



**This  
Little  
Piggy  
Stayed  
Home**



By Jill Southworth

...nce these little piggies would have gone to market, but now they are destined to be the subject of some sophisticated research at the University of Missouri-Columbia.

You see, those delectable porkers on the facing page resemble man in many ways. Their anatomy is similar in cardiovascular makeup, skin, blood vessels of the retina, gastrointestinal tract and dental design. Like people, pigs have heart disease, gastric ulcers, arthritis and nutritional diseases. Influenza and trichinosis are also the sad lot of piglets. They might even be alcoholics.

Because of these remarkable similarities to the man next door, swine are excellent research models in which to study some human problems. However there were several disadvantages that inhibited early scientific study.

Pigs have been bred for greater and greater amounts of meat over many generations; conventional swine may weigh 500-1000 pounds. This bulk, combined with certain pig-pen characteristics made laboratory work difficult. Also there was a definite lack of clinical history on pigs.

The first problem was solved at the University of Minnesota under sponsorship of the Hormel and Mayo Foundations. Within the auspices of the university, a strain of swine was miniaturized. Instead of a table-bound heavy-weight, the Hormel researchers bred a light-weight, mini-pig that tipped the scales at 100-200 pounds.

The second problem — clinical data — was a little harder to solve, but a long-range, interdisciplinary project at Mizzou is about to unravel it. With the assistance of the U. S. Public Health Service, a 560-acre farm has been set up to study aging in many species of animals.

Located about five miles southwest of Columbia, the Charles and Josie Sinclair Comparative Medicine Research Farm for the Study of Chronic Diseases and Aging houses many species. Epileptic Angus cattle, chinchillas, hamsters, Rhesus monkeys and Aoudads make their homes there. However the main project is mini-pigs.

"Increased human life expectancy has brought about a greater need for research upon the aging process. In most instances, very little is known about the previous history of humans and animals suffering from chronic diseases." This is a statement from one member of a multi-disciplinary team studying the mini-pig.

To correct that, faculty members from veterinary medicine, bioengineering, home economics, medicine and dentistry are rapidly collecting the necessary information. Immune responses, glucose tolerance, metabolic disorders, bone growth, birth defects and alcoholism are some of the many mini-pig studies. Much of the research is being conducted under grants from the National Institutes of Health.

Electrocardiograms, routine dental checks, and over-all growth evaluation; blood, fecal and urine analysis are part of everyday life for the Sinclair swine. Periodic blood samples are drawn and a series of 30 different tests keep tabs on red cells, white cells, cholesterol, hemoglobin and much more. To handle all this data, Sinclair Farm has electronic tape encoders, a remote terminal which ties into the Columbia campus system, and sophisticated computer systems for rapid analysis and retrieval.

The first group of mini-pigs came to Sinclair Farm about four years ago. At that time, they were separated into two groups. The first was periodically sacrificed and necropsied (a detailed autopsy); replacements came from the same stock. Piglets in the second section provide blood, fecal and urine samples. They are allowed to live out their full lives. On all the pigs detailed records are kept until the normal biological profiles are established.

Once established, the profiles will be invaluable for biomedical research. For instance, a scientist may be interested in examining the effects of different compounds on cholesterol and their effects on the cardiovascular system. After establishing experimental boundaries on the cholesterol to be examined, he would select corresponding mini-pigs for research subjects. The pig's make-up would be charted so the scientist would know any reactions would be correlated.

Dr. Richard B. Wescott, associate professor of veterinary microbiology and of medical microbiology, is coordinator of the project. Dr. C. C. Middleton is director of Sinclair Farm and associate professor of veterinary pathology and of community health and medical practice. And there are many other researchers from other areas, a multidisciplinary approach possible only because of the diversity and expertise available on the Columbia campus.

Each person has individual skills and talents to contribute to the mini-pig project. When their separate studies are completed, the work will provide a 'whole hog' of accurate and effective guidelines for human research. □