"Realism" and the physical world:implications of some recent experiments" by Anthony Leggett (University of Illinois)

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Abstract: It has long been realized that most interpretations of the formalism of quantum mechanics (QM) raise problems concerning the notion of "realism"-crudely speaking,that individual physical systems possess properties independently of whether or not the latter are observed.In recent years this observation has prompted various experiments which probe the QM predictions not only for spatially separated systems (the "EPR_Bell" situation) but towards the everyday world.The results obtained in these experiments tempt us to draw some prima facie surprising conclusions about the nature of the physical world,which will survive the demise,if it ever occurs,of QM itself.I give a nontechnical account of the relevant experiments,their outcomes and the possible interpretations of the latter.

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