The 1968 Chevreul Award

Every year, since 1963, the French Association of Fat and Oil Technicians (Groupement Technique des Corps Gras) awards the Eugène Chevreul medal to French or foreign leaders in the field of lipid research.

On May 28, 1968, the medal was awarded to MARIE-THÉRÈSE FRANCOIS, Professor at the University of Nancy, France, and to JAN BOLDINGH, member of the Royal Netherlands Academy of Sciences, Professor at the University of Nimwegen, and Manager of the Unilever Research Laboratory, The Netherlands, for their valuable contribution to the development of knowledge in the field of fats and oils.

Since 1963 the Chevreul medal has been awarded to G. Jacini (Italy), G. Champetier (France), M. Loncin (Belgium), T. P. Hilditch (Great Britain), P. Desnuelle (France), A. R. Baldwin (U.S.A.), J. Martinez Moreno (Spain), H. Niewiadomski (Poland), C. Paquot (France).

• *New Books . . .*

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INFRARED BAND HANDBOOK, Supplements 3 & 4, by Herman A. Szymanski (Plenum Press, Data Division, New York, N.Y., 1966, 261 + xiv pp., $15.00).

As with the original volume and Supplements 1 & 2 (See Reviews JAOCS *41*, 32, May 1964, and JAOCS *43*, 73A, February 1966), this handbook consists entirely of tables, 20 to a page. The main portion of the book (245 pages) is, like the earlier volumes, a uniform presentation of infrared absorption band data, arranged in order of decreasing wavenumber. In the center of each table, the molecular structure of a specific compound is reproduced. In the upper left-hand corner, the frequency in cm^{-1} of the specific absorption band is given followed by a letter indicating the band intensity as determined from reference to an intensity code given in the introduction. A second entry in the upper left-hand corner of each table indicates, by means of a single letter (again interpreted with the aid of a physical state code in the introduction), the physical state in which the spectrum was measured or the solvent used for the sample. This is followed by an indication in brackets of the concentration and cell thickness. The "Explanation" in the introduction indicates that this latter item is given "where pertinent," but it is, apparently, not often considered "pertinent" as cell thickness is very rarely indicated. A third line in the upper left-hand corner is reserved for an indication of the dispersive element used, if other than an NaCl prism. In the lower right-hand corner of each table, a reference is given to the original source of the data reproduced. A glance at the reference given at the end of the tables (page 247) reveals that all data have been obtained from four American and two German journals, during the three years 1963 to 1965. The lower left-hand corner of each table is reserved for an indication of the structural group to which the vibration has been assigned. However, these data, a glance over several pages of the text reveals, are available in less than one-half of the tables. No infrared spectra are reproduced throughout the volume.

Readers familiar with the original volume, who subsequently learned that Supplements 1 and 2 did not increase the probably insufficient number of bands listed in the original volume (approximately 8,500 in the rock salt region from 3610 to 621 cm^{-1}), but rather extended this range into the KBr or far infrared region from 600–200 cm^{-1}, will be interested to learn that Supplements 3 and 4 increase the number of bands by about 5,000 in both regions, covering bands from 4,200 cm^{-1} to 29 cm^{-1}. Only 65 bands are listed below 200 cm^{-1} (Supplements 1 & 2 listed some three or four dozen below 200 cm^{-1} down to 41 cm^{-1}).

The analytical spectroscopist can use infrared absorption spectra in one of two ways to identify an unknown compound, probably the principal use to which tabulations in this Handbook and its Supplements would be put. First, he can attempt identification by group frequency correlations of specific absorption bands with structural groups, usually referred to as the Julius' group frequency technique. Or he can attempt to find an exact match of the spectrum of his unknown with that of the spectra of a number of known molecules, the so-called Coblentz "fingerprint" matching technique. As no spectra are reproduced, only the first of these two methods is aided by data from these Handbooks. For this reason, it appears unfortunate that in a majority of the tables, there is no indication given as to the structural group giving rise to the specific band.

The original Infrared Band Handbook, published in 1963, listed bands in the rock salt region for about 1,000 compounds or only 2.5% of the 40,000 then available in the American Society for Testing and Materials' referenced spectra collection. The present Supplements 3 and 4 add only about 400 additional compounds (Supplements 1 and 2 merely increased the frequency range to include the far infrared). Thus, the Infrared Band Handbook and its four Supplements, include only 1,400 bands, while the ASTM referenced compounds have increased to over 100,000. Thus, despite what appears (to this reviewer at least) as almost Herculeon efforts of Dr. Szymanski, the percentage of ASTM referenced compounds, his Infrared Band Handbook represents has fallen from a very low 2.5% to an almost vanishing 1.4%. These figures raise some doubts as to the future of these Handbooks. Can the amount of data ever be increased so as to represent a sufficient number of compounds to afford qualitative identification? Even if the mass of data could be so increased, would it not, long before it reached a worthwhile percentage of the compounds whose spectra have been measured, be so cumbersome and massive as to defeat its purpose for use as an aid to qualitative identification? And finally, with systems which convert the data to digitalized computer language on magnetic tapes or disks and permit the complete search of 100,000 compounds for several bands matches within 1, 2, or 4 seconds, can continued efforts for compilation of data for hand search through multivolume handbooks be justified?

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RAMAN SPECTROSCOPY, THEORY AND PRACTICE, Herman A. Szymanski, Editor (Plenum Press, New York, N.Y., 255 + IX pages, $12.50).

It is now just about two generations since Sir Chandrasekhara Raman discovered the phenomenon which bears his name. Almost continually during this period serious students have attempted to show how the effect was a natural complement to infrared (vibrational) absorption

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