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# IN THE BEGINNING

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## *The Scientist For Whom The Von Hippel Award Is Named Reminisces About The Pioneers of Electron Microscopy*

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I am privileged to extend a warm welcome and sincere congratulations to Professor Hirsch of Oxford University whose work in electron-microscopy has done so much to extend our understanding of surface structures and of structure function in condensed systems.

Accidentally I was present at Professor Max Wien's Physikalische Institut in Jena when Professor Busch discovered in 1925 that electron beams obeyed optical laws. My own research at that time was concerned with the molecular mechanism of cathodic sputtering which by ion bombardment produced thin films of any metal desired. Also, my colleagues were absorbed in their special pursuits

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with the result that this inadvertent stumbling into wave-mechanics remained practically unnoticed until Schroedinger formulated his theory.

Another predecessor of yours, to whom I owe my first real introduction into the structure of solids, was Professor Victor Goldschmidt, the famous Norwegian geochemist at the University of Goettingen and a wonderful original. In lectures of extreme lucidity he handed structure pictures around from student to student by a projector he had named "Belsazar" after the Babylonian king who saw the writing on the wall. In his home Professor Goldschmidt had always one window open through which squirrels climbed in and out, named after his scientific enemies. His father, who lived with him, sported a colossal beard and went swimming daily. We could never make out—did the beard keep him afloat or vice versa?

When I left Germany in 1933 after refusing the oath of allegiance to Hitler, Goldschmidt—exempt as a foreigner—wanted to stick it out a while longer. When I visited him one year later on my way from Turkey to Denmark, he confided: "I thought 95 percent of all people would behave like skunks, but they are only 90 percent." Finally he returned to Norway, but soon thereafter his country was invaded by the Nazis. Hitler tried there to solve the Jewish problem by drowning them in the Baltic. Goldschmidt was saved by his housekeeper, who walked to the ship and claimed to have orders to take him off. In return he, the confirmed bachelor, married her;



ARTHUR VON HIPPEL

unfortunately, he died before I could visit him again after World War II.

Thus, you see, I have a special reason rooted in the past to congratulate Professor Hirsch as a worthy scientific heir to Professor Goldschmidt—but may you have less exciting adventures!

Arthur von Hippel