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SUPERNOVA 2005cr

R. Quimby, P. Mondol, and F. Castro, University of Texas, report the discovery of an apparent supernova in unfiltered CCD images taken on June 24.17 (at mag ~ 16.5) and 26.17 UT (mag ~ 15.9) using the 0.45-m ROTSE-IIIb telescope at the McDonald Observatory. The new object is located at $\alpha = 12^h22^m17^s.21$, $\delta = +12°23'49''.3$ (equinox 2000.0), which is 3″ east and 1″ north the center of the apparent host galaxy. ROTSE-IIIb images taken June 8.17 show nothing at this location (limiting mag ~ 17.5).

COMETS 165P/2000 B4, 166P/2001 T4, AND 167P/2004 PY$_{42}$

The recognition that the "centaur" 2004 PY$_{42}$ is a comet (cf. *IAUC* 8545) brings up the inconsistency that the usual rules imply that, as a comet, this object would not qualify for receiving a 'P/' number until after it passes aphelion in the 2030s, whereas if it had "remained" listed with only a minor-planet designation — until someone noticed its cometary activity next year, say — it would have qualified for numbering at the present opposition. Indeed, under that circumstance, 2004 PY$_{42}$ would presumably have received "dual status", like the prototype centaur-class object (2060) = 95P/Chiron. The purpose of comet numbering is to produce a consistent set of generally predictable comets (except for the few well-known cases of previously well-observed comets with 'D/' prefixes that now no longer seem to exist), and that is best accomplished by requiring observations at two (or more) perihelion passages. With their large perihelion distances (and evident large sizes), "centaur comets" would seem less likely (over a rather considerable timespan) than the more typical short-period comets either physically to disappear or to experience significant nongravitational effects in their motions. It therefore seems reasonable to use the same criteria for numbering both "cometary" and "asteroidal" centaurs (and, for that matter, TNOs), namely, a certain level of 'orbital quality' (cf. *MPC* 54279) plus observations at four or more oppositions (at least one of which is recent). Accordingly (cf. *MPC* 54304), C/2004 PY$_{42}$ (CINEOS) is being numbered (as 167P), as also are C/2000 B4 (165P/LINEAR) and C/2001 T4 (166P/NEAT). Of course, following cometary "tradition", the names of these three centaurs are those of their discoverers (or, rather, discovery programs), rather than the mythological centaur names of the tradition for minor planets; there does not seem to be an easy resolution to this particular dilemma, other than to concentrate on referring to objects by their numbers and provisional designations, rather than by their names.

2005 June 27 *Daniel W. E. Green*