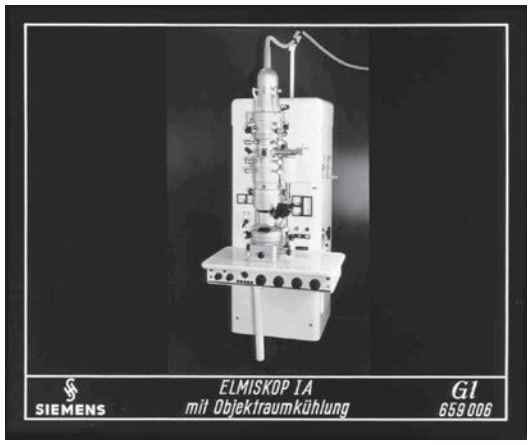
THE ELMISKOP ELECTRON MICROSCOPE

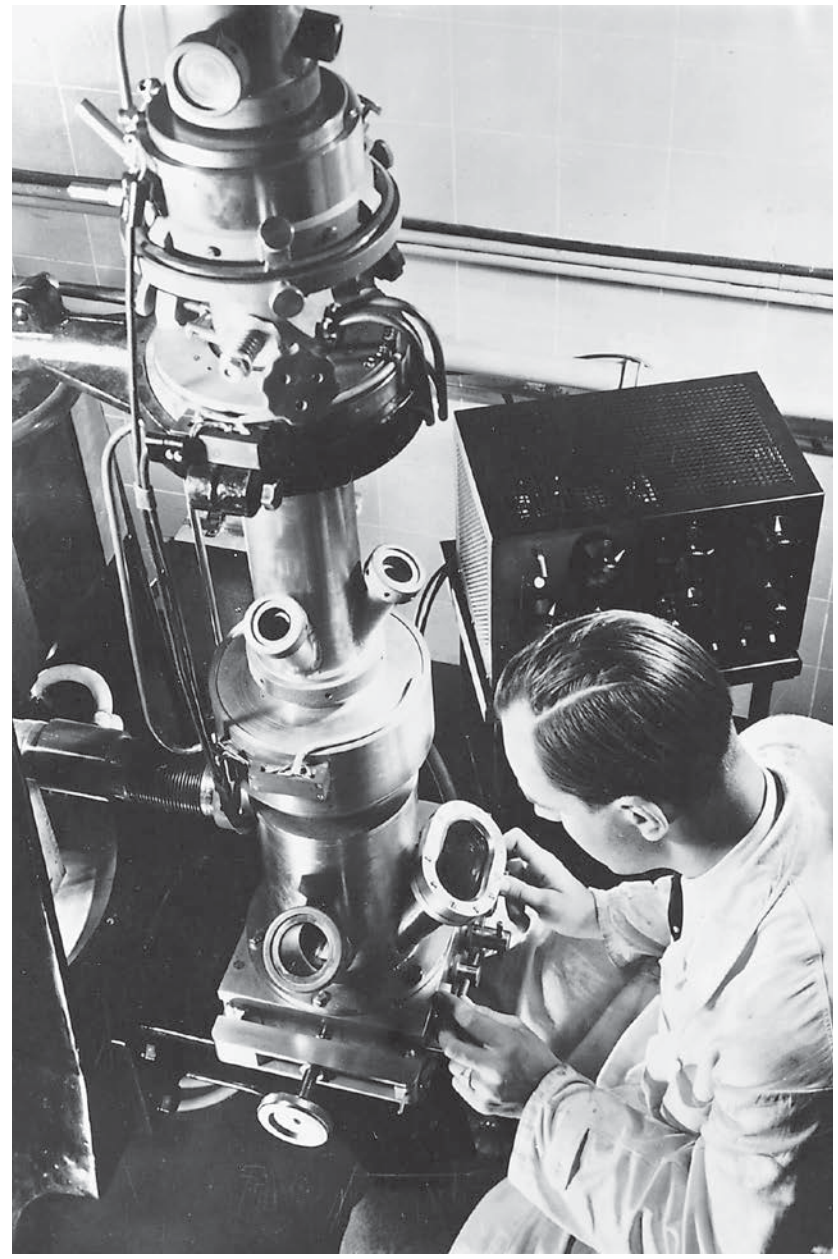


Elmiskop IA electron microscope

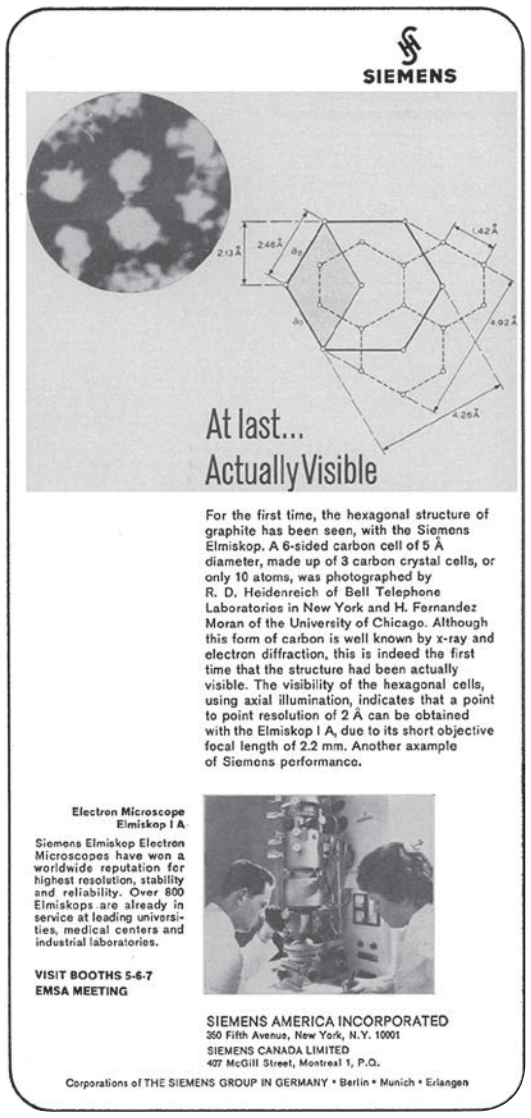
The electron microscope provided the 20th century with some of its most impressive and awe-inspiring images. First conceived by the famous Hungarian physicist Leo Szilárd but never built, the electron microscope was constructed as a prototype in 1931, and a patent for the design was obtained by Siemens-Schuckertwerke later that year. While these early models were capable of providing magnification of 400 times, additional prototypes were built throughout the 1930s, and in 1938, the first practical electron microscope was constructed at the University of Toronto. A year later, Siemens released the first commercial transmission electron microscope. This model, which had a magnification of thousands, not hundreds, allowed researchers to see things that had been previously invisible, even with the use of an optical microscope.

Following the Second World War, Siemens continued to refine its electron microscope line. Its first postwar model, the UM 100 in 1950, was quickly revised and improved, resulting in the Elmiskop I. First displayed at the 1954 International Conference of Electron Microscopy in London, the Elmiskop I was capable of producing magnification of up to 250,000 times. The first electron microscope to use a "double condenser," which allowed routine electron diffraction, the Elmiskop I was particularly useful for researching crystalline material. This made it very popular with researchers and industry alike, and Elmiskops were often in use 24 hours a day at institutions that were fortunate enough to have such a valuable device.

In Canada, home of the first practical electron microscope, the Elmiskop I found a particularly receptive market. By 1963, a number of universities and labs had purchased the microscope, including McGill University (which had three), the University of Alberta, the National Research Council, and Atomic Energy Canada Limited. The majority of these units stayed in service well into the 1980s and beyond; by 1987, roughly 30 Canadian Elmiskops remained in use and were regularly serviced by Siemens technicians.



In 1938, a magnification of up to 30,000 times was achieved with the aid of the electron microscope developed at Siemens.


SIEMENS

At last...
Actually Visible

For the first time, the hexagonal structure of graphite has been seen, with the Siemens Elmiskop. A 6-sided carbon cell of 5 Å diameter, made up of 3 carbon crystal cells, or only 10 atoms, was photographed by R. D. Heidenreich of Bell Telephone Laboratories in New York and H. Fernandez Moran of the University of Chicago. Although this form of carbon is well known by x-ray and electron diffraction, this is indeed the first time that the structure had been actually visible. The visibility of the hexagonal cells, using axial illumination, indicates that a point to point resolution of 2 Å can be obtained with the Elmiskop I A, due to its short objective focal length of 2.2 mm. Another example of Siemens performance.

Electron Microscope
Elmiskop I A

Siemens Elmiskop Electron Microscopes have won a worldwide reputation for highest resolution, stability and reliability. Over 800 Elmiskops are already in service at leading universities, medical centers and industrial laboratories.

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Advertisement for Siemens Elmiskop IA electron microscope in trade magazine, 1966