

André Dreiding

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André S. Dreiding (22 June 1919 in [Zürich](#) – 24 December 2013^[1] in [Herrliberg](#) near Zurich) was a [Swiss](#) chemist.^[2] He finished his high school studies in Zürich and then studied at [Columbia University](#) in [New York](#) where he was awarded BS and MS degrees. After two years as research assistant at [Hoffmann-La Roche](#), he continued postgraduate studies at [University of Michigan](#) in [Ann Arbor](#) under professor [Werner Emmanuel Bachmann](#), and was awarded his [Ph.D.](#) in 1947. He remained at the university until 1949 as Rackham and Lloyd Postdoctoral Fellow. From 1949 to 1954, Dreiding was assistant professor at [Wayne University](#), Detroit Institute of Cancer Research. He also temporarily took over Bachmann's teaching and research duties at the University of Michigan after Bachmann's death in 1951, and held them until 1952. In 1954, Dreiding turned to Switzerland and [University of Zurich](#), where he became professor, and stayed until his retirement in 1987, after which he has been [emeritus professor](#).

Dreiding Stereomodels^[edit]

In 1958, Dreiding invented a [molecular model](#) used primarily in [stereochemistry](#), named the *Dreiding Stereomodel*.^[2] It was a so-called [skeletal model](#), which consisted of slim stainless steel tubes and rods. Unlike the older [ball-and-stick models](#), the atoms were not represented by a ball, but rather by the point of intersection of the steel tubes.^{[3][4]} The intersection area was painted with a color to indicate the identity of the atom. As the tubes represented the bonds, the model focused on the geometry of the bonds between atoms rather than the atoms themselves.

The Dreiding Stereomodel was not the first skeletal model, but was the first to do away with the connectors that had been used in e.g. [John Kendrew](#)'s earlier [protein](#) models. Instead, the Dreiding Stereomodels used a valency of the bonds/steel tubes to facilitate connections; they were either a hollow tube or a slightly narrower solid rod, which fit into the tube. A tube not connected to another tube represented a [hydrogen](#) atom, and the bond from the other atom (for example [carbon](#), [oxygen](#) or [nitrogen](#)) to the hydrogen atoms. This gave the Dreiding Stereomodels a very neat look, and made the assembly much quicker than for earlier skeletal models. They were also quite precise in representing the molecular geometry, so they could be used to determine inter-atomic distances and angles by rulers.

Availability of Dreiding Stereomodels^{[[edit](#)]}

The Dreiding Stereomodels were primarily used as a research tool rather than an educational tool for undergraduates. They were widely used by organic chemists, stereochemists and natural products chemists in universities and other research laboratories. The models were sold by [Büchi](#) in Europe and by [Aldrich](#) in North America.^[4] A simpler and cheaper plastic version was later introduced intended for educational purposes, but never became as widely spread as the original steel version. When molecular modeling software became more readily available in the 1990s, the use of Dreiding Stereomodels declined and production stopped, and the models were apparently discontinued around 2005. However, especially for the purposes of spectroscopic structure elucidation using NMR and MS, the availability of "hands-on" accurate molecular models continues to be very valuable. E.g., in natural products chemistry, where structures are often elucidated ab initio, Dreiding Stereomodels can be extremely useful as they allow the rapid assembly of alternative and closely related structures with high geometric precision (e.g., for NOE or 2D NMR interpretations). Because of their widespread use and availability for >40 years, many researchers and

departments still maintain and use their collections. In order to ameliorate the general supply problem for spare parts or entire models, the **Dreiding Model Exchange** was established in 2010 at the University of Illinois at Chicago.

References^[edit]

- ¹ [^] André S. Dreiding June 22, 1919 – December 24, 2013 Archived December 28, 2013, at the [Wayback Machine](#), accessed 2014-01-11
- ² [^] **a b** University of Zurich, Institute of Organic Chemistry: André S. Dreiding Archived July 1, 2008, at the [Wayback Machine](#), accessed 2010-07-22
- ³ [^] "Science Museum: Set of Dreiding Stereomodels". Archived from the original on 2010-07-21. Retrieved 2010-07-22.
- ⁴ [^] **a b** Aldrich Technical Bulletin AL-199: Dreiding Stereomodels^[*permanent dead link*]

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