



# Seventy-Five Years of Nuclear Criticality Safety Documents—A Bibliography

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## *The Bibliography Continues to Grow*

- Our collection of nuclear criticality documents was begun in the 1970s.
- It now contains nearly **23,000** references to reports that contain information that can be helpful to nuclear criticality safety specialists or others that have an interest in the properties of fissile materials and systems.
- The first bibliographic collection, published in 1979, referenced reports that could provide specifications for relatively simple critical configurations necessary for validating nuclear constants and calculational techniques. It included **1143** reports.
- A computer database was created but in order to share the information we prepared a printed publication.
- To make it useful, various lookup tables were made and concordances were constructed that were based on keyterms and phrases in the titles and abstracts.

## *The Beginning of the Work*

- **Our collecting and indexing of a large number of reports into one bibliography began with the work begun in partial collections by A. D. Callihan, J. H. Chalmers, H. C. Paxton, and many others.**
- **We had to obtain printed copies of the documents to determine if they were relevant and to acquire the bibliographic information.**
- **We keyboarded the bibliographic information (including abstracts) onto punched cards.**
- **Software had been recently written that was used to create the computer listings. A team led by Viktor E. Hampel at Livermore had recently accomplished the task by creating a relational database program using FORTRAN coding.**
- **Still, additional coding was done to process the program's output into the various formats needed for the 1979 publication.**

# *The Hardcopy Documents: Collected Mostly in the 70s and 80s*



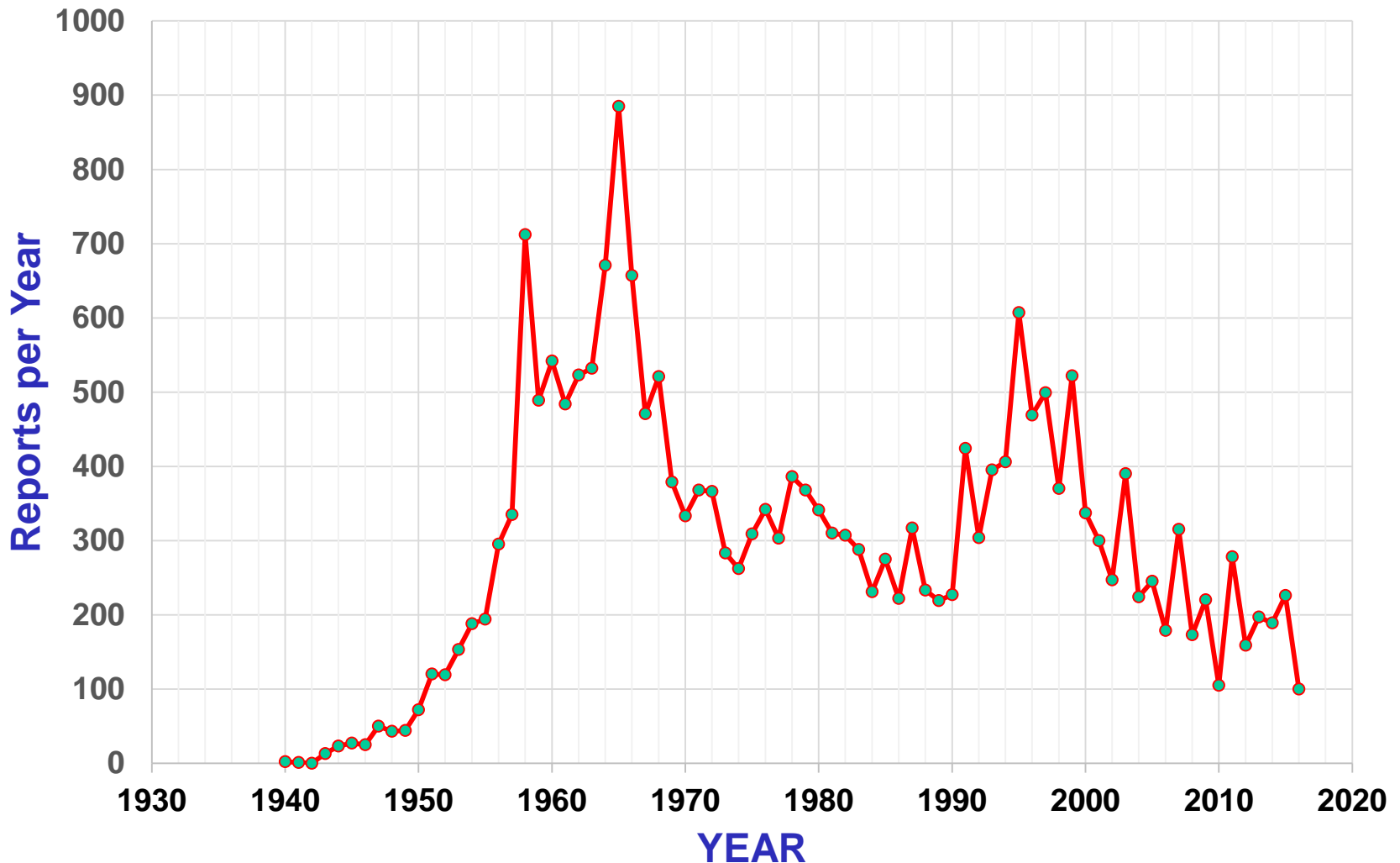
## ***Collecting Was Done The “Old-Fashioned” Way***

- **Our Technical Information Department searched for possibly relevant documents and gave us a large quantity of computer printouts.**
- **We examined the printouts to find those that might be of value.**
- **A purchase order was prepared for each document .**
- **A substantial number of reports were found by simply examining the reference lists within other reports and conference papers.**
- **We stopped ordering hard-copy documents and now rely on digital downloading to obtain full-text reports.**
- **Today, we still use some “old-fashioned” methods to get bibliographic information and do not just rely on computer technology.**
- **We have even examined the references contained within ICSBEP evaluations, assuming that if they were important for the evaluations they should be included in the bibliography.**

## ***In the 1980s We Published a Compilation of Paper Summaries Presented at American Nuclear Society Meetings***

- **This was done with the consent of ANS.**
- **We continued to use the tools developed for the 1979 bibliography.**
- **Complete images of the paper summaries were included.**
- **Lookup tables and concordances were provided.**
- **It was available in a document printed in 1982.**
- **After I retired from LLNL, I collaborated with ANS and in 1999 we published an update to the 1982 compilation (a paper was presented at the ICNC'99 conference in Versailles, France).**
- **This document was produced in only printed form, but ANS has given approval for a reissue in digital format.**

# *Publication Frequency Rose Rapidly in the Early Decades and then (Mostly) Declined*

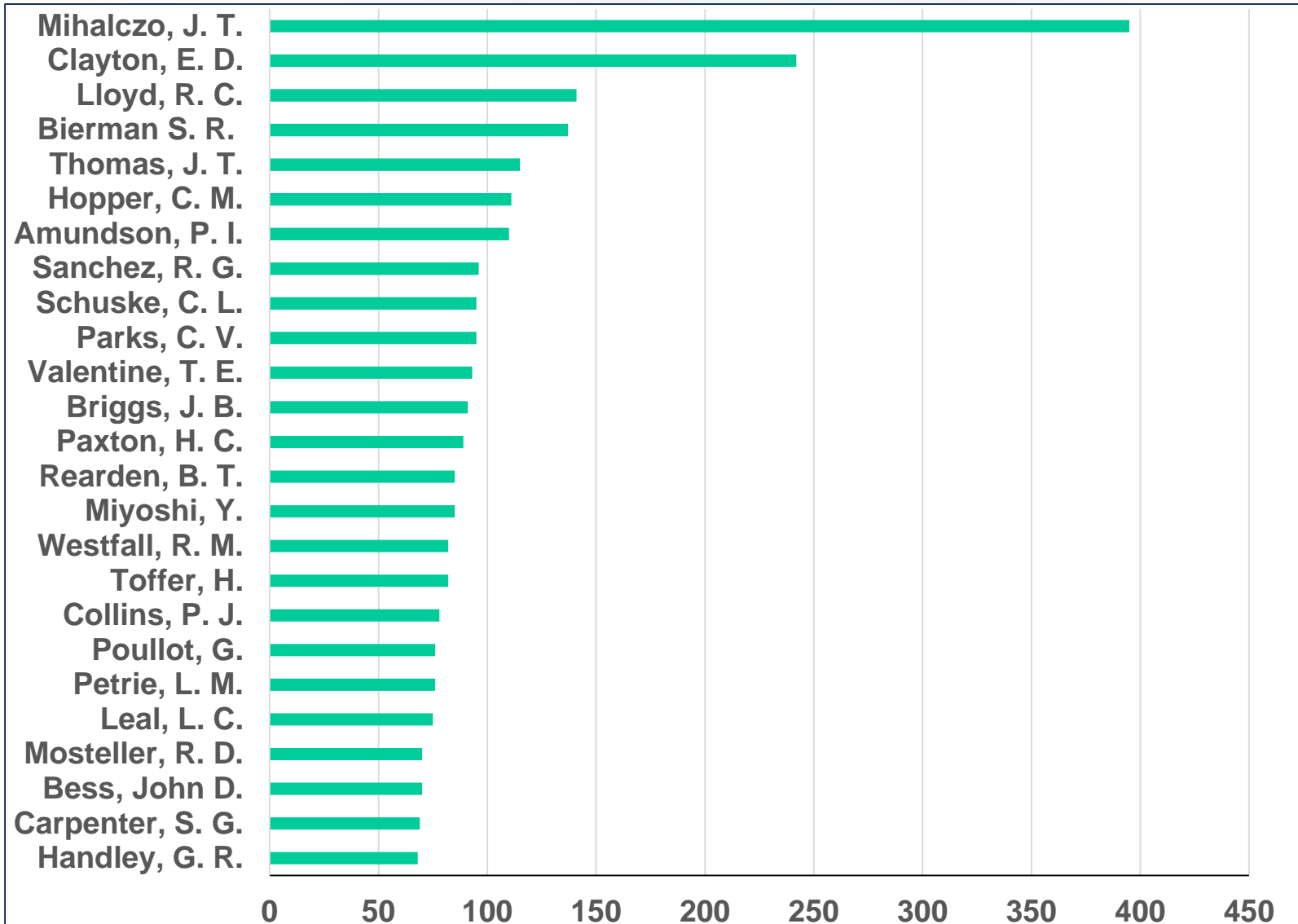


## *Some Publication Sources*

<b>Source</b>	<b>Number</b>
<b>ANS Annual and Winter Meeting</b>	<b>3841</b>
<b>Topical and Other ANS Meetings</b>	<b>413</b>
<b>Nuclear Science and Engineering</b>	<b>1191</b>
<b>Nuclear Technology</b>	<b>520</b>
<b>ANS Total</b>	<b>5965</b>
<b>ICNC Conferences</b>	<b>1197</b>
<b>USDOE Meetings and Workshops</b>	<b>105</b>
<b>United Nations &amp; IAEA Conferences</b>	<b>267</b>



## Some Authorship Numbers



## *Some Major Topics*

<b>Reactor</b>	<b>4840</b>	<b>Storage</b>	<b>678</b>
<b>Criticality</b>	<b>4661</b>	<b>Monte Carlo</b>	<b>573</b>
<b>Experiment</b>	<b>2852</b>	<b>ZPR/ZPPR</b>	<b>484</b>
<b>Safety</b>	<b>2653</b>	<b>Validation</b>	<b>438</b>
<b>Assembly</b>	<b>1728</b>	<b>Array</b>	<b>340</b>
<b>Measurement</b>	<b>1593</b>	<b>SCALE</b>	<b>269</b>
<b>Accident</b>	<b>782</b>	<b>Standard</b>	<b>266</b>
<b>Failure</b>	<b>703</b>	<b>ICSBEP</b>	<b>196</b>
<b>Benchmark</b>	<b>694</b>	<b>Alarm</b>	<b>182</b>

## ***A publication is nearly complete***

- **It would take many reams of paper to be printed**
- **Would be about a foot tall if printed**
- **So it will be issued only in digital format (DVD or equivalent)**
- **However, the bibliographic database is available on the DOE/NCSP Website**

## *The bibliography is included on the NCSP Website*

- It is called “LLNL Database.”
- **Links are provided to full-text reports.**
- We continue to scan our “vintage” document collection.
- It is easy to use. The homepage is the place to start...

**Try it at:**

***<https://ncsp.llnl.gov>***

## ***Contacts***

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*Thank You For  
Your Attention*