The emblem of the XIIth Congress is composed of four stylized maple leaves forming a square /Fig.1/. Two of these leaves are white, and two are red (in this paper they are black). Some parts of white leaves protrude beyond the limit of the basic square. In red/black/leaves there are recesses of the same form like the protruding parts of white leaves. It suggests that the emblem is part of a flat infinite figure. Reconstruction of this figure is presented in Fig.2. Fig.2 definitely indicates the fact that this is an antisymmetrical figure, because in this figure we can find antisymmetrical transformations which transform white leaves into black /red/. Assuming that it is a one-sided figure, we can find following elements of symmetry and antisymmetry perpendicularly to the plane of the drawing: \( \frac{1}{4}, \frac{3}{4} (\overline{h}b), \frac{1}{2}, m, g(\overline{h}b) \). The plane unit cell of this figure is a primitive cell. The symmetry of the figure is described by one of plane Shubnikov's groups \( S_{40} \), namely \( p4g'm (=p4'b'm) \) /Fig.3/. If we assume that the emblem is only a one-sided finite figure, then its symmetry is characterized by one of the groups \( S_{20} \) orthorhombic \( mmz \) group.


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**20.1-09** **COLOR SYMMETRY AND COLORED POLYHEDRA,** by Marjorie Senechal, Department of Mathematics, Smith College, Northampton, Massachusetts, 01053, U. S. A.

In the theory of color groups (van der Waerden and Burohardt, Z. Krist. 115, 1961, 231–234) a permutation is assigned to each of the symmetry operations of a given figure or pattern in such a way that the ordered pairs (symmetry, permutation) form a group. The different color groups thus associated with each of the crystallographic and icosa-hedral point groups were enumerated by Harker (Acta Cryst. A32, 1976, 133–139). However, a figure may not be colorable by all of the color groups corresponding to its symmetry group, while in general an admissible color group corresponds to several different configurations of colors. The question then is: for a given figure or pattern, which color groups are admissible and how many different colorings are possible? In this paper a complete answer to this question is given for polyhedra or, more generally, spherical tessellations, which satisfy certain regularity conditions, that is, which have symmetrically equivalent faces, edges, or vertices. The discussion is simplified by the use of the pattern classification scheme recently introduced by Grunbaum and Shephard (Z. Krist., to appear; Mathematika, to appear).

**20.1-10** **OBSERVATION DE LA DISSYMETRIE DE DEUX FACES PARALLELES D'UN CRYSTAL PAR DIFFRACTION DE RAYONS X.** J.F. Darces, J. Lamboley et H. Merigoux, Faculté des Sciences, Université de Franche-Comté, 25030 Besançon Cedex, France.

Pour différencier deux faces parallèles d'un cristal, c'est-à-dire observer la dissymétrie entre elles, il faut savoir reconnaître une surface grâce à sa position de ressort géométrique, \( \mathbb{N}_d \), dans le repère \( (a,b,c) \) du cristal. Pour cela on utilise un goniomètre à rayons X, spécialement adapté à cette mesure (J.F. Darces, H. Merigoux, Proceedings of the 32nd Annual Frequency Control Symposium (1978), 304-309). Si l'on ne tient compte que des directions des vecteurs de diffusion observés, l'orientation de \( \mathbb{N}_d \) est définie à la symétrie près du réseau. Lorsque le cristal est mélangé, on se trouve dans une situation analogue à celle des macles. En mettant appel aux facteurs de structure on élimine les effets des éléments de macles et on oriente le cristal dans le réseau. On situe ainsi la rangée \( \mathbb{N}_d \) dans \( (a,b,c) \). Il nous reste à étudier l'effet du retournement qui va mettre en évidence la dissymétrie entre les deux faces. On constate qu'il change l'ordre de répartition spatiale des vecteurs de diffusion observés. Si l'on connaît la relation d'ordre pour une face, on peut alors l'identifier. Ce critère très simple peut se substituer à la diffusion annulaire pour de nombreux groupes d'orientation, ce qui est très utile dans le cas des cristaux piezoelectriques. De plus, ce critère s'applique aux groupes centrés parce qu'il correspond à une description d'une surface, et non plus à celle d'une direction. En dehors du cas où les deux faces se déduisent l'une de l'autre par un élément d'ordre pair et direct du cristal, on peut donc différencier, quelque soit le groupe, deux faces opposées d'un cristal.