

A brief history of the UT-AEC Agricultural Research Laboratory - Part five

(As published in The Oak Ridger's Historically Speaking column on December 1, 2009)

We continue to examine the brief history of the UT-AEC (University of Tennessee and Atomic Energy Commission) Agricultural Research Laboratory later known as the Comparative Animal Research Laboratory. Let's now look at the overall scope of the project and the accomplishments of the research.

A report written in 1966 serves as the primary basis for this review of the history. I believe you will agree with me that some of the most interesting early research on the effects of radiation exposure was conducted at the most unusual laboratory.

We have already covered the final days of the project and how it was allowed to dissolve into the Oak Ridge Associated Universities medical research efforts. Now let's take a more in depth look at some of the key experiments conducted during the history of this unique analytical laboratory and examine some of the groundbreaking research conducted there.

Some of the most significant and earliest data ever captured regarding the results of exposure of animals to radioactivity was documented at this laboratory. This may well have been the very beginning of the extrapolation of radiation to animal tissue to the dangers of radiation to the human body.

An insight into the perceived value of the research facility in the early days can be seen from this quote from a meeting of the AEC Advisory Committee for Biology and Medicine held at the UT-AEC Agricultural Research Laboratory on May 5, 6, and 7, 1955: "Therefore, upon a motion by Dr. Warren, seconded by Dr. Doisy, the following resolution was approved unanimously: 'It is recommended that the AEC should continue their support of the UT-AEC agricultural research program and it was suggested that a small committee be appointed to consider ways in which even greater advantage might be taken of the unique facilities.'"

This resolution of 1955 indicates the strong local support for the UT-AEC Agricultural Research Laboratory. Much detailed research had already taken place and was documented. The original herd of cattle inadvertently exposed to the Trinity blast had by now been supplemented by many other animals and the expansion of the laboratory's radiation experiments into plants and especially seeds was well underway.

An interesting story about the care being given the animals that arrived from New Mexico that I found during my research has to do with the surprising weight loss of the animals. It seems that during the period when the Roane Anderson Company had responsibility for the cattle, they had contracted with a person to feed the cattle daily. He thought the feed for the cattle might better be used to fatten his hogs.

After all, the cattle had grass to eat and his hogs were limited to the hog pen on his farm. So, he just took the cattle feed (or at least a large portion of it) and fed it to his hogs. When the cattle were found to be losing weight, of course the first thought was that the weight loss was because of the radiation exposure. That thought did not last long as it had no real basis in fact and a cursory investigation quickly turned up an obvious reason for fat hogs and thin cattle.

Imagine the frustration when the truth was learned about the hired hand who was deliberately redirecting the cow's feed to his hogs. The cattle quickly resumed their normal weight when actually fed the amount of supplemental feed prescribed for them. I imagine the hog farmer was summarily discharged from his duties.

Actually, the herd of cattle exposed to the radiation of the Trinity blast, while otherwise being normal in all aspects, kept their distinctive "beta burns" in the form of gray hairs along their backs. However, Alamogordo cow number 52, the last survivor of the famous herd was photographed with her 16th consecutive calf and that famous photograph published in the report of 1966. It is stated that she had

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produced calves with very good growth records and there was no harm seen to her offspring from the radiation exposure she had experienced from the Trinity blast.

The three-fold objective of the UT-AEC Agricultural Research Laboratory was originally defined in 1948 as follows:

1. To do work requested by the AEC;
2. To study agricultural problems using radioactive isotopes and radiation; and,
3. To study the application of nuclear energy in the field of agriculture.

By 1956, this three-fold objective had grown to be so mutually interrelated that it was hard to separate the activities. The laboratory was taking on a life of its own with a huge farming operation, hundreds of head of cattle and other animals requiring tending and care so more and more experiments could be performed. It was growing in all respects except funding for the experiments.

While the laboratory had much to do and desired to expand substantially, what first started as enthusiastic support from the AEC soon began to lag behind the need as perceived by those working in the laboratory. The frustration of knowing experimental work was beneficial and not being able to obtain needed funding began to cause problems in the early 1960's, grew more and more pronounced in the 1970's and finally resulted in the changes that resulted in the demise of the laboratory in the 1980's.

During the time when funding was adequately provided, the laboratory staff conducted research on agriculture problems such as the introduction of radiation into the food chain. The external irradiation of animals, plants and seeds was a primary source of experiments and resulted in compiling an enormous amount of useful information.

Both UT and the AEC recognized the unique opportunity presented by the close proximity of UT's Agricultural Experiment Station to the AEC's Oak Ridge facilities and the available land for farming to support the large amount and variety of animals for scientific research. Almost half of the 5,000 acres was by the mid-1950's was taken up with improved crop and pasture land supporting experimental plant and animal radiation related research.

Extensive barn and laboratory facilities were constructed during the early years beginning on May 11, 1948 at the start of the cooperative effort and ramping up in the early 1950's. This growth continued and experiments expanded exponentially as did the number of staff required to support the farm, farm animals and ever present experiments with radiation...some of the most extensive in the nation and producing some of the most informative results.

Next we will examine some of the specific experiments and results from the years when the laboratory was at its peak in terms of funding, caring for huge numbers of many types of animals and a huge farming operation. These were the years when folks such as Bob Reynolds so fondly recall. A group of people got to live their dream for a few years and were allowed the freedom to conduct experiments and chart unknown paths in a new and exciting field of applied research.

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A greenhouse built to house and monitor plants used in radiation experiments



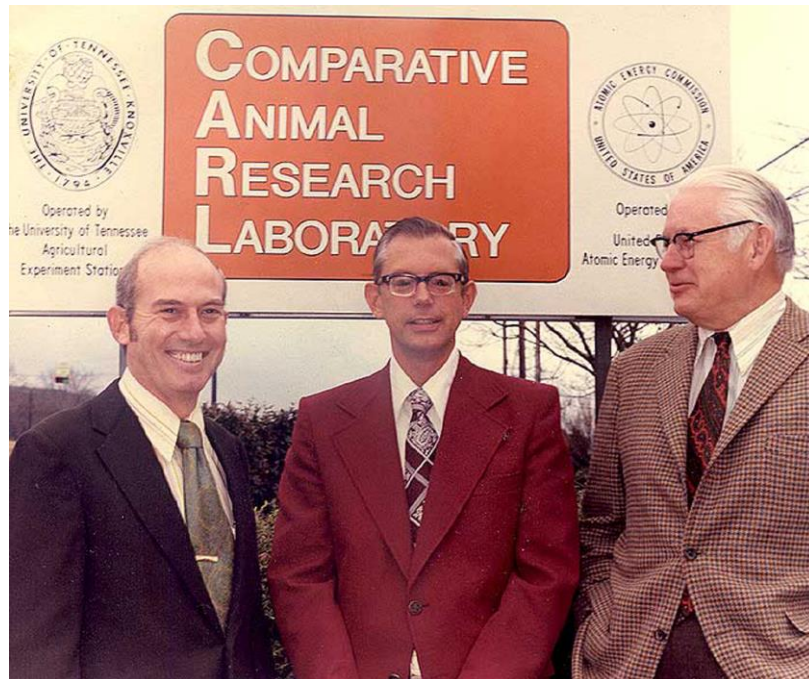
The interior of the High Level Radiation Facility where the 1971 accidental exposure of a worker occurred

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One of several barns built for the farm operations – this one was demolished within the past five years



Joe Lenhard, Pete Walburg and John Ewing, director of the UT Experiment Station shown with the new CARL sign when the name changed from UT-AEC Agricultural Research Laboratory to Comparative Animal Research Laboratory