

The

POULTRY

HEALTH

Messenger



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Coccidiosis and Pox Number



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TABLE of CONTENTS

WHAT A PREVENTION PROGRAM HAS ACCOMPLISHED	3
<i>W. S. Wilson, Berlin, Wis.</i>	
WAR ON COCCIDIOSIS STILL GOES ON.....	4
THE TROUBLE SHOOTER.....	6
<i>William Herbert Rice</i>	
COURAGE AND DETERMINATION.....	7
<i>Mrs. Alvana Bernard</i>	
LOOKING IN ON COCCIDIOSIS.....	8-9
POX HAS HAD ITS DAY.....	10
LABORATORY DIAGNOSIS.....	12
HEALTHIER BIRDS AND MORE EGGS.....	13

WHEN YOU MOVE



don't forget to tell us about your new address. We want you to have an unbroken file of the POULTRY HEALTH MESSENGERS so your library on Poultry Diseases will be complete and up to the minute.

Just a postcard with the old and the new address will do. Thank you!

Progress in Medical Science

A noted doctor once declared that real progress in medical science advances as the oak grows. Sound progress must be slow because we deal with individuals among whom there are no two exactly alike. New theories, before they can be accepted as facts, must be based on conclusions reached from a large number of cases considered over a long period of time. After that they stand for all time like a sturdy oak and are not quickly supplanted by newer ideas.

But there are fads and fashions in medicine the same as in dress. They spring up and dazzle for a while, then die like poppies. The real achievements in medicine could be chronicled in a very modest volume. It would take a whole library to tell about medical practice based only on theory and speculation. In literature and in music we have creations that are popular today and forgotten tomorrow. Among the millions of books and musical scores published, only a very small percent stand the test of time. But those that do survive remain forever and that is the real test of true worth. It is the same with medical knowledge and practice. Once definite conclusions have been reached through adequate scientific research, these truths remain for all time. On the other hand medical practices that change from year to year are nothing but fads and fancies that have no scientific value.

Whenever a new treatment is being hailed either for human beings or for poultry and other live stock, investigate carefully to make sure of the standing and reputation of those who advocate the new idea. Find out also if it is based on adequate scientific research and if it is generally accepted as sound and economical practice. Poultry raisers cannot afford to experiment with a passing fancy.

A Friend in Need

Have you ever stopped to think that 95% of the failures in the poultry business are caused by poultry diseases?

People do not quit the poultry business when their hens are laying and doing well. They quit when they become discouraged because disease has taken a foothold and is causing tremendous losses.

The most modern houses, expensive equipment, elaborate yards and the finest pedigreed stock will not mean anything when disease takes a foothold. Therefore a sound, fundamental knowledge of disease prevention and sanitation is absolutely essential to success with poultry. To be successful a poultry raiser must be able to recognize the first symptoms of disease and know what to do for the ailment.

A prominent hatcheryman hit the nail on the head when he wrote me not long ago, "There is no time a poultryman needs a friend more than when there is something undermining his flock and he is powerless to analyze the trouble." If you could sit here at my desk with me and read the daily stack of letters from poultrymen in trouble appealing for help and information, you could understand why I decided to publish the POULTRY HEALTH MESSENGER.

Readers are also invited to consult with our experts and they may send birds to our laboratory for special diagnosis. Highly trained field service men are at your disposal whenever you need personal help. All of this service is free and you are welcome to use it. And don't forget that your local dealer whose name appears on the back cover is always willing and able to give you first aid.

Dr. J. E. Salsbury

President,
Dr. Salsbury's
Laboratories.

What A Prevention Program Has Accomplished

An Interview with Albert Wishlinski

By W. S. WILSON, Berlin, Wis.

ONE of the outstanding poultry establishments of Wisconsin is the Nor-Wish Hatchery of Berlin which is owned by Mr. and Mrs. Albert Wishlinski. Their success is due largely to their progressive policies and sound management, outward evidences of which are their modern buildings and equipment and their fine poultry flocks. Approximately 4,000 chicks are raised each season and 1,500 breeding birds are kept on their own place to supply eggs for their hatchery.

The Wishlinski's however, credit a large share of their success to the adoption of a definite and complete disease prevention program. Not long ago I had a pleasant visit with them arranged largely for the purpose of getting their experience with the prevention program.

A few pertinent questions were asked of Mr. Wishlinski, and these together with Mr. Wishlinski's answers are given herewith in the hope that they will inspire others to follow the same successful program.

Ques. "Mr. Wishlinski, why did you employ a Disease Prevention Program in your business?"

Ans. "Because I realized that in order to get the birds to do their best and produce the most profit for me they must be in good health. This applies to birds of all ages, from day old on through to maturity. Each chick inherits a certain amount of vitality or body resistance from the hen through the egg. This natural resistance must be safeguarded against the ravages of disease. Sanitation is necessary, but apparently it doesn't seem sufficient to maintain the health of the chick against the odds that it must face, because of the highly artificial methods of rearing and brooding that are practiced today."

Ques. "How did you use your Prevention Program?"

Ans. "First we provided proper brooding quarters, uniform heat and moisture in the brooder house, proper ventilation, clean equipment, and a well balanced commercial chick ration. Then we added 1 pound of Avi-Tone to every 100 pounds of starting mash for the first 6 weeks. We also dissolved 2 Phen-O-Sal tablets in each gallon of drinking water during the same period. This assisted the chicks in assimilating and digesting the feed and maintaining the natural body resistance, which resulted in better growth and development.

"When the chicks (Pure bred White Leghorns) were 8 weeks of age, we used the 5 day treatment of Avi-Tabs (using 10 tablets to each 100 birds) in a moist mash the

He Knows Where-of He Speaks

At the Salsbury Poultry Short Course held in Charles City, Iowa, last fall one of the outstanding numbers on the program was a talk by Mr. Albert Wishlinski, who with Mrs. Wishlinski own the Nor-Wish Hatchery at Berlin, Wis. He held the audience spell-bound and almost stirred his listeners to tears when he pictured to them all of the troubles and difficulties he encountered until he heard about Dr. Salsbury's Complete Prevention Program. From then on it was a different story; disappointments and discouragements which even threatened failure gave way to success. Today Mr. and Mrs. Wishlinski are proud of their hatchery business which is one of the most flourishing in the state. They credit a large part of their success to the adoption of a definite disease prevention program which was first called to their attention by W. S. Wilson, state manager for the Salsbury Laboratories, whose interview with the Wishlinski's is published on this page.

We are told that Mr. Wishlinski is the first one in Wisconsin to qualify for R. O. P. work on first attempt and the first year's trial. Congratulations Al.

first thing in the morning. During the same period we used 4 Phen-O-Sal tablets to every gallon of drinking water. At this age we separated the cockerels from the pullets. The pullets were transferred to range houses that accommodated 150 birds each. The cockerels were fattened and at nine weeks of age, when marketed, weighed an average of 2 lbs. and 2 ounces each. I attribute part of this rapid development to the fact that the Phen-O-Sal and Avi-Tabs assisted in the control of coccidiosis and worms, and maintained a keen appetite.

"At twelve weeks of age the pullets were given another 5 day treatment, in the same proportions as above.

"From then on they received a 5 day treatment, the first five days of each month, of 20 Avi-Tabs per 100 birds and 4 Phen-O-Sal tablets to every gallon of water the same days."

Ques. "What did the Prevention Program cost per bird?"

Ans. "With the cockerels the cost was approximately 2c per bird. It cost me approximately 7c per bird for the pullets from the time they were hatched until they were housed in their laying quarters at 5 months of age."

Ques. "Do you consider a Prevention Program cheaper than a cure?"

Ans. "Yes. I contend that it is cheaper to prevent than to cure a disease. When worms, coccidiosis and possibly paralysis develop in growing birds the cost of the remedy is not all of the cost. You must consider death losses, loss of body weight, uneven development, weakened vitality, wasted feed, extra disinfection and more labor as additional costs. And last but not least, the cost of personal discouragement and heart-aches cannot be measured in dollars and cents. In case of disease we pay for the Prevention Program whether we use it or not. Personally, I would rather not take the chance of allowing disease to develop. We are in the poultry business to make money and find that an ounce of prevention is worth a pound of cure. We have our own dollars in the business and find that the Prevention Program is good insurance in safeguarding our investment."

Ques. "What have been your results with this Program?"

Ans. "We have had less death losses, more uniform growth, a more rapid development, and we have raised more pounds of chicken on less pounds of feed. The beautiful appearance of our pullets, well matured and healthy when housed, and sixty-six and two-thirds per cent production the day they were 6 months old gave evidence that the Prevention Program is worth while and had accomplished its purpose."

The War on Coccidiosis Still Goes On

As the spring rains and warm weather approach poultrymen everywhere begin to feel concerned about coccidiosis. This disease usually takes its toll when chicks are from six to twelve weeks of age and just at a time when they are out of the baby chickhood diseases. The acute form of coccidiosis which causes chicks to die quickly and in large numbers is chiefly seasonal. It begins early in the south and gradually moves northward with the spring weather. As the rains cease and hot summer winds come coccidia find less favorable places for development.

Chicks afflicted with coccidiosis look very sick. Their wings droop, the feathers are ruffled, the eyes become pale and sleepy. The droppings are yellow, watery or even bloody. The chicks may die suddenly or they may linger on for a few days and become thin.

If you open a bird that has died you will find the ceca (seka) or blind pouches full of hard cheesy or crumbly matter either yellow or red. Sometimes there are spots on the liver.

Coccidiosis is caused by specific parasite germs known as coccidia. They live in the soil during the winter and are ready to multiply as soon as warm weather and spring rains appear. It may also be transmitted by chickens who have had the disease and recovered.

SIX SPECIES OF COCCIDIA

Six distinct types of coccidia have been recognized. Each one acts differently on the intestines and produces its own type of symptoms. You will undoubtedly be interested to know the names of the six cousins and just what each one does. **FIRST: *Eimeria tenella*.** Chiefly produces hemorrhages (blood) in the ceca. This is the most fatal specie of coccidia. Under average conditions 84% of the affected untreated chicks die. **SECOND: *Eimeria mitis*.** This, the smallest specie of coccidia, lives in the upper portion of the small intestines and is the least harmful of the whole group. **THIRD: *Eimeria acervulina*.** This specie causes a great deal of intestinal disturbance. White spots or patches appear in the upper part of the intestinal tract. The droppings have a tendency to become chalky. It produces a chronic paralysis, leg-weakness and emaciation in the chicken. **FOURTH: *Eimeria maxima*.** Under the microscope this specie appears more egg-shaped than the other three. This type is found most frequently in the middle portions of the small intestines. It often produces hemorrhages. Birds become pale, feathers become ruffled, the droppings are chalky and tinged with blood. This is often found in the chronic or lingering type of coccidiosis. **FIFTH: *Eimeria necatrix*.** This is the type that produces white or red spots on the intestines that may be seen clear through the wall. As a result of this infection the intestine may become quite fragile and break easily when examined. Actual hemorrhage takes place inside the tissues. This type is often responsible for chronic coccidiosis. **SIXTH: *Eimeria praecox*.** This is a comparatively newly discovered specie and so far is thought to be relatively unimportant and short lived.

HOW COCCIDIOSIS IS SPREAD

The chief method of spreading coccidiosis is through the infected soil. Droppings from birds that have partly recovered from an attack or those affected with the disease contain a great many spores of the coccidia germs. When these spores get into soil that has the proper warmth and moisture they go through a period of development or hatching. In about three to five days a chicken comes along and picks at feed scattered on the infected soil, at bugs, worms, etc., and with each mouthful gets a large number of properly incubated coccidia germs. These germs develop further and attack the lining of the

Complete illustrations showing how coccidia attack the intestines appear on pages 8 and 9. Study them in connection with this article.

intestines to the extent that the surface becomes raw and actual bleeding takes place. Some species of coccidia penetrate deeper than the others. That is why some produce more blood than other types. The species of coccidia that do not attack so deeply produce a watery diarrhea.

Coccidiosis may be spread from one bird to another by infected material carried on shoes, by dogs, equipment, high winds, etc. It is more likely that infection is spread onto clean premises in this way rather than

through the eggs set in incubators. There is no evidence to show that coccidiosis can be transmitted through the incubator. Newly hatched chicks are free from coccidiosis.

IMMUNITY FROM COCCIDIOSIS

If chicks can be infected with a few coccidia germs and this can be done gradually so that the chick will not become sick enough to die, a marked immunity can be developed. Two of the coccidia, the *mitis* and the *acervulina*, develop a rather superficial immunity but the *tenella* and the *maxima* develop a pronounced immunity that is quite lasting.

The variation in the death rate, susceptibility, recovery, etc., often observed when chicks are affected with coccidiosis is due to the difference in the species of coccidia that cause the trouble.

CHRONIC COCCIDIOSIS

Chronic coccidiosis is the slow and lingering form of the disease in which the bird is gradually being overcome by the irritation set up by coccidia in the intestines and possibly by the poison produced. This poison may act on the nerves to cause lameness and paralysis or it may act on the muscles so that the birds become thin and emaciated. Usually there is diarrhea which becomes very fetid in character and the bird wastes away.

POST MORTEM FINDINGS

In young chicks the contents of the ceca or blind pouches are either watery or hardened. The hardened, cheesy material sticks closely to the bowel lining. Brownish, watery material in the ceca containing gas bubbles indicates coccidiosis. Sometimes the contents are semi-solid or chocolate-like in color due to the presence of blood.

In older birds the seat of infection is more often in that part of the intestines which is just back of the gizzard. Here the intestinal lining is greatly thickened and may be bloody or have white patches implanted in the intestinal wall.

TREATMENT

For a great many years people have for the want of anything better recommended milk for coccidiosis. Everyone that has observed chickens at all has seen plenty of coccidiosis in flocks that have been given lots of milk, and, therefore, one cannot become very enthusiastic about this method of treatment.

Very recently Dr. Tyzzer of Harvard University, who is an authority on intestinal diseases of this sort, has found by experimentation that rations high in milk content or milk sugar were not at all effective in preventing coccidiosis. He also makes the statement that coccidia develop normally in the most acid part of the bowel and, therefore, the theory that acid produced by the milk hinders the development of coccidia is not supported by Dr. Tyzzer's findings. The benefit derived from the feeding of milk is no doubt due to the fact that milk provides an easily-digested nourishment for the chick at a time when the intestinal tract is badly inflamed and cannot digest the coarser foods. Intestinal treatment to help heal the inflamed tissues and to remove the coccidia is highly necessary and has been found very effective. (See pages 8 and 9 of this issue.)

Here is what to do for coccidiosis.

If one has plenty of liquid milk, feed all the chicks will

drink. Add eight Phen-O-Sal Tablets to every gallon of drinking water and milk, keeping this before the chicks all the time. Feed as usual up to 9:00 a. m. Then take all feed away until about 5:00 p. m. Then give a light evening feed of grain and mash. Taking the feed away for six or eight hours during the day gives the PHEN-O-SAL a chance to penetrate and heal the diseased tissues of the intestines. Continue this treatment for four to five days, then get back onto the regular feeding schedule and gradually reduce the dosage of Phen-O-Sal. Continue to use the Phen-O-Sal for one or two weeks. Give a treatment of Phen-O-Sal in the drinking water for two or three days every month during the summer and fall.

This treatment is cheaper than the "milk flush," is much easier on the chicks, straightens them out quicker and what is most important of all, heals the intestines so there is much less chance of the disease running into the chronic form. In case one does not have an abundance of liquid milk, add 10 to 15% of dried milk to the mash. This quantity, in connection with the treatment recommended above, is more efficient than a larger amount.

TREATING THE LITTER

For a long time it has been observed that best results were obtained when good antiseptic sprays were used in connection with treatment for coccidiosis. Consequently we have always advocated the regular use of disinfectants.

It has been found recently that oily sprays are more satisfactory against coccidiosis than watery sprays. A cheap and perfectly satisfactory treatment for the litter is made by diluting the regular Mite Death Disinfectant with distillate instead of water. Use one part of the Disinfectant to three parts of distillate or kerosene and you have a most excellent and economical spray for treating the litter of the house and runs that will materially aid in keeping down the development of coccidia and worm eggs. Spray liberally every week during the growing period.

Coccidiosis is a disease that must be attacked from every possible angle and no one method can be depended upon to do it all. The combined effects of Disinfectant sprays, intestinal medication and nutritious feed all help in combating this serious trouble.

EXTERNAL TEMPERATURE AS A FACTOR IN THE PRODUCTION OF DIARRHEA IN YOUNG CHICKENS. G. E. Hall. (Poultry Sci., 11 (1932) No. 4, pp. 250-254.)—In working at the University of Toronto with 8 groups, the author found that "Diarrhea can be produced experimentally in baby chicks by exposure to moderate changes in temperature. The gastrointestinal tract of young chickens is more readily affected by changes in temperature than the respiratory tract. It appears that sudden increase in temperature is as detrimental in its effect as a decrease. The chicks under observation for ten weeks showed that though the exposure to the change of temperature was not always fatal, there was a serious disturbance in the metabolism which resulted in subnormal development."—E. S. R.

OILY SPRAYS FOR COCCIDIOSIS

We have repeatedly pointed out that watery sprays are best for killing bacteria and oily sprays for killing mites and lice. It has recently been definitely shown that coccidia and worm eggs are more easily killed by oily disinfectants than watery solutions.

The best and most economical method of disinfecting the litter is to spray with a mixture of one part Dr. Salsbury's Mite Death Disinfectant and three parts of kerosene or distillate. This kills red mites, worm eggs, coccidia and many disease germs that are spread by contaminated litter. It is effective and very inexpensive. For killing bacterial disease germs use Mite Death Disinfectant diluted with water but for other uses dilute it with distillate or light oils.

...for Growing Chicks

Whenever there is the least sign of bowel trouble use

Dr. Salsbury's

PHEN-O-SAL

In The Drinking Water



When chicks have yellow, bloody or watery droppings, huddle in groups and act sleepy and when the wings are droopy and they have lost their appetite, it is a matter of bowel trouble. Use 8 Phen-O-Sal tablets to every gallon of drinking water. You can depend upon Phen-O-Sal because it consists of pure and active medicines which when taken into the system retain their full healing properties without waste. You get all the benefit of the medicine that you pay for.

Dependable—Satisfactory

Prices

50 tablets.....	\$.50	300 tablets.....	\$2.00
125 tablets.....	1.00	500 tablets.....	3.00
	1000 tablets.....		\$5.50

Use Cam-Pho-Sal Spray if there is gasping for breath and also treat the litter with Mite Death Disinfectant. It is the combined attack from every angle that gets the quickest results.

Gasping for breath: Sneezing:
Secretions in the nose in
chicks of any age:

SPRAY with Dr. Salsbury's

CAM-PHO-SAL



Poultry raisers from coast to coast have found CAM-PHO-SAL the ideal treatment for alleviating bronchial troubles. At the first sign of trouble start spraying Cam-Pho-Sal according to directions on the package.

**A Powerful
Antiseptic**

Cam-Pho-Sal is a powerful, highly concentrated preparation of antiseptics and soothing oils. Used for individual treatment of the nose and throat as well as for antiseptic spraying. It will pay you to keep a bottle on hand at all times. Spray a little on the chicks every night as a precautionary measure.

Prices

4 oz. bottle makes 2½ quarts of spray.....	\$1.00
8 oz. bottle makes 5 quarts of spray.....	1.50
16 oz. bottle makes 2½ gallons of spray.....	2.50

The Trouble Shooter

By WILLIAM HERBERT RICE



LITTLE MRS. MORRISON, the storekeeper's wife was telephoning. Suddenly, she covered the mouthpiece. "Jeff!" she giggled, to her husband, "It's Pop Wilkens—You know, the old party out the Black Stump road, who bought the Watson flock, last fall. He says, every day lately, he's finding his chickens lying cold and stiff, and he wonders if you know what ails them?"

"Tell him they're—dead," grinned Jeff.

"They're dead," obediently repeated his wife. "Yes—yes—He'll be right over."

Pop Wilkens, wirey, weatherbeaten, and worried, welcomed Jeff effusively when he drove up to the barn. "Mighty glad to see you, Mister—Mister Morrison's your name, ain't it?"

"Right."

"You're th' man who sells them top-notch chicken medicines of Doc—Doc—What's-his-name?"

"Dr. Salsbury, you mean. Sure, I sell them—and how! Suppose you've read of his remedies in your poultry papers, eh?"

"Poultry papers? Gosh, no! My chickens can't read. Tell you how it was," he explained. "When I was dick-erin' for th' Watson flock, I sorta balked—told 'em I'd raised hens, plenty, but didn't like to chance fancy stock. Well, they sez, 'Chickens is chickens—just feed 'em plenty and if anything goes wrong, call up th' Salsbury man at Tuperton Corners an' he'll do th' rest.'"

"O.K., Pop! Here I am. Suppose we look at that last hen that died. What ailed it—Cholery?"

"Heck, no! Twan't nothin' serious. Here's th' critter, right here."

"Well," said Jeff, glancing at the carcass, "serious or not, whatever it was—it did a good job."

"Good, Hell!" exclaimed Pop, "It war—perfect!"

Jeff bent over the bird, "Hum! I see—Coccidiosis."

"So!" Well, well—I thought it was only Diarrhea."

"We'll let it go at that," smiled Jeff. "Now, tell me—did the other birds that died, look like this?"

"To a T. Kin anything be done for th' rest?"

"Sure! It's rather early for this trouble—generally crops out during hot weather. We'll save the others all right, with Salsbury's Phen-O-Sal; that'll do the trick; then, we'll scrub your incubator with his Mite Death Disinfectant. That'll kill Oocysts of Coccidia before the chicks become infected."

"Fine! I never heard o' them highfalutin' bugs, but you orter know. Lucky I didn't fire my incubator, yit."

"Yes. An ounce of prevention beats a pound of cure. Now, let's look at the flock."

"All right; they're over in th' run beside th' old wagonshed—I made that into a henhouse, you know—but, they're an ornery lookin' lot; got everything from Pip to worms an' lice. Reckon there ain't much left in chicken miseries outside o' them, be there?"

"Lots, Pop, lots! There's Rickets, Roup, Chickenpox, Cholera, Limberneck, Diphtheria, Diarrhea, Bronchitis, Peritonitis, Consumption, Colds, Pneumonia, and lots more."

"Well, I'll be durned! Say, you didn't forget Measles and Whoopin' Cough, maybe? Now, here's th' invalids; look 'em over, Doc."

They were a sorry sight. Although bearing the markings of fancy stock, it was apparent that either someone had gypped Pop, or Pop had gypped the flock. Bedrabbled, dirty-beaked, wormy; gasping, wheezing—verging on

Pneumonia; coughing, rousy, swollen wattles, weak-legged and rickety; lumpy, warty and cankerous, a third of the lot were draggy and weak with Diarrhea, and all were in need of the delousing squad. One rooster, the wreck of a magnificent bird, his eyes closed, his head swollen, staggered pitifully.

"That rooster," volunteered Pop, "cost me fifteen dollars. They sez he war cheap at fifty; and now, look! Ain't a hen on th' place that'll give him th' glad eye. And," mourned Pop, "th' whole durned bunch has quit layin'."

"You would, too!" exploded Jeff, "if you were in their fix. Great Scott, man, what have you been feeding them? Know anything about Vitamines?"

"Plenty! Them chickens is plumb covered with 'em—and their roosts, too. They—"

"Let's see your chickenhouse," demanded Jeff, interrupting.

The converted wagonshed, dirt-floored, damp, cold, and draughty-lighted by one dirt-glassed window and reeking with the odor of mouldy table scraps, told its own story. Jeff sighed. "Pop," he said, "the days of miracles has passed. If I didn't know what I do about the Salsbury remedies, I'd say, kill the whole flock; but—"

For a half-hour, he talked cold-turkey and laid down the law to Pop; then he got busy. All that day, and the next, he worked like a Trojan. He tested the flock with Dr. Salsbury Antigen, for B. W. D.; vaccinated with the Doctor's Triple tested Avian Bacterin, and administered Worm Caps. He had Pop clean the shed, paint the roosts with Nic-Sal to annoy the mites; fitted the window with substitute glass to admit the healthful ultra-violet rays; installed drinking fountains and a dust box, and sprayed with Cam-Pho-Sal, for respiratory troubles. Before he left, he eliminated all draughts, arranged for a concrete floor and recommended a balanced ration of good feed with oyster shell, cod liver oil and greens.

Two months passed. One day, Pop ambled into the Tuperton store, lugging a big basket of eggs. "Mornin', Mrs. Morrison!" he smiled, "Jeff in?"

"Sorry, Pop!" she said, "Jeff's out doing some missionary work with Bill Brown's hens. How's yours, these days?"

"Great!" enthused Pop, "Fit as a fiddle! Every hen on th' place is singin'; an' you know, singin' hens is layin' hens. Them Salsbury medicines did wonders. There ain't nothin' better!"

"That's what everybody says."

"You know, Mrs. Morrison, chicken raisin' ain't no fool's job. At first," he confided, "I guess I war dumber nor th' chickens; but now—I know."

"Isn't that fine. Now, you know what ailed your flock?"

"Sure!" said Pop, swelling up. "It war what we poultrymen calls Co-co-Coccidiosis. Most people, though," he added, "calls it just plain Pyorrhea."

WE WILL OPEN WITH A—

"My dear," called a wife to her husband in the next room, "what are you opening that can with?"

"Why?" he said, "with a can-opener. What did you think I was doing it with?"

"Well," replied his wife, "I thought from your remarks that you were opening it with a prayer."

Courage and Determination

By Mrs. Alvana Bernard
Jefferson, S. D.

During recent years great progress has been made in increasing egg production in all breeds of poultry. This has been accomplished by breeders who painstakingly and intelligently followed a definite breeding program.



Unfortunately egg size has often been neglected in the attempt to increase the number of eggs. Today the common complaint of produce houses and other egg selling agencies is that regardless of quality the medium and small sized eggs will not sell excepting at very low prices. Each year the demand for large uniform eggs is more and more pronounced. This drives home the importance of breeding for size as well as numbers, and this requires painstaking effort.

The U. S. Department of Agriculture has found that it is much easier to breed production into a flock than it is egg size. Only hens and pullets with years of methodical breeding for egg size back of them are capable to meet the requirements.

There has been so much talk about the hen being an "egg factory" and poultry raising an "industry" that some poultry keepers might consider themselves "mechanics" whose jobs would be to engineer a sort of "efficiency factory" of "hen machines." This would be a distorted view of nature. We must not ignore the science of life and living organisms which are responsible for the law that like produces like. We must continually keep in mind that our results depend entirely on a strict and definite breeding program in building up inherent blood lines in our stock.

Just one extra egg a month for the five winter months means 5 additional eggs or an added income of approximately 15c. Chicks from properly bred parentage will easily increase your production several times that much. Can you afford to buy low priced chicks of unknown parentage and inferior breeding, when the additional income from properly bred chicks will amount to much more than their original cost?

Ever since I first became interested in poultry I had a desire to develop a strain of S. C. White Leghorns that would lay big, white, well shaped eggs that show up beautifully in the case, weigh from 26-30 ounces to the dozen and command a premium price on any market. To attain this goal I started with good foundation stock from Tom Cochran whose strain is internationally famous. Then I adopted a definite breeding program to develop big bodied birds with capacity and stamina for heavy production of large white eggs. At the same time I always kept in mind the beauty and Standard qualifications of the birds.

On my farm I practice strict sanitation. I range my young stock on alfalfa and corn ground. Several times a year the yards are plowed deeply and sowed extremely thick to rye or any other small grain. My 30,000 egg incubators are of the most modern type. I maintain proper temperature and moisture in the hatchery room and incubators. In order to maintain the best health and vitality in my flock I have found nothing to equal Dr. Salsbury's Prevention Program, which assures healthy stock, greater hatchability and livability at a very nominal cost. It is far easier to keep a flock healthy than to try and cure them after they are sick.

Because of an increased demand for heavier fowls and premiums paid for White Rock springs I have added this breed to my Leghorns, and am following the same general breeding plan with them.

That my plan has been successful is proven by the fact my birds have won high honors at various fairs and poultry shows in competition with birds bred especially for exhibition.

If you want to win success, set a goal, use determination to reach it, have courage enough to overcome obstacles and adhere strictly to a definite program.

EDITOR'S NOTE: Mrs. Bernard is a director and secretary-treasurer of the South Dakota Baby Chick Association and an active member and director of the International Baby Chick Association. She was a delegate to the international chick conventions in Milwaukee and Louisville. She has attended Dr. Salsbury's Short Course every year and is constantly striving to fit herself to be better able to serve her customers and fellow poultry raisers.

Easier to Prevent Worms Early

and less expensive, too, than trying to get rid of them later on.

The younger the chick, the greater the damage from worms, and if you let worms get a start in your chicks it means the loss of money in chicks, feed and time. The best way is to



FEED

Dr. Salsbury's

AVI-TONE

Regularly

It takes just a little in their feed, but it makes a world of difference in their health and growth.

Builds strong, vigorous pullets

You want the chicks you buy this spring to develop into strong rugged pullets . . . their growth not retarded by a bad wormy condition; you want them to get all the benefit of the feed you give them . . . you want an early, low cost maturity. And you will get these benefits if you feed Avi-Tone. Helps to keep your chicks free from worms . . . tones up their systems . . . helps them digest their feed . . . makes them gain at a lower cost per pound. *Get some at your dealers.*

Prices on page 14

COMBINED WORM CONTROL AND HEALTH BUILDER AT LOW COST

The cost of feeding Avi-Tone is very small, only a small amount is required to be mixed in the mash because it is an ALL-Medicine Product. Chicks should be started on Avi-Tone to control worm infestation and to keep the organs functioning properly.

A 5-lb. package of Avi-Tone is sufficient to make 500 lbs. of feed a worm control and health building mash at only a cost of \$3.00.

RAPID GROWTH

depends upon freedom from parasites



After the chicks are six weeks of age, continue the battle against worms and parasites by using

AVI-TABS

in a moist mash. It is composed of concentrated medicine and is consequently prepared in tablet form.

Ready to be dissolved in water and mixed with the mash.

Contains Kamala and Nicotine for worms and such well known tonics as extracts of Nux, Powdered Mustard and Oleoresin Capsicum with intestinal healers.

The ideal combination for following through the worm control program through the growing and laying period. Thousands of poultry raisers have found it extremely valuable in combating the many types of paralysis due to microscopic worms.



The inquisitive fairy looks into a sick chicken. The intestines and ceca are in view. How they look under the microscope is shown to the right.

What To Do When Coccidiosis Threatens!

There is no disease so greatly feared by poultrymen from coast to coast as coccidiosis. Just as the chicks are old enough to be a real pride and joy to the person who is raising them, the wings begin to droop, the head begins to look pale, droppings are watery or blood stained, and the first thing you know half a dozen or more are found dead in the brooder house. During the day some more die and the next day the number of deaths continue to increase. What poultryman has not seen this sad picture!

If you have the slightest idea that your chicks may have coccidiosis, don't lose any time in treating them. If you have plenty of liquid milk, feed all the chicks will drink. Add eight PHEN-O-SAL tablets to every gallon of drinking water and milk, keeping this before the chicks all the time. Feed as usual up to 9:00 a. m. Then take all feed away until about 5 p. m. Then give a light evening feed of grain and mash.

Taking the feed away for six or eight hours during the day gives the PHEN-O-SAL a chance to penetrate and heal the diseased tissues of the intestines. Continue this treatment for four to five days, then get back onto your regular feeding schedule and gradually reduce the dosage of PHEN-O-SAL. Continue to use the PHEN-O-SAL for one or two weeks. Give a treatment of PHEN-O-SAL in the drinking water for two to three days every month during the summer and fall.

This treatment is cheaper than the "milk flush," is much easier on the chicks, straightens them out quicker and what is most important of all, heals the intestines so there is much less chance of the disease running into the chronic form. In case you do not have an abundance of liquid milk, add 10 to 15% of dried milk to the mash. This quantity, in connection with the treatment recom-

mended above, is more efficient than a larger amount.

Keep a sharp lookout for indications of coccidiosis. Just as soon as any symptoms are noticed, GET BUSY. Do not even wait to have the trouble definitely diagnosed as coccidiosis. While you are waiting for that you can have it stopped. Even though the trouble may not be coccidiosis, the treatment will be helpful.

You can get these preparations at your dealers whose name appears on the back of this publication. PRICES: PHEN-O-SAL TABLETS, (figure 2 tablets per bird) 125 for \$1.00; 300 for \$2.00; 500 for \$3.00. AVI-TONE, 5 lbs. \$3.00. CAM-PHO-SAL, 4 oz. bottle (makes 2½ quarts of spray) \$1.00; 8 oz. bottle (makes 5 quarts of spray) \$1.50. Mite Death Disinfectant, Quart Can, \$1.00; Half gallon, \$1.50; Gallon, \$2.50.

LOOKING IN on COCCIDIOSIS!

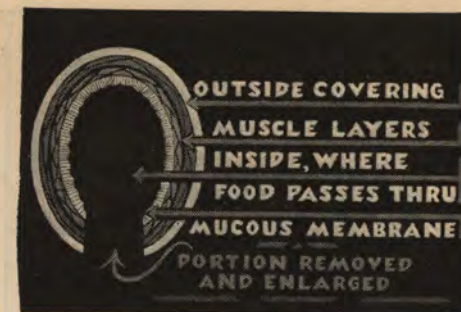


Figure 1. Cross section of the intestine with a portion removed for enlargement in Figure 2. Note the inside mucus membrane or velvety lining, the two layers of muscle and the outside shiny covering.

If you could look into a healthy bird with a microscopic eye and see a cross section of the intestines and would take out only a small portion as indicated in figure 1, you would see what is depicted in figure 2. Notice the finger-like projections. These are called villi. They are quite close together and form the velvety lining of the intestines. Blood vessels go into these villi and lacteals absorb the nourishment that comes through this lining. Normally the cells stand like bricks in a wall absorbing food but keeping out all infections.

If you look with a microscopic eye into a bird sick with the rapid or acute form of coccidiosis you would see that the normal cell lining was broken into by the coccidia as shown in Figure 3. As a result, the defense wall is down and blood is flowing freely into the center of the intestines. Consequently, the droppings are full of blood. It is going to take heroic treatment to stop the bleeding, to rout the coccidia and to heal up the broken cells that can be seen at the top of each villus. That is the part that Phen-O-Sal plays in the treatment for coccidiosis.

If you should look into a bird affected with the watery or chronic type of coccidiosis you would see that the space between the villi was literally chock full of coccidia in their various state of development as shown in Figure 4. Note the masses of round coccidia and also some of the oblong shaped. Notice many of them are penetrating right into the cell wall and into the cells themselves. The entire surface has been destroyed and in place, there is a lot of mucus, congestion and even some blood. There is almost complete destruction of the cell lining. Here is where a laxative treatment helps with Phen-O-Sal. The laxative removes the phlegm and the mucus that has accumulated on top, and gives the Phen-O-Sal a better chance to penetrate into the lower portions of the lining. It takes continued and persistent treatment to cure a case like this.

For handling coccidiosis once it has started, 1. Rest the intestines by feeding sparingly. 2. Remove the mucus with laxatives when necessary. 3. Use eight to ten Phen-O-Sal tablets in each gallon of drinking water. 4. Clean and disinfect with Mite Death Disinfectant.

To avoid complications from lung and bronchial troubles use a Cam-Pho-Sal spray right on the birds. To help prevent coccidiosis follow the Prevention Program described on Page 6. Spray the house every week with Mite Death Disinfectant, diluting one part to three parts of distillate. Attack coccidiosis from every possible angle and you will profit right from the start.



Figure 2. Normal, enlarged villi. Note the blood vessels leading in and out of the villi and the lacteal duct in center which carries away the absorbed food. Colored objects indicate the blood cells.



Figure 3. Acute Coccidiosis. Note how the tissue cells at the top of the villi have been broken down by the coccidia. This has caused hemorrhages resulting in bloody droppings. Some oblong coccidia are penetrating the intestinal cells.



Figure 4. Chronic Coccidiosis. The space between the villi are full of coccidia causing the swelling and enlargement of the mucosa. Note how the blood supply has been shut off by the swelling. Coccidia are supplanting the cells which normally line the intestine.

Sudden Losses Due to Cholera



Losses in full grown birds during the spring and early summer are nearly always due to cholera. Later on typhoid becomes very prevalent. While it is still time, plan to prevent cholera and typhoid from raising havoc with your flock this year by vaccinating with

Dr. Salsbury's

Cholera-Typhoid Bacterin

May be used for chickens of any age and for ducks, geese and turkeys.

Contains the full immunizing 1 c.c. dose.

A triple tested bacterin made in our own laboratories under U.S. Government License No. 195.

The first work that was done on immunization was done by Pasteur working with the cholera bacterin. It laid the foundation for all other vaccinations.

Cash in on the work done by Pasteur by vaccinating this spring.

MIXED BACTERIN (Fowl)

A bacterin for the treatment of colds, roup, bronchitis, and various diseases of the head and respiratory tract in which the common disease germs are found. Each dose is based on a full c.c. which means that if you decide to use $\frac{1}{2}$ c.c. dose, you get twice the amount of bacterin for the money.

Use mixed bacterin to prevent roup and colds. Use it on birds that have colds and roup to stimulate an immunity that will hasten recovery.



Sizes and prices of packages on page 14

POX *Has Had Its Day*

Play Safe by Vaccinating Early

Let no man say that his community is free from pox. While originally a southern disease pox has been spreading northward during the past four or five years and is now found very commonly in all the northern states. Altogether too many people live in false security regarding pox. Not until they have a long and protracted siege of diphtheria, colds and roup that does not yield to any ordinary treatment do they realize that possibly their trouble is due to pox and then when they take their birds to a laboratory and are shown the pox lesions which they never thought to look for, they begin to realize how much they could have saved by vaccinating early.

Pox is a virus disease. It is a peculiar virus in that it affects the skin and mucous membranes only. It produces warty nodules anywhere on the skin but chiefly on the comb, wattles, ears and around the nose and beak. It also produces cankers on the mucous membrane, chiefly the top of the windpipe, the roof of the mouth and around the tongue. All of these conditions are caused by the same virus. Virus seems to be spread largely by insect bites and other means of actual skin injury. There is no question but what mosquitoes and other biting insects carry the infection.

Turkeys and pigeons are as susceptible as the ordinary barnyard fowl. The losses from an outbreak of pox alone will not be particularly severe but the complications of roup, colds, bronchitis and other conditions that prevail during the time of the year when it is difficult to maintain ideal housing and ventilating conditions cause pox to be one of the most dreaded and serious fall and winter ailments. Since pox can so easily be prevented if proper steps are taken when the birds are young and growing one need take no chances on losses from pox after the birds are mature.

The ideal time to vaccinate is when the birds are from 8 to 12 weeks of age although they may be vaccinated at any time before they come into production. Immunity is built up in the vaccinated birds that lasts a lifetime if the chicken strain of the Fowl Pox Vaccine is used. The vaccine is applied either by means of a brush on freshly denuded feather follicles or by a sharp instrument thrust through the skin. In either case the principle is the same, namely, that the live vaccine is introduced into the skin.

In this respect vaccination for pox differs from vaccination for roup with the Mixed Bacterin or for cholera and typhoid. Vaccination for pox

is purely preventive and it takes two to three weeks for the immunity to develop. Vaccination is best done during good weather. That is why the late spring and early summer is ideal.

The following precautions will help to obtain 100 per cent satisfactory results:

1. Vaccinate only birds that are free from coccidiosis and heavy worm infestation. Flocks found in this condition should be put on treatment for a week or ten days before being vaccinated.

2. Do not inoculate more than five follicles, or if using the stick method, make a small but rough puncture.



3. Leave the birds on range or whatever quarters they have been in for approximately 30 days following vaccination.

4. Use every precaution to prevent the introduction of bronchitis or other diseases during this time. Vaccinate the birds as young as possible and arrange to do all the vaccinating on the farm at one time.

While pox does not spread very rapidly from vaccinated birds to non-vaccinated ones, it is possible to spread it from one flock to the other on the same farm and therefore it is best to vaccinate all birds that are not already immune.

Complete directions for vaccinating come with each package. Use only a standard vaccine produced under government license. Non-standard and cheap vaccines are often dangerous to use and result in ultimate losses of money. Dr. Salsbury's vaccine is made from a standard

mixed strain of chicken pox virus that has been giving uniformly good immunizing results for many years. It is produced from young cockerels free from disease raised and maintained in separate quarters. The pox vaccine is harvested with special equipment and handled under extreme precautions.

WHAT VACCINE TO USE

For growing birds always use the chicken strain of Fowl Pox Vaccine. It is the only kind that produces a satisfactory permanent immunity. For laying birds the pigeon strain of Fowl Pox Vaccine may be used because it does not produce any serious after-effects but on the other hand it does not produce a permanent immunity.

It is very important to vaccinate the turkeys as well as the chickens because turkeys are very susceptible to pox, cankers and sore-head and here the chicken strain should be used always.

It costs only the price of a laying hen or two to vaccinate 100 chickens for pox. Should there be an outbreak next year due to your failure to vaccinate you may lose 15 or 20 birds out of each hundred besides setting the rest of the flock back. After you have had this experience it is easy to see how inexpensive vaccination really is.

WISCONSIN NEWS AMONG HATCHERY FOLK

Brownsville Produce Company of Brownsville, Wisconsin, conducted a very successful series of Poultry Health Schools during the fall months.

* * *

Mr. Otto Auer of Hubbleton, purchased 2,000 pullets and yearling hens that had been raised on the Prevention Program. There never was a flock healthier or producing better. This spring he will have 5,000 chicks on the Prevention Program.

* * *

The Brooks Certified Service of Watertown has established a number of service stations. The quality of the egg is directly traceable to the health of the birds and consequently Mr. Brooks has established a Salsbury's Health Service at each of his seventeen egg buying stations.

* * *

Blood testing is very popular in Wisconsin and is being conducted with much success. For many hatcherymen this is the second and third year for testing.

* * *

The Edgewood Poultry Farm and Hatchery, Dresser Junction, hold two big poultry meetings and clinics each year. It is a full house every time.

* * *

Mr. Louis Arnoldi, Sheboygan Falls, Wisconsin, who carries about 2,000 birds, has recently become enthusiastic about Salsbury service.

Mr. and Mrs. Hanke of New London, have recently moved into more commodious quarters. A general egg buying station is connected with the hatchery.

* * *

Hobson's Hatchery of Menomonee Falls insist upon definite rules and regulations for managing their flocks. "This is necessary to produce a high quality, liveable and healthy chick," says Mr. Hobson.

* * *

The Manitowoc Chick Hatchery is managed by Mr. Geo. H. Clifton who has had a good deal of experience in service work. Blood testing, flock conditioning and vaccinating are utilized to every possible advantage.

* * *

Neillsville Accredited Hatchery had a flock owners meeting and discussed blood testing. After a discussion pro and con it was decided to adopt the testing program this year.

* * *

A crowd of about 160 people attended a meeting called by Wm. Karpenstein of Theresa. Quality eggs and healthy flocks and how to maintain them were the chief topics.

* * *

Many hatcherymen throughout Wisconsin have had the privilege of hearing Mr. C. L. Drake, the great optimist from Minneapolis. Mr. Drake delivers the punch that wins and generates more pep, enthusiasm, optimism and good feeling in ten minutes than a person can wear off in many months.

HEALTH SCHOOLS AND CLINICS GIVE MUCH INFORMATION

Doris H. Hamilton of Mexico, Missouri, held a splendid school and clinic in December. He was assisted in this work by the Smith Brothers Hatchery, Professor A. Gorrell of the High School, A. C. Amet from the state of California, A. V. Amet, Kansas City, and L. S. Kleinschmidt of St. Joseph. The various problems of poultry diseases, parasites, paralysis, vaccination, etc., were thoroughly discussed before an appreciative audience.

* * *

L. S. Kleinschmidt was chairman of a poultry meeting held in December at the Robidoux Hotel at St. Joseph, Missouri. In addition to the various talks on diseases, H. H. Mohler, Member of the Regional Committee of the R. F. C., spoke on Federal Loans. J. B. Peterson spoke on Chick Sales and T. C. Gray, Hatchery Operator, talked on Handling Hatchery Flocks to Insure Strong Chicks.

Hatcherymen from Iowa, Nebraska, Kansas and Missouri attended this meeting.

* * *

The Meyer's Drug Store, Lamar, Missouri, held a similar clinic in the Farm Club Room in the Court House.

CHICKEN POX

NOW EASILY PREVENTED

Take advantage of the inexpensive and reliable methods of preventing fowl pox, cankers and sore head in chickens and turkeys by vaccinating early. The vaccine is easy to apply and is sure of results.

Our vaccine is made under government license, is thoroughly tested for potency and safety. You take no chance when you use Dr. Salsbury's Fowl Pox Vaccine.

For vaccinating growing stock use the chicken strain. For birds in heavy production use the pigeon strain. Both comes in packages of 100 and 500 doses. The price is as low as good quality, reliable results in a standard production will permit.

See your dealer whose name appears on the back page and if he cannot supply you write direct to

DR. SALSBUARY'S LABORATORIES
CHARLES CITY, IOWA, U.S.A.

"A Nation Wide Service"

Stop Tail, Vent and Feather Picking

Whenever baby chicks or grown birds develop cannibalism, pick each other until blood appears

Use

Dr. Salsbury's

STOP PICK

It breaks the habit.

STOP PICK is a blood-like preparation. Pickers think it is blood, get a taste of it but never again. A taste or two is enough and they are cured of picking anything that looks like blood. Works equally well on baby chicks and laying hens as well as other farmyard fowls.

Small Can.....\$.60 Large Can.....\$1.00

Another reliable method for checking cannibalism is to paint the windows with

PAINT-O-SAL

A liquid stain that turns the light rays so blood can not be recognized but does not shut out the light.

Prices

1/2 Pt.....\$.90 1 Pt.....\$1.50
1 Qt.....\$2.50

Both of these are economical preparations. May be had at your dealer's whose name is on the back of this magazine.

Announcing . . .

A NEW Line of Worm Caps

NICOTINE CAPS—

To be used as an individual treatment when round worms only are present. Nicotine Sulphate has been found to be the most effective drug known for the removal of large round worms (*Ascaridia*). In the Nicotine Caps the nicotine is combined in such a way that the active principles are not liberated until the medicine reaches the intestines right where the worms are. The caps are well coated and ready to give.



KAMALA CAPS—

For use when tape worms only are found. Kamala is recognized as the most effective drug for the removal of tape worms. The adult size contains the standard 15 grains of Kamala. Especially recommended for flocks that are not laying.

Government officials encourage the use of these worm preparations separately.

KAMALA-NICOTINE CAPS

—Contain a combination of Kamala and Nicotine balanced with other drugs for their stimulating and supporting effects. They are widely used and preferred by many poultrymen.

All these caps come in two sizes, the chick size and adult size and are for both chickens and turkeys.



Sizes and
prices found
on page 14.

Laboratory Diagnosis

TUMORS AND CROP BOUND

Will Noonan of West Union, Iowa, sent in two White Leghorns for examination. These birds showed some paralysis that seemed to be gradually spreading through the flock.

OUR EXAMINATION: The examination of these birds showed tumorous (mottled brownish) growths throughout the livers. The second bird had a bloody type of tumor affecting the ovary. This had caused bleeding in the abdominal cavity. This bird was also crop bound.

There is no specific treatment for tumors. The flock should be culled, all thin and inactive birds removed. The balance of the flock may then be put on a tonic treatment to build up their vigor and vitality.

NERVE PARALYSIS

From Murfreesboro, Tennessee, we received two hens that were paralyzed.

On examination of these birds we found the nerves leading to the legs greatly enlarged. This is apparently due to the virus type of paralysis. Thorough culling, to remove all affected birds, cleanliness, and disinfection of the premises and a good tonic is recommended for this flock.

ASPERGILLOSIS

One of the few cases of actual aspergillosis we have seen came from Beatrice, Nebraska. These chicks showed a pasting up behind, cores in the ceca and pneumonia.

On microscopic examination we found the spores and fungi of a species of aspergilla. It is very seldom that these spores are actually found in the lungs.

The other conditions indicated a complication of pneumonia and intestinal inflammation. Thorough application of Cam-Pho-Sal spray and Phen-O-Sal in the drinking water was recommended.

CANKERS AND POX

Two White Rocks from Bricelyn, Minnesota, were very sick and gasping for breath.

On examination we found small nodules of pox around the ears and the beaks. Cankers were also found in the windpipe. This trouble is entirely due to pox. The affected parts should be painted with Cam-Pho-Sal and the balance of the flock should be vaccinated with the pox vaccine to build up a lasting immunity.

NO DIAGNOSIS

From Scenery Hill, Pa., we received a package containing some dry pieces of liver and other tissues from a chick.

These tissues had dried to a parchment during shipment and consequently we were unable to make a diagnosis.

Organs from small chicks do not pack very well and cannot be sent any distance. It is best to send the sick chicks in an ordinary chick box with plenty of excelsior in the bottom.

TUBERCULOSIS

From Woodstock, Illinois, we received two Rhode Island Reds.

Examination of these birds showed severe lesions of tuberculosis. The flock should be tested with the tuberculin test, the premises should be thoroughly cleaned and disinfected before the non-reactors are put back in place.

"PASTING UP"

From Barnestone, Nebraska, we received three Barred Rock chicks about 10 days of age. These chicks were pasted up behind and on examination we found the ceca filled with yellow, caseous material. The pasting up behind is due to the constipation and the accumulations in the ceca. In turn these conditions are brought about by intestinal inflammation.



Chilling and overheating and crowding produce intestinal disturbances that result in inflammation and the other symptoms. A laxative should be used to remove this material and then 8 tablets of Phen-O-Sal should be put in the drinking water for a week's time. It is important to use a laxative to remove the accumulations in the intestinal tract.

PARALYSIS

From Vineland, New Jersey, we received three White Leghorns about 10 weeks old.

Examination of these chicks showed enlargement of the nerves leading to the legs and also a complication with a small species of coccidia. The portion of the intestine just back of the gizzard was very much inflamed and millions of coccidia were present. Paralysis due to both coccidiosis and the virus type is difficult to handle. Treatment for both conditions will be necessary.

I am using your Hatchery Spray solution and wish to compliment you very highly on the product.—Deane Pendarvis, Mgr., Deane Penn Hatchery, Emmetsburg, Iowa.

Healthier Birds and More Eggs

Outline Of A Program That Is Getting Results In Missouri

By **ALBERT V. AMET**



1. HEALTH: Dr. Salsbury's time tested and Scientifically sound Prevention Program is followed during the life of all

birds. This includes Avi-Tone and Phen-O-Sal for Baby Chicks and Avi-Tabs and Phen-O-Sal for growing birds.

Sanitary houses for disease and worm prevention.

Spraying every night with Cam-Pho-Sal to check cold, bronchitis and pneumonia.

A monthly worm treatment on all birds over 12 weeks which includes a bowel healer (Phen-O-Sal) at the same time.

Vaccination against chicken pox and roup and colds.

Isolation and proper treatment of sick birds.

2. BREEDING: Buy well bred chicks from hatchery that is breeding up parent flocks. Or

Buy males from high producing hens laying large eggs and have these birds head your breeding flocks.

Select high laying hens, with large egg size, high winter laying, and fast molt, to mate with selected males.

Remove males from laying stock at close of hatching season.

3. HOUSING: Manage house so as to avoid sudden changes in temperature. Remodel old house available at low cost.

Provide maximum requirement in fresh air by proper ventilation.

Provide stove for large houses in cold weather.

Wire netting under roosts, and roosts 18 inches from floor.

Artificial lights every night summer and winter—just so it is light enough to see.

4. MANAGEMENT: Proper kind and number of feeders and waterers.

Convenient coop in house near nests to confine broody hens to protect quality of eggs, to bring hens back into lay and reducing loss of egg production.

Avoid throwing off production by careful handling.

Keep flock confined in winter months and at least until noon in all months.

5. CULLING: Pick for: (A) Early maturing pullets with full body weights and size, good vigorous bone growth, and wide spring of ribs.

(B) Heavy winter lay—50 eggs

or more per hen during November, December, January and February.

(C) Fast laying.

(D) Fast molt.

6. FEEDING: A simplified feeding plan with a good balanced egg mash. Mash and grain in open feeders before hens all the time. Keep grit, oyster shell, and charcoal before all hens all the time.

At the present time there are over 200 Missouri farm flocks on this system.

PARASITES OF POULTRY

Losses from parasites have become a more important factor in poultry raising as the poultry industry has developed in recent years. As control measures, the bureau recommends sanitation, and, whenever necessary, routine treatment for worms. Based on definite knowledge of the life histories of roundworms and tapeworms certain items of sanitation can be emphasized. Particularly important is the prompt disposal of droppings with their parasitic content in such a way as to destroy the parasites. Damp areas about feed and water containers should not be allowed. All manure, boards, boxes, and other things that afford food, shelter, or breeding places for flies, beetles, slugs, and other small animals that act as intermediate hosts for various worms should be cleaned up and further accumulation prevented. Rotation of yards is of value, particularly for those parasites that develop without an intermediate host. Cleanliness is of the utmost importance in the control of coccidiosis. Treatment of birds with nicotine sulphate or with tetrachlorethylene for ascarids in the small intestine and with kamala for tapeworms is recommended. Nicotine sulphate on roosts and sodium fluoride applied to the birds may be used to control lice, and carbolineum sprayed on walls, roosts, and boxes may be used to control mites and ticks or "blue bugs."—United States Department of Agriculture, Miscellaneous Publication No. 81.

NOTE: The most practical form of carbolineum is Dr. Salsbury's Mite Death Disinfectant.

CAN'T TAKE A CHANCE WITH THE HENS

Farmer's Wife (to druggist)—
"Now, be sure and write plain on them bottles which is for the chickens and which is for my husband. I don't want nothin' to happen to those hens before the spring layin'."

Spray the Litter,
Roosts and Yards

With

Dr. Salsbury's

Mite Death Disinfectant

Not a new product but an old time-tested combined destroyer of parasites, germs, coccidia and worm eggs. Has been widely used and giving good results for many years.

For the ordinary disinfection of the poultry house mix it with water according to directions on the label. For combating mites, lice, coccidia and worm eggs, mix one part of the Disinfectant with three parts of distillate or light mineral oil.

The most economical and satisfactory time tested spray on the market.

Prices

1 quart	\$1.00
Half Gallon	1.50
Gallon	2.50

For Lice treat the roosts
with

Dr. Salsbury's

NIC-SAL

Easy to apply. Economical to use. Does not make the birds sick. Paint the perches before the birds go to roost. Contains Nicotine sulphate, the reliable remedy against lice and mites.

Prices

1/2 pint	\$.75
1 pint	1.25
1 quart	2.00
1 gallon	6.00

For individual treatment of day old chicks, growing birds and mature hens, there is nothing superior to

Dr. Salsbury's

Louse Powder

Large full pound, duster top,
can\$.40
Always keep a package on hand.

DR. SALSBUURY'S MEDICINES FOR POULTRY

Preparations	Size Packages	Price	Uses																
AVI-TONE 100% Medicine	5 lb. carton 15 lb. drum 25 lb. drum 50 lb. drum	\$ 3.00 8.25 12.50 24.00	Flock treatment for worms, worm preventive and general tonic. For baby chicks and turkeys, growing stock and laying flocks. In powder form.																
AVI-TABS	50.....\$.60 100..... 1.00 200..... 1.75	400.....\$3.00 1000..... 7.00	Wormer and tonic in tablet form. For flock treatment.																
KAMALA CAPS	Prices and size same as the combination cap		For individual treatment against tape worms only. Used for chickens, turkeys, ducks and geese.																
NICOTINE CAPS	<table><tr><th>Adult Size</th><th>Chick Size</th></tr><tr><td>Size Retail</td><td>Size Retail</td></tr><tr><td>Package Price</td><td>Package Price</td></tr><tr><td>50.....\$.60</td><td>50.....\$.50</td></tr><tr><td>100..... 1.00</td><td>100..... .85</td></tr><tr><td>200..... 1.75</td><td>200..... 1.50</td></tr><tr><td>500..... 4.25</td><td>500..... 3.25</td></tr><tr><td>1000..... 8.00</td><td>1000..... 6.00</td></tr></table>	Adult Size	Chick Size	Size Retail	Size Retail	Package Price	Package Price	50.....\$.60	50.....\$.50	100..... 1.00	100..... .85	200..... 1.75	200..... 1.50	500..... 4.25	500..... 3.25	1000..... 8.00	1000..... 6.00		For individual treatment of chickens, turkeys, ducks, geese and pigeons against round worms.
Adult Size	Chick Size																		
Size Retail	Size Retail																		
Package Price	Package Price																		
50.....\$.60	50.....\$.50																		
100..... 1.00	100..... .85																		
200..... 1.75	200..... 1.50																		
500..... 4.25	500..... 3.25																		
1000..... 8.00	1000..... 6.00																		
KAMALA NICOTINE COMBINATION WORM CAPS	<table><tr><th>Small Size— 10 to 16 weeks</th><th>Large Size—16 weeks and over</th></tr><tr><td>50.....\$.75</td><td>50.....\$1.00</td></tr><tr><td>100..... 1.25</td><td>100..... 1.75</td></tr><tr><td>200..... 2.25</td><td>200..... 3.00</td></tr><tr><td>300..... 3.00</td><td>300..... 4.50</td></tr><tr><td>500..... 4.50</td><td>500..... 6.75</td></tr><tr><td>1000..... 8.00</td><td>1000..... 12.00</td></tr></table>	Small Size— 10 to 16 weeks	Large Size—16 weeks and over	50.....\$.75	50.....\$1.00	100..... 1.25	100..... 1.75	200..... 2.25	200..... 3.00	300..... 3.00	300..... 4.50	500..... 4.50	500..... 6.75	1000..... 8.00	1000..... 12.00		Individual treatment for tape and round and pin worms in chickens, turkeys and other fowls. A properly coated tablet that is easy on the birds.		
Small Size— 10 to 16 weeks	Large Size—16 weeks and over																		
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PHEN-O-SAL PRESCRIPTION TABLETS	50.....\$.50 125..... 1.00	300.....\$2.00 500..... 3.00 1000..... 5.50	Excellent corrective for diarrhea and coccidiosis of chicks, Fowl Typhoid, Fowl Cholera, Enteritis, irritation from worms, Blackhead in turkeys, also duck and goose cholera.																
CAM-PHO-SAL PRESCRIPTION	Small bottle Medium bottle Large bottle	\$ 1.00 1.50 2.50	For roup, colds, flu, gapes, bronchitis, brooder pneumonia, etc., in fowls of all ages. Pure medicine to be diluted with water.																
STOP-PICK	6 oz. can 16 oz. can	.50 1.00	A preparation for toe, vent, tail picking, and all forms of cannibalism in poultry.																
PAINT-O-SAL	½ pint 1 Pint 1 quart	\$.90 1.50 2.50	Stained dye for painting windows to prevent cannibalism and pickout.																
MITE DEATH DISINFECTANT	Quart can Half gallon can Gallon can	1.00 1.50 2.50	To control mites and disinfect poultry houses. A powerful germ killer and insect destroyer. For treating litter against coccidiosis dilute with distillate.																
NIC-SAL	½ pint 1 pint 1 quart 1 gallon	.75 1.25 2.00 6.00	A nicotine preparation to paint on the roosts for lice.																
LOUSE POWDER	1 lb. sift top can	.40	Very effective for dusting fowls for lice. May also be used in the nests to keep down vermin.																
HOG WORM OIL	Quart can Half gallon can Gallon can	1.80 3.25 6.00	To kill round worms in hogs, sheep and poultry. A two ounce all metal syringe for administering oil, \$1.20.																
HATCHERY SPRAY	Quart can Half gallon can Gallon can	2.75 4.50 8.60	Effective germicide for spraying eggs and incubators. Not poisonous.																
RAT DEATH	4 oz. can	.50	A Red Squill preparation that kills rats and mice only.																
FOWL POX VACCINE Chicken and Pigeon Strains	100 dose pkg. each 500 dose pkg. each	1.00 4.00	To prevent Chicken Pox by feather follicle or stick method of vaccination.																
MIXED BACTERIN, FOWLS	60 doses, 60 c.c. 120 doses, 2-60 c.c. 250 doses, 250 c.c. 500 doses, 2-250 c.c. 1000 doses, 4-250 c.c.	1.50 2.75 5.00 8.00 15.00	A preventive and curative treatment against roup, colds, and related diseases affecting the head of chickens and turkeys. Note that you get one full c.c. per dose.																
CHOLERA-TYPHOID BACTERIN	60 doses, 60 c.c. 120 doses, 2-60 c.c. 250 doses, 250 c.c. 500 doses, 2-250 c.c. 1000 doses, 4-250 c.c.	1.50 2.75 5.00 8.00 15.00	To vaccinate for Fowl Cholera and Fowl Typhoid in all poultry, both preventive and curative.																
ANTIGEN	Write for special literature		Blood or slide test for B.W.D. The Ultra-Rapid Antigen Test.																
PULLORIN	Write for special literature		Wattle method for B.W.D. testing.																
TUBERCULIN	100 tests, 5 c.c.	2.00	For T. B. testing. Wattle method.																
B.W.D. TEST CABINET	Complete equipment	5.00	For rapid Antigen test.																
SYRINGE Complete with 2 needles.	10 c.c. 2 c.c.	2.75 3.50	Lifetime Bacterin syringe. Pullorin or Tuberculin testing syringe.																

TESTING TUBES—SYRINGE NEEDLES—DISSECTING SETS—OTHER EQUIPMENT

Cod Liver Oil—Write for quotations in barrel lots.

Garget—Special Bacterin for Garget. Write for special literature.

Blood tests for abortion—15 cents each.

DR. SALSBUURY'S LABORATORIES

BOX 140
CHARLES CITY
IOWA

The New Poultry Health Manual

Will Be Ready About the Middle of May

Some 500 pictures have been taken in order to get the right selection for this new presentation on poultry diseases, how to recognize and treat them. A new process of showing the diseased organs in natural colors has been devised. All of this has required more time than was at first anticipated. We appreciate the patience of those who have already sent in dimes for the new Manual. We assure you that you will get your copy as soon as off the press. It will be worth waiting for. Those of you who have not already placed your order, use this coupon, enclosing a dime and you will be sure of getting your copy.

COUPON

Dear Dr. Salsbury:

Send me one of your new Manuals just as soon as it is off the press. I am enclosing a dime to help cover postage and packing costs.

Name.....

Address.....

WORM CONTROL IN SHEEP

By A. V. Amet, Kansas City, Mo.

Warren Jones of The Koch Pharmacy, Maryville, Mo., sells more than his share of Hog Worm Oil, but strange to say this is not always to worm hogs. Due to the activities of county agents, vocational agriculture teachers and experiment station workers the practice of worming sheep has increased in many Missouri localities. Many of the worm expellers recommended are caustic and make the animals sick. It is sometimes ten days after worming before they show gains and in addition there are some losses.

Sheep wormed with Dr. Salsbury's Hog Worm Oil recover quickly, have thrifty appetites and gain faster than with any other wormer according to a number of users in Nodaway County. It is administered with the usual hog dosing syringe—no trouble, no waste and no danger to the sheep. It is cheaper and much less dangerous than Capsules.

Preparation for Worming

All worm infested animals should be given a five day treatment with Dr. Salsbury's Phen-O-Sal tablets to heal the intestinal lining and to allay the bowel inflammation caused from the worms. First cut the slime and mucus with a mild laxative, then use 8 to 10 Phen-O-Sal tablets to each gallon of drinking water or moistened feed over a five-day period. Worm on the second or third day as follows: Have someone hold the animal by the ears erect front legs raised above the ground. Draw up a dose of Dr. Salsbury's Hog Worm Oil into the syringe. A second helper then places his thumb of the one hand on the animal's throat; with the other hand insert the syringe along the cheek inside the mouth. Push down on the plunger slowly. As long as your thumb tells you the animal is swallowing, keep on pushing. If he stops you stop. You can start him swallowing again by moving your thumb up and down on his throat, or by bearing up on the syringe so that the nozzle presses down on the base of the tongue.

The dose is the same per pound weight as for hogs.

PATENT COVERS USE OF FORMALDEHYDE

In a recent letter Mr. Hackley of Cherryvale, Kansas, says that the in-

roduction of formaldehyde into the incubator chamber is covered by their patent No. 1837264. This patent is basic in nature and applies whether the gas is released by chemical or mechanical means. They contend that any introduction of formaldehyde for the specific purpose of disease control is an infringement on their patent.

TESTING SHOWS IMMEDIATE RESULTS

The experience of J. P. Robertson Caledonia, Ohio, as reported by J. W. Hammond.

In the spring of 1931 Mr. Robertson bought 125 Partridge Rock chicks from a hatchery. They began dying in about a week and within three weeks he had lost forty-five. He suspected the cause to be pullorum disease. In 1932 he hatched eggs from the pullets that survived using both incubators and hens for hatching and hens and brooders for brooding. In every hatch the loss ran from 30 to 60% and he could see no difference in mortality between the hen and the battery raised groups.

Mr. Robertson asked me for advice and I sent him material to test with. Mr. Robertson then tested his flock in June and took out 50% reactors. After testing he took off a hatch of 54 chicks July 15th and not one single chick died from disease. Fifty out of 54 were raised to maturity. Thirty of these were pullets and in 1933 they were tested and only three showed a suspicious reaction.

To check our observation we tested forty-six pullets that had survived from the chicks that were hatched before testing and had been raised separate and 19 of these showed heavy reactions. This experience has taught us conclusively what one single test can do even though that test is done by a man quite inexperienced but anxious to do the work correctly.

DEEP BREATHING KILLS MICROBES

A dear old lady had attended a health lecture, and stayed behind to ask the lecturer a question.

"Did I understand you to say," she asked, "That deep breathing kills microbes?"

"I certainly did say that many microbes are killed by deep breathing," replied the lecturer.

"Then can you tell me, please," she asked, "how one can teach the microbes to breathe deeply?"

For disinfecting incubators, large and small, there is nothing superior to

Dr. Salsbury's Hatchery Spray

An active germ killer and deodorant. Safe to use right on the baby chicks. You can feel safe if your chicks come from an incubator that has been disinfected with HATCHERY SPRAY.

It is harmless and non-irritating.

Prices—see page 14.

Round worms in hogs, sheep and poultry can easily be removed by proper dosing with

Dr. Salsbury's Hog Worm Oil

If you like a liquid for worming, here is a combination of the reliable Oil of Chenopodium in a bland base that has been properly balanced with drugs that lessen the shock and support the body of the animal treated.

May be given with a dose syringe or on a grain, mash or slop feed.

Prices—see page 14.

Garget and swollen quarters heal readily and permanently after a treatment with special

Autogenous Bacterin

made from your own cows.

Merely collect a sample of milk from the affected quarters into a bottle sterilized by boiling and send it to our laboratories for a free examination.

Special bacterins made at low cost.

Write for further information.

Tests for Abortion

Do cows slink their calves?

Maybe they are infected with Abortion Disease.

Accurate and reliable tests can be conducted in our laboratory on blood samples you collect yourself and send in. The cost is only 15c per test. Blood may be drawn from the ear vein into a clean and dry vial.

We can supply vials at 3c each.

for _____

THE SUN *NEVER* SETS ON SALSBURY SERVICE

From the far corners of the earth comes the call for Salsbury Service and medicines to cure sick poultry. It is interesting to know that chickens in Africa, Australia, Mexico, South America, Europe and Asia are being raised on Phen-O-Sal and Avitone, tested with Dr. Salsbury's Antigen and vaccinated with Dr. Salsbury's Bacterins and Vaccines.



Dr. Salsbury's new manual with the illustrations in natural color will be ready in May. Look for detailed announcement in the next issue of the Poultry Health Messenger. It is going to be worth waiting for.



This sign is an emblem of courtesy, promptness and dependability.

AND RIGHT HERE

in the good old U. S. A., yes, even in our own home town these medicines are giving good results in combating diseases among our local poultry flocks.

We are the local representatives of the Dr. Salsbury's Laboratories and can offer you all the many advantages of a Nation Wide Poultry Health Service. In addition to medicines for poultry health, we handle the various other items in our line and solicit your patronage.

Come in and let us talk over all of your many poultry problems.