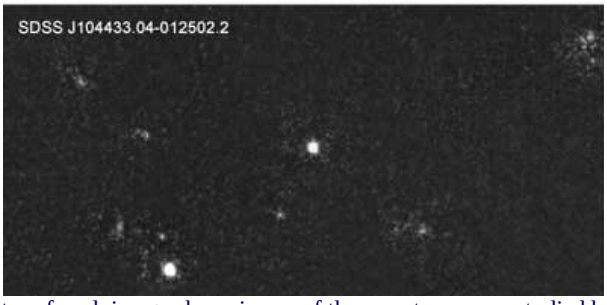
Hubble Telescope Finds "Ashes" of First Stars in This Universe

Artist's interpretation of a primordial quasar lighting up surrounding gases about 900 million years after the Big Bang. Source: European Space Agency and Wolfram Freudling,
Space Telescope-European Coordinating Facility/European Southern Observatory, Garching, Germany.

May 14, 2003 Garching, Germany - The Hubble Space Telescope-European Coordinating Facility and European Southern Observatory in Garching, Germany, near Munich, announced in April 2003 that Hubble has discovered what might be the "ashes" from the first stars in this universe. The powerful telescope found significant iron in the light from primordial quasars only 900 million years old. The theory is that the iron is the residue, the ashes, of first generation stars that formed perhaps as early as 200 million years after the Big Bang and then died in supernova explosions that produced all the iron later recycled into the quasars. According to Wolfram Freudling who led the Hubble research, 200 million years for first star births is much earlier than previously thought.

Quasars are a paradox: they are some of the brightest objects in the universe, but also the oldest and most distant. That's why astrophysicists hypothesize that their immense power must come from supermassive black holes in their centers that eat away at matter and convert it into energy that we can "see" with the Hubble Telescope. The universe's birth was probably 13 billion years ago. Quasars emerged in the early first billion years and astrophysicists think they get their extremely intense energy and brightness from massive black holes at their centers. An unresolved question is: which came first - the stars or black holes?

Freudling's team focused Hubble on three primordial quasars going back in time to at least 12.8 billion years ago. The spectra showed large amounts of iron. Assuming the heavy metal was first produced in the first suns to light up the new and expanding universe, no one has ever before seen such early elements.



At the center of each image above is one of the remote quasars studied by Wolfram Freudling's
European Southern Observatory team in Germany. Hubble images are provided by the European
Space Agency and Wolfram Freudling, Space Telescope-European Coordinating Facility/European Southern Observatory, Garching, Germany.

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