

PRECURSORS TO THE RISE OF ENGLISH WORLD ATLASES; Theatres, Atlases, Cosmographies, Geographies, and Sets of Maps

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The context of the rise of world atlases in England suggests that they were tied to wider scholarly and social issues covering the period of roughly 1630 through 1730. This short history discusses the cosmographical background and Continental foundations of the rise of world atlases in England, and a survey of relevant English precursors to those atlases.

A risk exists of rooting definitions of atlases firmly in cartography, subsuming other defining concepts, such as scientific philosophy and social values. An alternative way to look at atlases is that they are part of the larger corpus of their other contemporary works. The word 'atlas' was applied to only a part of our extant corpus of bound or unbound collections of maps of the world made in late seventeenth-century England. A more frequent term is "set of maps," (or *Tabularum Geographicarum*). 'Geography' is also used. Bound sets of maps, which are called Atlas Factice, are almost never called atlases by their makers or producers. For example, "A List of Maps, as they ly bound in this Book" heads the table of contents in what is called the *Blathwayt Atlas*.¹ Where it does occur, Atlas, as well as other words in book titles of the early modern period such as *Theatrum* or *Speculum*, reflect symbolic meaning on the nature of the book. The myth of Atlas tells us about the meaning to be interpreted in titles of books and the graphic symbols often found on their frontispieces and title pages.

The heavens are always an element in variations of the classical myth of Atlas. In turn, this paper proposes that the seventeenth-century definition of atlases specifically links geography with celestial knowledge. The application of this name to geographical books is a sign that the study of the heavens and society's meaning and practical use of that study set a pattern followed by the earliest English atlas projects that persisted through the Scientific Revolution in seventeenth-century England and into the early eighteenth century. The celestial meaning associated with the myth is evident in Mercator's title of his treatise with maps incompletely published at the end of the sixteenth century. Reading Gerard Mercator's *Atlas* in terms of the visual and verbal settings of seventeenth- and eighteenth-century maps, rather than strictly on the maps themselves, challenges statements by historians of cartography that Abraham Ortelius' *Theatrum Orbis Terrarum* was the first world atlas. Yet by analyzing these words and marginal images, a philosophical and cultural shift that happens around the time of Francis Bacon, is evidenced in the two English versions of Mercator's *Atlas*.

The Influence of Cosmography

Atlases were a manifestation within the period of what we consider to be the general transition of the organization of knowledge based on resemblances of the qualities of things to knowledge based on experimental philosophy.² As the dominant world view, cosmography was an ordering by resemblances, correspondences, and signatures. It was predicated on a belief in an animistic identification; the lack of distinction between inner and outer promoted beliefs that everything is organic and within the realm of human consciousness and spirit. Human knowledge of the world centered on the concrete and qualitative, not on rationality. Geocentrism seemed more believable than the abstract notion of helio-centricism. The world was closed and time was cyclical. Matter had a natural place and a natural motion of force, sympathy or antipathy,

which required a mover (God). Dialectical reasoning, or an acceptance of contradiction as the nature of the universe, predominated.³

In contrast to the erudite and secretive world of resemblances, astrology was a popular and early scientific vehicle by which geographic phenomena were explained. The list of titles with the word 'Atlas' from the British Library "Eighteenth-century Short Title" catalogue (a catalogue of books published in the eighteenth century) consists almost entirely of geographical and medical books. Their strong association lies in the study of the heavenly world. Prior to and through the seventeenth century, the human body was believed, as were places in the world, to have been governed astrologically. The nature and meaning of the body was expressed in terms of the macrocosm/microcosm concept of cosmography. This was symbolized most strongly by the Zodiac Man.⁴ The human body was described mathematically; inscribed in circles, squares, and triangles, as the macrocosm of the world later was through projections and perspective. The unity of these figures was represented in the figure of the horoscope, or conceptual map of a person's individual relation to the heavens.

The study of maps and texts of atlas precursors involved analytical techniques addressing their interrelationships. Two basic approaches were used in this research: the empirical evidence of atlas production and use, and an analytical reading of the map and text forms and contents. A critical element of this study is the evaluation of map and text figurative language, such as metaphors or decoration, emblems, and symbols.⁵ Figurative language has a non-rational, rather holistic, interpretation and is more difficult to break down into analytical parts than other rational constructs can be, but its qualities can be described.⁶ Decoration was a metaphoric or figurative language in that it captured and associated a meaning with the map that was not literally the same as the representation. This was particularly true of cartouches.

Cartouches embellished or commented on the images portrayed around them in a figurative way by the use of perceptual arrangements. The cartouche itself was separated from the rest of the map by the eye's perceptual change in angle from the synoptic view of the map to the picture in perspective. The perception changed further by the altered scale from very generalized geography to smaller, specific figures. The cartouche's variable scale did not mean a break in the continuity of information, but rather a figurative aim to communicate a message rather than create the illusion of realistic spatial proportionate arrangement. Although these devices ensured the cartouche was different from either the map or the label wording, the cartouche reinforced the information on the map and the label by its close association with them on the map. The details provided a clue as to how the vast space of the map was filled, helping to make the land imaginable. The pictorial elements of the cartouche associated a deep and subtle cultural framework of meaning to the place on the map. Cartouches thus influenced the European perception of other lands and subtly affected the formations of their future social and political identities.⁷ The pictorial cartouche was closely associated in some ways with the emblematic style of representation.

Cosmography, the dominant system of thought from which atlases arose, used both words and images of worldly description.⁸ English world atlases arose not only from European foreign atlases or atlas-type works circulating in England before the production of native atlases, but were also melded within the context of other English geographical practices and publications of the period; descriptions, surveys, sets of maps, or pilots, for example. The strands of these different influences become more apparent in the world atlases published after the restoration of King Charles in 1660. Atlases from Stuart England surviving today are usually works with maps and prose pages of a recognizable pattern. They usually have an introductory section as well as maps with or without additional text assembled in various particular formats.

Theatres

The English editions of Abraham Ortelius' *Theatre of the World*⁹ and Mercator's *Atlas*¹⁰ appeared through the efforts of Englishmen using the originals from the Low Countries. These works had different general approaches, practical and philosophical, which are evident in their physical appearance, but are also indicated in their historical origins.

Epitome-sized (octavo) English editions of Ortelius' *Theatrum Orbis Terrarum* (called here, the *TOT*), appeared first, in 1601 and 1603, and the folio-sized in 1606. The way map and text coordination was altered in the English editions can be found from the very beginning. The maps were to be printed in Antwerp and the translated texts in London; thus, the customary practice of printing the text first and the map second was reversed in this case. Parts of the textual preliminary matter of the original were completely omitted, though the late appearance of the *TOT* at least offered a fully developed map content to English consumers. In this way, the book was already more graphical than it was for readers in other parts

of Europe, though it is unclear whether this larger collection of maps was a result of English planning. R.A. Skelton argues that the larger format can be safely estimated to have been entirely an English enterprise,¹¹ but the right to publish prints from those plates never left Vrients, the publisher of Ortelius' material in Antwerp.

The *Theatrum Orbis Terrarum* was an important example of books within a genre of works called theatres, which were different from atlases. Theatres were encyclopedic collections of prints of the earth; they were vivid, artistic, and fashionable. These collections represented natural materials of the earth, such as rocks and plants, as well as social artifacts. A good explanation of the theatre of the world is as metaphorical as the style of the period; the theatre was the setting in which life was played out.¹²

The intellectual framework uniting the theatres with surveying and astronomy is attributed to the Vitruvian tradition of mathematics. In this tradition, mathematics formed the basis of all other arts in eight categories. These included the sciences dealing with number (arithmetic, algebra, geometry), and other sciences which are dependant on number; military art, law, geometrical arts (surveying, hydrography, geography), perspective, music, astronomy, astrology, statics.¹³ All these arts were subservient to architecture, related to the constitution of man, or 'anthropographie,' (numbers in relation to man). Theatre was a required art of architecture. The concept of the "theatre of the world" in England manifests itself directly in the theatres of the period.¹⁴ They were round in physical structure, with equilateral triangles drawn on the floor symbolizing the zodiac. The theatres had a canopy with celestial bodies painted on it and poles called the atlas to support it. These elements stemmed from cosmographical origins of the theatre of the world in the early sixteenth century. By the culmination of the movement in the late sixteenth century, the cosmography of the theatre was centered squarely on the earth as the focus of the world.

Although map historians commonly call the *TOT* the first atlas because it was the first work to present a set of maps in a consistent format, it was conceptually different from the first book to bear the title *Atlas*. The formal qualities attributed to the *TOT* by which we define it as an atlas are in part the recommended format of a good theatre. It was not intended as a work of natural philosophy, but as a collection of prints. This concept is first described in the archival methods recommended in Samuel Quicchelberg's *Inscriptiones vel Tituli Theatri Amplissimi*.¹⁵ It should be briefly noted that the concept of the universal theatre emerges from Quicchelberg's classification system as an ideal collection of encyclopedic scope, representing every discipline and all manifestations of human endeavor. The systematized mode of presentation suggests as its guiding principle the promotion of universal knowledge. The system as such consists of five classes with ten to eleven inscriptions in each; the inscriptions, in turn, indicate further subdivisions or specifications about the items to be included. Roughly speaking, each class comprises a number of separate but related collections.¹⁶ A main idea of Quicchelberg's method toward the collection of geographical engravings was to limit and to make consistent their size and media. He also suggested keeping them between covers with titles for protection.

This context of the *TOT* as a theatre is supported by our knowledge of Ortelius's background as map illuminator and antiquities dealer. Ortelius was late in coming to geography, having no known cartographic work before the age of thirty-seven. That which comes later in his life is comparable with other contemporary work.¹⁷ He founded a museum, and so would have been directly interested in archival methods, and indeed he had a copy of Quicchelberg's book in his library. Ortelius treated his other collections of prints, such as his collection of Duerer's work, in the format of the theatre as well. At least three bound volumes of the collection held over one hundred wood cuts and engravings each.¹⁸ Ortelius amended his geographical collection of prints by changing the maps he received to a more consistent format, but essentially they are still a collection of prints engraved by individual cartographers from various places in the world, the names of which he notes as one would for a catalogue.

The word Theatre was applied to the book contents of varying subject matter, but geographical theatres had certain characteristics of their own. Continuity of format and area of coverage varies among the Theatre-style books. The subject matter of the theatre is focused on the terrestrial world only. Quicchelberg's system of collecting was organized to be informational in content, which made it useful for trade. Theatres are all predominantly works of geography within the terms of culture and history, not science and mathematics. Ortelius included only one introductory paragraph on the study of geography, compared to Mercator's long treatise.

Theatres are at a scale more immediate to human experience than are cosmographical atlases. The nation was often the emphasized scale in theatres. The *TOT* has maps of many nations and regions of those nations, but theatres often represented the regions of one nation. John Speed's *Theatre of the Empire of Great Britain* was published in a format similar to Ortelius's. M. Tavernier's work, *Theatre Geographique*

Du Royaume de France, 1634, was composed of maps only. Another example from the early eighteenth-century is *Nouveau Theatre de la Grande Bretagne* (1708). *Nouveau Theatre de la Grande Bretagne* had little text, just captions to accompany the plates and an alphabetical index to the plates. Illustrations are often architectural, sometimes just of building facades. The scale and coverage of geographical area varied and was indicated in the title. City plans were often used, as in Blaeu's *Le Theatre des Cites des xvii Provinces du Paysbas a deux Volumes*. Although the format assumed by the *TOT* reoccurs, the format of other theatres varied, particularly in the text. The later Theatre books are a combination of backgrounds: views, jardins, and prospects. A proposal for the publication of an "artificial Theatre" in the Bagford Collection of the British Library¹⁹ lists the main contents composed of prospects and views, just as the maps of the sixteenth century were heavily adorned with vignettes.

Quicchelberg's book suggests itself as another source for the motive and inspiration behind the *TOT*, but it also suggests that bound sets of engraved maps (of which the *TOT* was only one, along with the *Civitates Orbis Terrarum*,²⁰ and the *Speculum Orbis Terrarum*,²¹ were not at the beginning of an atlas movement, but the culminating works of earlier intellectual forces. Skelton concluded in 1968,

The *Theatrum* was, in conception and development, essentially a creation of the 16th century...A much more ruthless effort in revision, substitution and expansion than Vrients (the publisher) was able or willing to make was needed to bring the *Theatrum* into a form likely to satisfy students of the early 17th century; and in the process it would have lost its character.²²

The sources were copied, not original, and therefore were difficult to update. New maps added to the *TOT* were always historical, not modern. Nor did the fashion sustain the title in artistic books of the seventeenth century. Although collections of views and prospects continued to dominate the book and print sellers' catalogues of the eighteenth century, the word theatre no longer occurs.

John Speed used the theatre approach in publishing his own work *Theatre of the Empire of Great Britain*, a book of county maps that resembled the *TOT* in format. English chorography was commonly organized by county. English county chorography involved not only the geographical description of a landscape, but its history and culture as well. A definition originating in Ptolemy's *Geography* that probably circulated in Renaissance England promoted chorography as the detailed study of a place, the knowledge of what kind rather than of what size a place is and so has no need of mathematics. "Chorography needs an artist and no one presents it rightly unless he is an artist."²³ The *Theatre*... is linked to Speed's other work on English history. An historical continuation of Speed's *Theatre* was published as well as an historical expansion of the *Theatre* itself.²⁴

Bound to Speed's *Theatre of the Empire of Great Britain* was Speed's set of maps at the world scale, the *Prospect of the Most Famous Parts of the World*.²⁵ This was the first English attempt at a world atlas-type work, but it had only partial coverage of areas. The relationship between the two books is evident by the title page, which lists "His Majesty's Dominions abroad, that is New England, New York, Carolina, Florida, Virginia, Maryland, Jamaica and Barbadoes," as appearing in the *Theatre* and are therefore simply an extension of the Kingdom, but the Summer Islands are given over to the *Prospect*. In contradiction to this, these areas appear in the bound sequence of maps of the *Prospect* along geographical division.

A prospect is an appropriate and revealing name for this incomplete view of the world, in the sense of the word as assessment. Before the prolific spread of the required technological instruments and expertise for mathematical surveying, visual or verbal surveying was the most immediate and elemental topographical practice. The English tradition of written surveys of estates began in Medieval times. The sources for these surveys included testimony, written records, inspection, and measurement. Though it is often today thought of as a purely mathematical practice, or one geared toward the production of maps, maps were not part of surveys until the late 1570s. Local land surveying included a range of qualitative activity, including an analysis of the value of the land and types of resources.²⁶ The tradition in England arose out of the land-keeper's tasks, including husbandry, as well as the land surveyor's tasks of mensuration, delineation and the evaluation and improvement of one's estate. With increased knowledge of geometry, surveying manuals became very mathematical, but were still geared toward the greater motive of analyzing wealth. In an address to the mayor, aldermen, and sheriffs of London in the preliminary pages, Speed mentions the spread of London's traffic and trade to the shores of the two opposite Indies.

As a work of pre-civil war England, the *Prospect* has an overt and predictable religious and political slant to it, evident from the very beginning in the Preface. Throughout the text, Speed makes frequent references to biblical verses and characters, and offers prayer in the form of appeals and

expressions of devotion to God. This is also a mark of a science of resemblance, for all things were hidden by God from people, but bore his image which was revealed in their signatures (resemblances).²⁷ "The hidden things belong to the Lord, the revealed to us." (Deut.29). Speed offers several speculations about the location of Eden on earth. Speed maintained the traditional Ptolemaic image of an orbiting sun, the view in accordance with the Church.

Regarding politics, Speed covers civil wars from Norman invasion to Elizabeth's time for the martialists, though he himself dislikes mentioning internal conflict. Unlike later utilitarianists, Speed reveals that his turn to foreign interests was not solely for commercial purposes, but also to focus on the overseas is to restore English honor despite the dishonor of internal civil strife. He writes that he was requested to include accounts of English wars in his combined set of the *Theatre* and the *Prospect*, but decided not to.

The introduction goes on to relate the geographical description and division of the world as the ancients did, including the tribes of Israel and the parts of the world they inhabited, resembling medieval mappamundi. The discussion then turns to a short introduction of Ptolemy. With an early eye toward the moderns, Ptolemaic concepts are introduced and enlarged to those lands which were unrelated by the ancients; the New World. Six divisions of the world are given: Asia, Africa, Europe, America, *Septentrionalis incognita* and *Terra Australis Magellanica*. In the body of the book, the last two are included in America. Speed ends his text by stressing the map: "Of the rest severally I shall not need here to enlarge my Discourse, since the particular Map of every Region may justly challenge it as their proper right: and will be I hope very shortly extant for my Reader to peruse." This statement is in contrast to several in Mercator's *Atlas*, where maps are meant to adorn text, not curtail it.

The world map is organized around depictions of the main ideas of a science of resemblances or the analogic worldview: the four elements, a diagram of Ptolemaic heavens and elements, figures of the sphere and solar and lunar eclipses, two hemispheres of the earth, the north and south hemispheres of the zodiac, and the climate zones (which were thought to highly influence geography).



John Speed, "A New and Accurat Map of the World," in *Prospect of the Most Famous Parts of the World*, 1627. The American Geographical Society Collection, University of Wisconsin-Milwaukee Library.

Included also are historical portraits: Thomas Cavendish, Oliver van der Noort, Ferdinand Magellan, and Francis Drake; the last two with notations. There is only one map of the Americas, and that is Bermuda. This map (called the "Sommer Islands") was drafted by Richard Norwood and reappears in later English atlases of the seventeenth century. The island is depicted twice: a relatively large-scale map is imposed over very small scale map outlining the island's position in the Atlantic oriented to both Virginia and New England. "The miniature map of Bermuda just below the title piece is inserted to show its correct proportion against the American mainland of Virginia and New England."²⁸ The map shows both detail of the island, but not fragmented from its relationship to a larger context. This is done by over-lapping cartographic 'layers' and mixing scales within the same neatline.

Figurative language was used to clarify concepts in the prose texts:

We may illustrate both the figure and situation by a familiar similitude, to an ingenuous apprehension. Suppose we a knot to be knit in the midst of a cord that hath many ends: and those to be delivered to sundry men of equal strength, to be drawn several ways round from every part, above and below, and on each side; questionless whilst every man draws in the boes of the knots, it must needs become round: and whilst they continue to pluck with equal strength, it must rest immoveable in the middle betwixt them: since every strength that would destroy, hath a strength equal to resist it. So it is in the bosom of the earth, where every part meets upon equal privilege of nature: nor can any press farther than the center, to destroy this compacted figure: for it must meet there with a body that will oppose it.

Metaphors that Speed used derived from general use and public decorum instead of personal whims or inner perceptions to explain ideas in scientific prose. Their elements were used to paraphrase, not for intrinsic interest. The sense evoked by the metaphorical figure is clearly spelled out; the sentences are long & link together causal relationships. This was agreeable to current notions of emerging Baconian empiricism in that such language was plainly clear, centered on physical matter, and valued rational thought.

Sir Francis Bacon, founder of English Empiricism, was a contemporary writer of John Speed. Natural and civil history (what we would call science and history) was for Bacon the same thing; elucidation based upon experience, memory, and examples. Just as in his study of material objects, Bacon seeks to use past events for examples of political wisdom resulting in predictable and desirable outcomes, and thus separates political from moral responsibility, even in his more empirical sense of the word moral meaning a more psychological or behavioral process than religious one. The historical perspective advocated by Bacon was an abstraction of political wisdom, or an analysis of motives.²⁹

Francis Bacon's prose style recommendations were founded upon his philosophy for the advancement of learning, and not from the contemporary styles of rhetorical Elizabethan writers or the imitation of classical authors. He believed writing should be appropriate to his intended audience and to his goal, which was the attainment of useful knowledge. He shunned moralizing (in the classical or religious sense of right and wrong) and sensuality. Also, history was written to serve the political interests of the public with a lack of moral evaluation of events. Yet, Bacon's idea of geography was still cosmographical, even if his method is empirical. "...the seeing of the names of London, Bristol, York, Lincoln, and some few other places of note, in a Mercator's general map will [not] make a stranger understand the cosmography of England."³⁰ Bacon's legacy led to a style of writing appropriated in the rise of English world atlases in the Restoration, when Baconian ideals were advocated by the Royal Society.

Atlases

Mercator's *Atlas* was a philosophy on the nature of the universe and of knowledge. The subtitle, reading "meditations on the universe," referred to an entire cosmography³¹ consisting of five parts: 1. the creation of the world, 2. the description of the heavens, 3. the description of the earth, 4. genealogy and the history of the states, and 5. chronology. Justin Winsor wrote, "modern usage has somewhat narrowed the meaning as [Mercator] applied it." Elial Hall concluded in 1887 that the *Atlas* was meant by Mercator to apply to a treatise.³² Its original plan does not compare to any other contemporary project. Most of the work was never completed before Mercator's death, which possibly encouraged the word atlas to eventually become associated with only the book of geographical maps. However, the true title of the volume of maps was: *Atlantis Pars altera Geographia Nova Totius Mundi*.

There were two English editions of the *Atlas*. The first was *Historia Mundi: or Mercator's Atlas*, printed for Micheall Sparke and Samuell Cartwright in 1635. This was the English translation of Judocus Hondius's Dutch work. The title page read: "Containing his Cosmographicall Description of the Fabricke and Figure of the World. Lately rectified in divers places, as also beautified and enlarged with new Mappes and Tables;..." The preliminary material is not plain; it includes a frontispiece and an elaborately written poem, "The Meaning of the Frontispiece." The engraving has the four continents, Atlas treading on riot, oblivion, and sloth. Figures of history and geography show history writing, and geography reading amid compass, sphere, and cross-staff. A verse is offered called "Why many new atlases are printed."

One atlas heretofore was thought to bee
enough to beare up heavens axel-tree.
But now, the aged world declines so fast,
through discord, sinne, and vice, which lay it wast,
that many atlases had need to stay
it with united shoulders from decay.

Verse and poetry were commonly associated with emblematic forms.³³ The period of analogical resemblances involved an emblematic type of representation. Emblems were an image arising in the later Middle Ages carrying a moralizing commentary or some relationship to ordinary life, such as an analogy to a wide variety of common day objects. The earliest English atlases were emblematic and dedicated to learning, perhaps even as memory systems, by their breakdown into short sections and descriptive identifying labels linked to images. Still, other preliminary material supports one of Mercator's stated objectives that the atlas teaches the reader how to engage in trade.

The title of the second English edition (1636) was *Atlas; or, a Geographical Description of the Regions...of the World, represented by New and Exact Maps*. This was a wholly English project. The titles of the two works already hint that greater English empiricism competes with a more traditional approach. However, the short, one-page translation of Mercator's own introduction makes several statements associating the *Atlas* to first wisdom and philosophy, then to astronomy (as practical astrology), and then to its earthly manifestation in the form of geography. The prose style of the passage is consistent with the philosophy of the work as a whole, drawing on philosophical values, religion, metaphor, and literature. Hexham's statements in the Preface, that he translated the *Atlas* and that it was adorned with maps, support the concept of the atlas as a book, not as a set of maps.

The *Booke of the Creation and Fabrick of the World* addresses the scope of cosmography. World, as used in the sub-title of the *Atlas*, refers to the universe of which the earth is only a part. The Ptolemaic view of the universe still prevails.

The Platonist view of the world is first described, but Mercator opposes it with the scriptural view of the world in which the creation and manifestation of the world is done in six days. The second section of the introduction is called "An introduction to Universall Geographie, as well moderne, as ancient." A geographical introductory section similar to this appears in most atlases throughout the rest of the century, and is apparently lacking in theatres. Geography, chorography, and topography are all defined. The nine chapters follow, describing the imaginary circles, lines, and climates of the earth, measuring the earth, and the latitude and longitude grid system. Regional subsystems, of the four quarters of the world and of the winds, are accompanied by very geometrical diagrams representing these themes, and followed by two compass roses. There is no discussion of astrology.

The word portraiture in Mercator's world map, "A Portraiture of the Universall Earth.," indicates a certain attitude toward the map; that it is a resemblance, as opposed to being an analytical device. The map is heavily decorative; it is metaphoric in the sense relevant to images, but it is the sphere that has substance and meaning, as mentioned in the text on the verso of the map: "Apuleius describing this excellent frame, worthy of all admiration, saith, It is that, which consisteth of the conjunction of heaven, and of earth, and of the nature of the one, & the other."³⁴ Mercator's union of heaven and earth posed no problem within the dialectical reasoning of cosmographical science.

A significant feature of the grand Dutch atlases circulating in England was their richness of visual imagery. The climate of seventeenth-century Holland allowed for the recognition and involvement of what appears to us as both artistic and scientific expression in geography,³⁵ but although the older style of maps looks more decorative, the scientific component is not missing. It represents a different scientific approach than the modern. Some significant elements of decorative maps include projections of prominent geometrical shapes with magical meaning, such as the square, or metaphorical meaning, such as the

cordiform heart.³⁶ *Nova Orbis Terrarum Descriptio...per Ioannem Blagrawm...* published in London by Benjamin Wright in 1596 is an early style English world map with the Northern Hemisphere inscribed as a circle in a square. The Southern Hemisphere is projected into corners of the square. There is a very complicated scale system at the top.³⁷

It has been argued that decoration, not content, was a main competitive aspect of the Dutch atlas publishers.³⁸ Decoration was an effective aspect of the competitive marketing perhaps because of both aesthetic appeal and meaning to audiences. It is known that map ornament was often copied from other printed sources that circulated around Europe.³⁹ Yet research regarding the Blaeu atlas indicates that new standards of cartographic content were incorporated.⁴⁰ The geographical aspects of the atlas were not lost in the artistic perspective, nor confined to what was able to be mapped.

Cosmography and Geography

An examination of cosmographies and geographies combined provides us with a greater perspective on the way atlases compare with geographical books of an older style. Heylyn's *Cosmographie in foure Books Contayning the Chorographie & Historie of the whole World and all the Principall Kingdomes Provinces Seas and Isles Thereof* was published first in 1644, and was reprinted repeatedly; up to 1702. Heylyn has only one map of America, and an analysis of the text shows also a significant difference in approach to geography as well (compared to an emerging trend toward sets of maps). The title of the general introduction explicitly draws on religion and asserts the importance of history in understanding the present:

...the Creation of the World by Almighty God, and the Plantation of the same by the Sons of Men [Noah]; the necessary use of History and Geography, as well for understanding the Affairs of the Ages past, as for converse and correspondence with the Nations present; together with a brief view of some General Praecognita which necessarily are required unto the Knowledge of each.

Just as this popular cosmography of seventeenth-century England included geography, though to a lesser degree, so history had a role in the primary aim of the atlases of the Restoration and later in clarifying the principles of geography and was made useful for political purposes.

Geographical information presented in the text resembles that of the atlases' statements about the characteristics of a place, principal landforms, and settlement. The prose style is mixed, but similar to Classical Plain Style. Classical Plain style was a prose style that used the classics as a model, particularly the manner of Plato. Classical Plain style was a style of personal description in which the associative patterns of the mind were conveyed and open to criticism. "Our Discourse is imperfect, unless it carry with it the marks of the Motions of our Will: It resembles our Mind (whose Image it ought to bear) no more than a dead Carcass resembles a living Body."⁴¹ The revelation of the speaker and the expression of an inner ideal was the intended goal, not communication for the general reader. Writing of Christian candor reflected an idea of the inner motives of the soul. It was predicated on a revelation of a writer's mental constructs over that of the qualities of physical objects. As a result, Classical Plain style prose involved the vivid and acute portrayal of individual experience rather than the expression of new discoveries.

Statements like the example below are the revelation of personal motives in the process of acquiring truth.

I find not any great increase of Christianity among the Native: our English Undertakers thinking it sufficient, if they and their houses serve the Lord, without caring what became of the Souls of the wretched people, which hitherto have fate in darkness and the shadow of death, notwithstanding those New Lights which have shined amongst them.⁴²

Classical Plain style lasts into the eighteenth century, and is rarely used in atlases, though it is more evident in cosmographies. Cosmographies appeared at both the popular and academic communities. Changing very little of the original text, Isaac Newton edited a version of Bernard Varenius' *Geographia Generalis* (originally published in Amsterdam in 1650) published by Cambridge University Press in 1672, and revised it again in 1681.⁴³ Richard Blome published a third version in London bound with Sanson's maps. The English language editions of Varenius's work contrasts to cosmographies such as Heylyn's geographical work by its dominating mathematical influence.⁴⁴

Geographia generalis appeared in three volumes. The first part, out-weighting the last two, is about most aspects of earth science: mainly geomorphology and meteorology. The last two books are mathematical. One is about celestial aspects of geography and the other the terrestrial: latitude, longitude, the construction of globes and maps, and navigation. *General Geography* offers us a systematic outline

within which to examine atlases. Three types of principles were asserted to prove geographical propositions: mathematical, astronomical, and experiential. The mathematical aspects were manifested in atlases in determining latitude and longitude, astronomical aspects explained geography, and the experiential is the role for prose text. Varenius's theory of special geography enumerates eight celestial aspects about a place. These are either empirical, astronomical, or climatological observations. Principles of mathematics are outlined in the first section. In the Second Section, different mathematical techniques are reviewed for measuring the dimension and magnitude of the earth. The Copernican system, strongly supported, is discussed and the motion of the earth. Reviewing the situation of the earth in relation to the planets and the stars, Varenius believes that the grounds of astronomy and geography are not affected whichever cosmological system is believed (Varenius himself strongly supports Copernicus).

Astrological aspects of geography were seriously considered by many popular geographical writers, but Bernard Varenius doubted its use because he did not see any grounds for it. One astrological concept is included in Varenian geography: "According to Astrologers a Ninth property may be added; because they do appoint one of the Twelve Signs of the Zodiack, and the perculiar Planet of that Sign, to rule and govern every Country."⁴⁵ Varenius combines astronomy with astrology. For example, the signs of the zodiac are discussed in reference to the changing seasons.

The lack of specific maps in Varenius's work may be the reason Varenius and Sanson are combined in a work published by Richard Blome called *Cosmography and Geography in Two Parts*, published in London in 1682 with reissues in 1683 and 1693. Map surveying techniques on land involved mathematics, and the celestial knowledge was required for the determination of latitude and longitude coordinates. The fixing of coordinates had long been practiced in almanac-making for astrological purposes. Richard Blome advocated astrology in his preface of *Cosmography and Geography*; astrology was a popular expression of the relevance of cosmography. The popular astrological press not only offered predictions (unless politically unpopular), but served to circulate and educate wide audiences to the new celestial theories and their implications.⁴⁶

Works by Thomas Porter embody this interaction of cosmography, mathematics, and geography in England. Porter's *A New Booke of Mapps, Being A ready Guide or Direction for any Stranger, or other, who is to Travel in any part of the Common-wealth of England, Scotland & Ireland by which he may know his way in any part thereof, though he knew it not before*⁴⁷ had:

- I. Alphabetical Tables, shewing the Longitude and Latitude of all the Towns named in the said Maps; with easie and ready directions how to find any of them, though you know not in what parts they lie.
- II. Tables of the High-wayes in England, Wales, and Ireland, Alphabetically methodized; which hath made them very plaine.
- III. Tables as easie as an Almanack, which may supply the use thereof for 100 years, that is to say, from Anno 1600 to 1700.

And other useful tables.

This Book being necessary for all men, it is therefore made portable for every mans pocket.

A New Booke of Mapps was made to provide an outlet for popular interest in astro-geography for direct applications, such as determining daylight hours, eclipses, the day of the Month, the fixed and moveable Feasts, the beginning and ending of the Terms etc. while avoiding the more abstract ideas of the almanac-maker and astrologer. The text takes pains to explain how his work, though similar, differs from an almanac.

A Compendious View; or, a Cosmological and Geographical Description of the Whole World (1659) combines the contents indicated by the title with a perpetual almanac. The frontispiece shows the astrological wheel, followed by a map of the world, the celestial hemispheres, diagrams of solar and lunar eclipses. The two works bear the common titles of atlas-type works in the seventeenth century - a book of maps and cosmological and geographical description of the world - and both works include instructions for use of the globe and understanding of maps, similar to the introductory sections of atlases. Porter explains the word 'map, 'maps,' and their binding into a book.

An Advertisement for the honest Countreyman, who probably may stand in need hereof, for the understanding of the Book. Whereas in some places you read maps in the plural number, and in other places map in the singular number, the word Map is used when both are joynd together as one (as it is best) but when 'tis bound up in a book, it is too big to be folded up in one; and therefore each part is folded up by itself, which makes two maps (the one containing England,

Wales, Ireland, and part of Scotland; and the other all the rest of Scotland, together with the form and manner of London, Westminster, Oxford, and Edinburgh) and in this sense they are called maps.

He omits any mention of the word 'atlas.'

Its overall style is very decorative; four iconological figures of the continents, figures of the sphere, a figure of the heavens and elements according to Ptolemy. The four quarters of the world are assigned metaphorical names with explanations of their meanings as well. Like Speed, the tone of the prose is sometimes religious.

Conclusions

Drawing from the idea of the 'Theatre of the World' as a collection, Ortelius' *Theatrum Orbis Terrarum* contributed a material and earthly concept formation of the modern English world atlas. Mercator's *Atlas* a more celestial and universal influence based on cosmographical knowledge. Other foreign atlases were rich in visual detail outlining a figurative language.

The earliest English work resembling a world atlas is John Speed's *Prospect of the Most Famous Parts of the World* (1627), attached to a set of county maps called the *Theatre of the Empire of Great Britain*. Some of Speed's statements suggest that his motive in turning his attention toward the larger world was to bury the memory of civil unrest by drawing attention to English achievements overseas. At the same time, the similar formats of both books suggest a continuity of thought in which the definition of the county maps is carried into the visualization of the world. Its tables of latitude and longitude and ways of finding towns on the maps by coordinates made it unnecessary to know what county a town is in. Unlike county maps that were somewhat locally insular, these texts reflect and were made to facilitate intellectual and physical mobility throughout England. This reflected the image of England not as counties, but as the unification of them into the whole nation, and eventually its expansion overseas. The same design of the county chorographies became a tool of the nation's political extension. The lexical meaning of the word "prospect" is nearly synonymous to "survey." English world atlases were an extension of the enrichment, empowerment, and continuity of the English empire, in contrast to the historical disruption of England by foreign conquest, despite the growing social disunity leading to the civil war of 1640.

Speed's scientific concepts are both cosmographical and Baconian, characterized by politics, religion, and iconology. The introductory section of the *Prospect*, in which the celestial nature of geography would be discussed, is clearly in the Ptolemaic system. Speed's maps were very iconographical. The detail of the Ptolemaic system is still the only worldview depicted. This style of map corresponds with the Elizabethan prose of Speed's *Prospect* and typical of an early style predating a major philosophical shift. Some details appealed to both traditional and modern thinkers, influenced by Baconian philosophy.

Cosmographies were related to the Classical tradition. They were geographical, but lacking the emphasis on maps that atlases had. The less repressive classical editorial style repeats a theme found in Speed that overseas involvement was ideological as well as material. Academic geography based upon the work of Varenius had a very mathematical foundation to geography, maintaining the link between geography and astronomy. The predictive function of astrology is lost in these books, but the mathematical aspects of astrology provided a basis for books such as Thomas Porter's astro-geography.

These works preceding the Scientific Revolution were both artistic and scientific, but under the influence of Francis Bacon, a shift from an older style of atlas, which was more cosmographical, to the later English plain style (advocated by the Royal Society in the Restoration) using a utilitarian point of view, begins to be evident when comparing the two English editions of Mercator's *Atlas*.

NOTES

¹ Jeannette D. Black, *The Blathwayt Atlas*, vols. I & II (Providence: Brown University Press, 1975).

² Although the literature on the philosophical shifts of science within the sixteenth and seventeenth century is extensive, well-known monographs include: Michel Foucault, *The Order of Things, An Archaeology of the Human Sciences* (New York: Random House, 1970); Alexander Koyre, *From the Closed World to the Infinite Universe* Publications of the Institute of the History of Medicine, 3rd series, The Hideyo Noguchi

Lectures, vol. VII (Baltimore: The John Hopkins Press, 1957); and more recently Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump, Hobbbes, Boyle, and the Experimental Life*. Princeton University Press, 1985.

³ For particular aspects of cosmography, see Morris Berman, *The Reenchantment of the World*. New York: Cornell University Press, 1981. Also Jesse Gellrich, *The Idea of the Book in the Middle Ages; Language Theory, Mythology, and Fiction*. Ithaca: Cornell University Press, 1985 about the 'book of nature.'

⁴ Several examples of these illustrations from almanacs are in Harl. 5936 (90-94), with labels such as "The Anatomie of Mans body, as the parts therof are governed by the 12 signes of the Zodiaque." See also Barbara Stafford, *Body Criticism, Imaging the Unseen in Enlightenment Art and Medicine*. Cambridge, MA and London: MIT Press, 1991.

⁵ The definition offered for the figurative by the *Pocket Oxford Dictionary of Current English*, 7th. ed. (Oxford: Clarendon Press, 1984) applies to both word and image: "...metaphorical, not literal; characterized by figures of speech; of pictorial or sculptural representation."

⁶ E. Panofsky, *Studies in Iconology, Humanistic Themes in the Art of the Renaissance* (Oxford, 1939) and J. B. Harley, "Meaning and Ambiguity in Tudor Cartography" in *English Map-making 1500-1650, Historical Essays*, ed. Sarah Tyacke (London, The British Library Board, 1983).

⁷ William Boelhower, "Inventing America: a Model of Cartographic Semiosis," *Word and Image* 4, no.2, (April-June 1988): 475-497.

⁸ "...a science that describes [verbally] and maps the main features of the heavens and the earth..." *the Random House Dictionary of the English Language*, 2nd ed. (New York: Random House, 1987).

⁹ The *Theatrum Orbis Terrarum* was first published by Abraham Ortelius in 1570. The English versions are: *His Epitome of the Theater of the Worlde*. London: Printed for Ieames Shawe, and are to be Solde at his shoppe nigh Ludgate, 1603, and *An Epitome of Ortelius His Theatre of the World, Wherein the principal regions of the earth are described in smalle Mappes*. London: Printed by John Norton, [1610].

¹⁰ The original, Gerard Mercator's *Atlas*, was published in 1595. An allegorical reading and analysis of the *Atlas*, objectivization, and history can be found by Jose Rubasa in "Allegories of the *Atlas*" in *Europe and its others*, volume two, Proceedings of the Essex Conference on the Sociology of Literature July 1984. ed. by Francis Barker, Peter Hulme, Margaret Iversen, and Diana Loxley. Colchester: University of Essex, 1985.

¹¹ R.A. Skelton, "Bibliographical Note," *Abraham Ortelius: The Theatre of the Whole World* (London, 1606). *Theatrum Orbis Terrarum*, 4th ser., vol. 4 (Amsterdam: Theatrum Orbis Terrarum, 1968).

¹² Richard Bernheimer, "Theatrum Mundi," *The Art Bulletin* XXXVIII (Dec. 1956): 225-247 discusses symbolic value of the "Theatre" fashion in late 16th and 17th centuries.

¹³ Yates, Frances. *Theatre of the World*. Chicago: University of Chicago Press, 1969. p.22.

¹⁴ See the chapter called "London Theatres" in Frances Yates, *Theatre of the World* (Chicago: University of Chicago Press, 1969).

¹⁵ Quiccheberg, Samuel. *Inscriptiones vel tituli. Theatri aplissimi, complectentis rerum universitatis singulas materias et imagines eximias...* Munich, 1565.

¹⁶ Elizabeth M. Hajos, "The concept of an Engravings Collection in the year 1565: Quicchelberg, *Inscriptiones Vel Tituli Theatri Amplissimi*," *Art Bulletin* 40 (1958): p.151.

¹⁷ C. Koeman, *The History of Abraham Ortelius and his Theatrum Orbis Terrarum*. (Lausanne, Sequoia S.A., 1964).

¹⁸ See Iain Buchanan, "Duerer and Abraham Ortelius," *The Burlington Magazine* 124, no. 957 (Dec. 1982): 734-741 for a discussion of Ortelius' arrangement of prints by Albrecht Duerer within the greater framework of Samuel Quicchelberg's concept of the 'theatre of knowledge.'

¹⁹ Harl. 5945. Reel 9.

²⁰ Georgius Braun and Franz Hohenberg, *Civitates Orbis Terrarum*. (Cologne, 1572).

²¹ Cornelis de Jode, *Speculum Orbis Terrarum*. (Antwerp, 1593).

²² R.A. Skelton, *Abraham Ortelius...*, p. xvii.

²³ Edward Luther Stevenson, trans., *Geography of Claudius Ptolemy* (New York: New York Public Library, 1932), p.26.

²⁴ As a continuation of Speed's *Theatre*, the pagination of his *The History of Great Britain under the Conquests of ye Romans, Saxons, Danes, and Normans...from Julius Caesar to our most Gracious*

Sovereign King James, H. Hall and J. Beale, for J. Sudbury and G. Humble. (London, 1611), pp. 151-894, follows (though not exactly) the page numbers of the *Theatre*. A few years after the publication of the above two books, *England, Wales, Scotland and Ireland Described and Abridged with ye Historic Relation of Things Worthy Memory from a Farr Larger Volume* (London: G. Humble, 1615), was published to continue the work.

²⁵ John Speed, *A Prospect of the Most Famous Parts of the World Viz. Asia, Africa, Europe, America. With These Kingdomes therein contained, Grecia, Roman Empire, Germanie, Bohemia, France, Belgia, Spaine, Italie, Hungarie, Denmarke, Poland, Persia, Turkish Empire, Kingdom: of China, Tartaria, Sommer Ilands, Civill Warrs, in England, Wales, and Ireland... Together With all the Provinces, Countries and Shires, contained in that large Theater of Great Brittaines Empire* (London, Printed by Iohn Dawson for George Humble, and are to be sold at his Shop in Popes-head Pallace, 1627). Editions continued to be printed through the seventeenth century, in 1631, 1646, 1662, 1668, and 1676 in both epitome and folio editions.

²⁶ Examples of the surveyor's tasks given in books such as J. Fitzherbert, *The Booke of Surveying and Improvementes newly corrected and amended, very necessarye for all men*, 1587.

²⁷ The relationship between what is called the signature of God and the world is explained by M. Foucault in *The Order of Things, an Archeology of the Human Sciences* (New York: Vintage Books, 1970), p. 25-30, and in S.K. Heninger, Jr., *The Cosmographical Glass, Renaissance Diagrams of the Universe* (San Marino, California: The Huntington Library, 1977), p.8.

²⁸ Margaret Palmer, *The Mapping of Bermuda, A Bibliography of Printed Maps and Charts 1548-1970*, 3d rev. ed. Holland Press Cartographica Series Vol. 10 (London: The Holland Press Ltd., 1983) p. 25.

²⁹ Robert Adolph, *The Rise of Modern Prose Style* (Cambridge: MIT Press, 1968). pp. 34, 69.

³⁰ The passage refers to a criticism of Bacon's in a letter to Grenville. *The Letters and Life of Francis Bacon Including All His Occasional Works*, ed. J. Spedding (London, 1861-1874), II, p. 22.

³¹ J. Keunig, "The History of an Atlas. Mercator-Hondius," *Imago Mundi* IV (1965): 37-63. For a discussion of Atlas, the sphere and cosmography, see S.K. Heninger, Jr., *The Cosmographical Glass, Renaissance Diagrams of the Universe* (San Marino, California: The Huntington Library, 1977), p. 176-179.

³² Justin Winsor, "The General Atlases and Charts of the Sixteenth and Seventeenth Centuries," in *Narrative and Critical History of America*, ed. by J. Winsor (New York, 1885) p.371. Elial F. Hall, "Gerard Mercator: his Life and Works," *The Journal of the American Geographical Society of New York* X (1878): 163-196.

³³ Daniel Russell wrote, "And as early as 1560, Gabriello Symeoni noted that verse was more appropriate than prose in emblems because it made the text easier to remember." "Emblems and the End of Memory," 1993. Daniel Russell, paper read for the Center for Renaissance Studies, The Newberry Library, Chicago. May 1, 1993.

³⁴ R.A. Skelton, *Mercator-Hondius-Janssonius: Atlas or Geographicke Description of the Regions, Countries and Kingdomes of the World* (Amsterdam, 1636), "Theatrum Orbis Terrarum, 4th ser., vols. 2 and 3 (Amsterdam: Theatrum Orbis Terrarum, 1968).

³⁵ Svetlana Alpers, *The art of describing; Dutch art in the seventeenth century*. Chicago: University of Chicago Press, 1983, and Simon Schama, *The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age* (New York: Knopf, 1987).

³⁶ Derek J. de Solla Price, "The □, □, and □□ and Other Geometrical and Scientific Talismans and Symbolisms," in *Changing Perspectives in the History of Science, Essays in Honour of Joseph Needham*, ed. Mikulas Teich and Robert Young (London: Heinemann, 1973), pp.250-264. In another example, the cordiform heart projection of Gerard Mercator's world map of 1538 still strikes a symbolic response in the viewer before a geographical one today.

³⁷ British Library Harlean Collection. 5934(15).

³⁸ D. Smith, "Jansson versus Blaeu: A Study in Competitive Response in the Production of English County Maps," *The Cartographic Journal* 23 (December 1986):106-114.

³⁹ James Welu has researched individual designs and engravers of cartouches from sixteenth- and seventeenth-century cartography in the Netherlands. J. Welu, "The Sources and Development of

Cartographic Ornamentation in the Netherlands," in *Art and Cartography*, ed. David Woodward (Chicago: The University of Chicago Press, 1987), pp. 148-57.

⁴⁰ J.C. Stone, "Origins and Sources of the Blaeu Atlas of Scotland with Particular Reference to 'Extima Scotia' (Atlas Novus, 1654), *Imago Mundi* 26 (1978):17-25 examines the incorporation of scientific quality into Blaeu's cartography.

⁴¹ Bernard Lamy, *The Art of Speaking: Written in French by Messieurs du Port Royal: in Pursuance of a Former Treatise, Intituled, the Art of Thinking*. Trans. of De l'art de parler (Paris, 1675). London: Printed by W. Godbid, and are to be sold by M. Pitt, 1676. p.46.

⁴² Peter Heylyn, *Cosmographie in foure Books Contayning the Chorographie & Historie of the whole World and all the Principall Kingdomes Provinces Seas and Isles Thereof* London: Printed for Anne Seile over against St. Dunstons Church in Fleetstreete, 1677, Lib. IV. p.95

⁴³ A. Rupert Hall, "Newton's First Book," *Archives Internationales D'Histoire des Science* 13 (1960): 55-61, pp. 59-61.

⁴⁴ In a memorandum he drew up about the plan of studies at the university, Newton recommended "The Tutor to read Logic, Ethics, the Globes and principles of Geography and Chronology..." but also "The Mathematic Lecturer to read first some easy and useful Practical Things; then Euclid, Spherics, the Projections of the Sphere, the Construction of Maps, Trigonometry, Astronomy, Optics, Music, Algebra, etc. Also to examine and (if the Tutor be deficient) to instruct in the principles of Chronology and Geography." By Isaac Newton. In: W.W. Rouse Ball, "A Seventeenth Century Fly-Sheet," *The Cambridge Review*, (Oct. 21, 1909): 29-30.

⁴⁵ Richard Blome, trans. and ed. *Cosmography and Geography In Two Parts*. London: Printed by S.Roycroft for Richard Blome, 1682; 1683. p.2.

⁴⁶ See the section called "Astronomy and applied science," pp. 191-204, in Bernard Capp, *Astrology and the Popular Press*. London: Faber and Faber, 1979.

⁴⁷ Thomas Porter, *A New Booke of Mapps, Being a ready Guide or Direction for any Stranger, or other, who is to Travel in any part of the Comon-wealth of England, Scotland & Ireland* London, sold by Robert Walton, at the Rose and Crown at the West end of St. Pauls, 1655, and *A Compendious View: or, Cosmographical, and Geographical Description of the Whole World*. London, 1659.