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An exotic complex space is a smooth affine complex variety which is diffeomorphic but not algebraically isomorphic to affine space. A three-dimensional smooth affine variety is diffeomorphic to affine three-space if and only if it is contractible. Koras and Russell constructed a family of contractible threefolds for their proof that all actions of \mathbf{C}^* on \mathbf{C}^3 are linearizable. In this lecture, we will study a generalisation of these exotic complex three-dimensional varieties with new interesting properties. For example, we can construct non-isomorphic contractible affine threefolds with isomorphic cylinders, showing that the generalized Cancellation Problem has a negative answer for contractible affine threefolds. We also find a family of contractible affine varieties which are biholomorphic as complex analytic varieties but are all non-isomorphic as algebraic varieties. These results were obtained in collaboration with A. Dubouloz and P.M. Poloni. (Received September 13, 2010)