

grown enormously in recent times, and when the resulting complexities are presented in a text-book, the necessary consequence is that more and more this takes on the form of an encyclopedia or dictionary. Yet it can not be said that any of the items are unimportant. It seems to me that from a pedagogical standpoint we shall be compelled, in beginning courses, to eliminate many of the topics, and treat the rest more fully and interestingly. By so doing we may create an enthusiasm for the subject and produce a far more permanent impression than is derived from a multitude of half-understood facts memorized for the examination.

T. D. A. COCKERELL

UNIVERSITY OF COLORADO

MALFORMED LEG BONES IN YOUNG CHICKENS

A CONDITION in young growing chickens referred to by different ones as leg weakness, rickets, enlarged hock joints, slipped tendons and malformed leg bones has become serious in many sections of the country. The condition is aggravated by intensive methods of production such as confinement in small runways and storage brooders where exercise is limited.

This deformity differs from rickets since it develops in the presence of vitamin D and a well-balanced min-

eral mixture. Between the ages of three and six weeks the hock becomes enlarged, probably on account of edema and slight hemorrhages usually found in the tissue surrounding the joints. The gastrocnemius or main tendon which extends the foot and flexes the leg occasionally slips from the condyles which hold it in place. This may be responsible for the stiffening and malposition of the leg below the hock joint as found in advanced cases. Either or both the femur and tibia may become enlarged or develop marked curvature and one or both legs may be involved. The legs may bow out, curve in or take on other unusual shapes.

The number of chicks affected in a flock has been observed to vary from 1 to 60 per cent. The trouble has not been confined to any group of conditions. It may be found in both slow and rapidly growing chicks, with all-mash or with grain and mash rations, on wire and board bottom runways and with high and low mineral content in the rations.

The departments of poultry husbandry, chemistry and pathology at the Kansas Agricultural Experiment Station are now working together in a cooperative experiment to find if possible the cause of this trouble.

LOYAL F. PAYNE

KANSAS STATE AGRICULTURAL COLLEGE

QUOTATIONS

ELMER A. SPERRY

"THE lot of every one of us," wrote Horace, "is tossing about in the urn, destined sooner or later to come forth and place us in Charon's boat for everlasting exile." This time the lot has come forth for one whose going the whole planet will regret. A passenger on the high seas, remembering the fate of Palinurus, wrote of this great inventor whose mechanical helmsman, called familiarly the "Metal Mike," now guides great ships to their desired havens:

Now is old Palinurus' occupation gone;

It has been taken o'er by one named Sperry

Who has installed a "Metal Mike" instead—

He'll soon be putting one on Charon's ferry.

Unhappily for us who still remain this side the River of Woe, Mr. Sperry has gone to his "aeternum exsiliium," but he has left among men an everlasting fame, and imagination allows one to think of his inventive spirit making suggestions to the ferryman about improving service in the crossing for the benefit of those who have to take it later. For Mr. Sperry was ever thinking of how he might make the dwellers on earth a little more at ease whether on sea or land or in the air. For those who travel by sea he provided

not only the pilot, who whatever betides holds his rudder true, but also a "stabilizer" to prevent the rolling of the ship and a device for signaling to prevent collisions. For those who travel by air he has helped to maintain the equilibrium of their planes and to lessen the peril of fire and to penetrate the fog. Towards the end of his long series of inventions he perfected an instrument for detecting the slightest imperfection in a steel rail.

What his born genius for invention would have done for a slower-going civilization one cannot imagine, so closely has it been associated with the swifter agents of this mobile age. He would have been put among the Titans in the ancient Greek age. But with all his seemingly miraculous achievements, he who harnessed the motion of the earth to do his bidding was a gentle human being, generous in his sympathies and beloved in his own person. America, claiming him for her own and proud of his contributions, which were recognized by the highest honor bestowed by his own profession in his own country, remembers with special satisfaction that he was acclaimed by his fellow-engineers of the world, when he presided at the International Congress of Electrical Engineers in Japan last year.—*The New York Times*.