REFERENCES

[B] L. Bieberbach, *Uber die Bewegungsgruppen der Euklidischen Raume* I, II, Math. Ann. **70** (1910), 297–336; Math. Ann. **72** (1912), 400-412.

[G] D. Gorenstein, *Finite simple groups: an introduction to their classification*, Plenum Press, New York, 1982.

[H-S] M. Hall, Jr. and J. K. Senior, *The groups of order* $2n(n = 6)$, Macmillan Press, New York, 1964.

[Hi] G. Higman, *Enumerating p-groups* I, Proc. London Math. Soc. **10** (1960), 24–30.

[S] C. C. Sims, *Enumerating p-groups*, Proc. London Math. Soc. **15** (1965), 151–166.

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BULLETIN (New Series) OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 24, Number 2, April 1991

0273-0979/91 $1.00 + $.25 per page

Transformation groups and algebraic K-theory, by Wolfgang Lück. Lecture Notes in Math., vol. 1408, Springer-Verlag, Berlin and New York, 1989, 455 pp., $42.70. ISBN 0-387-51846-0

To understand a manifold, it is necessary to understand its symmetries. This is the basic theme of equivariant topology. Typically, one studies a group acting on a manifold by diffeomorphisms. A basic example of this is when the manifold is R^n, n-dimensional euclidean space. To understand this manifold, one associates the various matrix groups such as $Gl(n, R)$ or the orthogonal group $O(n)$. It is also important to study smaller groups such as the finite subgroups of $O(n)$. A representation is an action by a group of orthogonal matrices on R^n, inducing an action on the unit sphere, or on the unit disk. These are model examples of the kind of group action one considers in equivariant topology. The basic problem is to construct and classify actions with given properties.

In many interesting cases the action of the group is cellular. This means that the manifold has a cellular decomposition, so that the action of the group is given by permuting cells. This is, for instance, the case when the group is finite and the action is smooth. It is, thus, natural to start out studying cellular actions