

out, with wider spacing between objects (galaxies, etc.).

-First proposed by George Lemaitre, modified by Gamow and others.

(2) Steady-state cosmologies: continual (nonsupernatural) creation; expansion of matter balanced by creation to keep density constant.

-This process is assumed to follow a natural law, so there is no need for God.

-First proposed by Herman Bondi, Thomas Gold, Fred Hoyle.

[Schatzman 225-46; Sciama 98-127; Motz 54-72; Hoyle 675-94; J&T 267-82]

e. The steady-state model (at least in its original, fairly simple form) has failed to fit recent findings:

(1) Galaxy counts suggest universe more crowded earlier in its history. [Schatzman 238; Sciama 83; Motz 63-66; J&T 273-74]

(2) So do quasar counts, with less chance of error. [Sciama 93; Motz 67-70]

-Steady state theory expects the universe to look the same (e.g., have same density) at all places and all times.

-Looking at galaxies and quasars far away (which we see as they looked long ago) shows the universe to have been much more crowded then, when it was younger.

(3) Background radio radiation. To radio telescopes, the sky appears "gray" at night instead of "black" as for optical telescopes; the details of this radiation (almost perfect uniformity at a temperature of 3° K) fit what is expected for the remains of the big-bang fireball. [Schatzman 233,245; Sciama 176-84; Motz 70-72; Hoyle

680-81; J&T 274-75]

-This radiation is naturally explained (was even predicted) by the big-bang theory long before it was discovered. The steady-state theory proposes nothing of the sort.

f. The principal varieties of the big-bang model are:

(1) Lemaitre's No-Bounce: universe created at big bang.

-Universe created at big-bang (10-20 bill yrs ago)

-Lemaitre was RC priest & astronomer; made this proposal in 1930s.