

## **In Memoriam Edgar Ascher**

Edgar Ascher, a founding member of the Swiss Society for Crystallography and its second president died in Geneva on July 28, 2006 at the age of 85.

He was born on January 6, 1921 in Győr (Hungary), started secondary school in Vienna, but being of Jewish origin, looming Nazism incited his family emigrating to Zagreb, where he had to learn Croatian, the language in which he passed his maturity exam in 1939. During World War II he fled to Italy, where he became one of the 73 children and adolescents having found refuge in the now famous "Villa Emma" in Nonantola. From there he finally succeeded to enter Switzerland in 1943. He studied at the Universities of Basle and then of Lausanne, where he received his "licence ès sciences" in 1949 and became an assistant to Prof. A. Perrier. In 1954 he received his doctoral degree with a thesis on the Hall effect in ferromagnetic Fe-Ni-alloys.

In 1955 Edgar joined Battelle Institute in Geneva, where he started with experimental and then changed to theoretical work. His main interests were in symmetry and its applications to solid state physics. Particularly fruitful were the collaborations with his colleagues Aloysio Janner and Hans Schmid, who later became professors in Nijmegen and Geneva, respectively.

Together with Aloysio Janner he applied modern algebraic methods to the study of the structure of crystallographic space groups [2,3] and later to relativistic symmetry groups of systems with periodicity in space and time.

With Hans Schmid he worked on boracites and their electric, magnetic and magnetoelectric properties, culminating in the demonstration of the coexistence of spontaneous magnetization and polarization in boracites containing 3d-transition metals [4].

Edgar determined the tensors of those Heesch-Shubnikov point groups permitting the bilinear magnetoelectric effects. He derived upper and lower bounds on the magnetoelectric susceptibility tensor and upper bounds for various other electric and magnetic properties.

Forty years ago, he investigated properties of spontaneous currents, determined the corresponding 31 magnetic point groups for crystals permitting a time-odd polar vector and predicted related new phenomena [5]. Later he extended these results to the description of kinetoelectric and kinetomagnetic effects in crystals [6]. Astonishingly, even today that time-odd polar vector is still ignored in most solid state physics textbooks. In recent times these 31 groups have received great practical importance since they describe those magnetoelectric crystals that permit a spontaneous toroidal moment.

The most fruitful years of his crystallographic and solid state physics research were from 1964 to 1969, when eleven of his thirteen most frequently quoted papers appeared, the remaining two were published in 1977 and concerned symmetry aspects of phase transitions [7,8].

I got to know Edgar in 1968, when I joined the Battelle Advanced Studies Center as a member of his group. I met a friendly, modest man who liked to play on words, and I was impressed by his wide interests and his knowledge of languages: Hungarian, Croatian, Italian, German, French, English, Russian, ...

Edgar was invited to many places to give lectures on a wide range of topics. As examples, I shall just mention the lectures he gave at EPFL in 1972 and 1973: Within the scope of "Enseignement du 3e cycle de la physique en Suisse romande" he gave an excellent series of lectures on "Extensions et cohomologie de groupes" with applications to crystallographic space groups, and he lectured on "Limites à la croissance: considérations méthodologiques au sujet du 'modèle du monde' proposé par Forrester". Another lecture series was entitled "Mathematical Models and Contemporary Problems". At that time he was offered a professorship at EPFL, which he declined.

In 1974 he started collaborating with the International Center for Genetic Epistemology of Jean Piaget. In the last thirty years his research encompassed philosophy, psychology, linguistics, history, and, in particular, sociology. A considerable number of publications in the "Revue européenne des sciences sociales" testifies to the immensely wide range of his interests.

Although he wrote his last crystallographic paper in 1982, Edgar Ascher remained a member of the SSCr until his death. Our thoughts are with his wife Corinna, his son Stéphane, and his sister Alice.

I am grateful to Corinna Ascher for the picture of Edgar and to Hans Schmid for much information on his life and work.

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Hans Grimmer