

ASTRONOMERS DECODE MILKY WAY'S VIOLENT BIRTH**Prelims:** Science & Technology- Scientific Exploration**Mains:** GS-III- Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

►► Based on the data from the **Gaia Space Observatory** scientists say that Milky Way (our galaxy) merged with



another smaller galaxy in a colossal cosmic collision roughly 10 billion years ago.

- The union of the Milky Way and the so-called **dwarf galaxy Gaia-Enceladus** increased our galaxy's mass by about a quarter and triggered a period of accelerated star formation lasting about 2 to 4 billion years.
- Galaxies of all types, including the Milky Way, began to form relatively soon after the Big Bang explosion that marked the beginning of the universe some 13.8 billion years ago, but were generally smaller than those seen today and were forming stars at a rapid rate.
- Subsequent galactic mergers were instrumental in configuring galaxies existing now.
- High-precision measurements of the position, brightness and distance of around a million stars within 6,500 light years of the sun, obtained by the Gaia space telescope, helped pinpoint stars present before the merger and those that formed afterward.
- Certain stars with higher content of elements other than hydrogen or helium arose in the Milky Way, they found, and others with lower such content originated in Gaia-Enceladus, owing to its smaller mass.
- While the merger was dramatic and helped shape the Milky Way, it was not a star-destroying calamity.