

Foreword by Guest Editors

Although there are Norwegian records that as early as 1000 years ago »sunstones« (e.g. dichroic crystals of cordierite) were in use for orientation when the sun was not visible and although some people can sense the direction of the plane of polarization (well-known property of the insect eye), 1817 may be called the birth year of optical rotatory dispersion measurements. In that year, the French astronomer and physicist Jean Baptiste BIOT described that phenomenon in detail, after having found in 1815 that not only crystals but also solutions of some materials (sucrose in water, camphor in organic solvents, etc.) had the property of rotating the plane of polarization of linearly polarized light. Before that, the astronomer Dominique Francois Jean ARA GO, also working at the College de France in Paris, noticed this phenomenon in 1811 with some pieces of natural quartz.

Very shortly afterwards, the French engineer Augustin Jean FRESNEL introduced into optics the notion of circular polarized light, and thus also of elliptically polarized light in general. 30 years later (1847), M. HAIDINGER succeeded in measuring for the first time the circular dichroism (CD) of amethyst, and at the end of the last century (1895) A. COTTON described the same phenomenon for solutions of optically active metal complexes which absorb light in the visible region of the spectrum. He also developed an apparatus for measuring ellipticity.

More than 50 years had to pass until Carl DJERASSI, then at Wayne State University, published the first of a long series of papers on the systematic study of ORD, and later also CD, of natural compounds. Very soon after that several factories brought automatic spectropolarimeters on the market; in 1960 Maurice LEGRAND and Marc GROSJEAN from the ROUSSEL-UCLAF company in Paris constructed the first automatic device for recording CD-spectra. Soon, the Japanese company JASCO followed the example of the JOUAN company manufacturing the original LEGRAND/GROSJEAN-apparatus and also CARY developed an attachment to its famous Model 60, which transformed that spectropolarimeter into a CD-machine. Several other companies quickly entered the field, but for many years only the two first mentioned ones have further developed and sold »dichrographes«. Except for the characterization of non-absorbing substances like sugars, saturated hydrocarbons etc., ORD measurements are not very much in use any more, and nowadays most published chiroptical data refer to CD spectra.

During the last two decades, special equipment (mainly home-made) became available for measuring CD or ORD at wavelengths below 179 and above 800 nm, and for recording these effects also in emission and not only in absorption, in matrices, like liquid crystals, or by the RAMAN-technique, etc., but it is doubtful whether such spectrometers will ever become commercially available.

This renaissance of chiroptical methods led to the organization of several international conferences and workshops on this subject, the last one being held in Budapest in 1987. There the idea was born to publish papers with relevant topics in a special issue of a reputable international chemical journal, as it had already been done before, *e. g.* in the form of »*Symposia-in-Print*« of *Tetrahedron*. Participants of the two CD conferences organized in Bulgaria (1985) and Hungary (1987) were invited to contribute to a *Special-Subject Issue of Croatica Chemica Acta* which, hopefully, will be printed by the time of the third event in this series, which is to take place in Prague in honour of our respected friend Bláha, who died unexpectedly in the summer of 1988.

As it turned out, nearly all the invited authors have sent their contributions to this special issue, thus filling up two issues of the journal, instead of one as it was originally planned. These issues will be labelled **2A** and **2B**, in order to conform to the usual publishing schedule of *Croatica Chemica Acta* (four issues/volume). The papers in both issues are arranged by the order of their acceptance by the Guest Editors. Since there is no journal devoted solely to chiroptical methods, and we would by no means like to create another new journal, we intend to publish such a special issue of this journal every three years or so.

The Guest Editors of this special issue of *Croatica Chemica Acta* thank all those who have contributed to this »*Symposium-in-Print on Chiroptical Methods*«. Our sincerest thanks are also due to the regular editors of the journal and to the staff for their very valuable advice, assistance and co-operation. We should be glad to organize events of this kind if the »chiroptical community« is willing to have this first experiment repeated.

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