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ABOUT THE COVER

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The Deshler-Hilton is equipped to care for every phase of your business or social gatherings and to give it the atmosphere of being "Something Special." The management is indeed happy that the Deshler-Hilton has again been chosen as headquarters for the annual convention of the Ohio State Veterinary Medical Association. It has been our pleasure to serve this association for years. We have enjoyed our role as host to this group. The management would appreciate any comments which would aid us in better serving this group. We would like to take this opportunity to extend our sincere wishes for a successful convention and continued progress in the future.

For the Veterinarian . . .

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One of the occasions to which Mrs. Krill and I look forward to each year is the Alumni gathering held in connection with the AVMA meeting. With the meeting place this year in the extreme northwest corner of the United States we naturally anticipated a rather small family size gathering. To our surprise over one hundred were present for The Ohio State Banquet, making it the second or third largest of any of the schools. This speaks well as to the loyalty of our veterinary college alumni and we are mighty proud of every one. Some of our alumni on the West Coast we had not seen since their graduation. Sorry we had to rush off for the President’s Reception which prevented our visiting with each of you. Now that Dr. Kingma is taking over the Executive Board duties from this district, I will try my best to stay out of any further entangling alliances so that we will have more leisure time to devote to these occasions.

May I again remind our alumni, and particularly the Ohio veterinarians that another legislative session will soon begin. We are again asking each of you to contact the legislative representatives from your respective areas to let them know that the job of providing adequate facilities for the College of Veterinary Medicine was only started with the $1,500,000 appropriated by the last legislature. Another $4,500,000 is still needed for the Clinic, Classrooms, Library and animal facilities for demonstration and graduate student teaching and research. Organized plans are already under way with full support of agricultural organizations in the state; your personal support is most important in helping Ohio to get the facilities needed for carrying out a well rounded educational program in veterinary medicine. We all know this is long overdue and it is only through united efforts that the job can be completed. Elsewhere in this issue is an article prepared for the Graduate School Record of the University. This will give you some important information which you can use when contacting your representatives. I am sure we can count on you. Will be looking forward to seeing you at the State meeting.
IMPORTANT PROBLEMS IN THE TREATMENT OF SWINE


History

The paramount problem in the treatment of swine is correct diagnosis. This is not easy or quickly obtained. It requires patience, ingenuity, and diplomacy. In attempting to make a diagnosis, history probably plays a more important part at the present than at any other period since I have been connected with the veterinary profession. I say this because of the fact that hogs are now being assembled from a greater area than any other time in the history of the swine industry, and because of the fact that there are at least seven different biological products that are now being sold and used in the immunization of swine (I should have said the attempted immunization of swine) against hog cholera. In obtaining the history, it is my plan to question the owner at the office, if he should come there to make arrangements for me to see his hogs, and then in a slightly different manner go over the same ground while looking the drove over. Unless I know the man well I watch his expression and general mannerism. Actions sometimes speak louder than words. I take the position that all men are liars except you and I, and I sometimes have my doubts about you.

Observation

Now one must see the herd. There is something about careful observation that cannot be explained, and yet you get a mental picture that cannot be secure in any other manner. It is not necessary nor advisable to make a diagnosis on the first or even the second visit, as 24 or 48 hours will often change the picture. It is the height of folly, however, to attempt to make a diagnosis on one or two animals brought to the hospital or office for autopsy.

Autopsy

After having secured a complete and detailed history and after having observed the herd and the physical symptoms, as well as the environment, which would include housing, draining, sanitary conditions, as well as feeding utensils, feed, and water supply, probably the next thing would be an autopsy. Autopsy findings are very often misleading unless they conform to herd history and observation. In performing an autopsy probably one of the most important things is the selection of the subject for autopsy. The greater number of autopsies that can be performed, whether they be on animals which have previously died or animals which you may kill for autopsy purposes, the more complete the picture will be.

Management

Probably one of the most important problems encountered in the treatment of swine is the lack of proper feeding, sanitation and management. Hogs which are properly fed, housed, and managed seldom develop many of the conditions that we are called upon to treat.

This statement, of course, excludes hog cholera, and other infectious diseases. Basically, fully 75 if not 85% of enteric diseases are the result of poor husbandry, lack of balanced feeding, and ample water supply.

Necrotic Enteritis

In order to better solve some of the important problems encountered in the
treatment of swine, let’s get down to specific cases. So called necrotic enteritis as here used is intended to include ay necrosis of the mucous membranes of the large bowel and cecum. It is confined to the large intestines and is probably due to *Salmonella cholerasuis* or what was formerly known as the *Swipes*ifer and probably the rest of paratyphoid group. Pigs affected with this condition will manifest temperatures from sub-normal to 105 degrees. They have diarrhea and perverted appetites, are dull and listless, arched back, and tucked up abdomen, associated with rapid emaciation. Autopsy reveals necrotic areas in the large intestines from the size of a pin head to an inch in diameter which may be confluence. In longer standing cases the necrosis of the mucosa is very extensive, even to the extent of occluding the lumen of the bowel.

In the past three or four years it has been my privilege to try out a number of treatments for this condition. One of these treatments which gives reasonably good results is sulfathiazole. Dissolve one pound of sodium sulfathiazole in a gallon of water. Of this solution add one quart to each 50 gallons of drinking water for the first 24 hours. Then add a quart to each 50 gallons of water for the next three or four days. Another treatment that has probably given more spectacular results has been used through the courtesy of Merck Chemical Company. It consists of adding a quarter of a pound of non-soluble sulfaquinoxaline to each 100 pounds of ground oats. This is fed to capacity for 48 hours. Occasionally it might be necessary to feed it for 72 hours. But in a large percentage of the cases the scouring will all have ceased in 48 hours. This treatment, however, will not make “good doers” of the pigs that have already had the linings of their intestines destroyed. But if you will put them on a diet of oats, wheat, and tankage to which has been added a concentrated vitamin B complex preparation you can bring these hogs out of this condition and make fairly decent market decent hogs of them.

**Swine Dysentery**

Another condition which we are frequently asked to treat is swine dysentery or hemorrhagic dysentery, whichever you prefer. This disease respects neither age nor breed, a point that will help to differentiate it from other types of intestinal disturbances. The etiological factor of this condition is thought to be a vibrio. Virulence is quite variable, ranging from a highly acute to a less destructive form.

This probably accounts for some of the favorable results obtained from the many and varied treatments which have been advocated. Animals which recover do not seem to become immune, as they have been known to develop symptoms a second or even a third time. This would lead one to suspect that recovered cases may be carriers of the causative agent. Transmission from one animal to the other as well as from one herd to another seems to be due to the ingestion of infected fecal material from sick animals. The period of incubation ranges from 7 to 14 days. It becomes apparent that one of the best methods of combating this disease is segregation and sanitation. Mortality ranges from 10% to 90%. When called to see a herd one usually hears the story of a recent purchase. All animals are doing fine until a couple of days previously when one or two would not eat. Then on the day that you are called the owner states that half of them are
eating very lightly, exhibiting some diarrhea, and that he suspects poisoning. They may have been immunized against cholera just recently, for a long time, or perhaps not at all. In looking them over you are impressed by the fact that there is a marked depression. Various aged animals are affected. Temperatures are high as 106 degrees may be found in animals showing no physical distress, and when diarrhea is present pure blood may be observed in the feces. The most outstanding symptom is rapid prostration, along with a complete relaxation or paralysis of the sphincter ani muscle.

Instead of the bowels moving like they do in ordinary forms of dysentery, the contents seem to ooze out soiling the buttocks with blood and mucus. Some infected animals may eat and drink to the time of death, although the appetite is usually impaired in the latter stages. Visible mucous membranes are distinctly anemic. Animals that do not manifest physical symptoms may die from acute toxemia or diagnostic post-mortem lesions. Upon autopsy the principal lesions will be found in the large intestine or cecum. In acute cases they may be filled with clotted blood.

At this point I would like to call to your attention that the finding of blood in the large intestine or in the feces of swine does not always indicate swine dysentery. Intestinal hemorrhages may be found in a number of intestinal disturbances such as acute hog cholera, acute pig pox, bacteremias, chemical and food poisoning. The large bowel may be completely denuded of any mucosa, leaving a surface that has the appearance of velvet or plush. The bowel content is liquid, chocolate or prune juice in color, and carries a characteristic fetid odor. In the more chronic form of the disease the lumen of the bowel may be almost completely filled with a caseous material. This disease seems to be quite resistant and may live on infected premises for an indefinite period of time.

A treatment which is probably the most universally used, and which is giving reasonably good results is the arsenical preparation which is added to the drinking water. However, I believe that if I were treating an acute case where there was a great deal of evidence of hemorrhage and dehydration I would still resort to the so-called saline alkaline treatment. This treatment consists of dissolving three pounds of sodium chloride and either a fourth of a pound of the commercial alkaline powder or two pounds of sodium bicarbonate in five gallons of water. This is enough solution to soak three bushels of oats. The oats are soaked for 24 hours and fed to capacity until the bowel movement is normal. Probably not more than four or five days is necessary. For those animals who do not eat and drink, dissolve a half ounce of sodium chloride and a half ounce of sodium bicarbonate in a pint of water and administer this through a stomach tube. This is a dose for a 100 pound pig, and pigs of other weights should be dosed accordingly. Pigs treated in this manner will often times drink large quantities of water within a matter of hours and then proceed to eat the medicated feed. Under no circumstances must this saline alkaline treatment be attempted unless you are definitely sure that there is plenty of fresh drinking water within a few feet of the pigs. Another treatment which has been used in an experimental way is streptomycin mixture furnished by Merck & Co. It is my understanding that this mixture contains one-third streptomycin in the unsterilized form.

Treatment

I have been using it at the rate of one-quarter pound of the mixture to 50 gal-
lons of drinking water. This form of treatment has eliminated the diarrhea in anywhere from 48 to 72 hours. This same treatment has been used by several other practitioners and experimental stations and in all cases seems to be a great benefit. However, it does not prevent the animals from becoming reinfected. To me it seems unreasonable to expect a drug or a chemical or an antibiotic to produce an immunity. Certainly it will not prevent reinfection nor will it produce an immunity. But if the premises are properly cleaned or if the pigs, when diarrhea ceases, are moved to clean quarters and then properly fed and cared for, we can usually get those hogs to market. In my experience corn should be eliminated from the diet of any hog with an intestinal disturbance. In my experience it takes at least 30 days after the hog has recovered from the initial attack to get him back on a full corn diet. Ground oats with 10 per cent alfalfa, preferably made into a wet mash, seems to be a satisfactory diet during convalescence. Corn should be avoided. Alfalfa and clover pastures are preferred. After the drove has apparently recovered, corn may gradually be added to the diet along with supplement so that the hog will be back on a full feed in approximately 30 days.

**New or Modified Viruses**

Today we have seven biological products from which to take our choice as to what product to use in attempting to immunize a drove of hogs. When these new or modified viruses were first released for use in the field, several veterinarians asked me the question, “What did I think these new viruses would do to the veterinary profession” Some of them seemed to have the idea that it would eliminate veterinary services so far as swine practice was concerned. My answer to these queries were that I did not believe that it would eliminate veterinarians, but it would, out of necessity, make us become better veterinarians if we expected to stay in the business.

In my opinion, that is about what has happened. Instead of the new viruses eliminating or eradicating hog cholera it has rather added more confusion to an already confused picture so far as hog cholera is concerned. If we are to believe what we read and hear so far as radio and television and the lay press is concerned, less than one-tenth of one per cent of the hogs having these products used on them die from any cause. Of course, I don’t know a great deal about the swine population other than in the state of Indiana. But in Hoosierland fire and lightening kills more than that. Now, of course, all I know about this thing is my own experience. But I have had more cases of expired immunity during this past year following the use of these modified viruses than I had in the previous 28 years following the use of serum and virus. Now I don’t know just what this condition is, but something kills these hogs in anywhere from 7 to 21 days following the use of these new or modified viruses. If they survive the first 30 days you sometimes get a condition that to me is identical with whatever this is that happens to them in anywhere from 7 to 21 days. Maybe it’s not hog cholera but at least it presents the same picture that we were taught and told was hog cholera. If these same hogs had not been treated with any product, and you saw the herd and performed the autopsies, I don’t believe that anyone would criticize you for making a diagnosis of hog cholera.

But I am perfectly sure that someone is going to tell me that I am not dealing with hog cholera.

*(Continued on Page 60)*
ANESTHETICS AND ANALEPTICS, THEIR USE IN VETERINARY PRACTICE

G. T. EDDS, D.V.M., Fort Dodge Laboratories, Inc., Fort Dodge, Iowa

The veterinary practitioner, in an effort to secure an anesthetic agent which will produce the best anesthesia and muscular relaxation in his surgical patients, is always eager to try newer drugs which give promise of approaching the qualifications of an ideal anesthetic. The volatile anesthetics have been in use for over 100 years with the introduction of an occasional new drug with certain advantages over the earliest of this group, that is, ether. One of the newer volatile anesthetics to be studied for its possible usefulness in veterinary medicine and especially in small animal surgery is trichlorethylene. This agent has the advantage over some of the earlier volatile anesthetics in that the period of induction is shortened and it is less toxic than some.

More recently, the barbiturates have been introduced and widely used in small animal medicine. The barbiturates have a number of advantages, perhaps the chief one being the fact that the animal, when properly anesthetized, requires little attention by the veterinary surgeon during the operation. Certain disadvantages, however, were experienced by the practitioner, in that, along with depression of higher centers of the cerebrum there was also depression of the medullary centers which would include those controlling cardiac and respiratory activity. Some of the barbiturates were noted to cause more respiratory depression than others with resultant tissue anoxia which predisposed to surgical shock. Again, since the barbiturates were absorbed and carried through the placental circulation to the fetuses, there was a similar depression of the respiratory activity of the unborn puppies. The barbiturates were likewise contraindicated in old or debilitated animals because of respiratory depression.

In an effort to counteract this depressant activity on the surgical patient, a practice developed wherein the animal received a small dose of one of the analeptics at the time of or shortly before administration of the barbiturate. This presumably caused a stimulation of the medullary centers without altering the activity of the higher centers. More recently research has shown that this combined therapy actually makes it necessary that a higher dosage of the barbiturate be given, and in a controlled series of animal experiments it was found that there was no increased safety in such combination. Instead it was proposed that the barbiturate be given to effect light surgical anesthesia, and after surgery was completed an analeptic such as desoxyephedrine or amphetamine could be administered to stimulate respiratory activity.

Recently a new barbiturate 5-Δ2:3-cyclohexenyl-5-allyl thiobarbituric acid, Kemithal, was developed in the laboratories of Imperial Chemical Industries Limited, of England. Carrington et al reviewed the pharmacology of this new agent and compared it to thiopental sodium. It was found that equiactive doses of Kemithal and thiopental produced a similar period of onset and duration of action. An important difference of the two was the fact that Kemithal caused less depression of the respiratory minute volume than did thiopental sodium. This eliminated the necessity of using the simultaneous administration of an analeptic with this agent.
Since Kemithal is one of the thiobarbiturates, like thiopental sodium and Surital sodium, it does cause some stimulation of the salivary glands. We have not found it to be as active in this respect as the other two agents but do recommend that the veterinarian use 1/150 to 1/300 of a grain of atropine sulfate administered subcutaneously about 15 minutes prior to administration of the barbiturate. This not only prevents the excess salivation but also serves as a slight respiratory stimulant and gives further added protection to poor surgical risks on old or delibitated animals.

Whereas thiopental sodium and Surital sodium produce anesthesia of a very short period and repeated doses are necessary for the average surgical procedure, veterinarians report that Kemithal anesthesia is sufficiently long for the majority of surgical procedures. Because of greater safety, it would seem that this agent would be of importance as a possible replacement for the widely used sodium pentobarbital.

Seneviratne and Pillai reported on the successful use of Kemithal in over 130 cases of major surgery in dogs. Their conclusions represent those received from veterinarians who have used this agent either in practice or on an experimental basis in the universities and colleges. (1) There was no period of excitement prior to anesthesia, (2) anesthesia was completed in one to three minutes, (3) the anesthetic may be given more rapidly than other barbiturates, especially thiopental sodium, without production of apnea, (4) the duration of anesthesia averaged 30 to 45 minutes and could be prolonged by repeating the administration of Kemithal, (5) recovery was more rapid than with the other barbiturates since Kemithal is almost completely detoxified in the body tissues, (6) and one of the most important advantages, the decreased excitement of the anesthesized animal during and after recovery.

The dosage schedule recommended and now being used by the veterinary profession is as follows: Over 50 lb., 0.15 cc./lb.; 30 to 50 lb., 0.20 cc./lb.; 10 to 30 lb., 0.25 cc./lb.; under 10 lb., 0.30 cc./lb. when the solution is made up according to directions or as a 10 per cent concentration by adding 10 cc. of sterile distilled water or sterile saline solution to the contents of the vial. Reports have been received wherein veterinarians were not able to get the material into solution. We feel these have resulted in most instances from the use of solutions which may contain small amounts of phenol or other organic chemical agents which react with Kemithal.

The sublingual veins may be used satisfactorily as one additional channel of administration of the intravenous anesthetics during surgery should the anesthesia become too light. Reports by Stockton and Barnes have indicated that satisfactory anesthesia can be induced in animals by intrapleural or intrathoracic administration of the barbiturate. Anesthesia has been induced in dogs and cats using this technique without any untoward results and with the production of a good surgical plane of anesthesia.

Since it has been reported that some of the barbiturates do not produce good relaxation of the abdominal wall, and veterinarians frequently report pushing of the intestines up through the abdominal incision, the fact that Kemithal gives satisfactory relaxation makes this another important advantage of this barbiturate over some of the old agents. In addition, Kemithal is less irritant than other thiobarbiturates and there is less likelihood of tissue reaction should

(Continued on Page 64)
VIRUS DIARRHEA IN CALVES

O. W. Fallback, Vet. Med. IV

A filterable virus causing pneumonia and enteritis in calves has been reported. The disease occurs in calves under one month and is characterized by fever, diarrhea, and pneumonia with deaths rare if the calves are given good care. Although deaths are rare, the calves develop slowly and are unprofitable.

This disease is seen throughout the year and in certain years epidemics occur during which the mortality and incidence are both higher. These years are cyclic in nature and occur every fifteen to twenty years. The years of 1930 and 1940 were peak periods in the Eastern United States.

Although the etiology of this disease is not definitely established, there is experimental evidence that the primary cause is viral in nature; however, it is unlikely that secondary invaders can be eliminated as associates under field conditions.

The known modes of infection include contact with the natural disease, contact with the experimental disease, intranasal and intratracheal inoculation of the filtrate.

The experiment carried on by Baker on newborn calves which had received colostrum, showed the following characteristics: fever in two to four days, then diarrhea followed by pneumonia; diarrhea followed the fever by one day; diarrhea and fever lasted only three to five days; feces were soft, yellow, fetid, and increased in amount; animals were malaise, anorexic, and preferred recumency during the active phase of the disease; with subsided fever, the animals regained their appetite and appeared normal except for weakness, increased respiration, and induced cough.

The gross lesions and histopathology included reddened small intestines with the mucosa covered with sticky mucus; mesenteric lymph nodes were enlarged and contained much fluid; no pneumonic lesions were noted in those killed early in the disease. Mixtures of desquamated epithelium and leukocytes were in the mucosal surface of the small intestine; there were cellular infiltration into the tunica propria of polymorphonuclear, mononuclear, and plasma cells and capillaries here were filled with blood.

Virus diarrhea in calves is reported from experiments in which calves were inoculated with a Seitz filtrate from human feces taken from four hospitals in which diarrhea outbreak in infants occurred. Four strains of virus were noted which gave the same picture and produced cross immunity. The incubation period was two to five days. The characteristics were as follows: slight anorexia and mild dehydration during the first few days of illness with an occasional calf prostrate; diarrhea with production of mucus in most calves and blood in the stools at some time during the course of the disease; temperature of 103.2 degrees to 104.2 degrees F. during the first three days; tenesmus and distension; relapse was a constant feature about three days after what seemed to be a significant improvement;

(Continued on Page 62)
RESEARCH IN VETERINARY MEDICINE

WALTER R. KRILL, D.V.M.
Dean and Professor, College of Veterinary Medicine

There are few fields of endeavor which are less understood and appreciated than that of research in the broad field of veterinary medicine. From both a public health and economic standpoint, it has a direct bearing on every segment of society. We can more fully appreciate the importance of animal diseases when we realize that there are well documented reports of at least one hundred such diseases transmissible to man. Edward Jenner in 1796 said: “The deviation of man from a state in which he was placed by nature seems to have proven to him a prolific source of diseases. From the love of splendor, from the indulgence of luxury and from his fondness of amusement, he has familiarized himself with a great number of animals which may not originally have been intended for his associates.”

Among animal diseases which may be transmitted to man are: anthrax, brucellosis, tuberculosis, leptospirosis, listeriosis, psittacosis, Q fever, Rocky Mountain spotted fever, toxoplasmosis, histoplasmosis, tularemia, rabies, and many parasitic diseases. These diseases may be spread in different ways: by direct contact, by insect vectors, by inhalation and ingestion, and by indirect means, such as contaminated water, food or soil. The control of these animal diseases in the human species is in a large measure dependent upon the restraint or eradication of these diseases in the animal species.

Perhaps the most classical example of the effect of the practical control of an animal disease and its resultant public health significance is that of bovine tuberculosis. Through research and development of satisfactory testing agents for the detection of tuberculosis in our cattle population has in turn practically eliminated tuberculosis infection of bovine origin in man in the United States. In addition, the eradication of bovine tuberculosis has resulted in an annual saving of millions of dollars to the cattle industry.

The need for veterinary research can best be appreciated when it is realized that animal agriculture failed to realize a potential $2,791,000,000 in 1951 as a result of losses from animal deaths alone. This does not include decreased income due to lowered production, retarded growth and inefficient feed utilization resulting from diseases such as mastitis, sterility, internal and external parasites, chronic pneumonia, Newcastle disease, and the like. The total of such losses from morbidity would without doubt equal those from mortality.

Foods of animal origin are nutritionally essential and relished by the American people. The rapidly expanding human population will demand more meat, milk and eggs. To meet this increasing demand for foods of animal origin we must reduce the enormous toll taken by disease. This will require a greatly expanded program of veterinary research. Immediately, we are faced with these important problems.

1. The need for additional funds for veterinary research. Large numbers of animals, in many instances, are required in order to establish that the results of investigation are statistically sound. Animals are expensive, and in long term research their feeding and care are a large item of expense. In most animal disease research there is no
salvage value; the animals must be considered expendable in order that data may be collected both ante- and post-mortem.

2. The need for more extensive facilities for housing animals used in veterinary research. Specially constructed housing is mandatory to prevent the spread of contagious diseases.

Both of the above problems are particularly acute in connection with the research program now under way. We are confident that funds for additional facilities would be forthcoming if adequate facilities were available for properly housing research animals.

Research as undertaken by our college should have two main objectives:

1. The opportunity and encouragement to those desiring to engage in research which will enable them to render service in the various fields of veterinary medicine, public health, animal science and allied areas.

2. The desire to develop fundamental knowledge in these areas and a determination of the utility value of such information.

To attain these objectives, research by graduate students should be directed to encourage independent thinking, the use of standard or new research techniques, and the evaluation of data under the supervision of competent and sympathetic advisers. Such research has among its aims the promotion of the spirit of inquiry and disciplining of the graduate student in the proper methods and approach in undertaking research. It may or may not contribute greatly to the immediate solution of a problem; the main purpose is to train scientists in whose hands future scientific progress in veterinary medicine will largely reside.

Even though hampered in inadequate facilities, research in this college has resulted within recent years in the discovery and reporting of twenty-two animal diseases previously not known to exist in Ohio; one disease of sheep not previously known to have existed on the North American continent; and one disease found in cattle and swine rather commonly in Ohio which had never been recognized in these species prior to its discovery in our laboratory.

From the public health viewpoint, research carried on by the college has contributed greatly to the nature, diagnosis and treatment of the following diseases: toxoplasmosis, histoplasmosis, brucellosis, Newcastle disease, listeriosis, leptospirosis and allergic encephalomyelitis. The isolation of Newcastle disease virus of poultry from conjunctivitis in humans was first reported by staff members of our college and represented the first report of this disease that had public health significance.

Diagnostic methods developed in our college for the detection of diseases include the capillary tube tests for mastitis and brucellosis, an intradermal test for the detection of histoplasmosis in dogs, a chick embryo test for the diagnosis of chronic respiratory disease of poultry, as well as the discovery of cytoplasmic inclusion bodies in cattle having malignant catarrhal fever. Methods have been devised for the differentiation between antibody titers of brucellosis in cattle caused by vaccination and by natural infection, and improved techniques for the diagnosis of parasites and parasitic diseases of animals have been developed. Many of these procedures have become practical diagnostic tests used widely by veterinarians.

Electrocardiographic studies recently reported will make clinical diagnosis of heart disease in animals more accurate;

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A PRACTITIONER’S APPROACH TO THE MASHED TEAT PROBLEM

ROY D. HOFFMAN, D.V.M., Bedford, Pa.

I have often wondered how many veterinarians, wholly familiar with the care of all kinds of farm animals, ever stop to think that each year literally billions of dollars of the nation’s wealth is funneled through openings in the cow’s teat which are never as large as a soda straw.

All of us know that the problems which the modern dairy farmer encounters from day to day are vastly different from those that plagued him only a few short years ago. Frequent changes in milk prices, reduced prices of meat on the hoof, varying prices of feed—whether bought at the store or produced on the farm—have surely made the modern cattleman conscious of what he once considered minor details.

Teat trouble of one kind or another is, perhaps, the one thing that makes the specialized dairy farmer run faster for the help of his veterinarian. He has developed an amazing amount of practical knowledge about the natural functions of the animals on which he depends for such a great share of his livelihood, but it is a high tribute to the intelligence of the successful dairy farmer that he looks for help—and fast—when something goes wrong with the milk delivery system between Bossie and the bucket.

Mastitis is the dairy farmer’s bug-aboo. We veterinarians have concluded that it will inevitably develop, when even the slightest amount of pressure, above normal, persists in the milking process for any considerable amount of time. Danger signals of too much pressure are not so easily spotted in the machine-milked herd.

Necrotic or dead tissue around the sphincter is usually found when checking for the cause of extra milking pressure. This necrotic tissue must be cleared out as quickly as possible. Bacteria will propagate in it and greater trouble is likely to result if there is delay in its removal. There is necrotic flesh in the sphincter area, frequently because blood circulation there has been impaired through accident or some other cause.

I have found that the Huggs forceps will do a good job, but it has a tendency to remove flesh around the canal below the obstruction when a BB-like structure has been created above the sphincter. I have had considerable success with a rotating knife which I developed. It has four blades which expand after insertion into the canal. The special knife has also proved very helpful in removing necrotic flesh from the sphincter area, and removing growths and obstructions above the sphincter. However, early medication may correct a number of injured teat conditions without surgery.

For leaky teats, inject tincture of Iodine at two or three points around the end of the teat. Inject enough to make a wheal about the size of a BB. Where a teat fistula is present, apply Butter of Antimony around the fistula and insert with a cotton applicator. Insert an applicator in the fistula when applying initial treatment and continue treatment around the fistula every two days until a scab forms.

When the sphincter area has become infected, a brownish rough scabby area is present around the opening of the teat canal. Milking becomes more difficult each day. Silver nitrate, 10 per cent, is indicated and should be applied

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THE CARE AND FEEDING OF LIVESTOCK PARASITES

D. C. Boughton, Technical Advisor, Animal Industry Products,
E. I. DuPont de Nemours Co.

In order to prepare this talk, I had to create, for all intents and purposes, a new science — economic parasitology. You are familiar with economic entomology, whose disciples are able to predict the time and place of grasshopper plagues and the northern march of the screwworm fly. Without losing sight of significant details of insect structure and physiology, economic entomologists have somehow learned to scan large geographical areas and to recognize their insects as invading hordes capable of causing measurable destruction. Some day I shall take time out and try to determine why there aren’t more economic wormologists. I shall probably discover several good reasons. My guess at present is that the development of economic parasitology is hampered by the insidious behavior of internal parasites and the taboo on treatment for internal diseases by non-professionals. But, as Kipling says, that is another story.

Let’s see what the economic parasitologist would do with the large roundworm of swine, Ascaris. He would first get the figure for the swine in the United States—54 million—and, second, a conservative estimate of average parasite load—10 worms. Now he sharpens his pencil and loosens up his slide rule. Fifty-four million times ten is 540 million worms. At 10 grams per worm, we have over ten million pounds of roundworms in the United States. This is only a modest poundage as modern production goes these days but a sizeable crop at that when one stops to think it was produced from microscopic eggs with ordinary swine rations.

But our statistics-minded parasitologist is just getting warmed up. He learns that a happily mated and well-fed roundworm gives forth 200,000 microscopic eggs per day. Allowing a moderate reproductive period of 150 days for each of the 270 million females, we get an annual production of eight million billion eggs. A single egg weighs less than one ten-millionth of a gram, but the year’s crop comes to over 700 tons, or nearly three million eight-ounce cans, if we were to pack it like shad roe. This 700 tons of ascarid eggs annually, as a by-product of our swine industry, compares favorably with the 18,000 tons produced by human infections in China, where host population is greater and infection heavier.

But parasites do more than eat and reproduce. They damage their hosts in various ways: Retarding growth, producing pathological symptoms and disease, and sometimes killing them outright. This damage is what has been so hard to measure and to correlate with parasite numbers, except when, for example, a parasite outbreak lays out dead pigs for us to count. Invading larval worms attack the lungs and wreck the liver. Labored breathing and harsh coughing are characteristic of this invading phase of infection. Pneumonia often follows. Adult worms disturb digestion by blocking the intestine or clogging the bile ducts. They are known to go berserk and to perforate the intestine—dragging bacteria into the body cavity, causing peritonitis.

Dr. L. A. Spindler of the U.S.D.A. took a healthy swing at answering the question as to what extent large roundworms inhibit the growth of pigs. I want to summarize his observations
briefly. Eight littermates, worm-free weanlings were kept in separate pens; four were fed infective ascarid eggs and four were kept as untreated controls; the pigs were observed for four months and then were weighed, slaughtered, and examined for parasites. At the end of the experiment the four uninfected pigs, as expected, had no worms; the four infected pigs harbored, respectively 12, 20, 39, and 109 ascarids. The uninfected pigs made relatively good weight gains during the test—an average of 0.8 pound per day. The weight gains of the infected pigs were definitely not this good—and the point of particular interest is that they get worse the more parasites are present. The actual figures were as follows: The pig with 12 worms gained 0.7 pound per day (the controls, remember, gained 0.8 pound); the pig with 20 worms gained 0.5 pound per day; the pig with 39 worms gained 0.4 pound per day, and the pig with 109 worms had a net loss of eight pounds at the end of the experiment.

This is only one test, of course, but it was well conceived, executed, and controlled. It certainly shows that roundworms reduce weight gains. Also is suggests that depression of growth is correlated with the severity of the parasitic infection, the latter being indicated in a general way by the number of adult worms present. The whole infection, of course, spans several weeks prior to the post mortem examination and includes the invasion of the lungs by the larval worms as well as the occupation of the intestinal canal by the adult worms. It should be of special note that when as few as 20 to 40 worms were found, average daily gain was only half what it should be and each worm cost the grower 1.6 pounds of weight gain during the four-month growth period.

Worms in Cattle

Now I'd like to consider our 93 million cattle and their gastro-intestinal nematode worms, the average infestation being estimated as 1,000 of these almost microscopic little beasts. It takes about 2,000 to make up the weight of one pig worm, but even so our annual cattle worm crops come to over 800,000 pounds. These bantam weights are prolific and showed our pastures with 180 tons of their microscopic eggs annually. This same tonnage in chicken eggs would require the full production for one year of 15,000 modern, 200-egg hens—and 500 tons of poultry feed. However, wild female worms are apparently much less efficient than contented hens and require 50 pounds of solids to produce a pound of eggs. On this basis, female worms alone consume 9,000 tons of solids. Adding two-thirds as much for the male worms gives 15,000 tons. This tonnage in livestock feed would cost over $1,000,000.

The board bill is actually much greater than this, because rather than feed parasites out of the feed bag, we manufacture their special diet in the course of the expensive process of making cattle blood and tissue. If only half the worms in the average infection are blood suckers and tissue eaters and each such worm removes only one cc. of blood or its tissue equivalent per year, then the loss is one pound per head or a total loss in this country of 93,000,000 pounds. I estimate a production cost of 30 cents per pound for good fresh cattle blood and intestinal mucosa. This makes the annual board bill $28,000,000.

These figures on the weight of living worms and worm eggs and on what it costs to feed our annual crop of cattle worms—challenging as they may be in their own right—are presented here primarily to emphasize the magnitude
of the living parasitic force with which the cattle industry must contend. It is obvious that all infections are not average and that heavier infections take a greater than average toll—some herds get by with the loss of a few pints of blood while others suffer severe damage. The total damage done by parasites, as with Communists, is very difficult to measure. I thought the foregoing might be helpful in sizing up the internal enemies of cattle in order to comprehend better their destructive power.

Heavy infections of gastro-intestinal parasites cause obvious disease and economic loss within the infected herd. The owner of a severely infected herd is easily convinced to treat and set up preventive measures, often, unfortunately, only after he has already sustained a sizeable loss.

As in the case with swine, however, the widespread unthriftiness due to low-grade parasitic infections is not easily recognized. The cattle industry has been slow in taking up the fight against parasites, primarily, I believe, because the infections in cattle are not as likely to produce spectacular symptoms as are those in sheep, for example. In many parts of the world sheep raising would be unprofitable, if not impossible, without worm control. Therapeutic treatment and continuous free-choice medication are part and parcel of sheep husbandry today. The sheepman was convinced because he was kicked in the pocketbook by something he could see—because he himself could directly relate death and morbidity in his flock with financial loss when he failed to practice worm control. I have little doubt that cattlemen today would be doing as good a job of parasite control as sheepmen had they been as severely shocked into a realization of its importance.

The young science of economic parasitology, however, is bringing to light a large economic loss resulting from what has up to now been shrugged off as mild parasitism. The practical result of this is, because there is already available an inexpensive means of control, that we can show cattlemen how to make more money right now.

The experiments are simple in design. Beef herds with various levels of parasitic infection are divided into two equal parts. One half is either given a single therapeutic treatment or a treatment followed by a regimen designed to drastically reduce infection. The other half serves as the untreated, unprotected control. Weight gains of the two groups are compared. The results are superior weight gains in the treated, protected groups—added beef giving a substantial profit above and beyond the cost of parasite control. A series of tests averaging four months in length showed an average extra gain of one-fifth pound per head per hog. In growing cattle, this bonus gain represents an extra profit of more than $10 per head per year.

I am counting on my new science to draw the attention of professional parasitologists and practicing veterinarians more directly to the cattleman's struggle with low-grade parasitic infections. Because the parasitologist has often collected parasites from hosts that are not sick, he has become especially sensitive to the distinction between parasitic infection and parasitic disease and is often inclined to consider low-grade infections harmless. The practitioner, on the other hand, has been trained to look for a disease condition that can be diagnosed by symptoms and identification of the causative agent. Acute parasitism would be recognized as verminous gastro-enteritis; unless the parasites caused an "itis," they would not necessarily attract his attention.

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It has been said that it takes twenty feeder cattle to provide as much work for a veterinarian as one dairy cow. However, the veterinarian located where there are numerous beef breeding herds as well as feeder cattle will find plenty of work and many problems to challenge his ability.

The amount of beef produced is directly proportional to the amount of feed consumed. Beef cattle on full feed consume an immense amount of forage, grain and protein concentrates. Their digestive system is working at full capacity and an error in diet—such as sudden change in feed, spoiled ground feed, irregular feeding or over-consumption by one individual may bring on a digestive disturbance.

**Digestive Disorders**

Laminitis is common in feed yard cattle, especially those being fed on shelled corn. If the condition is acute, Lenten 5–8 cc subcutaneously and one gallon of mineral oil via the stomach tube has given good results. Anti-histamines are also given in some cases. Drawing 250 to 500 cc of the animal's own blood from the jugular vein and injecting it into the pectoral muscles seems beneficial in treating chronic cases.

Diarrheas are commonly seen in beef calves or feeder cattle. They may be of dietary, infectious or parasitic origin. I think it is extremely important that the temperature of all such animals be taken to help determine the choice of drug to be used. I think everyone is aware of the fact that many so-called, “shipping fever” cases have a very profuse diarrhea and they do not necessarily have to be recently added to the herd. Such animals are treated as the ordinary shipping fever case—being sure to give sulfathiazole per orum.

The regular run of diarrheas as seen in the feed lot which are not showing a temperature are usually confined and put on a wild hay and oats ration after being treated as follows: Large doses of diarrhea powder (one containing catechu—being preferred) are administered in warm water by the stomach tube. One-fourth pound of powder is given to a 500 pound animal; one-half pound to a 1000 pound animal. Since bloody diarrheas are usually associated with coccidia infection, sulfaguanidine or sulfathiazole—one grain per pound of body weight is given in addition to the diarrhea powder in such cases. Repeated daily treatments may be necessary in severe diarrheas.

In cases of persistent diarrheas not responding to treatment, ova of the stomach worm can often be demonstrated on fecal examination. For stomach worm infection—two to three ounces of 12.5 gram per ounce suspension of phenothiazine given to calves—and four to six ounces to adult cattle gives good results. This is given with a dose syringe. I believe this is a condition that is overlooked by many practitioners, particularly, if they have cattle shipped into their territory from the warmer climates—as was true this past season.

Many times persistent diarrheas require supportive treatment in the form of 25% dextrose—500 to 1000 cc intravenously. Blood therapy is also used. We use citrated blood in most cases. Any condition which causes debility, anemia or dehydration—certainly calls for such therapy. Use 50 cc of 2½%
sodium citrate solution in a 500 cc bottle of drawn blood, agitate gently while drawing, and administer with a simplex intravenous outfit—giving one to two cc per pound of body weight—depending upon the condition of the patient and the animal's ability to tolerate the blood.

Uncitrated blood is used when taken from the dam and given to a newborn calf as a prophylaxis against infectious diarrhea and pneumonia. Blood here is given subcutaneously 240-400 cc per calf.

Acute indigestion can be demonstrated in the form of acute tympany, overloading of the forestomach, impaction of the rumen or atony of the rumen.

Bloats must be classified in to two categories—simple bloat and frothy bloat. The former type is the formation of gas above the food mass in the rumen. The later constitutes an intermingling of the gas with the ingesta.

Acute bloat is most apt to occur when the animals diet consists of a highly fermentable feed—such as lush clover or alfalfa pasture in the rainy seasons of spring or summer. However, it may occur on dry feeds such as good hay and a heavy grain ration.

The treatment of simple bloat depends upon the severity of the condition. If the animals distress is not too great, it may frequently be relieved by the stomach tube and anti-fermentatives in a gallon of mineral oil. If the distention is great and the animal is in danger of death—a small cattle trochar is used at once.

The treatment of frothy bloat is not so simple. Again the degree of bloat controls the procedure. If the condition is not too acute—we use a large steam hose as a stomach tube. This tube is passed through a mouth gag block. By manipulating this tube—pockets of gas can be penetrated and relief obtained. Medication similar to that used in simple bloat can be introduced by passing a regular stomach tube through the lumen of this large tube. A ruminatoric dose of lenten is administered subcutaneously unless contra-indicated.

If the animal is in danger of death—a large rumenotomy trochar is used. This trochar has a diameter of one-inch; a cannula nine inches in length, and is 14 inches over all. An incision is made through the skin of the left flank with a Bard Parker scalpel; the trochar is inverted, a baling wire folded double and by pumping this wire in and out of the trochar—much of the frothy ingesta can be removed. Guiacol compound, cow drench and fluid extract of nux vomica in cold water is pumped into the ingesta through the trocar cannula. After some relief is had a ruminatoric dose of lenten is given. Mineral oil is also sometimes used here as an anti-fermentative.

Atony or impaction of the rumen may be due to overfeeding—change to dry feed or traumatic gastritis. In treating this condition—Epsom salts—one pound by way of the stomach tube along with two drams of nux vomica is given. A 5 cc dose of lenten is also given as a supportive ruminatoric. Rumen tablets are left with the owner to give every four or five hours in one-half to one pint of water. Many of these cases are slow to respond and daily visits may have to be made unless response is had.

Respiratory Diseases

Frequently respiratory diseases that affect the larynx are encountered in a beef cattle practice. It may be due to an irritant or infection. These cases must be handled with as little restraint as possible or suffocation may occur. If the edema is not too severe in cases of urticaria, irritants or injury, recovery is often spontaneous. Intra-
venous administration of sodium iodide is very beneficial.

Croupous laryngitis is believed to be of an infectious nature. This infection causes a severe inflammation and edema of the larynx. A high fever of 105 degrees or more is seen in this condition and croupous shreds are usually discharged from the nostrils. Sulfathiazole per orum or sulfamerazine intraperitoneally given at the rate of two grains per pound of body weight along with a therapeutic dose of streptomycin and penicillin has given very noticeable improvement in 12 to 24 hours. Sometimes the treatment must be repeated in 24-48 hours to effect a complete recovery.

Calf diphtheria is a necrophorous infection affecting the larynx of the young bovine. A high fever of 105 degrees or more is present. The calves' breath has a very necrotic odor and the larynx has a caseated necrotic appearance. Sulfamethazine or sulfamerazine sodium—one to two grains per pound of body weight—along with penicillin and streptomycin has given good results. Repeated treatments for 24-48 hours are often necessary.

**Big Head**

Big head is a term applied to cattle which develop a doughy edematous swelling in the subparotid and sublingual regions. This swelling is usually gradual in appearance and as the swelling progresses the animal's ability to ingest food is impaired. Some run temperatures as high as 105 degrees. Sulfamethazine—2 grains per pound of body weight—along with penicillin and streptomycin has given good results. Repeated treatments for 24-48 hours are often necessary.

**Foot Rot**

Foot rot has been on the increase in my practice the last few years. Cattle shipped in from Montana and Western Nebraska seem to be the worst. With the coming of penicillin the treatment of foot rot was greatly simplified. One million-five-hundred-thousand to three million units—depending upon the size of the animal and the severity of the condition gives almost 100% results. Hiamine compound given at the rate of one pound to 50 pounds of No. 4 salt—acts as a good preventive.

**Vitamin A Deficiency**

Vitamin A deficiency is frequently seen in both the feed lot cattle and in the stock cow herds in my territory. Since red clover has been recognized as a better rotation crop than alfalfa not much alfalfa hay is fed any more—and it is high in Vitamin A. Also much of the Government sealed corn is being sold and it is 1948-1949 corn. This is also Vitamin A deficient. Many feeders feed their cattle on pasture for cheaper gains—then bring them into dry lot for the last thirty days of feeding. Some feed straw to help dry them up and sometimes run into trouble.

Vitamin A deficiency is characterized by a roughened hair coat, watery eyes and sometimes even cloudiness as seen in pink eye, edematous brisket and belly underline, sore footedness and edema of the legs.

As a corrective measure we use any one of the Vitamin concentrates that can be mixed with feed; two ounces of tankage per steer per day, and switch to new corn if old corn is being fed and alfalfa hay if possible.

**Photosensitization**

A condition not seen too often but one which can become quite serious is photosensitization. This is a dermatitis—characterized by superficial necrosis of the white or lightly pigmented parts of the skin. In my territory it is generally seen when cattle are grazing on
a pasture which has a heavy growth of white clover.

In the early stages the animals show a dejected appearance with excessive salivation, lacrimation and sometimes diarrhea. Later the animal licks itself, switches the tail and shakes the head. Shortly the lesions of photosensitization appear. There is a burned appearance of the muzzle, nostrils and eyelids. Exfoliation appears on the ears, anus, vulva and flank, and there is marked dermatitis of udder and teats. White areas are chiefly affected. The urine may be reddish brown in some animals. Deaths can occur before lesions of photosensitization are evident. The herd should be moved to dry lot and the severely affected animals protected from the sun. Skin lesions may be treated with zinc oxide in oil, udder lesions with sulfathiazole and urea ointment. Sodium thiosulphate 30% given early intravenously at the rate of one ounce per 100 pounds will reduce the mortality to a minimum.

Postparturient Hemoglobinuria

Postparturient hemoglobinuria is seen more than many practitioners realize. Maybe we should say it is not seen by practitioners more than we realize. It is a condition that can very easily be overlooked—unless the owner happens to see the animal urinate. It is characterized by coming on soon after calving, blood tinted urine, inappetance, sometimes stiffness of the rear quarters. Temperature is not a constant symptom. Sulfonamides are definitely contraindicated—so one must be careful of a diagnosis before treatment is started. Disodium phosphate—500 cc intravenously plus methenamine will give good results in most cases.

Bulls

Itching and loss of hair with negative scrapings in bulls during the winter months often grow to be quite troublesome problems about which veterinarians are consulted.

These heavily coated animals are frequently closely housed and accumulate dirt and particles in their hair from hay and bedding thrown down from a loft and the animals throwing trash and manure on their backs by pawing with the forefeet. Bulls are seldom groomed regularly—unless they might be on a show circuit, and this lack of attention contributes greatly to itchiness and alopecia. Other contributing factors are likely lack of sunlight and a low intake of Vitamins A and D, both of which figure prominently in the normal integrity of the skin.

To relieve this condition simply advise the owner to groom the animal well for a short time and if bad—to scrub with soap and water. Place animal on a good Vitamin A and D supplement and allow outside freedom as much as possible.

A purebred breeder selling beef bulls can have his troubles with sterility if a careless trucker is employed to transport the animal. It seems the nervous and sexual system of a bull is rather easily upset. A careless trucker, one who comes to sudden stops, starts fast, swings around curbs, etc., and throws the bull all over the truck does an injustice to both the owner and the animal. Many times such an animal will not settle a cow for a period of four to six months—although he may breed regularly.

Prepartum Prolapse of the Vagina

This serious and hard to handle condition is especially difficult in beef cattle. It is often accompanied by prolapse of the rectum.

Treatment is epidural anesthesia—to prevent straining while the vagina is

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This is a case report about a terrier cross that liked to do a lot of jumping, especially over a three foot fence. She was three years old, non-pregnant, and had never given birth to a litter of pups. She weighed 22 pounds.

This dog had been playing out in the yard with the kids before supper and came into the house for the evening about 6:30 p. m., Saturday. The dog was fed its usual table scraps after supper. Later that evening the dog wanted some water to drink. According to the owner, the dog drank two small pans full of water without stopping. Very shortly after drinking this unusual amount of water the dog vomited a lot of ingesta. The owner noticed that there was a large mass of grass present in the vomitus. The owner was not too much excited because she thought that the dog had drank too much water which caused the vomiting.

The dog seemed depressed on Sunday morning and again vomited. Then it was noted that the dog had lost control of her hind parts for she dragged her hind legs along under her by the use of her front feet. She wanted to remain undisturbed under the bed. She urinated in the house which was unusual. The urinations were excessive and were rather orange in color.

She was brought into the clinic on Sunday afternoon. At this time she went down in the posterior when forced to exercise. A convulsion was also noted. The dog was given 15 cc of mineral oil by the student interne in charge and placed in a cage in the ward. Do you have any idea what it is yet?

The Progressive Signs:

Monday morning the dog was very much depressed and stayed back in the corner of the cage. She showed very little response when called. When a close examination of the dog was made, the following observations were noted:

1) Dilated pupils with very little response to light.
2) Trembling all over.
3) Cold extremities.
4) Slight serous nasal discharge.
5) Champing movements of the lower jaw with a little saliva running from the corners of the mouth.
6) Respirations were labored (increased depth and rate—72 per minute).
7) Heart rate was slow, but the pulse was strong (60 per minute).
8) Temperature was 99.6 degrees.
9) Complete anorexia.
10) The bladder was full of dark yellowish-brown urine. It contained a lot of mucus material.
11) Palpation revealed no evidence of pain or injury.
12) Slight conjunctivitis.
13) Barely able to stand on hind legs for a few seconds.
14) Ear canals were normal.
15) In the evening there were champing movements of the jaws, stiffening of the legs, and head, and the neck was drawn back over the shoulders.
16) The laboratory results were abnormal:
   a) Concentrated urine—sp. gr. 1.051
   b) Bilirubin was present in the urine.
   c) There was a high percentage of neutrophils; Segs—79%; Non-segs—7%.
d) The total white count showed a slight increase; 16,670.

**Tentative Diagnosis**

1) Injury (hit by car, etc.).
2) Infectious disease (e.g., rabies).
3) Mineral deficiency such as eclampsia. There is usually more restlessness associated with this condition, muscular trembling, stiffness in gait, vomiting, anorexia, and the animal may fall on its side and convulse.
4) Poisoning.
   a) Thallium signs: Vomiting, anorexia, loss of vision, pupils widely dilated and not affected by light, no muscular tone, free blood in the stool. Recovery is prolonged.
   b) Coal Tar signs: Weakness, depression, stupid appearance, pupils are dilated, excessive salivation, convulsions, dark colored urine, and the animal lives only three or four days.
   c) DDT signs: Sensory disturbances, staggering gait, tremors, and possibly clonic movements.
   d) Chlorinated hydrocarbons signs: Signs are like those of DDT.
   e) Strychnine signs: Tetanic seizures are characteristic.
   f) Red squill signs: Small doses set up diuresis while large doses cause anuria, hematuria, nausea, emesis, diarrhea, and colic. Respiration are labored and quickened; there is prostration, convulsions, and death.

**Final Diagnosis:**

Our diagnosis was more or less clinched by the fact that the client reported, after the animal had been hospitalized for three days, that a neighbor had set out red squill poison for rats.

**Correlation of Signs with Diagnosis**

Assuming that you arrived at the same diagnosis as we did, we will go on to correlate the signs shown by the dog with red squill poisoning.

1) Squill poisoning may produce a purely degenerative and necrotic or an acute inflammatory process in the kidney. Therefore, if poisoning ever occurs in dogs from red squill, hematuria will probably be a symptom evidenced in this case by the orange colored urine.

2) Squill comes under the digitalis group of drugs, therefore an overdose of squill would be very similar to an overdose of digitalis. The following signs may be noted with an overdose of either of these drugs:
   a) Nausea and vomiting, which is probably due to a reflex by its action on the heart, may occur. It is an emetic. This dog had a history of vomiting.
   b) There may be diarrhea. Diarrhea is due to direct irritation on the walls of the intestine or by stimulating the walls to increase peristalsis. Diarrhea was not observed in this case.
   c) There may be diminished frequency of the pulse which would be caused by stimulation of the vagus centers and reduction of the conductivity through the auriculo-ventricular bundle. The heart rate was down to 60 in this case.
   d) There may be increased force of the heart beat due to direct action upon cardiac muscles with resultant increase in tone. There was a strong pulse pressure in this case.
   e) Toxic doses stimulate the respiratory center. The pulse rate was up to 72 per minute in this case.
   f) Convulsions may be seen in the

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While reading the King James version of the Holy Bible, you will find the word Apothecary mentioned in Exodus, Second Chronicle, and Ecclesiastes. In the more recent translations, the word used in place of apothecary has a different meaning, namely “Ointment cook or crusher.” Could it be that the slang phrases heard today such as, “What’s cooking,” or “heart crushers” may have originated ages ago in Babylonia?

The review of the Bible when searching for reference to drugs in the Bible was a very interesting adventure. We are better able to picture the people of those ancient times when we know more about their habits; they, like us, placed a great deal of confidence in medicine as well as those who administered it. We read in the 38th chapter of Ecclesiastes “The Lord hath created medicine out of the earth.” An endeavor will be made to relate how the early Christians interpreted these words.

Our earliest knowledge of drugs has been gained by deciphering a small number of remaining Babylonian-Assyrian clay tablets, of which only fragments still exist. The most recent discovery of historic pharmacy comes from Egypt, where the famous Papyrus Ebers were discovered. This Papyrus was well preserved and dates back to conventional scriptural chronology that corresponds with about the 21st year of the life of Moses. The next earliest record is in Exodus where the apothecary gives the prescription for holy ointment. To some extent the habits and practices of the Israelites were based on those of the Egyptians. About 2250 B. C. the retailers of drugs executed their trade in special streets of the cities. Here were sold turpentine, rose petals, calendula, styrax, sinapis, myrrh, asafoetida, castor oil, peppermint, fennel seed, opium, licorice, pomegranate, marihuana, balm of gilead, linseed, chamomillae, juniper berries, crocus, saffron, thyme, and pitch tar.

The Egyptian physicians were always priests, but all priests were not physicians. Among the Israelites the priests did not practice medicine at all, but some of the prophets did. In second Kings 20, v. 9, Isaiah gave a prescription “For a lump of figs to be lain on Hezekiah’s boil.” The prophets Elijah and Elisha were called to prescribe in a similar fashion.

Magic played a most important part in medicine as practiced in this period. It is amusing to us today to read of the methods which were practiced. Many drugs were given by a physician to act either as a charm or to invoke divine aid. A common cure for aghue was this magic remedy: “You must wait by a cross road until you see an ant carrying a load, then you must pick up the ant and its load, place them in a brass tube, saying as you do this ‘oh’ ant, my load be upon thee and thy load upon me.”

Many magical formulas are found in the Talmud, the Hebrew commentary of the Bible. Here it is learned that Solomon was credited among Eastern people with having discovered the secret of controlling disease by magical processes. According to Josephus, he composed and bequeathed to posterity a book of these magical secrets. Hezekiah is said to have suppressed this work, because it was leading people to pray to other gods rather than Jehovah. Nevertheless the secrets of Solomon were handed down by certain families by tradition. Joseph relates that a certain Jew named Elea-
zor drew a demon from the nose of a possessed person in the presence of Emperor Vespasian and a number of Roman officers, by the aid of a magic ring and a form of invocation.

For bronchial disorders a cure consisted of writing some Hebrew letters on a new plate, washing it off with wine, to which had been added three grains of citron which had been used at the Tabernacle Festival. They were then instructed to drink this concoction.

In Eastern Europe, especially in Turkey and Syria, quaint prayers and antiquated materia medica are still associated, just as they were in the days of Babylonian captivity. Dog livers, earth worms, rabbits' feet, live ants, human bones and powdered mummy still rank high as remedies. For patients who can afford it, such precious products as dew from Mt. Carmel were prescribed.

Many of the remedies that were used in the days of Christ have been traced to the early Egyptians. Melampus (1380 B.C.) prescribed "rust iron in wine" which was used as a tonic by the king of Phylacea. Today we dispense a similar tonic, in a modified formula, of course, and its value is unquestioned when used to combat anemia.

There are other prescriptions which have been found and are carefully preserved. Here are a few:

For a headache: Equal part of frankincense, cemen and goose grease, boiled together, to head to be anointed with this mixture.

For worms: Resin of acanthus, peppermint flowers, and lettuce. Equal parts of each to make a plaster.

You will notice that most all medicines were intended for external use, and it is not certain that the Bible made definite reference to medicine for internal use.

An eyewash: Honey in fresh milk.

To make hair grow (Dr. Diesem take notice): Oil of the Nile horse; powdered men-thol; powdered myrrh; Lead Vitriol or equal parts of the Greyhound (from Abyssinia), and Date Blossoms.

For a pain on the right side (which might have been appendicitis): Apply a plaster of equal parts of lettuce and dates boiled in oil.

It is interesting to note that in general medicines were to be given for four days, the ingredients were often four in number, and the incantations were to be repeated four times. The pythagoreans swore by the number four and reference for this figure from Egypt.

Here is a representative prescription for treating diarrhea:

Green Onions
Oil of Honey
Wax
Water (c.s. a pint)

Sig. (take 4 days)

It is noted that milk, wine and honey were the most common vehicles for the prescriptions.

Balm of Gilead is mentioned in Genesis 37 v. 25 and Genesis 43 v. 11. This product is still being sold by the Monks of Jericho to our soldiers who visit there. It is put up in ointment tins and said to be useful in the treatment of sores and wounds; it cannot be the true balm of the Bible. That balm is said to be a delicate resinous substance, of a dark red color, and is not used in modern pharmacy.

Frankincense is frequently mentioned; the Arabian or African variety is employed today, in India, and appears in many of our old remedies. It is slightly bitter in taste, and has an aromatic odor. It is known in the drug world today as olibanum. It is similar to turpentine in action.

Aloes and myrrh have a familiar ring to both the pharmacist and Bible reader, because they are mentioned more than any other drugs. Next in order of frequency is sweet spices, cinnamon and cassia being the most common. The
original variety of aloes is Socrotine aloes, so named because it was produced on the Island of Socrota, 333 years before the birth of Christ. This was the most probable variety used in the Biblical times and is mentioned as a perfumed wood. The aloe leaf was only recently found to have a curative principle when applied to x-ray burns. Crude aloe is rarely used in human medicine.

Myrrh is a resin extracted from a tree growing along the borders of the Red Sea. The tincture is a valuable medication and is in common use today. Mecca balm was collected in the valleys near Mecca, and is said to be the true myrrh of the Bible.

Cassia is still in common usage as shown by the fact that 12 million pounds were imported into the U.S. in 1939. From what source the ancients derived their cinnamon and cassia is not known. Neither the plant nor localities referred to correspond with our present day knowledge; however, it is presumed that the cassia of the Bible was brought from China by Arabian navigators. God's cinnamon is a synonym for Sargon cinnamon.

Josephus is referred to in Exodus 30 v. 23, when the holy anointing oil is prescribed after the “art of the Apothecary”. The formula for holy oil was:

- Flowing Myrrh
- Sweet Cinnamon
- Sweet Calamus
- Cassia
- Olive Oil

It is known that the oil could not have been very thick as we read it trickled through Aaron's beard.

In Genesis 50: 2-3 the physicians of Joseph's household were commanded to embalm his father, it is presumed that they were apothecaries. Hanamiah is referred to in the book of Nehemiahas. In Second Chronicles 16:14 the apothecaries' art was mentioned in relation to the preparation of sweet odors and kinds of spices for the burial of King Asa.

Pharmacists of the present days are still called upon to make anointing oils and incense. The formulas have changed, the Catholic church no longer uses the formula given in Exodus 30:24, but one made up of olive oil, benzoin, storax, sugar, cascarrilla and nitri.

Apothecaries of days long past were supposed to have an extensive knowledge of vegetables and vegetable drugs. The story of Jonah's Gourd was discussed in the Bible. It seems that the plant of which we read in Jonah 4: 6-10 was a plant which grew very quickly and was destroyed very rapidly. It is stated that the Lord made this plant grow in a single night over the booth which the prophet had erected; “it provided shade which made Jonah exceedingly glad.” The next morning, however, a worm attacked it and it withered. Modern historians think it may have been the castor bean plant.

Dr. Thaddeus Harris writes a curious account of a violent dispute occurring between St. Jerome and St. Augustine concerning the identity of this plant. According to the author, they not only differed in word, but the words lead to blows and St. Jerome was accused of heresy at Rome by St. Augustine. St. Jerome thought the plant was ivy, and pleaded by authority of Aquilla Symmachus and Theodotim. St. Augustine thought it was a gourd and was supported by the Seventy: The Syrian, and Arabian Intelligentsia. Had either of them seen the plant? Neither! Perhaps here we may learn a lesson, and let the error of pious men teach us to think and act more mildly, if not more meekly and humbly, with respect to our own opinions, especially when the subject is

(Continued on Page 67)
Fall quarter started out with a bang for O.T.S. men. We've just about settled back into the normal routine of classes et al. It started out with two nights of rushing during which we were fortunate to pledge thirty-four of some of the most spirited freshmen we've had in a long time.

Social Chairman Merlin Oswalt has been really packing them in for the parties held so far. The first was a record dance on October 16, after watching the tall corn from Iowa being cut down at the stadium. On October 23 our annual Homecoming Buffet Dinner and Dance was held at the house after forty alumni, their guests, and some 50 undergraduates and dates had watched the number one team in the nation beat Wisconsin. Our Fall Formal will be held at Whitehall Inn on November 13. A hayride is scheduled for November 6.

Vice-President David Hein, Treasurer Dick Johnson, along with Brothers Bob Dunton, Carl Jolley and Harry Newell have just returned from a trip to the Grand Council Meeting held at Cornell University, Ithaca, N. Y. Aside from the invaluable info they brought back, they no doubt made Gamma Chapter many good friends there.

You can see a distinct change in the dinner manners of many of the O.T.C. men as they get in practice for the exchange dinners with sororities which we will hold this year.

Brother Stephen Wolford has succeeded in enticing over 60 men per day to make their way up to 115 E. 14th for Helen's cooking.

Two football teams and a volleyball team have been fielded this year and we expect them to add to our trophy list.

Thanks to you alumni and your prompt dispatch of Senior Notes, plans for a gas furnace to replace the old one are now taking definite shape. Brother George Blind is cracking the whip (he even has a union card) and with the continued cooperation of alumni plus the muscle of the active chapter we will dispose of our electric blankets and gas masks very shortly. (The Smithsonian Institution was the highest bidder for our old furnace.)

House Manager John (Simon Legree) Bryk with the assistance of Bro. John Miller and others have been working on the further modernization of our plumbing.

Pledges Don Bartels and Bob Wedick along with Brother Guy Beretich are members of O.S.U.'s Varsity Track team. Beretich also puts his time in on Cross-Country. Brother Jerry Welbourne pole-vaulted his way to a free trip through Europe this summer, and in the process broke many records. We expect him to go over 15 feet this winter.

Remember, OSVMA meets in Columbus
January 5, 6, 7.
The Alpha Psi boys seemed very eager to get back in the swing of campus activities this fall, after a summer of various activities. Many worked, others traveled, and a few ventured to Texas to ROTC camp. One brother, Everett Fleming, traveled to Seattle, Washington, to attend the AVMA convention as a student delegate from the college. Regardless of their activities, every man appeared in Columbus for the opening of school.

During each summer several men always forsake fellowship for a new type of life. We are very happy to welcome the following brides into the fraternity: Marilyn Louys to Merle Kelly, Mary Lee Williams to Ned Rudd, and Nancy Jessup to Dick Jones. Best of luck and happiness to you fortunate people. Also two new Alpha Psi members appeared this summer: a boy to Dick and Marilyn Schmidt, Joseph Michael, and a girl to Harry and Marilyn Conley, Jean Ellen. Congratulations on the arrival of these fine youngsters. In addition two fellows are planning the fatal step. We are happy to announce the marriage of Celia Wright to Bill Lovell, and Laura Kramer to Byron Cohen. Congratulations!

First on the Alpha Psi fall agenda is the rushing program. The Alpha Psi men turned out en masse for this occasion and twenty really fine men have been added to the fraternity.

The football team this year seems to be going “great guns” with lots of spark and enthusiasm. Up to the time of press the “men of iron” have won two and lost one. In addition the two bowling teams show great possibilities for a very successful season.

The social calendar this year looks more enticing than ever, which highlights a dinner-dance at the Beechwold February 26, and a spring formal May 21 at Buckeye Lake. A splendid group appeared for our hayride October 16, which ended in excessive moisture. A great number of alum’s came back to their alma mater this past October 23 for homecoming, for a buffet dinner, and a dance at the house. The party was a tremendous success and every member spent a marvelous evening visiting with old classmates and the younger men in the fraternity. All you alum’s are urged and cordially invited to attend all the social functions and visit the house as often as possible.

We are most happy to have Dr. John Ramge as faculty adviser, with Dr. C. R. Smith as the “veep”. These illustrious men assumed the reins, after Dr. D. O. Jones temporarily left the faculty to further his education.

The small cocker spaniel—now a popular pet among suburban and apartment dwellers—was a favorite in Queen Elizabeth’s day. In explaining their appeal, Dr. John Caius, 16th century court physician, wrote: “These dogges are little, pretty and fyne, and sought for to satisfie the delicateness of daintie dames.”

A. “What’s worse than being a bachelor?”
B. “Being a bachelor’s son.”
ALUMNI NEWS

The Speculum congratulates Dr. and Mrs. W. D. Worthington on their Golden Wedding Anniversary. The happily married Worthingtons live in Harrisburg.

Dr. A. J. Wolf, '74, of Bolivar, Ohio, passed away recently. He had been in practice for 46 years, 41 of them in Bolivar. He suffered a heart attack while making a call.

Dr. H. L. Little, and Dr. R. D. Little ('43) both of Jeffersonville, Ohio, exhibited their Brahma cattle at the recent Ohio and Kentucky State Fairs. Their entries won three first places, two second places, and four third place prizes. One of the bulls shown at the Ohio State Fair was sold and exported to Colombia, South America.

Dr. and Mrs. Charles Griffin, Springfield, Ohio, and Dr. and Mrs. W. H. Pavey ('30) Xenia, Ohio, spent a two weeks fishing vacation in Canada last summer.

Dr. William F. Ludwig, well-known Belmont county veterinarian, passed away in Barnesville August 22. Dr. Ludwig was 70.

Dr. Robert E. Oaks is now practicing in Logan, Ohio. Dr. Oaks was formerly with the Stiles Clinic at Huntington, W. Va.

Dr. Harry A. Stolpestad, Fosston, North Dakota, died on June 16, 1954 following a heart attack. He had practiced at Fosston for 36 years and was a director and former president of the local bank.

Dr. J. V. Crago of Warren receives our sympathies upon the passing away of his mother, Mrs. Martha M. Crago. Mrs. Crago, who was 74, was one of two Ohio mothers with 4 veterinarian sons.

Dr. C. A. Henley became a grandparent for the first time when Robyn Sue Jones was born last April 2. Dr. Henley lives in Jacksonville, Illinois.

Dr. Thomas W. Craver passed away October 3, 1954. He was associated with his brother, Dr. Nevin S. Craver, ('21) in the operation of the Craver Animal Hospital in Youngstown, Ohio, for the last 25 years. He was president of the American Animal Hospital Association for the year 1946-1947 and had a prominent part in the affairs of that organization. He is survived by his widow, a son and a daughter.

Dr. H. A. Lidikay, Darlington, Indiana, formed a partnership last July 1 with Dr. John Coltrain ('53).
Crago, one of only two Ohio mothers with four veterinarian sons, was 74.

Dr. and Mrs. W. H. Pavey of Xenia have been enjoying great success at rose shows throughout the mid-west. Five years ago the Pavey’s set out six rose bushes to help landscape their new office-home. Now with 175 bushes producing 75 different varieties the Pavey’s have won at least one ribbon at every show they have entered. This fall was especially sweet since Dr. and Mrs. Pavey won the “Queen of Show” in Columbus and then showed the “King of Show” in Dayton the following week.

Dr. Charles R. Pastors, Staunton, Virginia, passed away May 3, 1954. He was a general practitioner, had served as president of the Virginia Veterinary Medical Association, and had served for five years on the Virginia Board of Veterinary Examiners. He is survived by his widow and two young children.

Dr. T. P. Nankewis of Eveleth, Minnesota, was recently appointed to the Minnesota State Board of Veterinary Examiners. Dr. Nankewis is also Chairman of the Board of Education in Eveleth.

Dr. L. A. Gray of Bushnell, Illinois, passed away October 6, 1954.

Dr. Arthur A. Rohrer of North Hollywood, Calif., died at his home on April 8. Dr. Rohrer, who had been ill for several years, was 56.

Dr. and Mrs. W. R. Henson of Shelby, Ohio, vacationed at Olive Lake in Canada last summer.

Dr. Ralph Hartman, formerly of Condersport, Pa., has purchased the practice of Dr. W. O. Hynes of West Salem, Ohio.

Dr. J. H. Binnig, Minerva, Ohio, recently spent a week fishing in Northern Quebec.

Drs. George Nixon, Sr. and George Nixon, Jr. ('54) are now occupying their new animal hospital in Alliance.

Dr. F. M. Collins of Oakland, Neb., passed away May 5, 1954.

Dr. W. O. Hynes, formerly of West Salem, has purchased the practice of Dr. Douglas Traphagan in Cleveland.

Dr. Paul Boyer has opened a practice and purchased hunting and fishing cabins in Curtis, Michigan.

Dr. and Mrs. F. M. Schwarm of St. Paris were blessed with a daughter on June 1.

Dr. and Mrs. C. A. Kackley, Marietta, Ohio, made a four-week visit to Europe last summer. Their trip was by air and they visited France, Germany, Italy and Switzerland before returning home.

Dr. H. A. Gray of Bowling Green, Ky. is the new second vice-president of the Kentucky VMO. Dr. Gray was elected at the annual meeting in Louisville.

Dr. W. W. Boyd of Hodgenville, Ky., was elected president of the Kentucky VMA at the annual convention held in Louisville in July.

Dr. and Mrs. M. C. Stewart of Wren, Ohio, became the proud parents of a new baby girl, Melinda Kay, on September 23.

Dr. and Mrs. R. H. Leed of Canton, Ohio, recently vacationed for two weeks in Florida.
Dr. and Mrs. L. H. Terrill, Wadsworth, Ohio, vacationed in New York City last summer.

'42

Dr. J. G. Miller of Clinton, Ky., was elected first vice-president of the Kentucky VMA at the annual convention held in Louisville last July.

Mrs. Martha M. Crago, mother of Drs. Charles C., V. G., J. V. and W. H. Crago passed away August 12. Mrs. Crago, one of two Ohio mothers with 4 veterinarian sons, was 74.

Dr. F. G. Glover of Evansville, now has as an associate Dr. Charles H. Armstrong.

'43

Dr. V. L. Nichell of Winchester, Ky., was elected third vice-president at the annual Kentucky VMA meeting held in Louisville in July.

Dr. Carrol P. Tossey and Richard A. Ripley now are full owners of the Lake Animal Clinic, Antioch, Illinois. Formerly Dr. George W. Jensen (CVC '18) was senior partner in the operation of the clinic but he has now retired and his disposed of his interests to Drs. Tossey and Ripley.

Dr. R. W. Grossman of Zanesville was elected Lieutenant Governor of Zone D, District 2, Sertoma International Clubs. Dr. Grossman was formerly president of the Zanesville Sertoma Club.

Dr. Ralph T. Fireoved again is associated with Dr. O. Norling-Christensen of Wilmette, Ill. Dr. Fireoved recently completed a tour of duty with the armed forces.

Dr. R. D. Little and Dr. H. L. Little ('07) exhibited their Brahman cattle at the recent Ohio and Kentucky State Fairs winning three first places, two second places, and four third place prizes. One of the bulls was sold at the Ohio State Fair and exported to Colombia, South America. Dr. R. D. Little is now serving his third term as president of the Central Brahman Breeders Association which is comprised of the states of Pennsylvania, Ohio, Kentucky, Illinois, Indiana, and Tennessee. The doctors live at Jeffersonville, Ohio.

'44

Dr. Robert L. Bay is now occupying his new animal hospital at Delta, Ohio.

Dr. and Mrs. R. E. Edmondson of South Charleston, Ohio, visited Virginia Beach during the summer.

Dr. Juan Figueroa has been elected president of the Peruvian Veterinary Medical Association.

Dr. and Mrs. R. E. Allison of Decatur, Indiana, spent some time fishing this summer.

Dr. R. J. Edwards has returned from army service to rejoin Dr. N. S. Craver ('21) in practice at Youngstown.

Dr. J. Dale Richardson, of Montpelier, Indiana, is now with J. C. Penney Cattle Ranch, Route 1, Hamilton, Mo.

Dr. Fred A. Nichols of Alexandria is now occupying his newly completed office and hospital combination.

Dr. J. H. Sautter was recently appointed head of the department of pathology and parasitology, University of Minnesota School of Veterinary Medicine.

Dr. and Mrs. Marvin Phillips of Athens, were blessed with a son on April 7.

'45

Dr. and Mrs. W. H. Culbertson of Joy, Illinois, became the proud parents of a baby daughter, Jane, on September 29, 1954.

Dr. and Mrs. P. B. Johnston, Madeira, Ohio, became the parents of a new boy, Stephen Henry, last June 4.

Dr. and Mrs. W. J. Lavalle of Troy were blessed with a son, Philip Thomas, last August 2.

Dr. R. E. Swinderman and Dr. W. G.
Orr are now occupying their new small and large animal hospital at Kewanee, Illinois.

Dr. and Mrs. D. E. Mossbarger of Bloomingburg were the proud parents of a new daughter, Jean Ellen, on February 25.

Dr. John H. Cryan of Westerville has just recently completed a new small animal hospital.

To Capt. W. H. Crago, stationed with the armed forces at Wichita, Kansas, is extended the deepest sympathies of the Speculum staff upon the passing away of his mother, Mrs. Martha M. Crago. Mrs. Crago, one of two Ohio mothers with four veterinarian sons, was 74 when she passed away August 12.

Dr. and Mrs. Elmer Eichhorn, of Middletown, Indiana, announced the birth of their fourth son on August 17. The new boy’s name is Daniel Ray and he weighed 7 pounds 12 ounces.

Dr. James P. Bailey, former manager of Leatherwood Farms is now operating his new hospital on the Bluefield-Princeton Road, Bluefield, W. Va.

Dr. W. E. Buhler, Rushville, Indiana, recently came out loser in a contest between him and a steer. He was participating in a rodeo and after he had roped the steer, he was pulled from the saddle and then stepped into a chuck hole and broke his leg.

Dr. Wm. G. Orr and Dr. Robert E. Swinderman have completed a new hospital in Kewanee, Illinois.

Dr. Horace W. Mackey is now occupying his new hospital in Oxnard, Calif.

Dr. and Mrs. Dale Schneider of Canton are the happy parents of David George, born June 20.

Dr. R. L. Schubert has moved to Claypool after selling his practice in Lancaster to Dr. E. R. Taylor ('53).

Dr. and Mrs. R. L. Miller, Ashland, Ohio, spent a week fishing in Northern Michigan. They stayed at a resort operated by Dr. Paul Boyer ('39).

Dr. Woodrow Carr, formerly of Caldwell, Ohio, has started practice at Roachdale, Indiana.

Dr. Wm. Carr has opened his own practice in Aiken, South Carolina.

Dr. and Mrs. E. K. Buckley of Painesville were presented with a son, Richard, on May 10.

Dr. H. G. Headley of Camden was elected vice-president of the Tri-County VMA at their meeting held June 30 at LeSoursville Lake.

Dr. and Mrs. Don Price of Sonora, Texas, announced the arrival of a third daughter, Donna Jean, on April 27, 1954.

Dr. and Mrs. Edwin L. Davis received a son, Jeffery Lee, on May 14. The Davis' reside in Waynesville.

Dr. R. L. Toops married Miss Joanne McMillen of Cleveland. Our best wishes to the newlyweds.

Dr. D. W. Smith and H. E. Held (ISC '42) have taken over the practice of Dr. A. A. Turner (Ind '23) in Freeport, Illinois.

Dr. Edgar F. Zoerb of Kiel, Wisc., has been elected to honorary membership in the Kiel High School Chapter of Future Farmers of America for his "outstanding aid to agriculture" during 1953.

Dr. and Mrs. R. F. Strahler and family of Abingdon, Illinois, vacationed in Ohio in June. The Strahlers are now living in their new home and office in Abingdon.

Dr. L. E. Shawhan has set up his own
practice at Macomb, Ill. He was formerly associated with Dr. F. C. Jones ('13) in Macomb.

Dr. and Mrs. J. M. Westfall of Greenville were the proud parents of Carolyn Sue. Carolyn was born April 25.

Dr. and Mrs. R. A. Hanawalt, Kinsman, Ohio, vacationed at Conneaut Lake, Pennsylvania, last summer.

Dr. and Mrs. Joseph W. Ralston, 4217 Mayfield Road, South Euclid, Ohio, recently wrote to us telling of the arrival of a baby girl, Cindy Lee, on July 12, 1953.

Dr. Paul A. Didion of Jefferson, Wisc. spent part of the past summer fishing in Canada.

Dr. E. L. Davis of Waynesville was elected president of the Tri-County VMA at a meeting and dinner at Lesourdsville Lake last June 30.

Dr. Charles H. Armstrong who was formerly associated with Dr. Harry W. Booth in Chicago is now associated with Dr. R. C. Glover of Evansville, Ind.

'52

Dr. Richard C. Weldon has opened his New Blossom Valley Animal Clinic located at 331 North San Jose-Los Gatas Road, Campbell, California.

Dr. M. E. Doerr has established general practice in Wheelersburg, Ohio.

Dr. V. W. Morrison of Montpelier his disposed of his practice and has joined the U. S. Agricultural Research Service.

Dr. and Mrs. D. W. Palmer of Amanda received an income tax exemption named Thomas David on March 22.

Dr. and Mrs. V. E. Humm of Plain City, Ohio, vacationed at Lake Erie last summer.

Dr. Forrest Cole will soon open a new small animal hospital on Mentor Avenue in Painesville.

Dr. and Mrs. L. A. Schroeder are the proud parents of a baby boy born last April 28. The Schroeder’s live in Hartford City, Indiana.

Dr. and Mrs. D. W. Wahl of Georgetown were happy to announce the arrival of Sally Ann on May 13.

'53

Dr. John Coltrain, Darlingtonton, Ind., became a full partner to Dr. H. A. Liddikay ('29) as of last July 1.

Dr. R. L. Craig and Miss Evelyn Barber were married in June. Dr. Craig is in practice in Painesville.

Dr. E. R. Taylor of Sugar Grove, has purchased the practice of Dr. R. L. Schubert ('50) in Lancaster.

Dr. Richard J. Haxby has moved from Kewaskum, Wisc., to Sycamore, Ill., where he has entered practice with his brother.

Dr. Dale E. Smith moved from Lisbon, Ohio, to Caribou, Maine.

Dr. H. E. Wilkin has returned to Ohio to practice after spending some time in practice near Minneapolis, Minn. Dr. Wilkin is located on North Walnut St., in Van Wert.

To Dr. John McClain we extend our congratulations on his summer marriage.

Dr. D. K. Adams formerly of Fremont has purchased the practice of Dr. V. W. Morrison in Montpelier, Ohio.

Dr. O. W. McClung married Miss Mary Lou Holland, October 2nd at Richmond, Virginia. Dr. G. F. Pfeifer attended the wedding.

Dr. Russell Stryffeler, Uhrichsville, Ohio, is now in Uncle Sam's army.

'54

Dr. F. P. Sattler is now associated with Dr. R. C. Vierheller (Col '39) at Whittier, California.

Dr. Earl Lindsey, Jr., is opening an office in Dalton, Ohio. He was formerly associated with Dr. D. H. Bachtel ('33) at the Canton Veterinary Hospital.
Dr. Raymond Cerniga is now with the Willett's Animal Hospital in Los Angeles, California.

Dr. John Nehay is associated with the State of California Department of Animal Industry. He is connected with the Sacramento office.

Dr. Alfred Bettman is associated with Dr. McChesney at Petaluma, California.

Drs. George Nixon, Jr. and George Nixon, Sr. ('36) of Alliance have recently completed a new animal hospital. Dr. and Mrs. George Nixon, Jr. also announced the birth of a daughter, Sandra Kay, on October 1, 1954.

Dr. John Liggett of Lisbon, Ohio, has reported for military duty. His brother Dr. Tom Liggett now in service expects to return to practice in Lisbon this winter.

Dr. and Mrs. W. L. Thomas of Ashley were presented with a son, Eric Joseph, June 11.

The following are the latest addresses we have for the graduates of 1954:

Dr. Robert Alexander, Hanover Animal Hospital, 211 Franklin St., Forest Park, Ill.

Dr. Paul M. Arnestin, 3149 E. Derbyshire, Cleveland Heights, Ohio.

Dr. Dean Baker, U. S. Air Force Veterinary Corps.

Dr. Harry F. Bartels, Route 2, Burton, Ohio.

Dr. Alfred Bettman, Petaluma, Calif.

Dr. Robert L. Boger, 1270 Willard Ave., Warren, Ohio.

Dr. Norris E. Boothe, 112 W. Division St., Chicago, Ill.

Dr. Robert Lee Burwell, Sunbury, Ohio.

Dr. John G. Butler, Brown's Lane, Route 1, Coshocton, Ohio.

Dr. Raymond M. Cerniga, 11170 Olympic Blvd., Los Angeles 64, Calif.

Dr. Richard W. Cook, Cortland, Ohio.

Dr. William E. Covert, 2509 Clermont Dr., Columbus, Ohio.

Dr. Franklin A. Coy, 8208 Carnegie Ave., Cleveland, Ohio.

Dr. Alan P. Cragg, Route 4, Chardon, Ohio.

Dr. Wayne C. Culbertson, 178 W. Mound St., London, Ohio.

Dr. Layson T. Doty, Miami, Fla.

Dr. Forrest E. Ferris, Oxford, Ohio.

Dr. Jerome F. Fix, Route 1, Beechwood Rd., Newton, Ohio.

Dr. Thomas B. Follis, Ohio State University Veterinary College.

Dr. Albert W. Franzmann, 1450 Ross-Mills-ville Rd., Hamilton, Ohio.

Dr. Albert A. Gabel, Ohio State University Veterinary College.

Dr. Thomas Gigliotti, Jr., Canton, Ohio.

Dr. Karl S. Grady, Jr., 1038 N. Bend Rd., Cincinnati, Ohio.

Dr. Robert A. Hakola, U. S. Air Force Veterinary Corps.

Dr. Robert Turriff Hance, Box 108, Route 3, Loveland, Ohio.

Dr. George W. Hofmann, 1473 Neil Ave., Columbus, Ohio.

Dr. Harvey G. Hollis, Route 31, Charlestown Rd., New Albany, Ind.

Dr. Raymond E. Houk, Logan, Ohio.

Dr. James T. Jantz, Route 1, Box 35, Elgin, Ill.

Dr. Ernest Kaszar, Dorset, Ohio.

Dr. Richard A. Kindinger, Route 2, Crestline, Ohio.

Dr. Matthew E. Legge, Box 834, Winter Haven, Fla.

Dr. John H. Liggett, U. S. Veterinary Corps.

Dr. Earl E. Lindsay, Jr., Dalton, Ohio.

Dr. Donald B. Martin, Route 1, Pekin, Ind.

Dr. Jack A. McGuire, U. S. Air Force Veterinary Corps.

Dr. George F. Nixon, Jr., 1452 W. State St., Alliance, Ohio.

Dr. Charles J. Ogi, 150 N. Main St., West Bend, Wisc.

Dr. Forrest H. Oliver, 1559 Enlow, Evansville, Ind.


Dr. William C. Patterson, Parkersburg, W. Va.

Dr. John J. Pfost, Ripley, W. Va.

Dr. Lloyd W. Prasuhn, Route 4, Greenville, Ohio.

Dr. Forrest A. Reed, Parma, Ohio.

Dr. Gerald B. Reed, 1028 Proprietors Rd., Worthington, Ohio.

Dr. William J. Roenigk, Ohio State University Veterinary College.

Dr. Herbert W. Salter, 6221 Bluffton Rd., Ft. Wayne, Ind.

Dr. Frederick P. Sattler, 16132 E. Risely St., Whittier, Calif.

(Continued on Page 57)
Dean Walter Krill attended the Summer ROTC camp at Fort Sam Houston, Texas on July 25-29 to accompany the students on the trip to the King Ranch and addressed the student body on the closing day of the camp. On August 20-26 Dean Krill attended the American Veterinary Medical Association meeting in Seattle, Washington, and presented a paper at the Pre-Convention Conference. He also served as Chairman of the Board of Governors and Executive Board of the Association.

New faces dotting the ranks of faculty members this autumn are:

Dr. Adrian Gross, a 1954 graduate of Ontario Veterinary College, is doing graduate work in pathology and instructing the sophomores in general pathology laboratory.

Dr. Maurice, also an Ontario graduate of 1954, is associated with the department of pathology as a graduate student and will assume an instructor's role when he begins teaching the sophomores during winter quarter.

Dr. James Donham (OSU '52) is now ambulatory clinician. The two year interim since his graduation was spent in general practice at Garett, Indiana.

Dr. W. J. Roenigk (OSU '54) is resident veterinarian and handles reception of patients at the clinic.

Dr. A. Gabel (OSU '54) is a resident and assistant ambulatory clinician.

The staff extends to these men a warm welcome and since best wishes in their new fields of endeavor.

Dr. D. O. Jones, a member of the staff of the Department of Veterinary Medicine, received a scholarship from the Harvard School of Public Health. He has been given leave of absence to attend Harvard University and is at present pursuing work that will lead to the degree of Master of Public Health. He is expected to remain at Harvard with his family until early next summer. At that time he will return to the college.

Dr. John Helwig, Chairman of the Department of Veterinary Preventive Medicine, presented a paper intitled "Undergraduate Training in Veterinary Public Health" to the Public Health section at the National Meeting of the American Veterinary Medical Association held at Seattle, Washington during August of this year. The talk will be printed in the Proceedings book of the A.V.M.A.

Dr. Charles Reed is supervising with Dr. George Mechling the disease control program in our State Welfare Department Dairy Herds. Senior students in small groups of four or five accompany Dr. Reed for a two-week instruction period.

The executive committee of the College of Veterinary Medicine elected the following staff members to serve on the Veterinary Research Committee: Drs. J. H. Helwig, E. J. Catcott, C. R. Smith and C. R. Cole. Dr. Cole was elected as chairman of this committee whose function is to encourage, coordinate and implement research in the college.

Dr. C. R. Cole participated in the veterinary symposium at Kankakee, Illinois where he discussed "Systemic Fungus Diseases of Dogs."

This past June, Dr. V. L. Tharp
journeyed to College Station, Texas to present his views on "Obstetrics in Cattle." The occasion was an annual short course for veterinarians in that area. Dr. Tharp also gave the above mentioned talk to those in attendance at the Michigan State Meeting in Charlevoix, Michigan. In his itinerary of the southwest, Dr. Tharp also included a tour of the veterinary college at Texas A. & M. and Kings' Ranch at Kingsville, Texas.

Dr. L. Johnson gave a paper on "X-ray Therapy in Horses" at a recent deep x-ray therapy forum in Camden, New Jersey. The group attending the meeting was made up of veterinarians, horse owners and trainers. These lectures were given at Garden State Park. Dr. Johnson also presented three papers at the Stud Managers Course at Lexington, Kentucky. This meeting was sponsored by the University of Kentucky, Grayson Foundation and the American Thoroughbred Breeders Association.

On October 13, Dr. Diesem spoke to the Central Indiana Veterinary Medical Association. His topic was "The Anatomy of the Hip and Stifle of the Dog."

Drs. R. A. Griesemer and R. L. Farrell attended the International Congress of Clinical Pathology which was held in Washington, D.C., September 6-11, 1954. A symposium on the teaching of pathology was held during the meeting.

Dr. V. Sanger was present at the Third Annual Pennsylvania State Public Health Conference to give a paper entitled "The Public Health Aspects of Toxoplasmosis." This group met at State College, Pennsylvania on August 15-18.

Dr. F. R. Koutz attended and participated in the Meat and Poultry Inspections Seminar sponsored by the A.V.M.A. Committee on Food and Milk Hygiene in Omaha, Nebraska in June 1954. Dr. Koutz and family also were in attendance at the National A.V.M.A. Convention at Seattle, Washington in August.

Dr. Rebrassier addressed the New York City Veterinary Medical Meeting at Bear Mountain, N.Y. on October 13. His topic was "Trends in Veterinary Education." He also made an inspection visit to the Veterinary College of the University of Montreal for purposes of accreditation by the A.V.M.A. Council on Education. On November 20, Dr. Rebrassier will take his place on the National Council of the A.V.M.A. when it meets at Chicago, Illinois.

At the Cincinnati Veterinary Medical Symposium, September 16, Dr. Bohl presented a paper entitled "Immunological Aspects of Leptospirosis in Large and Small Animals." The Cincinnati group met in the pleasant surroundings of the Netherland Plaza Hotel. November 10 Dr. Bohl presented his views on "Leptospirosis in Swine" at the U.S. Livestock Sanitation Association's meeting held at Omaha, Nebraska.

A grant of $8000, appropriated by the National Institutes of Health, has been received by Dr. Bohl for the conduction of further research on Leptospirosis in animals.

Dr. Rudy was an active participant in this year's A.V.M.A. Convention. He performed a surgical procedure involving the removal of the patella from a dog and demonstrated his technic for venipuncture in the cat. Both of these presentations were televised via closed circuit hookup.

An illustrated lecture on "Stifle Joint Lameness in the Dog" was presented by Dr. Rudy, September 1, at the Southern California V.M.A. Convention, and again in October for the Cuyhoga County V.M.A. at Cleveland, Ohio.

Dr. Kingma has been elected to the
Executive Board of the A.V.M.A. from District 10. His participation in the National Convention consisted of a pre-convention talk on "Professional Assistance for State Secretaries" and narration of surgical procedures performed by Dr. Rudy and Dr. Ward Winkler. Dr. Kingma was also guest speaker at the Cincinnati Veterinary Medical luncheon held during their symposium September 16.

Dr. C. R. Smith was guest speaker in widely scattered sections of Eastern United State during the month of October and also busily engaged in preparations for moving his residence to Upper Arlington on the west side of Columbus.

October 1 saw Dr. Smith in attendance at the Stark County V.M.A. meeting in Canton, Ohio. Later in the month (October 13) he talked on "Physiology of Liver" for the New York City V.M.A. meeting at Bear Mountain, N.Y. While in N.Y. some of the association’s members hosted him on a deep sea fishing jaunt. The reported catch was a fair one.

For the Florida State Meetings (October 17-19) he prepared and presented two different papers. In one he discussed the “Proper Use of Oxygen in the Practice of Veterinary Medicine” and his second paper was concerned with “Clinical Application of Gastro-Intestinal Physiology.”

Lt. Col. Harry A. Gorman U.S.A.F. (V.C.), along with thirteen O.S.U. Veterinary students, attended the Veterinary-Pharmacy Summer Camp held at Brooks Army Medical Center, Ft. Sam Houston, Texas from June 19 to July 13.

Dr. Ferguson is continuing work on leptospirosis in livestock at the Ohio Experiment Station, Wooster, Ohio.

Dr. Griesemer was at Duke University, Durham, North Carolina July 5 to July 31, 1954, where he attended the annual short course in Medical Mycology given by Dr. Norman F. Conant.

Dr. Range attended a meeting of the National Artificial Insemination Association at Harrisburg, Pennsylvania, in the latter part of September.

**BOOK REVIEW**

*Avian Physiology*

This is the first complete text devoted to the detailed physiology of the fowl and an excellently prepared book which has long been needed in the poultry field.

The author emphasizes the chicken, duck, and pigeon, although other species are included, even to the extent of mammalian comparison.

An outstanding feature is the complete bibliography in connection with each of its twenty-one chapters.

A brief review of systematic anatomy precedes each area of discussion and the entire text is enhanced by numerous illustrations and charts.

This book is definitely a landmark in avian science and should be of great interest of all individuals interested in the poultry field.

*Avian Physiology.* By Paul D. Sturkie, Professor of Poultry Physiology, Rutgers University, New Jersey. 443 pages, Comstock Publishing Associates, a Division of Cornell University Press, Ithaca, N. Y. 1954. $6.00.

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The Original M·LV
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SENIOR CLASS NEWS

Everett Fleming, Vet. Med. IV

Happily and reluctantly we begin the last stage of development into veterinarians. Summer clinic was well received but has produced a mild form of malnutrition and emaciation in many self-supporters who lacked full time employment.

Among the notable shut-ins this quarter are Sam Theiss and Dave DeLong. A motorcycle crash put Sam on crutches and a thyroid tumor removal eliminated Dave for two or three weeks. Although no official records are on hand, it seems reasonable to assume that we may have established a modern record for casualties.

From the National Convention comes a stipulation that all graduating seniors will be given an oath prior to entering the veterinary profession next May. It has met with unanimous approval from the Senior Class.

At least Don Miller has been added to the married list, and many happy years to the pair from this corner.

Salesmanship is enjoying greater competition in that Marty Fuhrer has joined the ranks of Bob Dunton, Louis Huesman, and Ted Kistner. Big Bob, feeling the pinch of the recent economic adjustment, felt the need for advertising and came up with a football guessing game graciously providing useful prizes to the lucky winners.

On November 8 the "Vet Studs" (football intramural champions last year) went down to defeat after winning their first league play-off by a lopsided 26-0 score. Bob Cope again piloted the spirited crew through a very successful campaign. Certainly he and his "bruisers" should be commended for braving the dangerous gridiron and upholding the fine record established last year.

The annual trip to the Eastern laboratories is being forcibly planned by M. Fuhrer and promises to be a lively journey for the class. Many glittering stories will no doubt be brought back from the New York area.

Anyway, we like this Senior year, especially the well-dressed out-clinic section who have been pleasantly impressed that there are many problems likely to confront the graduate in his community position other than the care and attention to the so-called lower animals.

Many in these allied fields, some of whom are veterinarians, are certainly to be highly commended for their laborious attention to their duties. Many of them receive little recognition and inadequate remuneration for their thankless service, the magnificent accomplishments of which can only be seen over long periods—years of steadfast perseverance.

JUNIOR CLASS NEWS

Roger Yeary, Vet. Med. III

Looking at our roster for the 1954-55 school year, we have 67 men and Miss Joseph. Of this total, 38 of us are married and several are proven sires. The recent fathers are: Wm. "Curly" Davis, twins; Harry Conley, Richard Schmidt and James Warner. Although all Juniors are grooms, Merle Kelly,
Tom Miller, Ned Rudd and Jerry Welbourne added bride to the word during the summer. Engagements: Marvin Lee to Betty Jean Edwards, William Lovell to Celia Wright, and Merlin Oswalt to Winona Evans.

During the summer several men work for veterinarians, a few attended summer school, and all of us tried to save a few extra dollars to pay the increase in tuition. Incidentally, next summer we have eight weeks of clinic and approximately 35 men will spend another six weeks at summer camp. Unfortunately our class is in the middle of innumerable rolls of military red tape which Col. Gorman is trying to unravel. The problem is a quota on the number of Juniors that will be accepted into the advanced program.

Richard Witter was hospitalized during the first two weeks of school and has worked so hard to get caught up that he has stopped smoking.

Bill Bates had a similar situation; after working for the Ohio Board of Liquor Control, it took Bill almost two weeks to sober up.

The clinic program, as it affects Juniors, has been rearranged this year. As in the past, the class is divided into several groups, each group being assigned to the various wards. Each Junior is assigned to work with a Senior, assisting him with all duties that must be performed in that ward. Junior-Senior assignments are changed when ward assignments are changed. Although there have been some minor personality conflicts, this arrangement should work to the advantage of both classes.

John Richardson and family were the feature on a front page spread about G. I. Village in the Sunday Dispatch, October 24.

Guy Beretich is wearing the Scarlet and Grey for the cross country team again this year.

Former Big Ten pole vaulting champion, Jerry Welbourne, competed at Dublin, Ireland, Glasgow and London, England; Saarbrucken, Germany, and Edinburg, Scotland. Ten track stars from the United States were invited to compete by the aforementioned hosts and the A.A.U. sponsored the trip. Setting a stadium record at White City Stadium, London, Jerry cleared 14 feet 5 inches and placed first in all meets except Edinburg. Welbourne and Beretich both competed in the United States Track and Field Championships at St. Louis, Missouri.

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**SOPHOMORE CLASS NEWS**

**JACK SHARP, Vet. Med. II**

Fall quarter of 1954-55 school year finally made its way around the calendar and seventy eager men of the class of 1957 anxiously awaited the ringing of the first bell. From all appearances the summer had been good to them and they all had their pocketbooks full of the "green stuff" and now they were ready to expend some of that stored up energy wading into those books.

The summer was exceptionally good to Phil Martin, Dick Jones and Leo Kline who all crossed over into the land of wedded bliss and also to Mr. and Mrs. Leonard Pensis who became the proud parents of a fine baby boy. Our heartiest congratulations and best wishes are extended to all of these fortunate people.

The thoughts of knowledge and learning have not left us and we have picked up right where we left off in the department of studying. In fact, the studying is even more intense because along with our regular courses we are faced with the worry of comprehensives at the end of each quarter this year and the feeling is running pretty strong
that it will take a lot of brushing up to challenge the comprehensives with any sense of confidence.

Not to forget the lighter side of the news, the two fraternities were out working hard during rush week to enlist all of the freshmen into their ranks and during the scramble, we are happy to announce, several of the sophomores ended up wearing pledge pins.

It is the hope of the entire class as this and succeeding years pass that our fortunes and experiences are as eventful and worthwhile as was our first year in veterinary school.

FRESHMAN CLASS NEWS
PHIL LINERODE, Vet. Med. I

At 8:00 A.M., September 28, this year freshman class of 71 MEN and 1 WOMAN met together for its first class. All were looking forward to what was before them and already you could feel the professional spirit growing. This spirit has thus far carried us through the shocks of Anatomy; the slides of Histology; the petri dishes of Bacteriology; plus the added features of the Deans' class and the Veterinary version of ROTC.

Anatomy shocked many of us when we found that a simple hole was called a foramen, just to give one example. Soon however we were in the middle of dissection with all it's aromas and other wonders. Almost everyone has taken up gum chewing but everyone is learning-something. Histology and the mile-a-minute lectures have also been informative but hand-cramping. During the first week of school muscle strain was the diagnosis, and liniment was the treatment. Some of the students have been coming ten minutes early to class so that they might get a head start on the note taking. Nevertheless, we are all surviving the speed and have managed to pass-by the first quiz. Many of us add to our Monday morning hangovers a three hour Bacteriology course just to keep us on our toes. Then on Thursday afternoons we are quite properly reminded of our duty to this great country by ROTC, as well as contemplations about our professional future with the help of Dean Krill. This is our life as it appears through the distorted eyes of a freshman.

This rip-snorting class was selected from some 176 applications. Our average cumulative point hour ratio was 2.8 and all of us had some education somewhere, somehow, prior to this year. Sixty-three of us be from Ohio, four of we-all trekked up from West Virginia, and five of us'ns caravanned in from Indiana. Our MARITAL status? Well,

(Continued on Page 46)
to realize full coverage... The consistently successful antibacterial action of penicillin plus dihydrostreptomycin has led veterinarians to the realization that this combination gives very satisfying results against a varied array of pathogens in an impressive group of animal diseases. The synergistic action of these antibiotics is realized only when they are administered simultaneously, as in

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at present exactly 31.999% of this class is married, but according to some fictional statistics or sadistics we expect at least 9.97230871% of the class to be married each year.

On October 21 we held our class elections. John Bowers from Canton, Ohio, was elected President. Dave Yundt from Windfall, Ind., became Vice-Pres. Alverda Graff of Westerville, Ohio, was chosen Secretary, and Warren Comptos of Grove City, Ohio, as Treasurer. Our J.A.V.M.A. representative this year is Howard Hartman from Olmsted, Ohio.

Both of the professional fraternities have pledged a number of the fellows, and it appears as though everything were going very well along that line. Our J.A.V.M.A. enrollment is near 100% and everyone is taking an active interest. We are 100% on the honor system in class, and it is working out fine.

In spite of the joshing earlier, we all enjoy our classes very much and are trying our best to learn. We have ever before us the vision of the good men within our chosen profession who are now doing a good job of serving, and the hope is ever with us that we too might live up to this standard.

ADVANCED MILITARY RANK FOR VETERINARIANS

Congress has officially passed a bill, now signed by the President, effective July 1, 1954, which provides for Veterinarians entering the Veterinary Corps of the Army and Air Force to receive commissions in the grade of 1st Lt., rather than 2nd Lt.

This is a recognition of the higher standing of the Veterinary Profession.

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NEW ELECTRIC BRANDER

All of us are interested in new equipment for the practitioner or his client. One of these, an all electric branding iron, was recently put on the market by the Nicholson Manufacturing Co. Inc. of Denver. This iron is said to be a great advance in speedy branding; once hot, heating takes only about 12 minutes—it will "brand cattle as quickly as they can be thrown." The branding iron operates on 110-115 volt, 60 cycle current and has been designed and tested for use on the range. It is equipped with a safe, heat insulated handle and an individually made brand casting in the head.

Veterinarians of the plains states will be especially interested in this product since the company plans to sell to the ranchers through local veterinarians.
This basic tetracycline structure and these dosage forms (first in a complete line) offer basic advantages unsurpassed by any other broad-spectrum antibiotic: rapid absorption into the blood and other body fluids; excellent compatibility with body tissues; excretion in therapeutic concentration through the kidneys and liver; activity against a very wide range of organisms offering satisfying effectiveness in commonly encountered conditions such as hemorrhagic septicemia, actinomycosis, diphtheria, necrotic stomatitis, pylonephritis, erysipelas, infectious coryza, peritonitis, coccidiosis, calf scours, enteritis, lamb dysentery, pneumonia, upper respiratory complications, bacterial infections associated with canine distemper, urinary tract infections, feline enteritis, bronchitis, tonsillitis, pharyngitis, parotiditis, otitis media, strangles, metritis, equine influenza, foot rot, and other infections caused by tetracycline-sensitive organisms.

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**Tetracycline-Vet Intravenous**

250 mg., 500 mg., 1 Gm., and 2.5 Gm. with Water for Injection, U.S.P.

*Daily Dosage:*

- **large animals**—1 to 2 mg. per lb.
- **small animals**—5 mg. per lb.

**Tetracycline-Vet Capsules**

100 mg., in bottles of 100;
250 mg., in bottles of 16 and 100

*Daily Dosage:*

- **large animals**—5 to 10 mg. per lb.
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100 mg., 2.5 Gm., and 5.0 Gm.

*Daily Dosage:*

- **large animals**—1 to 2 mg. per lb.
- **small animals**—5 mg. per lb.
BUENAS DIAS, TEXAS

EDWARD L. MENNING, Vet. Med. IV

As one's eyes begin to accommodate themselves to the change in scenery from that of a beautiful multicolor to one of brown drab, you know you have arrived in Texas, the site of the Veterinary ROTC summer camp. Driving over the best roads to be found on the whole trip, one soon arrives in San Antonio. Then after getting lost a few times, your new home for six weeks, Fort Sam Houston, is reached.

One of the first principles taught by the Army is soon learned. Hurry to wait.

The long lines, allotment of gear, medical exams by privates and psychotic psychiatrists were pleasantly interrupted in the evening by trips to the officers club, Club San Anton, and the movies. Another pleasant interlude was mess. The food was excellent, except for once or twice when we had C-rations.

The first weeks' classes on meat qualifications, combat exhaustion, tent-pitching, and military law soon ended and we cadets found that San Antonio was the place to leave. So on that and the ensuing weekends Mexico, Bandera, and Corpus Christi extended wide their arms for the tired, the poor, and the homeless ROTC boys.

We had many classes in the form of field trips. We journeyed to dairy plants and meat-packing houses, and for one day we rode with a San Antonio milk inspector as he made the inspection of farms. Texas has many large dairy farms which consist only of an ultra-modern milking parlor and grazing land. They never house their animals. The milking parlors due to the stringent inspection laws of San Antonio were the cleanest and most efficient of any I have ever seen.

Other places on our itinerary were experimental farms and stations which are doing interesting and excellent work on parasite control. This is another thing Texas abounds in—parasites. We also went through a veterinary depot, which is a store filled with veterinary medicaments and vaccines which were sold or dispensed to the laymen by the veterinarians who own it.

We went on bivouac for one day and night at Camp Bullis. One cadet was bitten by a scorpion, and two rattle snakes (natives of Texas) were killed. Here we were taught how to assemble our piece, a .45 and a carbine. Target practice was held and no one was injured.

A blistering day was spent learning to pack mules, of which 150 still have not been discharged from the Army. Mules will never be replaced by helicopters in mountainous regions for they can go anywhere a man can.

One of the last highlights was the trip to the 940,000-acre King ranch, where it takes 40 acres of grazing land to feed one cow. The ranch is dotted with artificial water holes and windmills so that no matter where an animal is on the ranch, it never has to walk more than one mile to water.

The visit at the ranch was climaxed by a barbecue in the town of Kingsville.

The next day we turned in our gear, got our final pay, and with money in hand ran to find all our friends who had turned into money-lenders. Then with a wave of our hand and sand in our eyes we were on our way to green Ohio.

Monkeys have such a good time because there are so many of them, and there are so many of them because they have such a good time.
SURITAL® SODIUM

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EXPERIENCE OF SURITAL IN ANIMALS HAS SHOWN THAT INDUCTION OF SURITAL SODIUM IS SMOOTH AND RAPID, AND IS FREE OF EXCITEMENT OR IRRITABILITY AND UNDESIRABLE SIDE REACTIONS.

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0.2 Gm., 0.3 Gm., 0.5 Gm., 1.0 Gm., 5.0 Gm., and 10.0 Gm. ampoules (Nos. 261, 262, 263, 264, 265, 266); 0.5 Gm. and 1.0 Gm. ampoules with ampoules of Water for Injection, U.S.P.; 1.0 Gm. Steri-Vials® [No. 64] (rubber diaphragm - capped vials); 1.0 Gm. Steri-Vials with ampoules of Water for Injection, U.S.P.

PROFESSIONAL LITERATURE AVAILABLE ON REQUEST

Department of Veterinary Medicine

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replaced; the vulva is sutured to hold the organ in place. A mixture of glycerine and iodine is left with the owner to squirt into the vaginal canal with a long nozzled rubber syringe. This is done once daily.

This condition may be due to excessive estrogen in many cases—as experimental evidence has concluded. Repositol progesterone—using 1 mg. per pound of body weight on recent cases and doubling the amount in cases of long standing will generally stop the straining in 24-48 hours. In persistent cases the dose is repeated.

Sterility

A treatment I like for cows which have no recognizable pathology, but regularly come in heat without conception, is the synthetic estrogen dinovex. It seems many of these cows are slow ovulators and something is needed to stimulate the production of estrogen and speed the rupture of the follicle. Dinovex is claimed to supplement ovarian estrogen production within a few hours after injection. When injected at time of service, it stimulates ovulation while sperm are still viable. I have used this on many non-breeders and have had a very high percentage of cows conceive.

Toxemia

Antihistamine therapy has a definite place in beef cattle practice. It is indicated in all cases of tissue damage—such as toxemia due to retention of the fetal membranes and damaged vagina and vulva due to a rough delivery. In toxic conditions such as indigestion, mastitis and bloat, it is useful as a general stimulant. It is also beneficial in cows that have been fresh a few days and are not doing well—with no definite disease or pathology being noted. In certain types of pneumonia it is almost a specific.

Foul Smelling Udder Sores

I am sure you have all been called to see cows—both dairy and beef breeds that have these foul smelling sores between the halves of the udder. The best results seems to be had by thoroughly scrubbing the sore with soap and water—and after drying—applying either Goshen footrot ointment or sulfa urea creme.

Obstetrics

Obstetrics is not only a challenge to one’s ingenuity but labor as well. It is not uncommon to deliver a live calf from a fat beef heifer—and at the same time produce a large laceration. Many of these lacerations can be avoided if more time is taken in the delivery. However, one can and will often avoid the lacerations, then fool around and deliver a dead calf. It is my opinion that a Frank fetus extractor will deliver a larger calf from a smaller cow with less danger of laceration or tear than can be done by the veterinarian and several hired men.

It is my opinion that too many of us prolong our work, damage the cow, and generally wear ourselves out by not removing some of these fetal heads as the first part of the obstetrical procedure. When the cow is just a little small and the fetus is already in the pelvic cavity, with the forelegs folded under and especially when the calf is dead, decapitation is in order. This is done by placing a blunt hook in the eye or a chain around the neck just in back of the head. Then by steady and firm traction—the head is pulled past the vulva. With the chain kept tight, the head is cut off and the fetus is repelled, the legs straightened, and then with the hand on the neck stump, an assistant pulls the calf.

Many hip blocks are encountered in
a practice over a period of a few years, some during the time of delivery and many after the calf has been delivered to the hips by the owner or by the cow herself. In these cases we tie the forelegs together with a chain. Then put chains on the forelegs, place a stick between the forelegs and have the owner pull or operate the extractor. While traction is being applied we use the stick to turn the calf. One would not think of removing a cork from a bottle without a twist—but many try to pull a difficult calf without this necessary twist.

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CASE REPORT

(Continued from Page 24)

later stages of poisoning which are probably due to stimulation of the convulsive center in the medulla. Convulsion occurred in this case.

g) Increased secretion of urine may occur due to increased blood pressure and the toxic effects on the kidney. There was an increase in the amount of urine on the second day in this case.

h) Toxic doses reduce the body temperature in normal animals. The temperature in this case was down to 99.6 degrees.

i) Toxic doses cause a dimness of vision and mydriasis. This condition was present in this case.

j) These agents are slowly absorbed and slowly eliminated with a consequent slowness of action. The effects were slow to develop in this case (about 15 hours).

k) Cold extremities may occur. Constriction of the arteries in the splanchnic area and limbs due to direct effect upon their walls occur to cause cold extremities. This condition was present in this case.

l) Some part of the squill is eliminated by the bronchial system. It is a powerful and commonly employed expectorant. There was a nasal discharge in this case.

m) Death may occur within several hours or several days depending on the amount of drug ingested.

n) Lesions would probably appear as a gastro-enteritis and nephritis.

Treatment

Once a diagnosis was reached of red squill poisoning, the treatment had to be largely symptomatic. The dog was treated as follows:

Monday: One cc. of “Calphosan” was given intermuscularly in the thigh. 100 cc. of 5% dextrose was given subcutaneously and interperitoneally. The dog was kept in a darkened cage. (Calphosan consists of 50 mg. of calcium glycerophosphate, 50 mg. of calcium lactate, and 0.25% phenol. This was diluted to one cc. with 0.85% saline. The dose was 1 to 2 cc.).

Tuesday: A stomach tube was passed and four ounces of broth and milk were given. 80 cc. of .85% saline solution was given intraperitoneally and subcutaneously. 2½ cc. of “Solu-B” was given intramuscularly.

Wednesday: P/D diet and horse meat were fed by hand. No further medication was given.

Thursday: The dog ate horse meat.

Friday: The dog appeared fairly normal and ate P/D.

Saturday: The dog was normal and was discharged from the hospital.

Miscellaneous:

With an intensive dose of the drug the effect is visible in two hours and
reaches its maximum in 8 or 9 hours. After withdrawal it persists generally about two days, but sometimes it lasts as long as two weeks.

The effect is largely vagal, for it is generally removed by atropine.

Scilla (squill) is claimed to be more diuretic than digitalis, perhaps by a direct action on the renal epithelium. It causes death in rats after several days of alternating convulsions and paralysis. It contains a glycoside that produces the effect.

Remember, OSVMA meets in Columbus January 5, 6, 7.

Director of Medical Services has recommended that the monkey population of Trinidad be "liquidated" as part of a campaign against yellow fever.

TOUGH JOB AT STADIUM

Dr. Harry Mauger is a busy man at all OSU home games. For 19 years he has been one of several hundred businessmen and professional men who serve as ushers and field ushers.

Dr. Mauger has one of the toughest of jobs. He’s supervisor of 24 men who field usher along the west cinder track and bleacher seats occupied by visiting high school players.

Ushers contribute their time out of love for the sport. Only supervisors are paid for their work—and the sum is nominal.

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SULFATHALIDINE, administered orally, exerts 95% of its action in the intestinal tract...is minimally absorbed, virtually non-toxic. That means—smaller dosage, lower treatment cost than with the other sulfonamides.

In complicated cases of calf scours, in sheep dysentery and intestinal infections in small animals, administer BOVIMIDE® Triple Sulfonamide Suspension with Kaolin. 2 cc. per lb. of body weight daily will combat infection, check diarrhea.

QUICK INFORMATION: SULFATHALIDINE available in slotted tablets (0.5 Gm. and 4.0 Gm. each) and powder (2.0 Gm. per tsp.). BOVIMIDE supplies in each 100 cc. 6.8 Gm. Sulfathalidine, 0.6 Gm. each of sulfamerazine and sulfamethazine and 10.0 Gm. Kaolin and alcohol 5%. Dosage information on request.

*Sharp & Dohme, Veterinary Department.*
ATTENTION, PRACTITIONERS!

Dear Doctor:

The number of hospital cases that have been referred to The Ohio State University Veterinary Clinic by practitioners has increased considerably during the past few years. Both the Clinic administration and staff members are gratified and pleased with this development. We are anxious to be helpful by continuing to offer our time and facilities. Your referred cases offer valuable teaching material and it is hoped that, likewise, you and your client derive some benefit from this association.

There are several problems associated with the admittance of patients to a teaching clinic that occur with referral cases. We solicit your cooperation in solving these. We are often unable to identify the ownership of animals that are presented by truckers or neighbors. In these instances, and occasionally when the owners present the case, it is impossible to obtain a satisfactory history of the animal’s illness and previous treatment. The clinician who may have been contacted by phone prior to the admittance of these cases is frequently unavailable when the animal is presented and its chart record prepared. The hospital records of such cases are of limited value for future reference as well as current teaching material. The assistance provided to the referring veterinarian and their clients is reduced for this reason.

We request that those cases referred by you to our Clinic be accompanied by a written statement which identifies the animal’s owner, his address, and the history of the animal’s illness and treatment. Many of the cases in the past have been presented with this information and we are certain that the referring veterinarians, in those instances, benefited by their consideration.

We are also taking this opportunity to announce our plan to initiate a time-appointment system for the reception of pet animal patients to our Clinic. We anticipate that such a procedure will be mutually advantageous to us and our clients. We are asking that our local clients and those which you refer to us call prior to coming to arrange an appointment at a specified time. This insures, so far as possible, that our clients will be met by a staff member and given his full attention. This procedure will commence January 3, 1955.

We hope that these announcements serve the purpose of improving our relationship in the future.

V. L. Tharp
Director
E. J. Catcott
Assistant Director

RABIES

Although six New England states and six northwestern states reported no rabies during 1952, 8,453 cases of the disease were reported in the United States for that year. Figures compiled by the U.S.D.A. reveal 5,261 cases in dogs, 916 in cattle, 486 in cats, 38 in horses, 31 in swine, 26 in sheep or goats, and 21 in men. Of the 1,674 miscellaneous cases, many were in foxes, skunks, and raccoons.

Texas had one fourth of the cases, over 1,000, in dogs. New York leads in cattle cases with 174, followed by Pennsylvania with 81, Iowa with 66, Georgia with 62, and Virginia with 60. Iowa led in swine cases with 8, Pennsylvania in sheep cases with 7.

NORDEN NEWS, December, 1953.

REMEMBER, OSVMA MEETS IN COLUMBUS JANUARY 5, 6, 7.
TWO NEW PRODUCTS

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... continuing its program of presenting the best in proven biologies for the veterinary profession, Research Laboratories Inc. is proud to present two new biologies for the small animal practitioner.

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CORRECTION

Part of the procedure for routine treatment of sheep parasites was omitted from the article *Sheep Parasite Control Program in Ohio* by F. R. Koutz Spring 1954.

The corrected procedure is as follows:

It is recommended to follow a special routine treatment program similar to the following:

1. At least a week before the sheep go to pasture, about April in Ohio, all adult sheep should be drenched with a liquid preparation of phenothiazine. This reduces the worm burden so that less ova are spread over the pasture.

2. Retreat ewes and lambs about July or weaning time. Place lambs on “clean” pasture, that is, pasture that has not had sheep on it for approximately a year. Put ewes on separate “clean” pasture also if possible.

3. Treat sheep about two weeks prior to breeding, about the first of September. A week or so after treatment, if possible, place all on clean pasture. The lambs should be placed on clean pasture at this time to prevent a buildup of parasites.

4. Treat sheep at the close of the pasture season about the time the ewes are brought into the barn for winter feeding. This comes approximately from the middle of November to the first of December.

J.A.V.M.A. NEWS

GUY R. BERETICH, Vet. Med. III

The coming of autumn heralded another interesting agenda of speakers and entertainment on the part of the Student Chapter of the A.V.M.A.

Our first meeting was held at Campbell Hall. The freshmen had the opportunity of seeing and learning the names of the “higher-ups” in the hierarchy of the faculty. Dean Krill showed slides of the plans of our new Veterinary College. The planning and thought that are being put into the design of the building made many of us almost wish we had been born a few years later.

After adjournment, cider and donuts were enjoyed at the Clinic.

Our second meeting of the year had several interesting phases to it. A report on his trip to the National A.V.M.A. convention in Seattle, Wash., was given by Everett Fleming. Films of O.S.U.‘s great Marching Band were shown through the courtesy of Dr. Griesmer, himself a member. A committee was formed and some interesting debate ensued on the possibility of forming a Veterinary College Student Council.

Several other speakers and social events are being scheduled for the future meetings of the school year.

ALUMNI NEWS

(Continued from Page 35)

Dr. Allen N. Saum, 13230 Cedar Rd., Cleveland Heights, Ohio.
Dr. Robert S. Scherer, Shelby, Ohio.
Dr. Russell C. Schlosser, 308 N. Main St., Arcanum, Ohio.
Dr. John L. Shepherd, Box 75, Morristown, Ohio.
Dr. James D. Slavik, Coldwater, Ohio.
Dr. Ralph Slusher, Route 1, Mason, Ohio.
Dr. Royce W. Smith, Mansfield, Ohio.
Dr. Harold C. Spencer, Sistersville, W. Va.
Dr. Thomas F. Stanley, Akron, Ohio.
Dr. Paul E. Steffen, Sheridan, Ind.
Dr. Gale D. Tarbll, New Holland, Ohio.
Dr. Victor Von Tharp, New Washington, Ohio.
Dr. William L. Thomas, Box 88, Ashley, Ohio.
Dr. James E. Tomasek, 451 Cleveland Ave., Ashland, Ohio.
Dr. Charles G. Warner, Jr., 516 Broad St., Murray, Ky.
Dr. Don A. Weibel, 13057 Cedar Rd., Cleveland Heights, Ohio.
Dr. Edward A. Weidenbener, 716 E. Broadway, Louisville, Ky.
Dr. Paul Williams, 1625 E. 37th Ave., Gary, Ind.
Dr. Weaver M. Williamson, Brookfield Zoo, Brookfield, Ill.
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IN FACT, THERE ARE 7 REASONS

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studies of the pineal gland have demonstrated an entirely new and important function in the regulation of the reproductive cycle in domestic animals.

Work with the drug, curare, has led to the development of new and better anesthetics for small animals. A new technique for the establishment of rumen fistulas in cattle has been developed by our staff and is now widely used by investigators in all studies on the function of the rumen. A film depicting this surgical procedure has been made, and copies of it have been shown internationally. At present our college is pioneering in the use of radium in veterinary medicine, and results thus far show great promise in the treatment of certain types of lameness in horses.

In line with the trend toward group or team studies, members of our college staff have cooperated with nine departments in other colleges and the Ohio Agricultural Experiment Station in investigating nutrition in dairy calves, niacin deficiency of swine, post-parturient paresis, vitamin toxicity, radiation therapy, explosive decomposition and blood coalulation.

All departments participate in the clinical work in a continuous search for new and better methods in handling animal diseases.

This is only a partial indication of the research in constant progress in our college but suffices to show the wide variety and great need for research in the broad field of veterinary medicine. Our research has of necessity been patterned in accord with physical facilities and has been carefully planned so as not to interfere with our greatly expanded teaching program.
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SUIS POWDER is a highly effective product for treating hemorrhagic dysentery and infectious enteritis in swine. It is rich in three active sulfonamides — sulfuanquine, phthalylsulfacetamide and sulfamethazine, all of which are well known for their bacteriostatic actions against salmonella cholerasius, one of the chief causes of infectious enteritis in swine.

The formula for SUIS POWDER also contains sodium arsenate, niacin, charcoal and trace elements in therapeutic amounts . . . convenient to administer with feed as a mass treatment.

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TREATMENT OF SWINE

(Continued from Page 9)

Furthermore, in my experience these products do not eliminate trouble following its use on the so-called problem herd.

Now with malice for no one and charity for all I am of the opinion that we need a great deal more research and a great deal more work done before we can begin to ballyhoo the banishing of hog cholera from the swine belt. In these cases of expired immunity that have occurred in my practice the post-mortem picture is a quite different picture from the ordinary case of hog cholera as we are accustomed to diagnosing in the field. History and physical symptoms are very similar if not identical, but at least for me it is one of the places where I stub my toe.

In one instance, it took at least a week and that many calls and autopsies to convince me that I was dealing with hog cholera. I have proved it to my own satisfaction, and I did in this particular instance that it was hog cholera, because of the fact, when I administered anti-hog cholera serum and hog cholera virus to those members of the group that had not already sickened they remained well. Another peculiarity of these hogs that have been treated with the modified virus is that pigs that sicken from what I call expired immunity more than 30 days after the virus has been administered when given a large dose of serum early in their sickness, the mortality will not be nearly as great as it would be in those hogs if they were infected with the old fashioned virulent virus. If you expect these herds to be immune you better administer simultaneous virus along with the serum. It seems to me that there are just as many problems associated with the use of the modified virus as there is with serum and simultaneous virus. It therefore seems to me that more basic knowledge and a great deal more research is needed if we are to make progress in the handling of the hog cholera situation.

NEUROTIC DOGS

One has to be careful in mentioning dogs, for they are “man’s best friend.” So one hesitates to bring up the matter of canine neuroses.

However, a practice has been opened in England for the psychoanalysis of dogs, and the event is too significant to let pass. Dr. Douglas Appleton believes he can cure Rover’s emotional troubles by persuasion.

Dr. Appleton holds that most dogs get their neuroses from their masters. This is not too hard to believe. A mean dog possibly reflects a harsh home life; a cringing one a domineering master, and so on.

If the thesis is true, however, it would seem that the doctor is working from the wrong end of the problem. It would be a pity to treat a dog successfully only to find it reverting to the old neurotic pattern after reuniting with its master.

Perhaps Dr. Appleton will find the reverse also true in some cases: a well-adjusted dog may be a cure for men’s neuroses. If that be the case, we wish him well; his work will be a welcome aid to those whose business it is to psychoanalyze people.

So called “jittery” pigs straighten up in 3-4 days after administration of 250,000 units Vitamin D, intramuscularly.
Now and in the years ahead you can depend on Arnold Laboratories to provide the high quality pharmaceuticals so necessary to a steady-profitable practice. Look to Arnold for high quality—always.

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DIARRHEA IN CALVES

(Continued from Page 12)

average course of the disease was seventeen to twenty-one days; the mortality rate was 13 per cent and all deaths occurred in calves under one month of age.

The microscopic lesions noted were: polymorphnuclear cells at the base of the crypts and infiltrating the wall in the large intestine; no inclusion bodies in any tissue; varying degrees of hyperplasia in mesenteric lymph nodes; increased leukocytes but no pus in the feces; no diarrhea producing bacteria in the stools or blood; submucosa and serosa of the intestines were edematous and contained many leukocytes; exudative bronchitis which was primarily fluid in nature was present.

No significant bacteria were on BAP. Pastuerella organisms were isolated from one animal that died and coliform organisms were recovered from the kidneys of some animals and the liver of other animals.

All recovered animals were immune and serum from recovered animals helped to neutralize the infective agent.

Light and Hodes reported the main features of the disease as being: inability to cause the disease in calves from normal infant or calf stools; calves recovered from natural scours were susceptible to the infant agent; high morbidity rate; the virus never seemed to be the primary cause of pneumonia; an absence of pathogenic bacteria as causative agents; affected infants may be the source of the disease in calves; animals may harbor a virus which causes no harm until some interference with their normal existence occurs; the sera of recovered infants partially or wholly protected calves against infection with the virus.

BIBLIOGRAPHY


Dogs are big business in the United States. Nowhere is this better indicated than by figures showing that the dog food bill paid by dog owners in the United States is approximately $406 millions per year.
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ANESTHETICS

(Continued from Page 11)

perivascular leakage inadvertently occur. Should a large amount of any of the thiobarbiturates escape from the vessel, it is advantageous that the area be infused with physiological saline solution to facilitate absorption from the site and reduce the possibility of local tissue damage.

A recent report concerning the duration of action of pentobarbital sodium states “the anesthetic action of pentobarbital sodium was quite long and showed considerable variation.” A dosage of 1 gr. per 5 lb. produced a disappearance of reflexes for approximately 80 minutes whereas a dosage of 1.5 gr. per 5 lb. bodyweight caused an average disappearance of reflexes of 2½ hours and in some cases the reflexes did not return for 4½ hours. During this prolonged anesthesia there will be some drop in body temperature, which, along with other predisposing causes, may result in shock of the surgical patient. Shortening the period of anesthesia, or more properly, stimulation of the respiratory center with an earlier return to normal respiratory minute volume aids in preventing this respiratory embarrassment and will result in a higher rate of recovery of surgical patients.

Several agents have been introduced to cause stimulation of respiratory activity. Some, such as strychnine and picrotoxin, not only stimulate the respiratory center but also cause greater activity of the higher centers resulting in muscular tremors and convulsive efforts which further depletes the necessary oxygen supply.

Pichaicharnarong,5 1953, compared the analeptic action of certain of these agents and reported that desoxyephedrine (Benzefet), amphetamine (Amfetasul) and pentylenetetrazol (Metrazol) cause prompt onset of respiratory stimulation. The respiratory minute volume may increase as much as 400% with either of these agents. These recordings were made in dogs using the Benedict-Roth basal metabolism equipment. Whereas the stimulation induced by pentylenetetrazol persists for only 10 to 15 minutes, it was found that both desoxyephedrine and amphetamine maintained the increased respiratory activity throughout the period of the test or throughout the period of anesthesia. The agent inducing the most uniform increase in rate and depth was desoxyephedrine with amphetamine being superior to pentylenetetrazol. It was pointed out that the analeptics should be used at the end of surgery to stimulate the respiratory center and thus increase the recovery rate in poor surgical risks or old or debilitated animals. The dosage given should not be sufficient to return the animal to consciousness immediately since overstimulation of the higher centers would possibly decrease the likelihood of recovery of the animal.

It was reported in a similar study6 wherein blood pressure determinations were made with a mercury manometer and the respiratory rate was recorded with a pneumograph and Marey’s tambour that desoxyephedrine and amphetamine caused an increase in heart rate accompanied by vasoconstriction with a prolonged rise in blood pressure which resembled that produced by the ephedrine sympathomimetics. The increase in minute volume, supplying more oxygen to the tissues, and removing the accumulated carbon dioxide reverses the disturbed cellular metabolism and speeds recovery of the animal.

Along with the new developments in general anesthetics and analeptics has been the very important contribution to
the group of local anesthetics in the product Xylocaine. Xylocaine is a new local anesthetic, originally described by Lofgen, which is chemically unrelated to cocaine, procaine or derivatives of these substances. It is very stable, resisting decomposition, and its solution may be autoclaved repeatedly if necessary. This is a distinct advantage since procaine and some of the other local anesthetics are relatively unstable and can not be resterilized.

Xylocaine, like other local anesthetics, is compatible with epinephrine and the latter agent is frequently added to prolong the action. Clinical reports on Xylocaine have stressed its advantage since its action is more rapid in onset, more quickly diffusible and more prolonged than that of procaine. Field reports by veterinarians in the United States as well as from Europe point out that Xylocaine is 2 to 4 times as effective as is procaine. Its action begins immediately and the duration is 2 to 4 times as long. Epidural anesthesia has persisted for 12 hours or more as compared to the much shorter action noted with procaine. Unpublished reports have indicated that even a ½ per cent solution produced satisfactory local anesthesia which persisted for 2 to 4 hours in cattle, sheep and dogs. As an indication of its safety, one veterinarian has reported the successful use of Xylocaine 4% solution in over 100 clinical cases of surgery of the horse and believes Xylocaine is the best such agent available for either large animal or small animal surgery which is to be performed under local anesthesia. Xylocaine is available to the veterinary profession in two strengths, a 2% solution with and without epinephrine and a 0.5% solution with and without epinephrine. It is recommended that the stronger solution be used for

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conduction block anesthesia for such surgical procedures as rumenotomy, caesarean section, dehorning operations and amputation of the claw in cattle. The weaker solution would be indicated for infiltration anesthesia and for optical action.

In conclusion, it may be pointed out that new agents are being introduced for use by the veterinarian in both the field of general and local anesthesia. Kemithal has proved very effective as a general anesthetic in small animals and is safer than other short acting barbiturates including sodium pentobarbital.

Pichaicharnarong, at Cornell, 1953, pointed out that analeptics used at the completion of surgical manipulation increased the likelihood of recovery by improving the tissue supply of oxygen as well as removing the accumulated carbon dioxide. Desoxyphedrine and emphetamine had advantages over other agents considered in this group.

The new local anesthetic Xylocaine, after careful study at several of the universities and colleges, has proved to be superior to other local anesthetics. Its action is prompt, which is an aid to the veterinarian in practice since it allows surgery to begin almost immediately. Anesthesia is more certain because of more rapid diffusion into the nerve fiber and the duration of anesthesia is prolonged 2 to 4 times that produced by an equal dose and concentration of procaine.

BIBLIOGRAPHY

5. Pichaicharnarong, Ayusa; Oxygen consumption, respiration, rate and volumes of air respired in the dog; Cornell Vet. Library SF 610:592, 1953.

VETERINARY OFFICERS TO BE GIVEN COURSE IN ATOMIC RADIATION

Veterinary Corps officers of the Army and the Air Force will receive special training in evaluating the effects of ionizing radiation from atomic weapons on foods and food producing animals.

The two-week course is the first of its type to be offered in the United States. Classes will be conducted at the Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn. The institute is a non-profit educational corporation of 32 southern universities.

The curriculum includes biological aspects of radiation phenomena, dosimetry, radiobioassay in animal tissues, radiation syndromata in the domestic animal, and disposition and salvage of radiocontaminated foods. Veterinary officers have been responsible for determining the wholesomeness and quality of foods for troops since World War I. This course in radiological health is specifically designed to prepare them for their responsibilities in atomic defense.

Veterinary Corps officers now stationed at the University of Tennessee with Atomic Energy Commission will share the teaching with faculty members of the institute. The initial class began on Sept. 6, 1954.

Classes will be repeated until all veterinary officers of the Air Force and Army have had an opportunity to attend. Veterinary officers assigned to staff positions of high responsibility will be placed on a priority basis for attendance.
MASHED TEAT PROBLEM
(Continued from Page 15)

daily for two treatments. Apply an ointment containing acriflavine and sulfonamides in petroleum base after each milking. This treatment is only indicated in initial stages.

Success in any teat operation is dependent upon (1) sterilization of instruments and the entire operating area, (2) anesthesia, and (3) after treatment.

In our practice we carry a small electric sterilizer which can be plugged in practically any cow barn in this day and age. It does as safe a job on instruments as the equipment in the average hospital. All teats and the entire udder are first made as clean as soap and water can make them. Then a thin patch of cotton is saturated with a good antiseptic, like Tincture Zephryn or Tincture Merthiolate. It is applied and left on the teat to be treated for at least five minutes.

For the most satisfactory anesthesia, remove all milk from the quarter if possible. Inject 10 cc. of one or two per cent butyn solution and leave it in the canal for at least five minutes. In cut teats, inject the edges of the wound area with a dental type syringe to eliminate possibilities of contamination. Spray the wound area with acriflavine or suture a 100,000 unit mastic in the muscle area. Cover the wound area with liquid plastic in all teat operations involving the opening. Cover the operative area with self-adhering gauze after a small dilator has been inserted into the teat canal. Change these dressings twice daily. Use dilators at least three days or until the swelling disappears. We prefer also to apply a petroleum base ointment containing acriflavine sulfonamides and urea, when the skin is broken.

Routinely, all teats are injected with 2,000,000 units penicillin and 1 gram streptomycin suspended in an oil vehicle. Tubes are left with the owner and he is instructed to insert one-half to one tube of 500,000 units penicillin with 500 units streptomycin each evening, depending upon conditions.

BIBLICAL DRUGS
(Continued from Page 27)
of so little importance as "Gourd versus Ivy."

The Bible and many references were used. Source and authors will be given on request. Thanks are extended to Dr. F. J. Kingma for his review of this article.—E. B. McCrady.

LIVESTOCK PARASITES
(Continued from Page 18)

It is left to the animal husbandman to recover this double fumble, but the economic drag may not become readily apparent even to him unless he has a keen eye and a platform scale. We have become accustomed to raising our cattle and their parasites together as one operation, and our experience in cattle growth and health is in terms of parasitized animals. The latter are often taken as optimal, which they surely are not, and we seldom observe the full potential of truly non-parasitized stock.

A good illustration of how potential can be obscured by low-grade infection is found in swine. Recently antibiotics have been shown to promote pig growth when fed at low levels. The most plausible explanation for the beneficial effect is that the drugs, by suppressing certain types of bacteria in the digestive tract, eliminate low-grade, sub-clinical infections ordinarily present in apparently healthy pigs. The nutritionist thus happened upon a cure for a previously unrecognized condition. He got the
growth boost he was looking for, but he did it by removing the drag due to an infection. The economic significance of the infection came to light only after the growth rates of treated and untreated pigs were compared.

As I have indicated, this is just what is happening with cattle parasites. Phenothiazine is the drug involved. Its proper use gives better growth in many herds even when parasitism is not obviously a problem. It knocks out the low-grade infections and protects against reinfection thus permitting a fuller expression of growth potential. You can see what this means: Control of internal parasites of cattle is now becoming—as it already is with sheep parasites—a husbandry practice, and prevention is the password.

Phenothiazine has one property of particular significance in this regard, namely, when fed at low-levels to sheep and cattle, it suppresses egg production of female worms and inhibits development of eggs that are passed out into the pasture with the droppings. This property, coupled with its ability to remove adult worms when given at therapeutic levels, makes phenothiazine particular effective in parasite prevention programs.

The cattle parasite situation, it seems to me, should be of interest to Livestock Conservation, Inc., for at least two reasons: (1) Obviously it has important economic significance in its own right, and (2) it is a good example of the kind of problem that can be solved within the frame-work of the profit motive systems to the ultimate benefit of many. I, personally, am particularly intrigued:

1. Because there is a big economic loss at stake;
2. Because there is already on hand a good product for preventing this loss;
3. Because the market potential for the product justifies promotional effort;
4. Because the user of the product himself profits directly; and
5. Because widespread use of the product in one industry will benefit related industries as well.

OHIO FUEL COMPANY IS SUED FOR LOSS OF PIGS

A suit seeking $5000 damages has been filed in Madison County against the Ohio Fuel Gas Co., involving loss and damage to the plaintiff’s pigs.

The petition recites that the defendant laid one of its pipe lines for natural gas through the westerly part of his 416-acre farm.

“When the pipe was on the site of installation,” the petition continues, “being prepared for burial, the defendant coated it with a liquid substance and . . . permitted some of said liquid to spill upon ground where it hardened into pieces of various sizes which defendant allowed to remain upon the ground . . . after work of installing said line was completed.

“Defendants knew coating material was a coal tar product, that it would poison pigs, if they ate it, and that in all common probability plaintiff’s pigs would eat it.”

The plaintiff’s claim that in May, 195, they had 272 shoats which became ill from the substance. Of these 156 recovered, 43 died, and 73 were so retarded in growth they were not ready for market until two months beyond the normal marketing time.

They ask veterinary fees: $1075 for the 43 shoats; $500 for extra feed for the retarded pigs; $300 for a fence they constructed along the pipe right-of-way, and $1000 for loss of pasturing of approximately 20 acres for two years.
INJURY TO EYE MAY SERIOUSLY AFFECT OTHER

One of the most dreaded diseases seen by the ophthalmologist is sympathetic ophthalmia. Occasionally, after one eye is inflamed or injured in an accident, the other eye will become so inflamed as to be largely destroyed.

Fortunately, this occurs only occasionally, but the fact that it can occur, and then be so disastrous, makes it essential that many an injured eye can be quickly removed. If one waits to be sure that it must be removed it may be too late to save the man's sight.

One of the disturbing facts about the disease is that the interval between the accident to the one eye and the destruction of the other can vary from two weeks to several years. Usually, the interval is somewhere between 1 and 3 months, with greatest incidence during the second month. Usually, after three months have passed, there is not much danger, and there is practically no danger after a year.

Can Be Treated

The injured eye which gives the ophthalmologist most worry is the one which, after having received a penetrating wound involving the iris and one of the inner coats, goes on with a chronic low grade inflammation. The more prolonged this inflammation, the more danger there is to the other eye. Gradually, in the other eye, inflammation may appear around the iris and from there it may spread and become chronic. Usually then the vision quickly begins to fail.

Fortunately, treatment if quickly started and well directed can sometimes check the progress of the inflammation before vision is totally destroyed, but the person is likely to remain in danger for 9 or 10 months.

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BILHUBER-KNOLL CORP., ORANGE, N. J.
USER MAKES PROGRESS IN RECLAMATION

An industrious citizen of the Haywood County dairy region in northwestern North Carolina is Frank M. Davis, a practical dairyman, also known for his reclamation enterprises.

Frank’s farm is on Route 2, Waynesville, at the end of the “Frank Davis Cove.” Here he has 250 acres of land in a valley between a number of mountain peaks. Acres of corn and pastures spread out picturesquely and the place is so secluded that not even a neighbor’s house is in view.

His almost miraculous methods of reclaiming hillside lands gashed with gullies and impoverished by soil-robbing row crops have been recognized for several years. His farm was the scene sometime back for a pasture-seeding demonstration.

At this event attended by about 60 farmers, Frank pointed to a steep hill which four years previously was too poor to grow sage, and only scattering growths of sassafras and briers had found root in this stubborn, barren soil. There, he told us, he had applied lime with shovel and sled, and while it was necessarily spread unevenly, 10 acres received about two tons to the acre.

The straggling growth of sassafras and briers was uprooted. Then 300 pounds of superphosphate were applied to the acre. This had been done when Frank’s mother owned the place, but Frank found when he bought the farm in 1945 that lime previously applied had been absorbed.

Another application of lime was broadcast two tons to the acre and 400 pounds of 50% muriate of potash and 47% triple potash were applied. This potash was used in place of 800 pounds of commercial fertilizer. The substitution was made to cut down on the poundage of fertilizer applied on this steep hill as weight on hills makes a material difference.

A bush and bog harrow was used to cut up the pastureland, for Frank says that unless the soil is pulverized grass and clover seed is wasted. The vegetation was harrowed so completely that no one could identify the kind of growth formerly existing on the hillside.

Once the seedbed had been prepared, two pounds of ladino clover and 12 pounds of orchard grass were seeded to the acre. A cultipacker is used in embedding the seed where the hills were not extremely steep. Then a horse pulling a crabtree brush was used in “sweeping” in the seeds.

This ladino and orchard grass makes good pasture for the grazing of 50 cows to an equal number of acres. Although he owns a total of 70 good grade animals, he is presently milking only 25 Guernseys and Holsteins with his two Surge units. One unit has been in use since way back in 1929, while the other has been used for six years. Milking is done in a cement-block barn containing 10 stanchions with the product being shipped to the Pet Milk Company.

This chairman of the local dairy commission feeds concentrates (16% protein) sparingly. “With my winter cover crop and silage, I discontinued all other feedstuffs except the one pound of concentrate for each five pounds of milk,” he points out.

Fall grazing lasts until the first of November. In spring, he turns his cows out to pasture between March 20 and the first of April.

Here is his winter cover crop scheme: Dairybarn manure is put on the land in early spring. Then it is plowed under in readiness for a corn crop for silage. From 200 to 300 pounds of fertilizer is
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Effective Formula
Broad-spectrum antibacterial action—3200 units Bacitracin, 0.65 gram sulfacetamide . . . Fungicidal—0.65 gram sodium caprylate . . . Miticidal—65 mg. piperonyl butoxide . . . Special diffusible base.

Dosage
Inject MITOX sufficient to fill lower section of ear canal—about 0.5 cc.

Supplied in
6 dispos. syringes . . . . . . $ 5.70
12 dispos. syringes . . . . $11.00

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drilled in the rows or from 400 to 600 pounds per acre broadcast over the field.

In September, after the corn is harvested, the land is ploughed at night so that the sun will not bake the soil. Then it is broken up with a disk pulled either by jeep or tractor.

The winter cover crop mixture includes two bushels of winter oats, 20 pounds of rye grass, and 20 pounds of crimson clover per acre. Cows are turned in on the pasture when the tender green stuff attains a height of 6 to 8 inches.

In this rigorous climate of 3,000 foot mountains—where sometimes chickens’ feet are frozen off—all winter dairy-cow grazing is possible except during extremely cold weather.

It is the difficulty of properly cleaning the canal that sends ear cases in dogs from one veterinarian to another. Removing wax and debris and leaving the canal clean is best accomplished by irrigating with tepid soap and water or a solution containing suitable concentrations of modern detergents. There is no aggravation to inflamed and sensitive membranes from this method and thus successful treatment is 50 per cent assured. By using such solutions with the aid of a low pressure spray or a douche with its gentle gravity flow, the canal can be rid of wax, discharge, and other debris right down to the drum.

WORK WITH MICE ADDS NEW LIGHT ON BLOOD CANCER

The start of leukemia in mice can be delayed by a period corresponding to nearly 10 years in the life of a human by treatment with cortisone, Dr. George W. Wooley and Betty A. Peters have found in experiments at the Jackson Laboratory at Bar Harbor, Me.

Dr. Wooley also carries on cancer research at Sloan-Kettering Institute of Memorial Cancer Center, New York.

Dr. Wooley and Miss Peters worked with a strain of mice which develop leukemia with almost clockwise regularity at about eight months of age. The leukemia is rapidly fatal, killing the animals in one or two weeks.

By treating these mice with cortisone, anti-arthritis hormone of the adrenal cortex, from the time they are one month old, Dr. Wooley has delayed the onset of leukemia until the mice are about 14 months old. That would be tantamount in humans to postponing a fatal disease from 23 years of age until about 40.

Dr. Wooley’s observations have indicated that the adrenal glands play an important role in leukemia, the American Cancer Society states. The findings cannot be applied to prevention of the disease in humans, however, because there is no way of telling in advance who will develop leukemia. Cortisone, and these and other experiments have shown, makes animals and humans extremely susceptible to a variety of infections. Most of the mice, treated monthly with a dose of cortisone, eventually died of infections.

The principal value of the work was to throw some light on a baffling kind of cancer.

REMEMBER, OSVMA MEETS IN COLUMBUS JANUARY 5, 6, 7.

A tomahawk is what if you go to sleep suddenly and wake without hair, there is an Indian with.
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modified live virus hog cholera vaccines

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ready—write for your copy soon.

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