

brilliance. The Universe again had a source of light with darkness prevailing in the vast oceans of space between the stars.

Stars, Galaxies, and the Solar System. The main feature of the matter dominant era was the formation of stars within their galaxies. Stars formed from clumps of hydrogen and other materials condensing under the influence of gravitational attraction, rather like a snowball growing in size while rolling downhill.

FIGURE 3.3.

A possible way the Solar System formed: (a) A huge dispersed nebula of interstellar gas and dust condenses under its own gravitational attraction. (b) Nebula contracts, begins to rotate perceptibly, and flattens. Most material falls into the rapidly accumulating central protosun. (c) Nebula rotates faster and flattens further. Protosun becomes distinct from surrounding disk. (d) Particles condense and rapidly accrete in disk eddies. (e) Protosun heats further and becomes an infrared star. Disk still consists mostly of gases, but planets are largely formed. Warped magnetic fields transfer momentum to planets. (f) Contracting sun begins to shine visibly; intense solar wind at this stage drives off gases in the surrounding disk. (g) Sun begins burning hydrogen and is now stabilized. Planets and asteroids are virtually all that remain of disk.

