

## **Archiving the FLOWTRAN System**

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In an effort to provide future historians material to understand the early years of chemical process simulation, Monsanto's FLOWTRAN system has been archived at the Chemical Heritage Foundation in Philadelphia. The Foundation is the home of the Othmer Library of Chemical History and the Beckman Center for the History of Chemistry.

In 1993 Dr. Stan Proctor wrote (1) that he was in contact with the Chemical Heritage Foundation with regard to the possibility of archiving Monsanto's FLOWTRAN system. Subsequently Dr Alvin Larsen received notice (2) that the offer was accepted.

Over the years Dr. Larsen (who joined Monsanto in 1969) carefully collected files about FLOWTRAN including manuals, reports internal Monsanto memos and correspondence. When he passed away in June, 2004, he left a sizable collection.

FLOWTRAN was released within Monsanto on April 1, 1966. Subsequently two versions evolved, one for external marketing and one for internal use on Monsanto processes. Due to the rapid changes in computing technology and process modeling, modifications and additions were continually implemented in both versions.

The external version was licensed to a number of companies, was made available to the MIT/ERDA/Aspen project and was the basis of the CACHE/University FLOWTRAN project.

The following materials are included in the archive:

1. FORTRAN listings of the internal and external FLOWTRAN building blocks and functions.
2. Listing of the PROPTY system for retrieving pure component physical properties.
3. Listing of the VLE system for fitting of experimental physical property data.
4. Internal FLOWTRAN workshops on physical properties and the FLOWTRAN System.
5. Published papers about FLOWTRAN.
6. Articles about the history of FLOWTRAN.

7. FLOWTRAN marketing documents.
8. The CACHE/FLOWTRAN project.
9. The MIT\_ERDA/FLOWTRAN project.
10. Early physical property correspondence between R. H. Cavett and John Pruasnitz.
11. Internal and external FLOWTRAN user's documentation.
12. The 2<sup>nd</sup> Edition of "FLOWTRAN Simulation – An Introduction" by Seader, Seider and Pauls (First Edition, August 1974; Second Edition, February 1977; Third Edition, May, 1987)
13. Miscellaneous memos/materials about FLOWTRAN

A history of the FLOWTRAN project appeared in a previous issue of CACHE News (5).

**Acknowledgement:**

The author wishes to thank the (new) Monsanto Company for permission (3) to release the FLOWTRAN materials to the Chemical Heritage Foundation. Robert Cavett kindly allowed inclusion of the "Robert Cavett Rehabilitation Experiment" documentation in the materials (4). Mrs. Sharon Larsen graciously made access to the Alvin Larsen estate possible.

**References:**

1. Proctor, S. (Proctor Consulting Services), Letter to E.M. Rosen Dec 6, 1993
2. Thackray, A. (CHF), Letter to A. Larsen, Nov 16, 1994
3. Triebe, F. (Intellectual Property, Monsanto), Letter to E. M. Rosen, March 31, 2006
4. Cavett, R. H., e-mail to E. M. Rosen March 25, 2006.
5. Rosen, E. M., "Monsanto's FLOWTRAN System: A Historical Perspective", *CACHE News*, No 40, Spring 1995