On manifolds covered by lines

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Algebraic manifolds embedded in some projective space have a very rich interaction between their intrinsic and extrinsic geometry. Much of it is related to LINES in the ambient projective space (e.g. tangents, secants, etc.). Although very special, manifolds COVERED by lines (sometimes also called "ruled"), have been studied for a long time and still are a source of fascinating open questions. I will try to survey some recent progress on this classical theme of projective geometry, mostly centering around the concept of "DEFECTIVE manifold". Somewhat surprisingly, at least for the non-expert, to treat such simple curves as lines, we need rather sophisticated modern techniques.