More than a thousand years ago, it was noted that occasionally new sources (“Stella Nova”) would pop up in the heavens. The study of cosmic explosions began in earnest less than a hundred years ago. Over time astronomers have come to appreciate the central role of supernovae in synthesizing new elements (and making life as we know it possible).

The Palomar Transient Factory (PTF), an innovative two-telescope system, was designed to explicitly chart the transient sky with a particular focus on events that lie in the nova-supernova gap. The PTF can find an extragalactic transient every 20 minutes and a galactic (strong) variable every 10 minutes. These observations explore more deeply than ever before the transient and dynamic aspects of the cosmos. The exciting new results and discoveries emerging from these observations will be presented.