

**A Body of Evidence in Support of LENT (Low Eenergy Nuclear Tansmutation)**

**NEWS RELEASE**  
**The Cincinnati Group**  
 December 31, 1997

Appended are some elemental spectra generated by S.E.M. (Scanning Electron Microscopy). These tests were conducted without any Thorium Nitrate. Sodium metasilicate was used as the electrolyte. The handwritten number in the upper right corner identifies the scans.

The first scan is that of the zirconium electrode used in the experiment.

The second scan is that of the stainless steel (SS) electrode.

The third is the sodium metasilicate used in the test.

The fourth scan is an 'after' of the residue from a run using stainless steel and zirconium electrodes. The run was with AC current with varying voltage and amperage. It ran for about one hour. The main thing to note about this spectrum is the ratio of Na to Si. Dr. Robert Bass has put a query out on the Internet, on the Vortex forum, etc., to see if anybody would have a possible explanation of how the ratio could change. So far no real explanations have been given. A copy of the query is appended. In this spectrum there is also Mg, As, M, K, Ca and Ti that do not appear in any of the spectra of the cell components or the electrolyte. Considering that this is a closed-cell and this spectrum is of a S.E.M. at 100X, these are fairly large quantities of elements.

The procedure for recovering the 'after' sample was to scrape the interior of the cell, including both electrodes, while still hot, using a sterile piece of SS. We then collected all of the liquid plus solids in a Pyrex dish, taking it to dryness at 200°F. When the sample was completely dry, we used the SS instrument to gently homogenize the residue. A sample of about 10 cm<sup>2</sup> of powder was then applied to a piece of carbon tape and placed on a carbon disk inside the S.E.M.

I was present at the time these test were being done. It was at a commercial lab, and because we were one of their most frequent customers, the S.E.M. operator would allow us some privileges, such as scanning the sample in 5 or 6 places to assure that the spectrum printed was a very accurate accounting of the elements present. I never sent samples; I always took them and observed the process. Please note that the Fe, Cr and Ni are from the SS electrode.

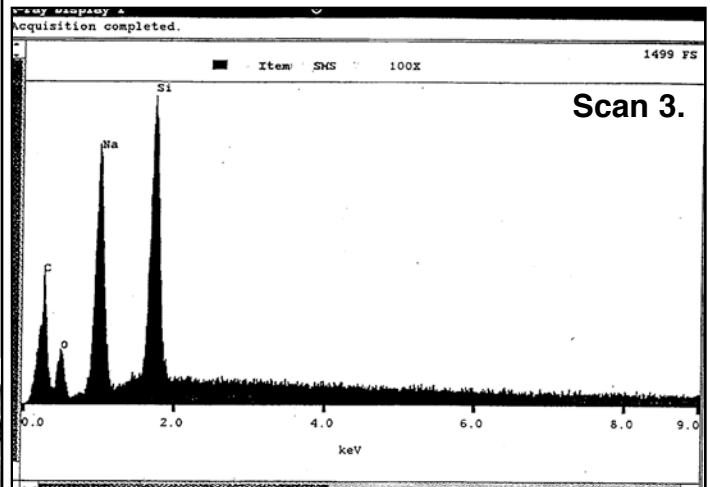
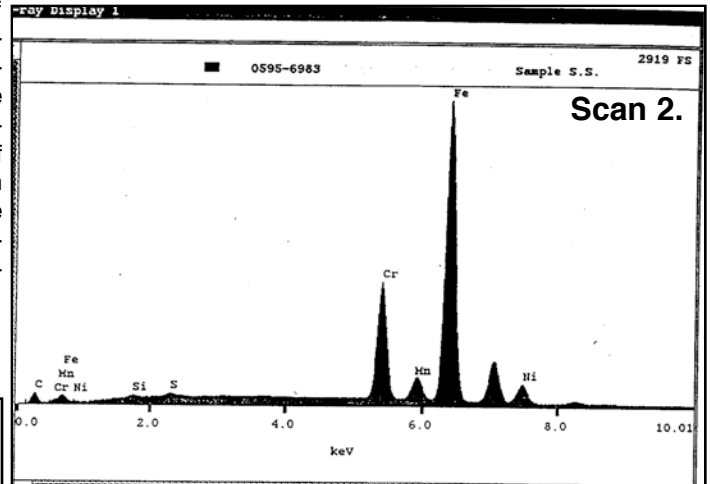
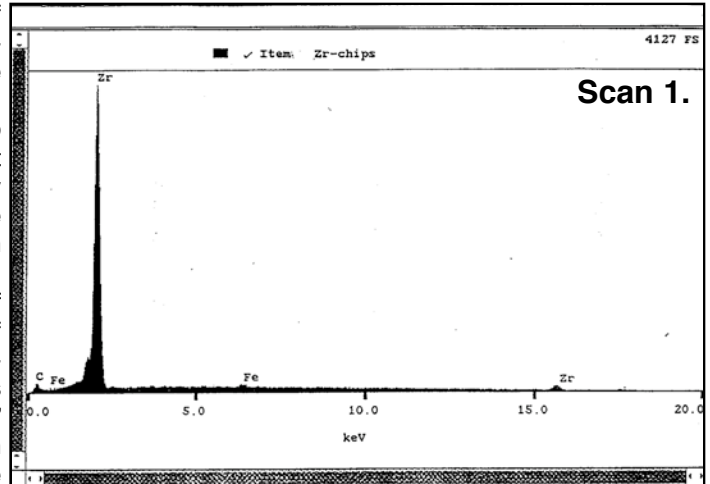
Scan number five is of a test that was very similar to scan four, the main difference being that we ran it for two hours. You can see that the Na is completely gone and that also there is now Zr, which is from one of the electrodes.

Dr. Elwood Brooks of the University of Cincinnati, an Electrochemist, tells us that this should "slam the door" on anything other than nuclear reactions. We are in the process of awaiting Dr. Brooks' re-running of these experiments in his lab. We intend on doing extensive investigation of these samples on an ICP/MS. With this we can do isotopic identification as well as quantitative analysis.

Stan Gleeson

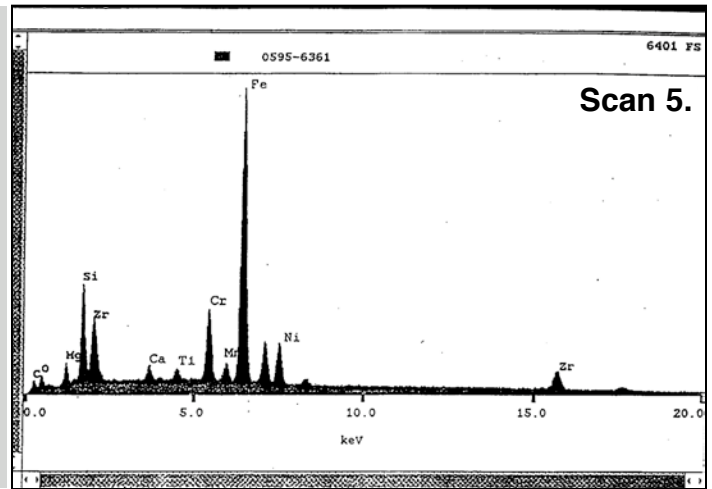
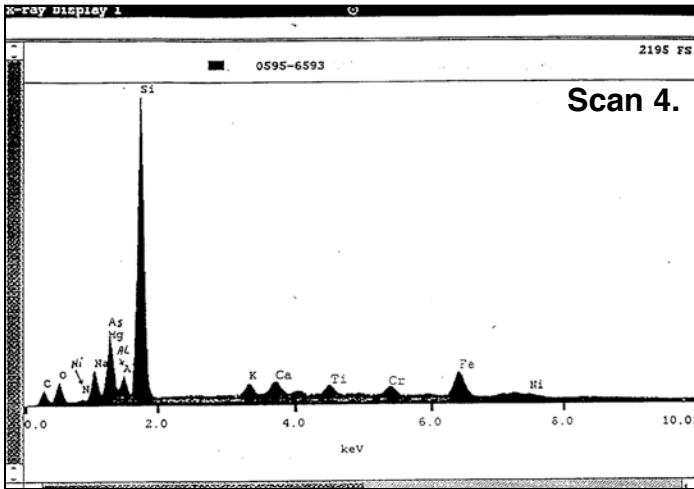
*Chris Tinsley much admired The Cincinnati Group, so it is our pleasure to put this photo of him here—the last one of him by me. Taken as he left Concord, New Hampshire for "darkest England" in 1996 ... for the last time.*

— Photo by Gene Mallove



***"Scientists will believe what you pay them to believe."***

— said a bit tongue-in-cheek by its author, Chris Tinsley



# LENT-1 LATEST TECHNICAL RESULTS

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The Low-Energy Nuclear Transmutation reactor (LENT-1) is operated as follows:

1. The reactor is filled with 25 ml. of thorium nitrate in a distilled water solution such that 0.1 grams of thorium is present in the reactor cell.
2. The operational protocols are carefully followed (voltage, current, and temperature) for thirty minutes [Ed. Note: See *IE* Issue #13/14 for protocol].
3. Before- and after-processing samples of the electrolyte typically show that 4,300 parts per million of thorium reduces to less than 10 parts per million after processing.
4. There are two places where the thorium can accumulate: on the zirconium electrodes and in the precipitate. [Ed. Note: In these tests, we were informed that all electrodes are zirconium; there is no stainless steel in the inner cell.]
5. According to an Italian scientist (verbal communication) thorium cannot be stored in the zirconium metal. If the thorium is present on the zirconium electrodes, it must be on the surface of the electrodes.
6. It is well confirmed that over a series of experiments with the zirconium electrodes, the zirconium is eroded away and becomes the major part of the precipitates (probably as zirconium oxide).
7. Therefore, the thorium can only be substantially present in the precipitates.

An accurate chemical assay has been made on the amount of thorium in the pre-processed solution and in the post-processed solution. The pre-processed

amount was 4,300 parts per million and the post-processed amount of thorium was 9.5 parts per million.

In a series of experiments using the LENT-1 zirconium electrodes, we have changed the stainless steel disk-electrode support with a threaded zirconium rod and a zirconium nut. The disk electrode is secured to the zirconium disk-electrode support by use of the zirconium nut. This assures a good electrical contact. Most of the zirconium support rod is covered with a Teflon sleeve.

Our observation of the operation of the LENT-1 reactor is that considerable erosion occurs on the half of the zirconium-disk electrode immersed in the electrolyte. Similar erosion takes place on the inner surface of the zirconium cylinder that constitute the other electrode for the system. Because of the continued erosion, it is obvious that the thorium cannot build up on the electrode surface. According to Dr. Bressani (or Dr. Del Guidice) in a conversation with Stan Gleeson, thorium cannot penetrate and be captured in a zirconium lattice.

Therefore, the thorium that is removed from the thorium nitrate solution in the LENT-1 cell electrolyte must be present in the precipitates after processing or else the thorium has been transmuted into a variety of other elements.

All of the precipitates from five experiments were combined into one sample and submitted [to a commercial laboratory] for chemical analysis. If all of the thorium had

been deposited in the precipitates, there would have been 0.5 grams of thorium in the precipitates. The chemical analysis showed that 0.96 percent of the precipitates consisted of thorium or that 0.01286 grams of thorium had ended up in the precipitates. In addition, it was determined that there was also 0.0021 grams of copper in the precipitates.

The end result is that only 2.57% of the thorium that was put into the reactor over five experiments is accounted for in the precipitates. There will be a small amount of thorium on the surface of the zirconium electrodes. A new set of experiments is planned where the surface of the zirconium electrodes will be removed and subjected to a chemical analysis to determine precisely the amount of thorium. The current results are preliminary but are strongly supportive of the hypothesis that the thorium (and probably some zirconium) are being transmuted into other elements.

This series of experiments will be repeated beginning with a new zirconium cylinder and disk electrodes. We expect that such a series of experiments, especially as replicated by others, will be substantial evidence of the transmutation of thorium. A more complete analysis of the precipitates and of the post-processed electrolyte will be accomplished to determine what elements appear to be the primary ashes of the nuclear reactions of the thorium (and probably of a portion of the zirconium).