

to allay the irritation caused by parasitic worms, since the two are by no means found together; they are not taken in with food, not merely because they are found in the stomachs of young seals, but in those adults that have fed on squid caught in the open sea. On page 68, Vol. III., 'Report of Fur Seal Investigation,' it says: "It is evident that these things are not swallowed haphazard, but are selected with considerable care from among the articles strewn along the shore, and that a preference is exhibited for rounded objects. This is shown by the fact that, as a rule, only articles of one kind are found in one stomach, although seals do not discriminate between fragments of barnacles and fragments of gastropods. Moreover, pebbles of serpentine and chalcedony are now and then found on the hauling grounds under conditions indicating that they were brought there by the seals, while the pup seen gathering pebbles on Lukanin did so with great care, by no means taking the first that came to hand. The most striking example of this discriminative selection is, perhaps, shown by the pup which had swallowed a buckshot, while the chance of finding such a thing must be, at a guess, about one in a million."

Furthermore, it may be said that as the fur seal regurgitates bones and other indigestible things, the supply of stones must be renewed from time to time.

That there is any connection between the presence of stones and the presence of a gizzard does not follow. F. A. LUCAS.

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ANIMALS AT ROME IN ANCIENT TIMES.

SINCE the publication in SCIENCE (No. 506) of a short article entitled 'Ancient Natural History Lore,' the attention of the writer has been called to an interesting essay on a kindred subject by Countess Cesaresco. It is to be found in the August number (1904) of the *Contemporary Review*, under the title of 'Animals at Rome,' and presents a tolerable conception of the state of natural history amongst Romans of the Augustan age.

A work that was highly popular from the third century onward, and regarded as a stand-

ard authority on zoology, though comparatively little known at the present day is Ælian's treatise on the 'Nature of Animals.' The fifteenth book contains the earliest mention in history of the use of the artificial fly, and gives particulars of other modes of fishing in vogue during the olden time.

C. R. E.

SPECIAL ARTICLES.

ORNITHOLOGICAL NOTES FROM THE NEW YORK ZOOLOGICAL PARK.

A NUMBER of common terns (*Sterna hirundo*), least terns (*Sterna antillarum*), black skimmers (*Rhynchops nigra*) and laughing gulls (*Larus atricilla*) have recently been hatched from eggs in an incubator and reared in the New York Zoological Park. The eggs were all collected on the coast of Virginia.

Some interesting observations have been made for two seasons in connection with these birds, of which certain facts possess a special value and conclusiveness on account of the absolute isolation of these young sea-birds from adults of their species.

The sight of small but entire fish excites a newly-hatched black skimmer much more than does macerated fish, but the reverse is true of the terns until after the first week. Half-boiled and macerated fish does not quite take the place of what the parents of the terns would provide, but fish regurgitated by wood ibises after being held in the crop for two hours is a perfect substitute.

All the birds which were hatched in my experiments refused salt water, for both drinking and bathing, when fresh water was provided.

The remarkable disparity in the length of the upper and lower mandibles of the black skimmer is distinctly foreshadowed in the embryo of about the beginning of the third week.

The call, flock and alarm notes of all four species are wholly instinctive; neither taught by the parents nor learned by imitation. The first class of notes are uttered at the instant when the egg-tooth pierces the shell. The utterance which I have called the *flock* note differs decidedly from the call of the young for food, and is not uttered until the bird is