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János Kollár* (kollar@math.princeton.edu), Princeton University, Department of Mathematics, Fine Hall, Washington Road, Princeton, NJ 08544-1000. *Large rationally connected varieties.*

The study of algebraic curves is equivalent to the study of two variable polynomials $f(x, y)$. Already in the 19th century it was understood that the theory naturally divides into 3 parts:

1. $\deg f \leq 2$, known as rational curves. This case is rather easy to understand.
2. $\deg f = 3$, called elliptic curves. This is an intermediate case with many different methods.
3. $\deg f \geq 4$ with no traditional name attached. These are the hardest with many problems still open.

The remarkable aspect of the division is that one gets the same 3 cases, whether approaching the problem from algebraic geometry, number theory, analysis or topology.

The aim of these lectures is to explain the classical results and to show how this division generalizes to higher dimensions. Special emphasis will be paid to the higher dimensional generalization of rational curves, called rationally connected varieties. (Received April 05, 2000)