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Evidence from Meteorites

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Meteorites remain our primary source of detailed information about the composition of asteroids. Their mineralogies provide a baseline against which other remote sensing techniques can be compared. Their densities indicate the importance of large scale void spaces within asteroids. And the physical fabric of the meteorites revealed by shock features, microcracks, and total porosity, shows how shock events shaped the asteroids. But the evidence in meteorites poses several major questions: Do iron meteorites indicate the presence of a large population of now-destroyed asteroids (and if so, when and where could this have happened)? How prevalent and uniform was the distribution of radiogenic isotopes in asteroids? Are there many unsampled types of asteroidal material?