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★**Platonische Zahlentripel als Indikatoren verborgener Beziehungen zwischen einfachen mathematischen Objekten. (German) [Platonic number triples as indicators of hidden relations between simple mathematical objects]**

Berichte aus den Sitzungen der Joachim Jungius-Gesellschaft der Wissenschaften [Reports from the Meetings of the Joachim Jungius Society of Sciences], 84-9.
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This remarkable book begins with two Escher reproductions illustrating aspects of symmetry [D. A. Klarner, *The mathematical Gardner*, see p. 206, Prindle, Weber & Schmidt, Boston, Mass., 1981; MR0593154] and ends with A. Dürer's *Melancolia I* [C. H. MacGillavry, Nederl. Akad. Wetensch. Proc. Ser. B **84** (1981), no. 3, 287–294; MR0633848]. In between, the Platonic solids are described as the shapes of certain viruses [the reviewer, in *A spectrum of mathematics*, 98–107, Auckland Univ. Press, Auckland, 1971; MR0448238]. The title of the book refers to triads of integers $p, q, r$ such that $1/p + 1/q + 1/r > 1$, $p \geq q \geq r \geq 2$. They occur in Klein's rotation groups $(p, q, r)$ and the finite groups of quaternions $\langle p, q, r\rangle$ [the reviewer, *Regular complex polytopes*, see p. 68, Cambridge Univ. Press, London, 1974; MR0370328]. The author's p. 69 provides a convenient list of the sporadic simple groups with their names and order, ending with the Monster, of order $2^{46}3^{20}5^9 7^6 11^2 13^3 17 \cdot 19 \cdot 23 \cdot 29 \cdot 31 \cdot 41 \cdot 47 \cdot 59 \cdot 71$. Then comes an introduction to the theory of simple Lie groups, the corresponding "CDW diagrams" (Coxeter-Dynkin-Witt), and the mysterious relation between the binary polyhedral groups $\langle p, q, r\rangle$, the Weyl groups $[3^{p-1,q-1,r-1}]$ and the Lie groups $E_{p+q+r-2}$. The author considers also the relation between the Lie groups $A_n, D_n, E_6, E_7, E_8$ and the polynomials $x^{n+1} + y^2 + z^2$, $x(x^{n-2} + y^2) + z^2$, $x^4 + y^3 + z^2$, $y(x^3 + y^2) + z^2$, $x^5 + y^3 + z^2$, which arise in the classification of singularities of algebraic surfaces [V. I. Arnol′d, in *Proceedings of the International Congress of Mathematicians, Vol. I* (Vancouver, B.C., 1974), 19–39, see pp. 21, 24, Canad. Math. Congr., Montreal, Que., 1975; MR0431217; W. P. Barth, C. A. M. Peters and A. J. H. M. Van de Ven, *Compact complex surfaces*, see p. 87, Springer, Berlin, 1984; MR0749574]. *H. S. M. Coxeter*