A collection $S = \{S(1), S(2), \ldots, S(t)\}$ of subsets of the vertex set $V(G)$ is distinguishing if every vertex is contained in at least one $S(i)$ and, for every two distinct vertices, some $S(i)$ contains exactly one of them. Distinguishing collections are of interest in finding an intruder or faulty node in a system modeled by a graph. Various situations in which a detection device at a vertex $v$ can detect an intruder in its closed neighborhood $N[v]$ will be considered: (1) $\{v\}$ and $N(v)$ locating-dominating sets, (2) $N[v]$ identifying codes, and (3) $N(v)$ open-locating-dominating sets. Various other distinguishing collections of sets are also of interest.

With emphasis on open problems, a (partial) historical overview of these topics will be presented. Thinking of each $S(i)$ as a detector which can determine if the intruder is in set $S(i)$, various conditions under which detectors can be faulty will be discussed.

**Keywords:** locating-dominating sets, open locating-dominating sets, identifying codes, detector faults.

**AMS Subject Classification:** 05C69, 05C05.