naturally. They are the new lines replacing each P_i (6 of these), the image of lines in $\mathbf{P}^2$ passing through two of the P_i (15 of these), and the image of conics in $\mathbf{P}^2$ passing through all but one of the P_i (6 of these). This story and the background material that goes into it form a marvelous chapter in the theory of algebraic surfaces.

I hope these three examples will give some idea of what this book is like. It is full of ideas ranging over a wide area but always centered around algebraic varieties in complex projective space. It is not a systematic introduction to algebraic geometry. Rather it is a sampler of a number of methods and results proved by whatever techniques of topology, differential geometry, complex analytic geometry, or commutative algebra lie closest at hand, which should stimulate the interest and imagination of any reader.

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Semisimple Lie algebras, by Morikuni Goto and Frank D. Grosshans, Lecture Notes in Pure and Applied Mathematics, No. 38, Marcel Dekker, Inc., New York, 1978, vii + 480 pp., $37.50.

Lie groups pose a problem for both the learner and the teacher (or textbook writer). Topology, analysis, algebra are so intertwined that no expository scheme can do full justice to the subject without becoming encyclopedic. On the other hand, this diversity of aspect, coupled with a wide range of applicability, makes Lie theory especially attractive.

There are now available a substantial number of books dealing with semisimple Lie groups and/or Lie algebras. These differ considerably in scope and emphasis, but most are built around a common core of Lie algebra theory: nondegeneracy of the Killing form, root system and Weyl group, classification (over $\mathbf{C}$ and perhaps over $\mathbf{R}$), automorphism groups, compact real forms, Cartan decomposition of a real form, finite-dimensional representations, Weyl's character and dimension formulas. This theory reached a certain degree of completeness in the 1930s, following the fundamental work