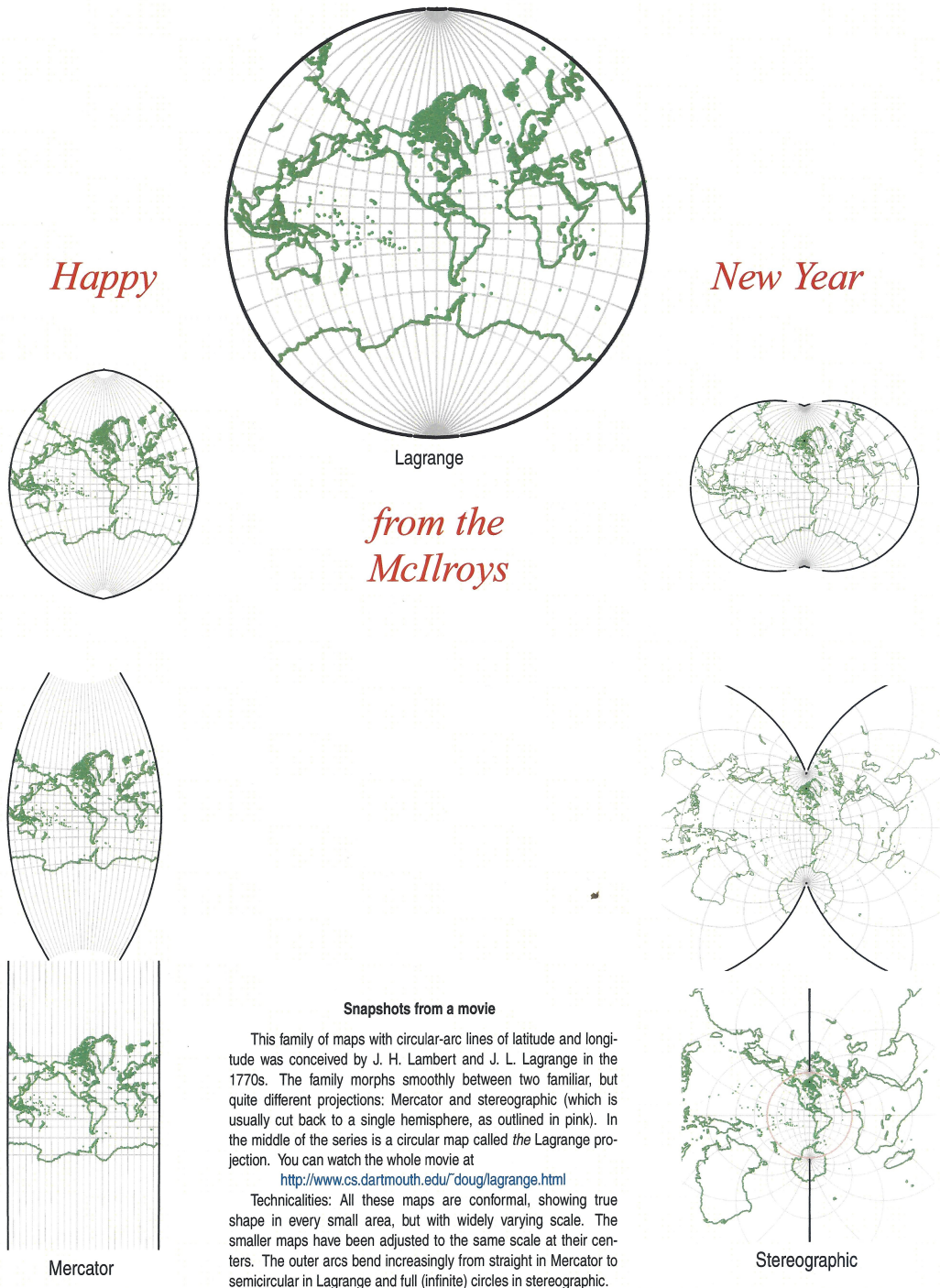


Lagrange Movie



Snapshots from a movie

This family of maps with circular-arc lines of latitude and longitude was conceived by J. H. Lambert and J. L. Lagrange in the 1770s. The family morphs smoothly between two familiar, but quite different projections: Mercator and stereographic (which is usually cut back to a single hemisphere, as outlined in pink). In the middle of the series is a circular map called *the Lagrange projection*. You can watch the whole movie at

<http://www.cs.dartmouth.edu/~doug/lagrange.html>

Technicalities: All these maps are conformal, showing true shape in every small area, but with widely varying scale. The smaller maps have been adjusted to the same scale at their centers. The outer arcs bend increasingly from straight in Mercator to semicircular in Lagrange and full (infinite) circles in stereographic.

When sent as a greeting, the blank space in the middle of the page was filled with family news. See below for further commentary and advice about playing the movie.

The Lagrange projection also appeared on the [1998](#) card.

In this family of projections, meridians and parallels are arcs of circles. (Straight lines count as infinite circles.) That will still be true if a droop (see the [2010](#) card) about a pole is applied prior to projection on the plane. Lagrange proved that no further conformal map has an all-circular grid.

Movie advice. Media players that come with Microsoft Windows generally don't like the mp4 format of this movie. The movie can be played by free media players such as VLC or GOM.