

1942

## Abstracts

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# ABSTRACTS



**SULFANILAMIDE RESISTANT STREPTOCOCCI.** Hemolytic streptococci which were isolated from the blood of a horse under treatment for a streptococcal bacteremia, on the day before death, were found to be considerably more resistant *in vitro* to the action of sulfanilamide than the standard culture with which the horse was being immunized. The organisms recovered from one of the heart valves at autopsy appeared to be definitely less resistant than those isolated from the blood. The hemolytic streptococci taken from the spleen at the same time were found to be markedly resistant to the action of the drug.

Evidence was obtained that showed the resistance of the microorganisms in the blood to sulfanilamide increased progressively during sulfanilamide therapy. There was no apparent decrease in the resistance of the organism to the drug after 14 mouse passages.

The fact that the streptococci growing in the vegetative lesions on the heart valves were affected to a lesser degree by the sulfanilamide therapy than were those in the blood is explained by the results of experimental work which indicates that sulfanilamide and related drugs do not penetrate fibrin clots. The results obtained suggest that although the organisms were not exposed to the full concentration of the drug, some of it may have penetrated the vegetative processes since their resistance to the drug was greater than the standard strain.

Sulfanilamide-inhibiting activity was demonstrated in broth filtrates of the resistant strain of organisms as well as in the

streptococci from the blood, heart, and spleen. The inhibiting activity was produced sooner by the drug-resistant organism.

(Hendrey, J. L. 1942. *A study of hemolytic streptococci from a horse treated with sulfanilamide after streptococcal bacteremia developed during immunization.* *Jour. of Inf. Dis.* 70: 112-118.)

**A REPORT ON EPITHELIAL TUMORS IN THE HORSE.** The report is a discussion of epithelial tumors of horses which were diagnosed by the authors for the veterinary clinic of Iowa State College from 1920 to 1940. The tumors included seven papillomas, 54 squamous-cell carcinomas, two adenomas, and ten adenocarcinomas.

Papillomas were removed from the following sites: forehead, one; penis, two; prepuce, one; clitoris, one; and frog, two. Since papillomas were easily diagnosed clinically, few were submitted for histologic examination.

Thirty-five of the 54 squamous-cell carcinomas were removed from the eye, mostly from the membrana nictitans. In seven cases, owners reported previous injury to the ocular region. These tumors occurred only in horses over four years of age, the average age of affected horses being eight years. They also occurred more frequently in mares. The remainder of the squamous-cell carcinomas were removed from the head and the external genitalia.

Only two adenomas were encountered—one in the medulla of the kidney and the other in the mammary gland.

Of the ten adenocarcinomas examined, three were taken from the eyelids, one from the oral cavity and lower jaw, one from the guttural pouch, three from the thyroid gland, and two from the mammary gland. Two of those taken from the eyelid had metastasized, indicating a high degree of malignancy. Most of the malignant epithelial tumors appeared in horses from seven to twelve years of age.

(Runnells, R. A. and Benbrook, E. A. 1942. *Epithelial tumors of horses. Amer. Jour. of Vet. Res.* 3: 176-179)

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**GIZZARD EROSION IN CHICKENS.** Gizzard erosion is a common condition found in chickens of all ages, including living embryos in unhatched eggs. This condition is due, at least in part, to a deficiency of a nutritional factor called the "anti-gizzard erosion vitamin". The condition is not serious.

Maryland investigators examined 1,737 day-old chicks from 87 sources. Of these chicks, 74 percent showed gizzard erosions at the time of examination. It was discovered that gizzard erosion is preceded by hemorrhages in the ventricular submucosa which make their appearance on the 20th day of incubation. The inclusion of the yolk at this stage increases the blood pressure and this is believed to cause the spontaneous hemorrhages. There appears to be a direct relationship between the size of the yolk taken into the chick's body and the severity of gizzard erosions at one day of age.

No ration has been yet devised which will completely prevent gizzard erosions in chickens.

(Carpenter, C. D. 1942. *Gizzard erosion. Amer. Poultry Jour.* 73(6):12.)

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**COCKLEBUR POISONING IN SWINE.** Although the cocklebur is poisonous to swine, sheep, and cattle, under natural field conditions, the largest losses occur in swine, especially young

pigs under two months of age. This plant is quite common in Midwestern states and grows especially well around old hog lots, close to ponds and lakes, and on wet ground generally.

The plant is most poisonous just after germination or when it has reached the two or three leaf stage. As it grows from this point, the toxicity decreases. However, the burs have been found to contain rather large quantities of the poisonous principle. Hogs are more often killed by eating the recently germinated plants than eating the burs.

Apparently the small plants are very palatable, and pigs eat numbers of them. The amount of the green plant in the two or three-leaf stage necessary to cause death is not great, 12 ounces or even less for pigs of 50 pounds.

Symptoms of cocklebur poisoning are marked depression, nausea, vomiting, prostration, rapid weak pulse, and subnormal temperature. These symptoms develop within a few hours after ingestion of the plant. Recovery is relatively rare with death generally occurring within a few hours after the appearance of the symptoms.

(1942. *Cockleburs are a real pig menace. Poland China Jour.* 28:13.)

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**CLINICAL USE OF STILBESTROL IN THE COW.** The oestrous cycle in the cow measured from oestrus to oestrus occupies 21 days and is conveniently described in terms of 12 days metoestrus followed by 6 days dioestrus and 3 days prooestrus. At the beginning of metoestrus, oestrus or "heat" has just occurred and ovulation takes place within the next 24 hours. During the next 6 or 7 days the concentration of progesterone in the blood rises to a "plateau" as a result of the corpus luteum which arose in the ruptured follicle. During this metoestrus the corpus luteum is supreme and the uterus is dominated by progesterone; it is quiescent and shows no rhythmic contractions due to posterior pituitary oxytocin. By the 8th day of metoestrus, the oestrogen blood level is again rising due to developing follicular tissue, and this level is high

enough by the 12th day, the beginning of dioestrus, to cause the corpus luteum to regress. As a result, the oestrogenic phase is predominant by the 18th day and the changes in the uterus associated with prooestrus are seen. In consequence, the uterus is potentiated to oxytocin and rhythmic contractions are observed. The rise in blood oestrogen has two direct results: one, the regression of the functional corpus luteum, and two, the direct stimulation of the anterior pituitary. The effect of this stimulation is that two gonadotropic hormones are secreted—follicle stimulating hormone which causes development of a follicle, and luteinizing hormone which causes its rupture, setting free an egg and converting the follicle into a corpus luteum. Should this thesis be found acceptable it follows that the oestrogen secreted by the ovary is the controlling mechanism in the endocrine cycle. It now becomes clear that in the treatment of anoestrus, a precise dose of stilboestrol dipropionate is needed in order to duplicate the “plateau” level

achieved by the animal’s ovaries. Should fertilization take place the corpus luteum persists because of the reaction of the mechanism of attaching the fertilized ovum to the endometrium. On the face of it, it would seem that now an efficient mechanism is present for maintaining the foetus in the uterus for all time. Presently, the placenta takes up the duty of producing oestrogen and at term this rising tide reaches a level high enough to tip the balance causing the corpus luteum of pregnancy to regress. As a result; the uterus is potentiated by the oestrogen and is now subject to posterior pituitary oxytocin, causing the rhythmic contractions which result in parturition. Should the placenta die, the oestrogenic level necessary to cause the mechanism of birth will never be reached and the foetus will be retained. The presence of the foetus in the uterus, acting as a deciduoma, maintained the corpus luteum, while the corpus luteum maintained the uterine contents. The logical treatment to break

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## Summary and Conclusions

The disease known as range paralysis or fowl paralysis is more aptly named fowl leukosis and this term includes the various manifestations such as paralysis, tumors, iritis, erythroleukosis and myeloid leukosis.

The disease in all its manifestations may be produced by injecting infective material, by contact of healthy with diseased chicks, and by contact of healthy birds with infested premises or litter.

An injection of a suspension made from one type of this disease produced all the manifestations generally attributed to this disease.

The disease has an extremely long incubation period in most instances, as chicks injected at one week of age did not show symptoms or die of the disease until between four and eight months of age. The disease rarely attacks birds over twelve months of age.

There seems to be a definite inherent resistance and susceptibility to the disease, thus the most important control measures are careful culling, sanitation, and breeding from resistant sources.

The disease was transmitted by way of the egg in mating of iritis birds. The virus was present in the blood of chicks of such mating at as early an age as one day.

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## DIVISIONAL NEWS

*(Continued from page 32)*

Veterinary Medical Association at its meeting in Great Falls, Mont.

Dr. W. G. Venske has been ordered to report for his physical examination preparatory to going on active duty in the Army.

### Students

Veterinary students have now received their commissions in the United States Army Reserve. Students took the oath of office as second lieutenants in the Medical Administrative Corps during the last week in June.

Robert Lofton, '43, was awarded the Lane-Wells scholarship at the Honor's

Day Convocation held on May 20. The scholarship is presented annually to an outstanding junior student of veterinary medicine.

Robert Kirkpatrick, '43, has been elected vice president of the varsity "I" Club. Roy Reppert, '43, and Jim Rhodes, '43, are new members of the organization. Membership in the organization is limited to students who have won varsity letters in athletic competition.

### Engagements

Melvin Karber, '43, announced his engagement to Miss Mildred Giesenberg, H. Ec. Sr., of Marshalltown on May 10.

Another engagement in the senior class was that of Robert Banks to Miss Analee McCormick of Clarence, Iowa.

Philip Peterson, '45, announced his engagement to Miss Elizabeth Shelledy H.Ec. Sr., on May 15.

Edward Foley, '44, announced his engagement to Miss Mary Alice Gage, H. Ec. Sr., from Rochester, New York, on July 13.

### Marriages

Clarence Mannasmith, '43, was married to Miss Dorothea Doughty of Colfax, Iowa, on May 21 in Colfax.

Robert Wagner, '44, was married to Miss Virginia Buddin of Carroll, Iowa on January 24, 1942 at Savannah, Missouri.

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## ABSTRACTS

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this pathological cycle is to raise the blood oestrogen level to that stage at which the corpus luteum regresses. This can be done by injecting 25 mg. of stilboestrol dipropionate and potentiating the uterus into rhythmic contractions by injecting posterior lobe pituitary. A similar treatment may be used in case of pyometra.

*(Brownlee, G. (Wellcome Physiol. Res. Lab., Beckenham). 1942. The clinical application of stilboestral dipropionate. Vet. Rec. 54(10):104-105.)*