Electronic horseshoe to aid equine treatment

BY DICK ANGLESTEIN

KENNETT SQUARE — An "electronic horseshoe" is being developed as a space-age research tool at the New Bolton Center to aid in the study and treatment of equine leg injuries.

The horseshoe will be used in both the orthopedic treatment of injuries and to study the effect of drugs on lameness, according to Dr. Lawrence Soma, member of the research team at the University of Pennsylvania's Veterinary School facility.

The electronic horseshoe actually is comprised of two shoes made of hardened aluminum with an overall thickness of about a quarter-inch. It is a little heavier than a normal shoe.

The inner half of the shoe attaches to the hoof and the exterior portion can be bolted to it. Between the two halves are sandwiched four sensors, donut-shaped transducers smaller than a dime which can be monitored through a telemetry system.

"Two of the sensors are positioned in the front of the shoe and two in the back portion," Dr. Soma explained.

"With the shoe, we can study a horse in free-ranging movement and record the effects of an injury on such movement as compared to that of a healthy leg.

"It will permit us to objectively characterize the footfall of a horse in each of the legs."

Measurements can be made not only of the amount of pressure exerted by a 1000-pound animal on the shoe, but the distribution of such pressure.

Some questions which the studies hope to answer:

How long is the foot kept down?

When does the animal start to push off?

How long is there weight on the heel as compared to the flat part of the foot?

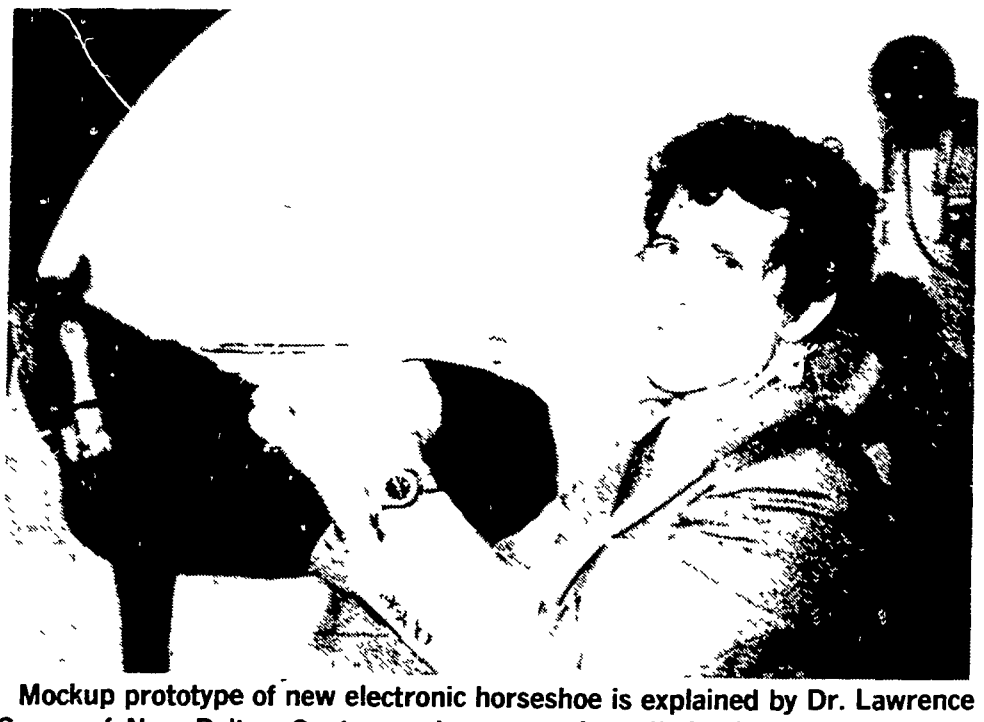
"Also, we'll be looking at the effects of drugs on lameness," Dr. Soma said.

"If a horse is lame and given a drug, specifically how does it affect movement?

"We can measure how weight may be shifted when an animal becomes fatigued.

"With the shoe, we'll be able to study a specific

(Turn to Page A21)



Mockup prototype of new electronic horseshoe is explained by Dr. Lawrence Soma, of New Bolton Center equine research staff. In the background, orthopedic shoeing activities are conducted in the Center's farrier shop.

Face mask held by Dr. Soma is used in studies to measure such things as oxygen consumption rates by a horse during exercise.