Welcome to the inaugural issue of **EQUINE ROUNDS**. This quarterly publication is written and edited by members of the student chapter of the American Association of Equine Practitioners (A.A.E.P.) at the New York State College of Veterinary Medicine.

Our purpose in **EQUINE ROUNDS** is to present current information regarding equine research and clinical methods. From time to time we will highlight interesting equine cases and interview members of the faculty who contribute to equine studies at the College.

We know there is a lot of equine news being made here at Cornell and we hope to share some of this with you in **EQUINE ROUNDS**. For example, in this issue you'll discover the sophisticated world of drug testing and how it keeps the competition honest at the race track. You'll also read about a new vaccine for influenza that is more effective than anything on the market. There's also an interview with Dr. Rebhun, our senior clinician in medicine. Because of his experience and specialization in internal medicine and ophthalmology, he handles some of the toughest cases and we think you'll appreciate his views on veterinary medicine and the job of the equine practitioner. Finally, we'll discuss the lameness exam and what it will, and will not, tell you.

**EQUINE ROUNDS** will let you know what's happening in the clinic, the surgery room, the research laboratory and the veterinarian's office. We'll tell you about the equine events here at the College, and how to take better care of your horse. We hope you enjoy every issue of **EQUINE ROUNDS**, and if you have questions or comments, please send them along to:

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Drs. Richard Hackett (center) and Susan Fubini (right) at work in the clinic.
The Clinical Staff

Six clinical faculty members head a staff of some 35 people including veterinarians, animal health technicians, and support people at the Large Animal Clinic of the N.Y.S. College of Veterinary Medicine. They bring to the clinic an enormous amount of expertise and enthusiasm in equine veterinary medicine.

Dr. Richard Hackett, recently appointed as Associate Professor of Surgery, has been on the faculty of the Large Animal Clinic since 1976. Dr. Hackett received his DVM from Ohio State University, and completed an internship, residency, and Master's Degree at Colorado State University. Dr. Hackett is a former trainer and driver of Standardbreds and current horseowner. His clinical interests are in wound management, equine abdominal surgery and equine respiratory surgery. He is board-certified in surgery.

Dr. Michael Collier is an Assistant Professor of Surgery in the Department of Clinical Sciences. A DVM graduate of Washington State University, Dr. Collier has traveled extensively in his career. He has pursued his clinical and research interests in equine orthopedics and lameness at such varied places as the University of Hawaii, U. of California at Davis, and Michigan State University. Outside of the clinics, Dr. Collier serves as advisor to the Cornell Polo Club, and enjoys sharpening his rodeo and roping skills with his own five horses.

Three instructors in Large Animal Medicine make up the rest of the faculty in the Large Animal Clinic.

Dr. William Rebhun is a 1971 graduate of Cornell. He is an Associate Professor in the Department of Large Animal Medicine with board-certification in internal medicine and ophthalmology. He is past President of the Southern Tier New York State Veterinary Medical Society. He is our featured clinician in this edition of Equine Rounds.

Dr. Michael Collier reviews radiographs of a horse.
Dr. Steve Dill, a graduate of the University of Georgia, came to Cornell in 1978 to complete an internship and residency in large animal medicine. He spent 1 year in an equine practice in New York state before returning to Cornell. Clinical cases that particularly interest him are in equine respiratory disease, botulism, neurological disorders, and gastric ulcers in foals.

Dr. Susan Fubini also hails from the University of Georgia and came north to Cornell for more extensive training in large animal medicine and surgery. While completing her internship and residency in large animal surgery here, she has developed her interest in equine gastrointestinal surgery. Dr. Fubini also keeps her own hunters and jumpers at home.

Lastly, Dr. Rory Todhunter comes to Cornell from Australia where he graduated from the University of Sydney. Dr. Todhunter completed a Masters and residency program in equine surgery at Michigan State University. Here at Cornell, Dr. Todhunter is involved in equine orthopedics and, along with Dr. Fubini and other faculty at the College, will be doing research on digital neurectomies in horses.

These six faculty members are supported by three veterinarians completing residencies in large animal medicine and surgery: Dr. Karen Baum, Dr. David Bristol, and Dr. Patricia Tithof, and three completing their internships: Dr. Diane Craig, Dr. Reid Hanson, and Dr. Jill Parker. In addition, over twenty-five men and women make up the staff in the pharmacy, receiving and medical records, surgery, and barn maintenance, and help to keep the large animal clinic functioning smoothly, efficiently, and professionally.

There are ancillary services such as radiology and anesthesiology that also support horse patients in the hospital. These services will be featured in future issues.

Dr. Rory Todhunter
Inside the Clinic: The Lameness Examination

By Annemarie Bimbo and Andrew Weitzmaw

Many of the horses brought to the Large Animal Clinic, on an out-patient basis, have lameness problems. A lameness examination is routinely performed to diagnose the cause of the problem.

A ten year old Quarter Horse gelding, Jake, was presented to the Clinic with an undiagnosed lameness in the left foreleg. The owner thought the lameness might be in the shoulder.

Before attention is directed to the lameness, a general physical examination is given including pulse, respiration and overall physical condition. The examining veterinarian noticed that the horse was standing slightly up on his toes. Following the general examination, the clinician began a series of palpations beginning at the left forefoot and continuing up the leg to the back. This was done on all four limbs even though lameness was observed only in the left forelimb. The palpations did not produce any clear cause of lameness.

Jake was then walked and trotted. A short, choppy gait, noticeably worse in the left fore was noticed; flexor tests, where the fetlock, knee and hock joints are held in flexion for 1-2 minutes, did not increase the severity of lameness. In certain lameness cases, the horse may be walked under saddle or taken to the one-half mile racetrack at the Equine Research Park for observation.

The next procedure on Jake was to test all four hooves with the hoof testers. Pressure on several areas of the left forefoot revealed sensitivity across the heels. The same sensitivity was observed on the right forefoot.

The evidence up to this point indicated a preliminary diagnosis of navicular disease, but further tests were necessary in order to confirm this. The first of these included using local anesthetic to block the nerves supplying the heel area of the lame leg. In Jake's case, an interesting result was observed. Following the nerve block, the lameness was observed in the right forelimb rather than the left. This bilateral lameness supported the initial diagnosis. At this point, radiographs were taken of both forefeet. The results, which showed increased thickening of the vascular channels, confirmed that navicular disease was the cause of lameness. The prescribed treatment included phenylbutazone and corrective shoeing.

The basic method behind the lameness examination is to thoroughly examine all four legs and then progressively isolate the specific cause of lameness. At the same time, the clinician can deduce whether predisposing problems have contributed to the lameness or if secondary problems are developing. Although this is a time consuming process, the clinicians at Cornell feel that an undiagnosed lameness merits close scrutiny for all possible factors which may be affecting the horse's soundness. Only in this way may a satisfactory diagnosis and prognosis be made.
Research Update:
Equine Influenza Vaccine

By J.C. Davis

One of the research programs underway at the NYSCVM at Cornell is the development of a temperature-sensitive (ts) equine influenza virus vaccine that is safe and free of side effects, yet provides adequate protection against both equine influenza serotypes for at least one year. This project, like many others in the field of equine research at Cornell, is maintained by money from the Zweig Fund.

The equine influenza project at Cornell is led by Dorothy Holmes, DVM, PhD. She is assisted by Lynne Brundage-Anguish, BS, MS; James Gillespie, VMD, acts as advisor and Leroy Coggins, DVM, PhD as a consultant.

Those involved with horses are well aware that the equine influenza virus is one of the most important agents causing clinical disease and economic loss in the horse. There are several reasons why the presently available vaccines do not provide adequate protection. Firstly, their protection is short-lived, needing to be boosted at least twice a year. Secondly, many horses experience occasional side-effects which discourages horse owners from vaccinating with these products regularly.

The idea behind creating a temperature-sensitive virus deals with the genetic combination of a ts human influenza virus strain with the equine influenza virus. The combination is one whose outer protein coat stimulates the horse to develop an immunity to it while its inner temperature-sensitive material allows it to grow only in the cooler upper respiratory airways and not in the lungs.

The ts virus developed at Cornell has been shown to be able to grow in the upper respiratory tract of inoculated horses without producing fever or other ill effects. It has also been successful in provoking an immune response such that when exposed to the "wild type" (non temperature-sensitive) influenza virus, the inoculated horses resist infection. Therefore, the new ts virus is capable of eliciting a defensive response from the horse's immune system without producing the disease.

After five years of research, and testing Dr. Holmes' team is ready to begin field-testing this ts virus as an aerosol vaccine. The researchers are optimistic that results in horses housed under normal conditions will be as promising as the results from horses already tested in isolation units.

The work yet to come will require more time and painstaking effort, and it may be another three or four years before the vaccine will be ready to submit to the USDA for approval. The payoff will be a safe aerosol vaccine that provides longterm protection without causing any deleterious side effects.
This is the first in a series of articles introducing the clinicians at the NYSCVM's large animal hospital. The following is an interview with Dr. William Rebhun. Dr. Rebhun is the senior clinician of the internal medicine division of the Large Animal Clinic.

**AAEP:** How do you contrast academics and Cornell clinical work with private practice?

**Dr. Rebhun:** The challenge of the clinical work here is that we do not deal with easy cases. We deal with cases that have been referred in by veterinarians because those animals have not responded to conventional therapy or because they have something wrong with them that is not typical. They, therefore, require either additional diagnostic work or additional treatments and equipment that are not available in the field.

There are pros and cons to each type of practice, and I really enjoy the different aspects of each of them. The private practice gives you more of the immediately recognizable response to your work. You maintain much better contact with the case because it stays in your practice. Here I don't have the ability to follow up as closely as I'd like, because the people can live many miles away. You often don't develop the rapport with clients that you do when you're seeing them every day.

**AAEP:** Is there anything that the clinicians are actively doing to meet the equine community outside Cornell?

**Dr. Rebhun:** That's something we do mainly by speaking arrangements. For example, I just got back from Buffalo where I was giving a talk to the N.Y. State Society of Equine Practitioners meeting. Next week I'm going to Lexington, Kentucky to speak to the Equine Practitioners, and from there I'm going to Purdue University to give a talk.

**AAEP:** How do you see Cornell's role in the horse industry of New York State?

**Dr. Rebhun:** I think it's a vital role. I think we have to be the center of new information. We have to continue to...
generate new ideas, new treatments, surgeries, etc. Also we are in the
perfect position (geographically) to be a sounding board. We talk to veterinarians
and horse people all over the state. In other words, if we get wind of a disease
outbreak in a certain part of the state because the practitioners call us for
advice, we can let other practitioners know. "Hey, we might have problems with
'X' this year, here's what we think you ought to do."

We spend quite a bit of time on the
phone talking to veterinarians. I'm prob­
ably on the phone at least two hours a
day. Some of those (calls) might be at 8
o'clock at night when things finally
settle down. But the amount of communi­
cations that we do is astronomical.

AAEP: How do you see your specific re­
search interests relating to the needs of
the vast equine industry here in New
York?

Dr. Rebhun: Ophthalmology is one of my
main areas of special interest. I am
board certified in ophthalmology and have
been since 1978. I do almost all the
equine ophtho work because of that, and I
have published a great deal on equine
ophthalmic problems. I'm certified in
internal medicine as well. The medical
case load is always going to be greater
than just eye problems. My primary
interests there are with diseases of
foals and infectious diseases of the
horse.

When people develop specific
research interests or specific research
projects, the word tends to get out that
this is being investigated. Therefore,
anybody who has that problem with his
horse is more likely to present it to us
clinically. We in the clinics don't do
that much laboratory research. We do
"clinical research" which means clinical
applications. As we gain experience with
the different disease processes, we get a

handle not only on how to diagnose them,
but hopefully on how they should be
treated. When you have enough cases to
say this works or doesn't work, then you
publish. (In the past 6 years Dr.
Rebhun has published 32 articles in
several medical journals).

AAEP: What do you hope to see in the fu­
ture for Cornell and yourself?

Dr. Rebhun: I would like to continue
what I feel is the Cornell tradition of
having a high volume caseload so that we
have teaching material for students, so
that we have clinical material for
ourselves to maintain our clinical
expertise, and so that we can better
serve the state and the referring veteri­
narians. I would like to keep this a
busy clinic. Many new vet schools
actually limit their case numbers. They
don't take in more than, say, three
horses a day. They would rather take one
case and make a chalk talk out of it for
two hours.

At other vet schools it's a differ­
ent philosophy. I don't think it's as
good as Cornell's because the Cornell
graduates, for decades, have been con­sidered good clinical people when they
come out of school. Our students tend to
have a lot more experience than grads of
other schools, thanks to the caseload.
There's nothing like seeing a case, rather than reading about it in a text­
book, to help you learn.

So, a busy clinic is what I'd always
like to have.

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Drug Testing of Race Horses

By Sarah M. Darish with special thanks to Dr. G.A. Maylin

Drug testing is probably the hottest issue on the racetracks today. As new drugs come into vogue, they are frequently used illegally, at least until a test is developed for detection of the drug and/or its metabolites. The current technology of drug testing makes it just a matter of time before a new drug can be detected in the blood and urine. Drugs do have their place in equine sports medicine but they must be given in their recommended doses at least 48 hours before race time. It is known that certain drugs are illegally given within 48 hours of a race; however, since these drugs are usually given in low doses to avoid the testing procedure, the drug does not produce the desired pharmacological effect. Therefore, this practice benefits the unscrupulous who gets paid for this "prerace" treatment. Accurate, effective, drug testing benefits the betting public, the competing owners and trainers, and, of course, the horses.

Prior to 1971, drug testing procedures had not kept pace with the drug abuse on the racetracks. Reserpine, a tranquilizer, was very popular at the time and could not be detected in tests then available. At the request of the Standardbred industry of New York, Cornell began its drug testing program, headed by Dr. George A. Maylin. At that time, individual tracks contracted with Cornell to do their drug testing. In September of 1971, Dr. Maylin set up a trackside prerace drug testing unit at Roosevelt Raceway on Long Island. Other tracks, both Standardbred and Thoroughbred, followed suit. In 1977, the NYS Racing and Wagering Board took over financial control of the program replacing the individual contracts.

Prior to Cornell's involvement, drug testing was handled by the State Racing Commission Laboratory. The testing was not sensitive enough to detect drugs in low levels. The sensitive drug testing procedures currently in use involves thin layer chromatography/gas chromatography, high performance liquid chromatography and mass spectrometry. Every sample is tested for approximately 750 drugs and that number is growing. After testing, samples can be frozen and stored away. Perhaps a drug is being abused now on the racetracks for which there is no accurate test. Dr. Maylin and his fellow researchers can study the metabolism of the drug, determine how to detect it and its metabolites, and return to those samples at a later date to test for the drug.

In the future, Dr. Maylin hopes to develop a more sensitive pre-race testing procedure. As of now, the pre-race testing is primarily a screening for commonly used drugs. This testing helps protect the trainer (who is ultimately responsible) in the event that he/she or an employee makes an error such as giving a therapeutic drug to the wrong horse. Time constraints make it impossible to run and recheck sensitive qualitative and quantitative tests prior to the race. The future pre-race test that Dr. Maylin envisions would utilize the RIA method (Radio-Immuno-Assay) or other immunoassay tests. This is a very sensitive method and relatively rapid. When this becomes a reality, it will accomplish several things. It will protect trainers who mistakenly administer a drug and those whose horses might have been drugged by an outsider. Most importantly, because many more drugs will be detected prior to the race, it will better protect the betting public.