it is surprising to note that the present print of this old book is very helpful for those who want to learn the fundamentals of algebras over number fields in the classical style.

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Groupes et Algèbres de Lie. By N. Bourbaki. Eléments de mathématique, fascicule xxxiv, 288 pp., comprising chapitre iv, *Groupes de Coxeter et systèmes de Tits*, chapitre v, *Groupes engendrés par des réflexions*, and chapitre vi, *Systèmes de racines*. Actualités Scientifiques et Industrielles 1337, Hermann, 115, boul. Saint-Germain, Paris VI. 48F.

This beautiful exposition covers an area of group theory which is common to the Theory of Lie groups, the Classical Geometries and to certain areas of Analysis. Its main concern is with the so-called Coxeter systems and Tits systems. These systems are sets of axioms, such, that if a group satisfies these axioms, then it is one of a kind arising in one of the mentioned fields. Historically, the groups of this type occur at first as cristallographic groups, groups of motions of $\mathbb{R}^n$ which fix a regular polytope in $\mathbb{R}^n$, or as discrete subgroups of the group of motions of the non-Euclidean hyperbolic plane. In a later stage, groups of this kind turn up in the theory of (simple) Lie groups and also in the theory of the classification of semi-simple (complex) Lie algebra's (Coxeter groups). In the latter case they can be either viewed as permutation groups generated by involutions (of a root system of a semi-simple Lie algebra), or as abstract finite groups generated by reflections R_i, subject to relations of the form $(R_iR_j)^{m_{ij}}=1$, (m_{ij} integral) (Coxeter groups). Finally, after the second World War, the rapidly developing theory of linear algebraic groups (which is the algebraic counterpart of the classical theory of Lie groups) joins in the symphony, in that it turned out to be possible to obtain all the hitherto known simple groups (in the different senses of the word) which arise in the theory of Lie groups, the theory of algebraic groups and the classical geometries, as particular cases from Tits' axiom system (which itself dates back to 1962). This book offers a purely algebraic treatment of these group theoretical aspects of the theory of Lie groups and Lie algebras.

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