Poultry Patter

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THE RESPIRATORY SYSTEM OF THE BIRD

Roger Fedde
Assistant Professor
Departments of Poultry Science and
Veterinary Anatomy

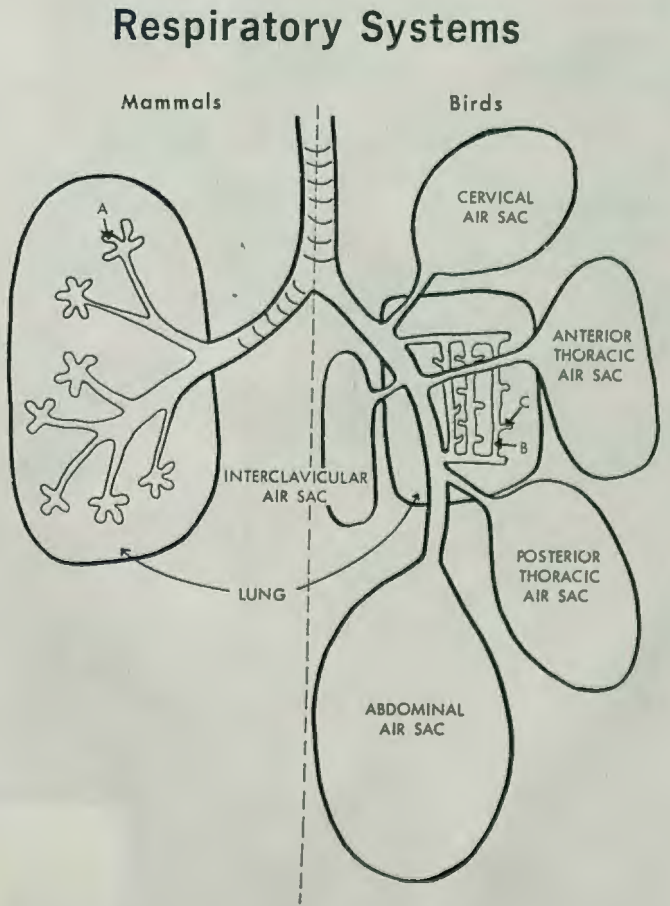
In order to diagnose many of the common diseases of the respiratory system, such as chronic respiratory disease (CRD) or laryngotracheitis, it is important to have an understanding of the structure of the respiratory system of the bird.

A schematized diagram of the respiratory systems of mammals, such as dogs, horses, or man; and birds, such as sparrows, chickens, or turkeys, is shown below. When mammals or birds inhale, air enters their nostrils and passes into their trachea or windpipe. From this point the systems differ markedly.

In mammals the lungs are highly elastic and expand greatly upon inhalation. Air enters the lungs and fills millions of tiny blind sacs called alveoli (labeled A). Here the oxygen of the air is transmitted to the blood and the carbon dioxide of the blood is transmitted to the air. Upon exhalation the lungs contract and squeeze the air from these tiny sacs back out the windpipe to the atmosphere.

The lungs of birds, on the other hand, are rigid and do not expand or contract upon breathing. They are composed of many tiny tubes which are in parallel (labeled B). The exchange of oxygen and carbon dioxide between the air and blood occurs in the very tiny outpocketings from these tubes (labeled C); as air enters the lungs it passes through these tubes and outpocketings but then continues on to fill the large, thin-walled air sacs. These air sacs fill every available space inside the body, including the interior of some bones.

The respiratory system of birds is somewhat similar to a fireplace bellows. The windpipe is the neck of the bellows. The lungs are located between the neck



and the large bellows, and the air sacs are the bellows. When the bellows are expanded, air is forced into them through the neck (windpipe) and through the junction between the neck and the bellows (lungs), and into the bellows (air sacs). When the bellows are closed, air is squeezed out of them again through the junction of the bellows and neck (lungs) and out the neck (windpipe) to the atmosphere.

Thus, when the bird inhales, air enters the windpipe and passes through the lungs into the air sacs. When the bird exhales, the abdominal muscles squeeze air from the air sacs back through the lungs and out the windpipe. Air thus passes through the lungs twice with each breath, once during inhalation, and again during exhalation. This fact partially accounts for the very efficient respiratory system of birds.

Since the entire quantity of air in the air sacs is not removed with each breath, an excellent environment exists for certain disease-producing organisms. So it is very important that the birds have fresh, clean air to breathe at all times. This means that poultry houses must have adequate ventilation in order to remove excess moisture and ammonia from the litter.

The respiratory system of birds is an extremely extensive system. Even though the lungs themselves are small and rigid, the air sacs extend throughout the body, filling every available space within the body cavity. This system provides an important avenue for excess body heat loss. It is a common sight to see birds pant in hot weather. This is one of their methods for keeping cool during the hot summer months.

In examining birds for signs of CRD, it is common to open the body cavity and examine the interior of the large abdominal air sacs. If the bird is diseased, a cheezy material may be present. In severe disease conditions one sometimes can just shake a bird and hear fluid slopping around inside the air sacs. It is within the air sacs that one often finds positive proof for the occurrence of CRD and other diseases of the respiratory system.

To prevent stress and disease in your laying flock, be sure that they have access to clean fresh air at all times.

EGG COOKING CONTEST

Minnesota had the largest number of entries in the National Egg Cooking Contest. We want to congratulate you for helping make this contest a success.

Five area cook-off's will be held at the following locations: Duluth, Alexandria, Mankato, Rochester, and Minneapolis. The state contest will be held during the Minnesota State Fair.

Next year we hope to have an even bigger and better contest.

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University of Minnesota
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