From the early through the mid-seventeenth century a series of mathematical instruments termed plain scales, gunter’s scales, and sectors were developed in order to inform mathematical practitioners in dialing, astronomy, and navigation of the theoretical foundations of their sciences and to reduce the burden of the plane and spherical trigonometric calculations inherent in their practice. These scales appeared as figures in published books, and were embedded in cross-staffs, rules, gauging rods, and sectors, constructed from a variety of materials including wood, brass, and ivory.

Due to limitations of time I shall restrict my discussion to the first two of these types of scales – plain scales and gunter’s scales. I will first outline their mathematical use in teaching definitions and behaviors of trigonometric functions to mathematical practitioners in a manner which facilitated their direct application to problem solving through the use of proportionality and ratio (as opposed to algebraic manipulation), and shall demonstrate the effectiveness of these tools and methods in solving problems in navigation and in surveying. (Received September 12, 2013)