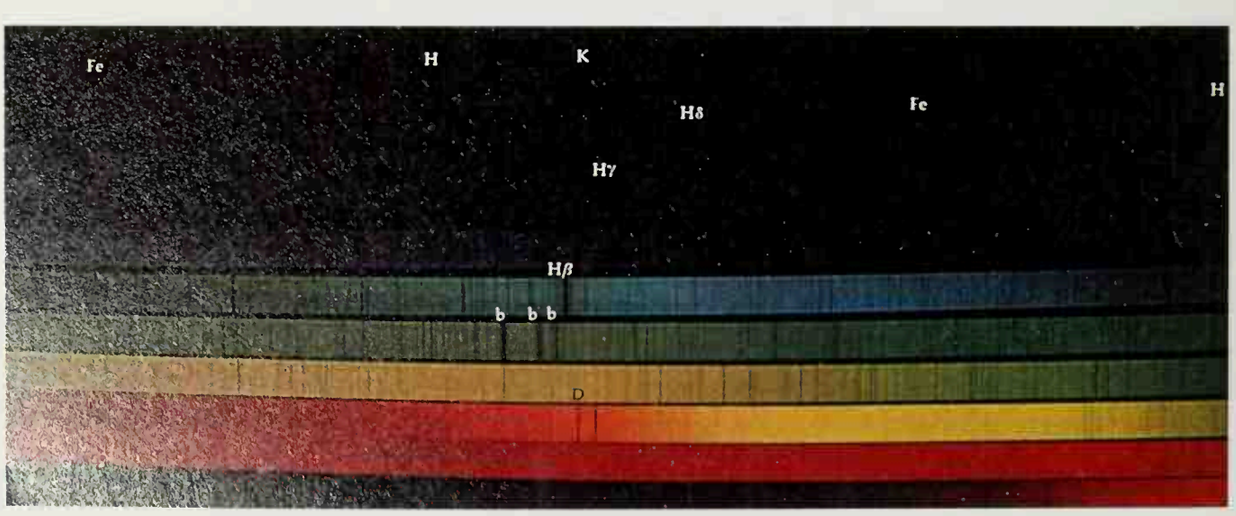
The full splendour of the very hot solar corona revealed during a total eclipse of the Sun (1976 October 23).

have greatly assisted the study of the high temperature plasma of the corona, while Skylab X-ray photographs have revealed the full splendour of hot active regions of the solar disc and the existence of spectacular coronal plumes. The heating of the corona is probably caused by shock waves emanating from the photosphere, so it is maintained in a dynamic state, continually expanding into interplanetary space to be replenished from the chromosphere at its base.

Solar wind

The expansion of the corona into interplanetary space is termed the solar wind; it is composed of electrons, protons, helium nuclei and other ionized material which pass from the Sun, through the Solar System, and merge eventually into the general interstellar medium. The solar wind represents a mass loss for the Sun of about 10^9 kg per s, which although large by our standards has a negligible effect on the Sun's evolution. (Supergiant stars, on the other hand, have stellar winds which carry off significant amounts of mass, up to 10^{-5} $M_\odot$ per year. This does effect their eventual evolution and may produce variable X-ray sources if the star is surrounded by a condensed companion.)

Skylab observations revealed the existence of phenomena now known as **coronal holes**, where the density and temperature are greatly reduced and appear as dark patches in X-ray pictures, but show no associated activity in visible light. It is now well established that the coronal holes are the source of high-speed streams in the solar wind, being the site



The spectrum of the Sun in visible light. Many absorption lines are seen and it was by studying such lines that the element helium was first discovered in the year 1865.