



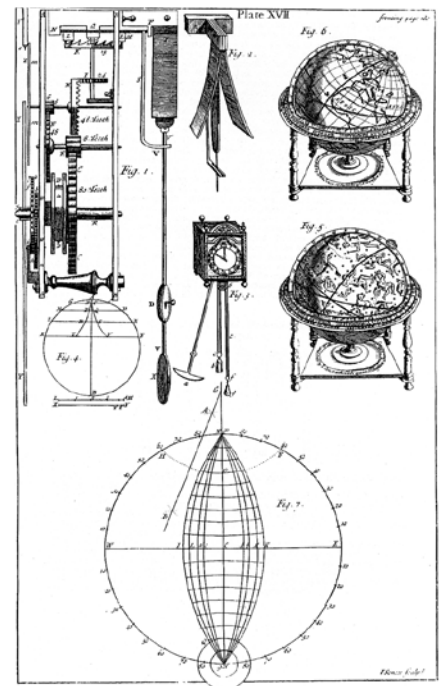
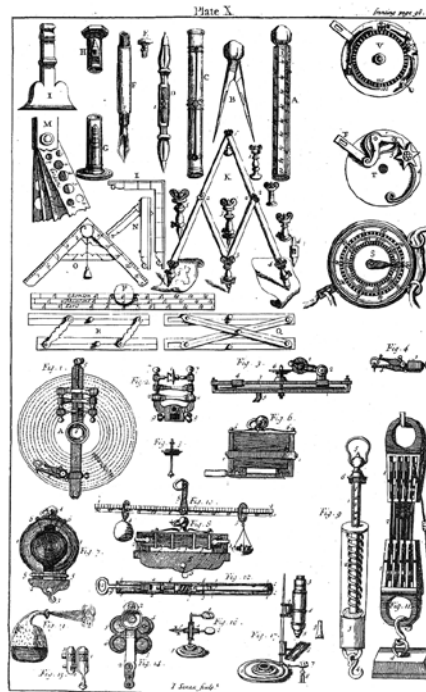
Mathematical Instruments & Rules

The Astragal Press occupies a unique corner of the book market. This niche publisher offers books about “antique tool collecting, metalworking, carriage building, early science and early trades.” Its subjects are broad and its catalog is an amazing source of what my colleague Mike Scanlon calls “lost skills and their tools.”

Is there something you’ve always dreamed of doing – like building a horse-drawn carriage from scratch? Using a slide rule? Operating a solar compass? When Astragal covers a topic, it does so thoroughly. They have books about forging steel as well as making and using all manner of hand tools. They have made it their business to preserve and promote arts and trades long forgotten and offer valuable resources on collecting artifacts of the related artifacts. I predict that in future decades Astragal will not only publish books that explain what automobile clutches are, they will also have titles that show you how make and find tools to repair them. It will probably be in the same catalog that offers a book on how to get the iPod in Grandma’s attic running again.

The Construction and Principal Uses of Mathematical Instruments is one of the foundation books of the surveying profession. Its publication, along with *Geodaesia* by John Love, *The Compleat Surveyor* by William Leybourn, and John Norden’s *Surveyor’s Dialogue* mark turning points in our profession. At those points in time surveyors changed not only their methods of fieldwork but also relationships with

clients. Even the products they provided to their clients were changing. For example, these books were published during a period when surveyors ceased issuing written reports to clients and instead produced maps, as is evidenced by the emphasis on calculating and



mapping in this book. What drove these changes was the appeal of maps for large landowners and number of ex-military surveyors entering the civilian workforce who were map makers. It is interesting to note that the above books, though hundreds of years old, are still in print, and two of them are

Title: The Construction and Principal Uses of Mathematical Instruments
Author: M. (Nicolas) Bion
 ISBN 1-879335-60-3,
 Hardback, \$59.50

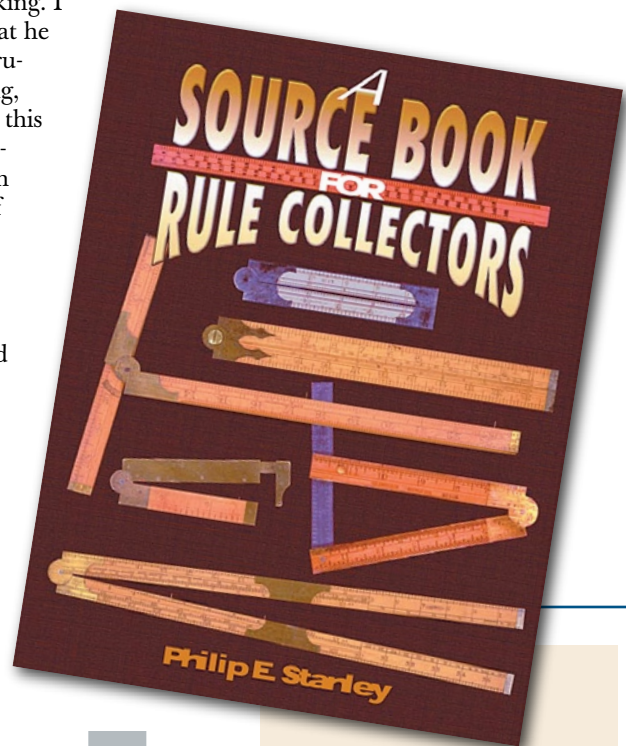
Publisher:
 The Astragal Press
 P.O. Box 239
 Mendham, NJ 07945-0239
 866-543-3045
www.astragalpress.com

still used as texts for seminars! Dave Ingram uses *Construction and Principal Uses* and Walt Robillard uses *Geodaesia* for his seminar on Eastern colonial survey practice.

Construction and Principal Uses was written by Nicolas Bion in 1709. It was a popular book that was republished in several editions and languages. The book under review is the English edition of 1758, which is generally regarded as being superior in every way, not only because of quality of the translation but because of the revisions, corrections and additions provided by Edmund Stone. The book covers everything from drafting tools to chains, compasses, plane table and quadrant. With this one book you could survey, map or sail and know where you were and what you were doing! What I like most are the sections on sectors, plane scales and other calculating devices. Surveyors

maker to the French king. I found no evidence that he actually used his instruments to make a living, but while researching this material I found reference to a Nicolas Bion that owned a one-half interest in a quarter section in Wayne Township, Ohio. Could it be the same guy? If so, what could the connection be?

Chapters in *A Source Book for Rule Collectors* cover much of the same ground as those in Bion's book; how to make, find or use various scales and rules. But the *Source Book*



With this one book you could survey, map or sail and know where you were and what you were doing!

and sailors of this era had many methods and devices that allowed them to solve problems of position, area, volume and so on without having to calculate (remember what you could do with your slide rule?) Many of the instruments described are actually still available on eBay! This latest edition looks very nice with readable print and a sturdy binding. This is no small matter. Many reprints, in an effort to maintain an air of authenticity, have the same cloudy paper and smudged paper as the original. It is not easy to use the old texts, illustrations are often insufficient, and they do not present the material in a way a modern reader expects. These two books complement each other and together provide the modern reader a good enough lesson to actually use these instruments, should one find them.

As an interesting aside, the Frenchman Bion was the instrument

is a collection of articles on slide rules, rulers, plane scales, British and French sectors and so on, many by different authors, although most of the articles are on the same subject: tradesmen's rulers. I am really impressed with the quality and volume of usable information in this book. It answers questions for me that I have been asking for years. A few years ago I bought what I now know to be a plane scale from an antique dealer. I have learned from this book that the scale was called a plane scale because it was used by surveyors to solve problems in plane trigonometry. The guy who sold it to me thought it was some kind of sailor's implement because it had tarnished brass buttons set in its face. Between the two books I can actually figure out how to use these old scales!

The *Source Book* comes with a *Concordance and Value Guide* at no extra cost, but apparently it cannot be

Title: Source Book for Rule Collectors

Author: Philip E. Stanley
ISBN 1-931626-17-0,
Paperback, \$45.00

Title: A Rule Concordance and Value Guide

Author: Philip E. Stanley

Publisher:

The Astragal Press
P.O. Box 239
Mendham, NJ 07945-0239
866-543-3045
www.astragalpress.com

ordered separately. It, too, contains an impressive amount of information. It identifies manufacturers and products and gives prices for the various items. If you are interested in collecting or merely identifying an unusual scale or ruler found in the back room, these are your books. If you would like to learn how early 18th century surveyors measured and calculated their surveys, these, too, are your books. *AS*