Kentucky newspapers 1949 look at the city, part 6

(As published in *The Oak Ridger's Historically Speaking* column on May 18, 2015)

Here is the last half of the third installment in the series of articles Sam Adkins, staff writer for the Louisville, Ky., daily newspaper, The Courier-Journal, wrote about Oak Ridge. The first article in the series was published on Aug. 14, 1949, the fourth anniversary of the surrender of Japan.

The editor of The Courier-Journal has given permission for Adkins' series of articles to be reprinted in part here. I think you will appreciate seeing the view of Oak Ridge history from the perception of a reporter looking at us from one state away. Remember, this is 1949!

The Courier-Journal title for this third installment in the series: **Atomics May Lengthen The Life Span of Man**

By Sam Adkins, Courier- Journal Staff Writer

Continued from the first part of this article where Adkins introduced his perception of the Graphite Reactor. He was only allowed to look at the face of the reactor…

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'Tracers' Followed

Alright, then, what good are radioisotopes, anyway?

Well, you can count on it that when something big is going on, a Kentuckian or near-Kentuckian will be right at the heart of it. In this case, it's a near-Kentuckian, Dr. Paul C. Aebersold, 39, chief of the isotopes Division of the A.E.C. here at Oak Ridge. He's a Californian, but his family went out there from around Frankfort and Louisville after coming to this country from Switzerland. As a matter of fact, practically all the Aebersolds in this country still live around Frankford and Louisville, the isotope chief said.

As to what good radioisotopes are, most of what follows comes from Dr. Aebersold.

"Isotopes assist science in two ways: as sources of radiation for many potentially important uses, including the treatment of disease, and as 'tracers' of processes formerly difficult or impossible to observe. As tracers, they are proving themselves the most useful new research tool since the invention of the microscope in the 17th Century; in fact, they represent the rarest of all scientific advances, a new mode of perception."

"Each of us, from a purely physical standpoint, is a large batch of atoms, "Dr. Aebersold pointed out. "Each person contains about 10 billion billion billion atoms. The atoms now in your body are being thrown off and replaced at such a rate that in another year, most of the atoms now in you will have been replaced by other atoms."

He cited this example to show how the ability to study the movement of various materials throughout the body opens up vast new fields of potential knowledge about how the body works and how to make it keep on working.

Scientists can follow tracer atoms through the body – or through plants or in industrial processes, for that matter – just as "tagged" birds or "marked" money can be traced. Tracer atoms can be followed through the radiations they give off – by Geiger counters and other instruments. And they can be followed, even though they're present in minute quantity.

As an example, Dr. Aebersold usually displays a pinch of the isotope Carbon-14, then he says: "This small fraction of an ounce of material could be mixed in with 5,000 tons of normal stable carbonate, and we could take a spoonful of the final mixture and still detect the radioactivity with a Geiger counter. To put this in terms of the biologist, this pinch of material could be uniformly distributed in the bodies of 50,000,000 rats, and yet we could detect the radioactivity in a single rat."

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Until the development of tracer i8sotopes, our knowledge of the rate of flow of liquids through the body has been slight, and our knowledge of the amount and speed of absorption by the body of various elements almost nil. That's all changed now. For instance, tracer atoms have demonstrated that 75 seconds after it is injected into one arm, sodium starts being excreted from sweat glands in the other arm.

Isotopes Sent Abroad

Radioisotopes also are being used widely in medical diagnosis and therapy. Radioactive iodine is used in making more accurate tests of thyroid activity than ever before possible. And both radioiodine and radiophosphorus are employed in locating and diagnosing brain tumors. A Geiger counter can pick up the iodine's rays through the skull. An incision is necessary when Phosphorus is used; but the phosphorus is a great aid to brain surgeons, since it outlines the exact mass of the tumor and makes surgery a more exact proposition than ever before.

The uses in medicine are countless, just as in agriculture and industry. And the proof of the pudding is in the eating, so to speak:

Up to June, 1948, a total of 3,136 shipment s of pile-produced radioisotopes had been sent from Oak Ridge to users outside the A.E.C. in 33 states, the District of Columbia and Hawaii. Up to June, 1949, this total had almost doubled – 6,711 shipments to 40 states, the District of Columbia and Hawaii.

Under a carefully controlled program, 27 foreign nations have qualified to receive shipments of radioisotopes produced in the pile here at Oak Ridge. Up to July of this year, 573 shipments had been sent abroad.

All of the radioisotopes shipped out are more or less dangerous; so unusual precautions have to be taken. For the more radioactive – especially for isotopes giving off the extremely powerful and potentially lethal gamma rays – heavy, wooden packing cases with lead shields inside them are used. Some of the materials, however, can be sent out in cardboard containers with a leadfoil lining.

Because many of the radioisotopes decay (lose their radioactivity) so rapidly, much of this material is shipped by air. But a great deal of it also goes out by truck and train.

Each container is clearly identified, with a notice of the amount of radioactivity, to eliminate danger in handling the shipments.

Dr. Aebersold said there never has been a serious mishap involving such a shipment so far.

In Kentucky to date, only the University of Louisville, the University of Kentucky and the medical department at Fort Knox have done any work with radioisotopes from Oak Ridge.

A remarkable feature of these materials is their cheapness. They can be made in cyclotrons about as well as in piles. But isotopes made in the pile for $10,000 would cost millions if made in the multimillion-volt atom-smashers.

An example is the case of pile-produce radiocobalt. It is almost a dead ringer for radium, and can be used like radium in treating cancer and the like. But $500 worth of radiocobalt is the equivalent of about $100,000 worth of radium.

Incidentally, the A.E.C. makes no charge at all for isotopes used in cancer research.

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This was the final of the three articles written by Sam Adkins. It amazes me how far things had come in just a few years. Sam wrote about Oak Ridge in 1949 less than six months after the gates were opened

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to the public. He understood a lot about what had gone on here and the tremendous potential for radioisotopes.

Oak Ridge continues to do amazing things routinely. I am afraid we take it too much for granted and it often takes an outside look to see the greatness that is Oak Ridge!

Shipping medical isotopes using Air Express to get the radioisotopes to the destination as quickly as possible

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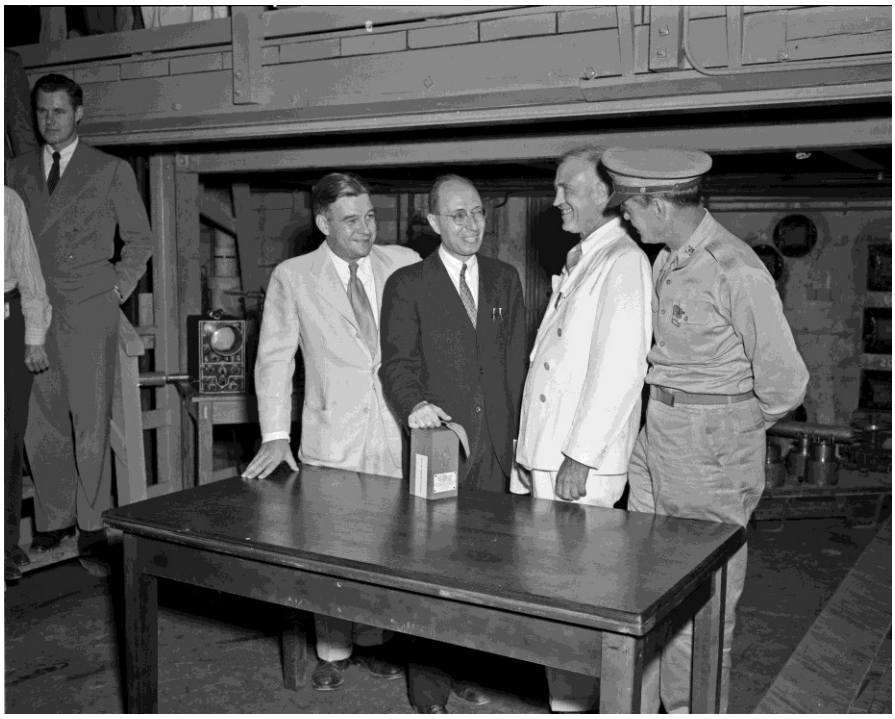

Eugene Wigner holds a radioisotope shipment from Monsanto Chemical Company which operated the Clinton Laboratories from July1945 – December 1946

Radioisotopes being carefully removed from the side of the Graphite Reactor

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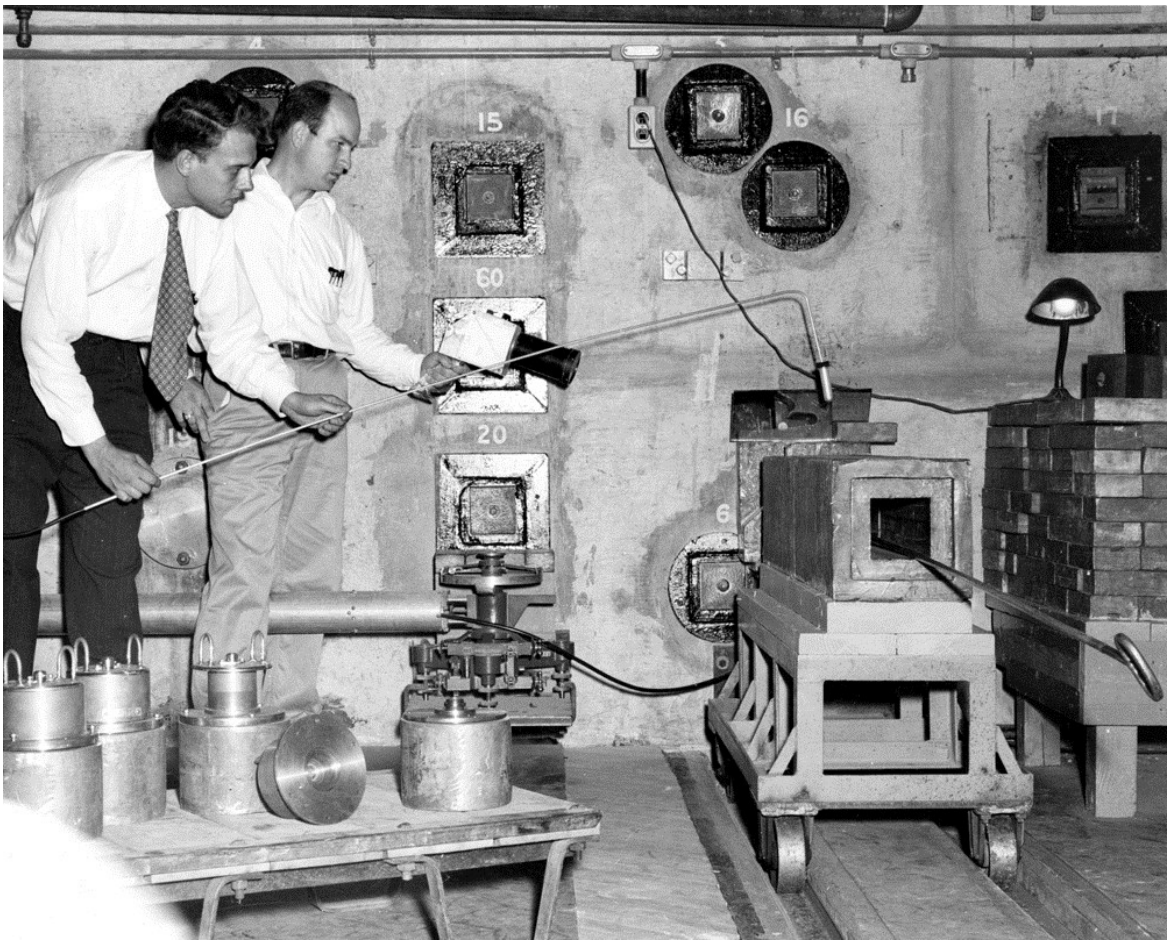

Packaging of radioisotopes checked for radiation leaks