

Science Series

Folkways Records FX 6124

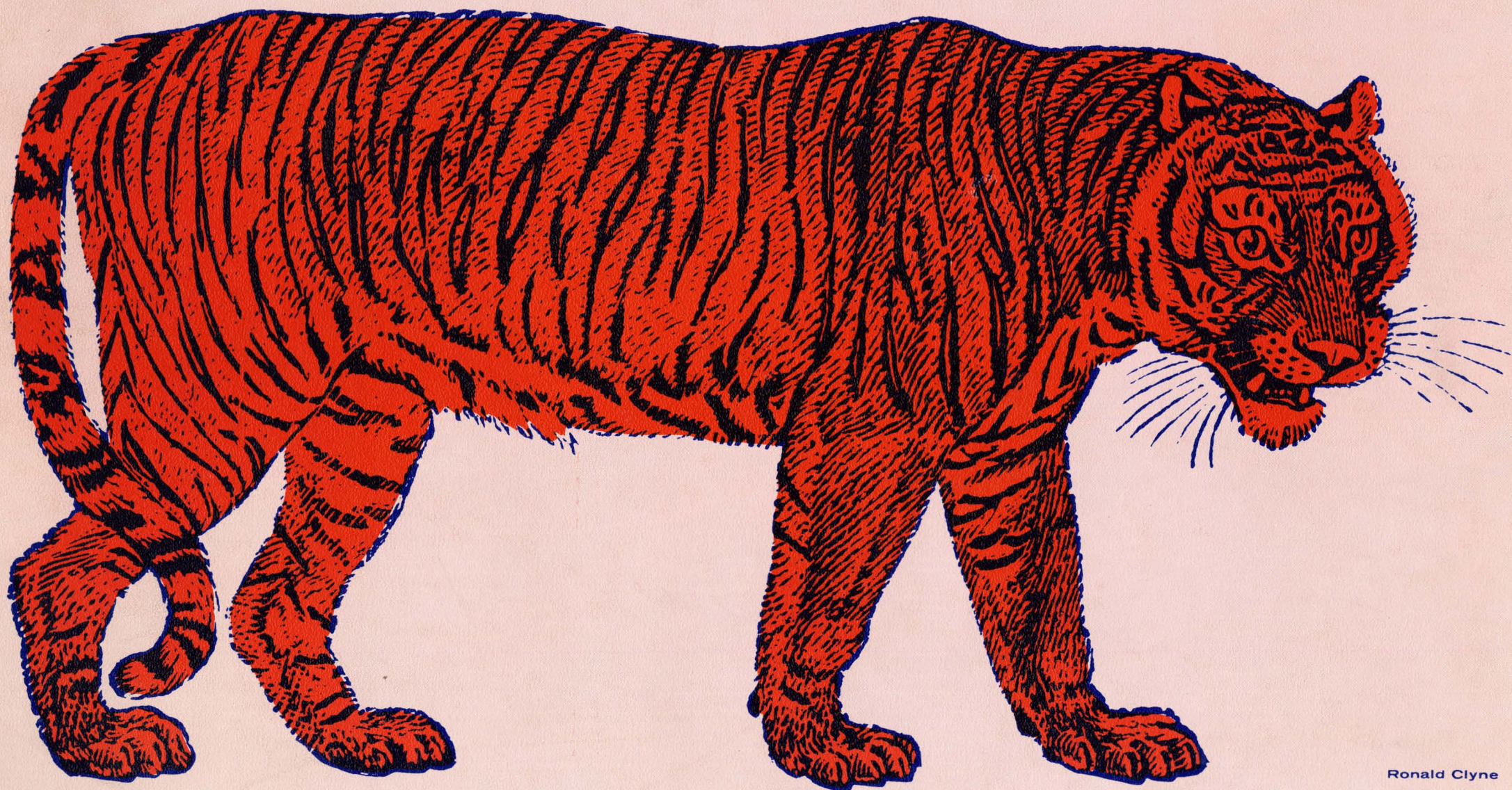
# SOUNDS OF ANIMALS

*Audible Communication of Zoo and Farm Animals*



ZOO: Puma, Lion, Indian Elephant, Rhea, Hippopotamus,  
Chimpanzee, Peccary, Rhesus Monkeys, Rhinoceros,  
Tiger: Recorded by Arthur M. Greenhall.

FARM: Chicks, Goat, Sheep: Recorded by Nicholas Collias.



Ronald Clyne





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## Introduction

A rifle shot? - No, that's the voice of an Indian Elephant.

A villain in a melodrama? - No, it's a Female Puma.

A bomb falling? - No, that's a Baby Rhea.

## TIGER

The lion's roar is easy to recognize. The **TIGER'S** voice is not as loud as the lion's but is extremely savage. Zoo Tigers generally growl and snarl at feeding time.

A keeper has given a ten-pound meat steak to a large Female Siberian Tiger. The cat is crouched over it's dinner, growling and snarling at the man who is preparing food for a puma that can be heard in the background.

## RHINOCEROS

The African Black Rhinoceros becomes restless at feeding time. Since these animals are treacherous, keepers place their hay and grain in an adjoining stall. One Male Rhinoceros usually bangs the iron door with its horns and utters a plaintive call.

## RHESUS MONKEYS

Indian Macacos or **RHESUS MONKEYS** are perhaps one of the most popular of the old-world monkeys to be seen in any zoo. They are noisy and give voice to a number of sounds under various conditions.

## RHEA

The **RHEA** or so-called American Ostrich is a large flightless South American bird. In the spring the males or cocks attack each other viciously and utter a deep booming call.

After the female Rhea lays its eggs, the male incubates them and cares for the babies.

Young Rheas follow their father and cry.....

## CHIMPANZEES

Zoo men who work with **CHIMPANZEES** can recognize individu-



als and their movements by voice alone.....  
 Several Chimpanzees await their morning meal.  
 The apes are very active, jump up and down and loudly slap  
 the sides of their enclosures with their hands and feet. Break-  
 fast consisting of milk and fruit is being served.....  
 It is amusing to hear them grunt as they peel and eat their  
 bananas and oranges.  
 Listen to what happens when the Chimpanzees are interrupted  
 while eating and their food taken away.  
 (No food.....you don't get any etc.....no food)

.....Just before feeding time they all started to whine  
 and cry for their food. As their keeper approaches with grain,  
 fruit, vegetables and bread, the tempo and cries change.....  
 Squabbles invariably arise during meal-time, but finally all the  
 monkeys are fed.  
 Chimpanzees use a variety of extremely expressive sounds.  
 There is some doubt as to whether these great apes actually have  
 the power of speech. However, one study has classified meaning-  
 ful sounds into those which have to do first with food including  
 waiting to be fed and actual eating; and secondly those sounds  
 associated with people and other creatures which include.....  
 or so-called talking among themselves.  
 A young Chimpanzee is told to sit on a chair alone. It pleads to  
 leave and tries to sidle off the seat. When not permitted to do  
 so.....



#### Scientific Eavesdropper

Arthur M. Greenhall, General Curator of the Detroit Zoological Park, originally got his recorder just for amusement, and played all the usual hidden-microphone jokes on family and friends. After a spell of this, he turned his new toy to the scientific recording of the sounds made by some of the 4,000 animals in the Detroit zoos. In case you are wondering about that odd skull on which several spools of tape recordings are lying—before Mr. Greenhall got it, it belonged to and was used by a gigantic sea turtle.

Science Illustrated Dec., 1948

During the daily play period the Chimpanzees roll and tumble on  
 the floor with their keeper..  
 Someone enters the Chimpanzee house and is greeted...  
 A keeper is teaching an ape to make a resounding good-bye kiss.  
 .....The keeper leaves the building for the day and the apes  
 sound unhappy.

#### PECCARIES

Peccaries are the American members of the swine group. They  
 resemble small dark pigs with manes which can stand up and  
 bristle when the animals are aroused. At the zoo these creatures  
 are very noisy during feeding time. A keeper opens an iron door.  
 The Peccaries start munching and chewing their meal of celery  
 and then several engage in a short argument. ....  
 Peccaries have very sharp and strong tusks in both jaws which  
 they click together rapidly when angered...

#### HIPPOPOTAMUS

The Hippopotamus on occasion gives vent to loud snorts and  
 roars. Despite its large size this animal can move rapidly.  
 This female Hippopotamus seems to delight in snorting and for



no apparent reason frequently rolls over and over in the water like a spinning log.

## PUMA

The Puma or cougar is a large cat found in North and South America. Pumas sometimes scream in a wierd and startling manner. A gentle male Puma enjoys having its head scratched and its body rubbed. The cat is pressing against the bars of the cage. After some prolonged petting on the part of the keeper, this puma responds with a variety of calls, and will frequently purr like any contented house cat.

A not so gentle female puma is the mother of two kittens. Curiously she becomes enraged at the sight of certain keepers and by yowling and spitting, voices her displeasure in no uncertain terms.....

## LION

Feeding time in the LION house is always exciting and noisy. The huge cats pace back and forth impatiently awaiting their meal...

Two keepers feed the cats. One opens a small gate in the cage with an iron bar. The second spears a piece of meat with a big fork and shoves it through the gate.

The roar of the African Lion is awe-inspiring sound and the Lion house actually trembles when all the cats roar at the same time. At the zoo the Lions can be depended upon to roar about half an hour after feeding....

## INDIAN ELEPHANT

The Indian Elephant utters a number of sounds. Some originate in the throat and others are produced by blowing air through the trunk. The famous shrill trumpet varying in sound indicates anger or want. Loud throat roar is caused by extreme anger. Low deep rumbling in the base of the trunk expresses contentment. A soft warning sound is made by rapping the tip of the trunk on the ground.....

During their daily outdoor show frequently the elephant will loudly express their resentment. When the elephants are exercised indoors their voices echo throughout the building. Some of their musical trumpets sound like rifle shots.

The SPECTROGRAPHIC analysis of Sound Signals was recorded by Nicholas Collias and Martin Joos.

The reproduction of this analysis is from a reprint of BEHAVIOUR Vol. V, 3. Published Leiden E. J. Brill, 1953.

## AT THE FARM

The following record of the voices of goats and sheep was made by N.E. Collias with the cooperation of The Cornell Behavior Farm at Cornell University in 1953.

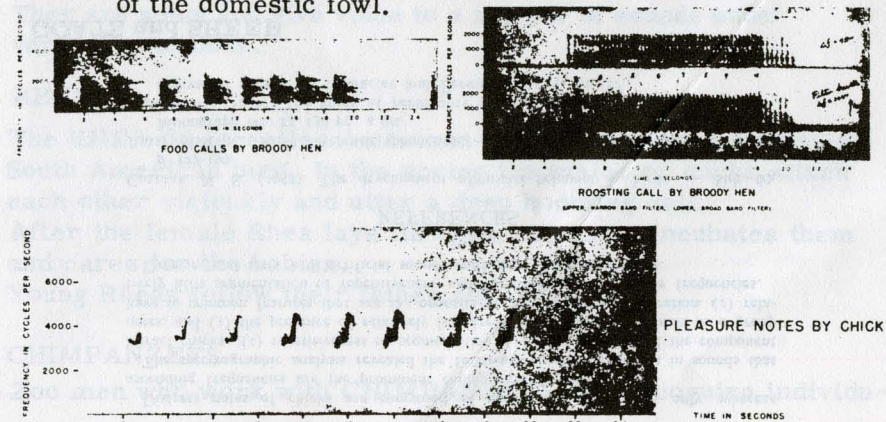
## DOMESTIC FOWL

Everyone has heard the crowing of a Rooster telling the world that he is cock of the walk, but many people do not know that chickens have many other vocalizations that have special meanings. We would like to play some of these sounds and as we play each one describe the meaning which we believe each sound or signal has for other chickens.

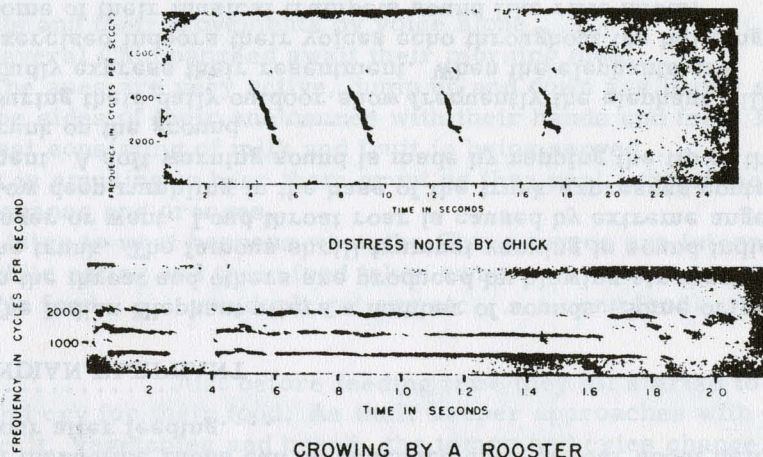
When a baby Chick is lost, cold, or hungry, it gives distress calls. When the baby Chick is returned to its companions or to the warm incubator from the cold, or is given food, it gives pleasure or contentment notes. These notes, unlike the distress calls sound quite pleasant to the human ear.

Another group of sound signals are made by mother hens to attract her Chicks. As the brooding hen walks along she keeps clucking to the chicks and this clucking means 'follow me.' When the mother hen discovers some grain or other food she scratches and pecks at the food and calls her Chicks with excited food calls and the Chicks come running from all directions.

Fig 4. spectrograms of sounds that attract baby chicks of the domestic fowl.







At night-fall the mother hen finds and settles down in a good place where she wishes to spend the night and calls her Chicks to come and be brooded, using a special roosting call that to our ears sounds like the purring of a contented cat. Chickens have various notes to express different degrees and kinds of danger. One of these warnings signifies a ground predator such as an approaching dog or man. When a hawk flies into the chicken yard the adult chickens each give a loud scream and this hawk warning causes the Chicks to run and hide at once under or next to any nearby object. However if the source of danger is not nearby or is moderate, such as a man moving some distance away, the birds may merely give less disturbed calls; thus these alerting notes by a brooding hen causes her Chicks to freeze into an attitude of intense alertness.

When a chicken is caught by a predator, for example as when a hen is held in the hand by a man, the bird gives loud fierce squawks. Two.....roosters sparring with each other keep up a low growling or grumbling as each tries to find an opening. These threat notes signify readiness to attack another bird.

In conclusion, these various recorded sounds suggest that just as man has his own special language, so chickens have their own special means of vocal communication which help them to solve their own living problems.

#### SUMMARY

A spectrographic analysis was made of the following sound signals of the domestic fowl: (a) sounds made by chicks, including distress calls, pleasure notes and fear trills; (b) sounds made by broody hens that serve to attract chicks, including clucking, food calls, and the roosting call; and, (c) warning signals, including the alarm call for aerial predators, the alarm call for ground predators, the alerting call of a broody hen, fear squawks of a hen held in the hand, threat sounds of cocks, and crowing of a rooster.

Distress notes of chicks are composed of descending frequencies only, whereas ascending frequencies are the prominent component of pleasure notes.

The spectrographic analysis revealed the following common elements in sounds that attract chicks: (1) repetitiveness or segmentation, (2) brief duration of the component notes, and (3) the presence of relatively low frequencies. Warning signals as a group have in common features that are the opposite: (1) relatively long duration, (2) relatively little segmentation or repetitiveness, and (3) absence of very low frequencies.

Experimental tests with artificial sounds confirmed these conclusions.

#### REFERENCES

- COLLIAS, N. E. (1952). The development of social behavior in birds. — *Auk*, 69, p. 127-159.  
 JOOS, MARTIN (1948). Acoustic phonetics. — *Language* (Supplement), *Language* Monograph No. 23, 136 pp., 4 pls.  
 KLÜVER, H. (1936). The study of personality and the method of equivalent and non-equivalent stimuli. — *Character and Personality*, 5, p. 91-112.

#### GOATS and SHEEP

Goats and sheep have a number of vocalizations that serve as a means of communication. Some examples will be given of these vocal signals which have been recorded on magnetic tape. Goats have a warning call against predators; for example, mother Goats may snort on smelling or seeing dogs. When a kid is separated from its mother, the kid gives distress calls. These are high-pitched and prolonged cries. A mother Goat separated from her kid bleats in distress. These calls are high-pitched relatively prolonged notes. When a kid is returned to its mother, she shifts to a lower-pitched attraction call. A lamb separated from its mother gives high, prolonged distress calls. When a ewe is separated from her lamb she calls her characteristic Baaaaa and when her lamb is returned she shifts to a lower-pitched gurgling note.

The mother of a new-born lamb calls repeatedly in the low gurgling voice that apparently attracts the lamb. A mother Goat with a new-born kid gives low segmented calls repeatedly and these calls apparently attract the kid. Billy-Goat gives a rolling sex-call as he approaches and comes next to a female in heat. He does some snorting as well. A rival male approaches the same oestrus female. The Billy-Goat moans loudly and attacks his rival. Goats may give low, relatively prolonged threat sounds just before driving competitors from a food supply. Threat sounds are interspersed with thrashing of horns. It may be remarked that Sheep also give the rolling sex-call and threat sounds and in quite similar form to these sounds as given by goats.

In conclusion, these various recorded sounds help illustrate some of the functions and similarities of vocal communication among goats and sheep.



SIDE I AT THE ZOO

Recorded and Narrated by Arthur Greenhall  
at the Detroit Zoological Park

Band 1: INTRODUCTION and TIGER

Band 2: RHINOCEROS

Band 3: RHESUS MONKEYS

Band 4: RHEA

Band 5: CHIMPANZEE

Band 6: PECCARY

Band 7: HIPPOPOTAMUS

Band 8: PUMA

Band 9: LION

Band 10: INDIAN ELEPHANT

SIDE II AT THE FARM

Recorded and Narrated by Nicholas E. Collias

Band 1: DOMESTIC FOWL

(Sound Signals of the Chick)

Band 2: GOATS and SHEEP

# SOUNDS OF ANIMALS

DESCRIPTIVE NOTES ARE INSIDE POCKET

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