the myriads of their potential offspring achieve fertilization pretty much by chance as they float.

Yet in spite of this long-range wedding the presence of individuals of opposite sex produces a mutual reaction even in such lowly forms of life, Dr. Paul S. Galtsoff of the U. S. Bureau of Fisheries told the zoologists. A little quantity of the sperm will cause the female to lay eggs copiously. But after thus responding, the female will remain unresponsive to further stimulation of the same sort for several days.

Conversely, the male oyster can be induced to discharge sperm by means of adding eggs to the water flowing about him. Unlike the female, he will respond every time eggs are added.

Electrons Cause Mutations

The mutations, or sudden evolutionary changes, that can be caused by exposing living organisms to X-rays, radium and similar powerful radiations, are probably due to high-speed negatively charged electrons, or beta rays. Such rays are given off directly by radium, and arise as a result of X-ray bombardment of solid matter.

The researches on which this conclusion is based were described before the American Society of Zoologists by Dr. Frank Blair Hanson of Washington University, St. Louis.

Dr. Hanson exposed fruit flies to the action of radium, giving different sets of them varying degrees of protection behind thin lead screens. The number of mutations produced varied according to the degree of protection. Then he made measurements of the number of beta particles that got through the same set of screens, and found that these varied in exactly the same numerical proportion as the mutations. In brief, the more intense the beta-ray bombardment the more frequent the mutations.

Heart Beats Backward

The butterfly, immemorably the symbol of inconstancy, has a heart that often beats backward, Prof. John H. Gerould of Dartmouth College told the zoologists. He has dissected numbers of these insects, and has demonstrated this strange behavior many times.

The heart of an insect is in its back instead of its chest, and consists merely of an enlargement in a long blood vessel, much like the bulb in the middle of a rubber syringe tube. A beat will start at its rear end and travel forward, squeezing the blood on ahead of it. After repeating this several times, the heart will pause, and then a beat will start at the forward end, sending the blood in the opposite direction. Occasionally the beat will start in the middle, sending the blood both ways. It seems to make no difference to the butterfly.

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Philological Meetings—Continued

guistic Society of America, stated that more than 500 Arabic words have found their way into English, beginning in early times.

Camel and Saracen appear in Old English writings, he reported. In the twelfth and thirteenth centuries, English absorbed such words as admiral, assassin, rice, and saffron. In the fourteenth century came alchemy, cipher, hazard, lute, and syrup. The age of Elizabeth brought not only sheikh but gazelle, jar and tariff. And soon after came harem, jinn, lilac, and minaret.

Arabic words have usually entered English by way of the Spanish, French, or other European languages, Prof. Hitti pointed out.

Direction of Writing

Jews, Arabs and other Near Eastern peoples "write backward," according to Occidental notions, because ancient Egyptian art conventions demand emphasis of the right side-view

of the person in action. As picture-making led to picture-writing or hieroglyphics, and this was simplified into easier systems of writing in Egypt and among the nations that learned how to write from the Egyptians, the old art convention remained as a script convention.

This story of the origin of the right-to-left direction of Semitic writing systems was advanced by Prof. N. Reich of Dropsie College, Philadelphia. Only when the much more recent Indo-European alphabets were invented, Prof. Reich said, was this ancient convention abandoned in favor of the left-to-right arrangement now most widely used.

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Tests at the Mellon Institute of Industrial Research indicate that wood flooring has about as much resistance to wear and denting as marble.