

LETTERS TO THE EDITOR

Acta Cryst. (1997). **A53**, 101

Comments on *Crystal Properties via Group Theory* by A. S. Nowick, Cambridge University Press, 1995

F. G. FUMI, *Dipartimento di Fisica, Università di Genova, Genoa, Italy*

(Received 24 April 1996; accepted 5 November 1996)

I agree wholeheartedly with the comments of Professor Nye (Nye, 1996) but I would like to add some comments of my own.

Nowick quotes only the 1957 edition of Nye's book *Physical Properties of Crystals*. He thus does not mention Nye's statement in the later edition (Nye, 1985, p. 314) that the direct inspection method (Fumi, 1952*a*) is applicable to all crystallographic point groups with the only exception group 3. Nowick states, instead, on p. 77 that the method applies 'easily' only to the crystallographic point groups of one-, two- and fourfold principal symmetry.

Nowick fails also to quote important previous publications on the use of group theory in studying physical properties of crystals. In particular, he does not mention the books by Sirotnin & Shaskolskaya (1982), Heine (1960), Lax (1974), Fano & Racah (1959) and Murnaghan (1951) or the papers by Jahn (1937, 1949), Smith & Rivlin (1958), Callen (1968) and Fumi & Ripamonti (1980).

Finally, Nowick (p. 180) quotes Brugger (1965) for the third-order elastic constants of crystals but he does not quote Fumi (1951, 1952*b*, 1987).

In summary, it seems to me that Nowick provides a rather partial view on previous work on the use of group theory in studying physical properties of crystals.

References

- Brugger, K. (1965). *J. Appl. Phys.* **36**, 759–768.
 Callen, H. (1968). *Am. J. Phys.* **36**, 735–748.
 Fano, U. & Racah, G. (1959). *Irreducible Tensorial Sets*. New York: Academic Press.
 Fumi, F. G. (1951). *Phys. Rev.* **83**, 1274–1275.
 Fumi, F. G. (1952*a*). *Acta Cryst.* **5**, 44–48, 691–694.
 Fumi, F. G. (1952*b*). *Phys. Rev.* **86**, 561.
 Fumi, F. G. (1987). *Acta Cryst.* **A43**, 587–588.
 Fumi, F. G. & Ripamonti, C. (1980). *Acta Cryst.* **A36**, 535–551.
 Heine, V. (1960). *Group Theory in Quantum Mechanics*. Oxford: Pergamon Press.
 Jahn, H. A. (1937). *Z. Kristallogr.* **98**, 191–200.
 Jahn, H. A. (1949). *Acta Cryst.* **2**, 30–33.
 Lax, M. (1974). *Symmetry Principles in Solid State and Molecular Physics*. New York: Wiley.
 Murnaghan, F. D. (1951). *Finite Deformation of an Elastic Solid*. New York: Wiley.
 Nye, J. F. (1957). *Physical Properties of Crystals*. Oxford University Press.
 Nye, J. F. (1985). *Physical Properties of Crystals*, revised ed. Oxford University Press.
 Nye, J. F. (1996). *Acta Cryst.* **A52**, 785.
 Sirotnin, Yu. I. & Shaskolskaya, M. P. (1982). *Fundamentals of Crystal Physics*. Moscow: Mir.
 Smith, G. F. & Rivlin, R. S. (1958). *Trans. Am. Math. Soc.* **88**, 175–193.