Marianne Moore's "Sea Unicorns and Land Unicorns": The "Unreal realities" of Early Modern Maps and Animals

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This paper is about a poet and two cartographers. The poet is Marianne Moore, one of the most lauded and loved American poets of the twentieth century. In 1924 she published "Sea Unicorns and Land Unicorns," a poem examining four exotic beasts—narwhals, unicorns, sea lions, lions—and their celebrated, if unreal, relationships to one another. While describing sea unicorns early in the poem, Moore specifies "the cartographers of 1539." The date can only allude to the *Carta Marina* of the Swedish mapmaker and historian Olaus Magnus, whose famous 1539 "marine map" features a profusion of Scandinavian land and sea creatures. Moore's "*cartographers* of 1539" compels us, in turn, to consider other mapmakers who crowded their maps with animals. The plural phrase also balances and anticipates her comparison, near the end of the poem, of the unicorn and "an equine monster of an old celestial map." Though vague, the simile may suggest the winged figure of Pegasus on a celestial chart by Peter Apian. This popular German cartographer and astronomer originally designed his chart in 1536, then reproduced it—a year after the *Carta Marina*—in his exquisite *Astronomicum Caesareum* (1540). In the end, Moore's portrayal of animals in "Sea Unicorns and Land Unicorns" captures the spirit that animated mapping, art, and science during the sixteenth-century Age of Exploration.

Key words: Marianne Moore, Olaus Magnus, Peter Apian, pictorial maps, celestial maps, sixteenth-century cartography

> If you do not expect the unexpected,
> you will not find it,
> for it is hard to find and difficult.
>
> Heraclitus 18

Animals and maps have an abiding partnership. Prehistoric topographical maps reveal enclosures for game and the locations of hunting grounds.[1] Aboriginal maps use animals to signify bonds between clans and territories. Mandalas integrate animals into their hierarchic cosmologies. And celestial charts of differing cultures and periods display constellations shaped like animals.

European mapmakers used animal hides to create navigation charts and masterpieces like the Hereford world map (ca.1300). They depicted the Holy Roman Empire as an eagle (1574) and the Low Countries as a lion (*Leo Belgicus*, 1583). They embellished hundreds of medieval and early modern maps with animals (George, 1969: 25), a fashion that would culminate in the baroque maps of the seventeenth century.

After pictures of animals began disappearing from mapped space in the eighteenth century, thematic maps found more precise and abstract ways

to chart the distribution of animals. Yet zoomorphic maps made a comeback in the political cartoons of the nineteenth century: gerrymandered districts became a winged "salamander"; Spain, a bear; and Russia, an octopus. Children's games and geography texts began to include animals on maps. Today, children across the world portray animals on their picture maps. Maps with animals illustrate children's books and adult novels, appear in the visual arts, advertise eco-tours, and comment on the environment. Subjects of serious research and cultural fascination, early zoological maps are avidly sought after by libraries and museums, collectors and galleries. With their eye-catching charm, animals will always remain part of our "cartographic alphabet" (Wallis, in George, 1969: 19).

The portrayal of animals on maps links American poet Marianne Moore (1887-1972) with Olaus Magnus, Peter Apian, and the other cartographers surveyed in this paper. Among poets Moore was not alone in her attraction to early zoological maps: Canadian poet Earle Birney found inspiration for "Mappemounde" (1945) in the creatures displayed on early English maps and at the corners of Italian *portolani* (Haft 2002); and English poet Grevel Lindop featured the crocodile and centaur of the Hereford world map in "Mappa Mundi" (1987; Haft, 2003). But it was the 1539 *Carta Marina* of Olaus Magnus that galvanized Moore to write her only poem based on maps, "Sea Unicorns and Land Unicorns" (1924).

"It was the 1539 Carta Marina *of Olaus Magnus that galvanized Moore to write her only poem based on maps, "Sea Unicorns and Land Unicorns" (1924)."*

That Moore found inspiration in this particular sixteenth-century map is hardly surprising. Moore and Olaus Magnus were kindred spirits: acute observers of animals in nature and in art, they used unfamiliar and exotic animals to instruct and reveal the unexpected diversity of the world. The *Carta Marina* has long been recognized as "a major contribution to the natural history of northern Europe and the northeast Atlantic Ocean" (Wallis and Robinson, 1987: 160). But it is also a work of art. Combining Olaus Magnus's ambition for exactitude with his obsession with ornamentation, the *Carta Marina* epitomizes the two opposing developments in sixteenth-century cartography (Wallis, in George, 1969: 17). Inspired by his work, Moore crafted "Sea Unicorns and Land Unicorns" into a poem as expansive, exquisitely detailed, and teeming with creatures as the *Carta Marina.*

To my knowledge, no other poet attempted to distill Olaus Magnus's graphic poetry into verse until the year 2000, when the History of Cartography Project commissioned Lucia Perillo to write "The Carta Marina (1539)" in celebration its upcoming volume on Renaissance maps and charts.[2] But only Moore has linked *two* magnificently complex maps with a host of other visual and literary sources to create a masterpiece that universalizes the paradoxes of the sixteenth century. Along with (I suggest) Peter Apian's equally poetic map of the constellations from his *Astronomicum Caesareum* of 1540, the *Carta Marina* becomes a filter through which Moore explores the intersections of fact and fiction, and of science and tradition, in the sixteenth century.

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This paper falls into four parts and an epilogue. Part I begins with Marianne Moore's reputation as a poet, then turns to "Sea Unicorns and Land Unicorns." Its definitive version is followed by discussion of the poem's distinctive style, content, and visual impact. Because references to cartographers and maps frame the poem, we consider why her phrase "the cartographers of 1539" must allude to Olaus Magnus. The startling dearth of scholarship on maps in "Sea Unicorns and Land Unicorns" leads, in turn, to the contributions this paper offers to the study of Moore's poem and our understanding of maps in poetry generally. Part II explores the ways that Olaus Magnus's work acts as a visual inspiration and analogue to Moore's poem. After surveying the exotic creatures in "Sea

Unicorns and Land Unicorns," it traces their non-cartographic sources and the poet's lifelong fascination with animals. Next it describes the *Carta Marina*, emphasizing the circumstances behind Olaus Magnus's creation of his map and subsequent "commentary," the *Historia de gentibus septentrionalibus* (1555). It ends by showing how "Sea Unicorns and Land Unicorns" embodies the essence of Olaus Magnus's consummately sixteenth-century work.

The next two parts argue that Moore's pluralized "*cartographers* of 1539" (emphasis mine) compels us to consider other mapmakers active at that date—presumably those who, like Olaus Magnus, lavished creatures upon their maps. The implications of this plural form, never before acknowledged, lead us to Parts III and IV. Part III asks why Moore might have chosen Olaus Magnus over his predecessors and contemporaries, while Part IV asserts that Moore chose Olaus Magnus *and* one of his contemporaries—Peter Apian. Since Part III deals with makers of terrestrial maps and Part IV, with makers of celestial maps, Moore's line "the cartographers of 1539" elegantly unites the two halves of her poem. At the same time, it subtly alludes to the paired celestial and terrestrial maps that the sixteenth century would popularize for the next two hundred years.

"Marianne Moore was among the most loved and lauded poets of the twentieth century."

Part I

Introducing Marianne Moore

Marianne Moore was among the most loved and lauded poets of the twentieth century. The Pulitzer Prize, the National Book Award, and the Bollingen Prize for Poetry—all followed the publication of her *Collected Poems* in 1951. Within the avant-garde, recognition came even earlier. No sooner were her poems published in 1915 than their titles attracted Ezra Pound (Engel, 1964: 33), who began corresponding with her shortly after World War I (Costello, 1981: 122). In 1921 Moore's first collection, *Poems*, was released in England. Before T.S. Eliot's *The Waste Land* burst onto the scene in 1922, Moore may have been considered the premier modernist poet (Leavell, 1995: 44-45).

The year 1924 proved a watershed. She completed "Sea Unicorns and Land Unicorns," one of three long poems she'd been laboring over since 1922.[3] Moore turned thirty-seven around the time that "Sea Unicorns and Land Unicorns" appeared beside contributions from Kenneth Burke, Marc Chagall, Thomas Mann, and Edmund Wilson in the November issue of *The Dial*, a New York periodical devoted to the arts (Moore, 1924a: 411-13); Schulze 2002: 321-22, 326). At the same time, the Dial Press published Moore's second collection, *Observations*, featuring "Sea Unicorns and Land Unicorns" as its final poem (Moore, 1924b:91-93; notes: 107-109); Schulze 2002: 133-35; notes 149-51). *Observations*, in turn, brought her even closer to *The Dial* and its cultured audience, especially after the collection won The Dial Award. Moore was soon named acting editor of the prestigious journal, then became editor from 1926 until its demise in 1929.

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Moore's connections with *The Dial* established her reputation (Engel, 1964: 34-36). T.S. Eliot introduced her subsequent volume, *Selected Poems*, with the accolade: "Miss Moore's poems form part of the small body of durable poetry written in our time; of that small body of writings, among what passes for poetry, in which an original sensibility and alert intelligence and deep feeling have been engaged in maintaining the life of the English language" (Eliot, in Moore, 1935: xiv). As for "Sea Unicorns and Land Unicorns," Moore's superb early poem appeared with slight revisions in her *Selected Poems* (Moore, 1935: 90-92; notes: 121-22) and in her

celebrated *Collected Poems* (Moore, 1951: 85-87; notes: 166-67). Five years before her death at the age of eighty-four, the version from which our text derives resurfaced in her definitive *Complete Poems* (Moore, 1967: 77-79; notes, 274-75). ("Sea Unicorns and Land Unicorns" is reprinted with the permission of Scribner, an imprint of Simon and Schuster Adult Publishing Group, from THE COLLECTED POEMS OF MARIANNE MOORE by Marianne Moore; copyright renewed © 1963 by Marianne Moore and T.S. Eliot.)[4]

"Sea Unicorns and Land Unicorns"

with their respective lions—
"mighty monoceroses with immeasured tayles"—
these are the very animals
described by the cartographers of 1539,
defiantly revolving
in such a way that
the long keel of white exhibited in tumbling,
disperses giant weeds
and those sea snakes whose forms, looped in the foam, "disquiet shippers."
Knowing how a voyager obtained the horn of a sea unicorn
to give to Queen Elizabeth,
who thought it worth a hundred thousand pounds,
they persevere in swimming where they like,
finding the place where sea-lions live in herds,
strewn on the beach like stones with lesser stones—
and bears are white;
discovering Antarctica, its penguin kings and icy spires,
and Sir John Hawkins' Florida
"abounding in land unicorns and lions;
since where the one is,
its arch-enemy cannot be missing."
Thus personalities by nature much opposed,
can be combined in such a way
that when they do agree, their unanimity is great,
"in politics, in trade, law, sport, religion,
china-collecting, tennis, and church-going."
You have remarked this fourfold combination of strange animals,
upon embroideries
enwrought with "polished garlands" of agreeing difference—
thorns, "myrtle rods, and shafts of bay,"
"cobwebs, and knotts, and mulberries"
of lapis lazuli and pomegranate and malachite—
Britannia's sea unicorn with its rebellious child
now ostentatiously indigenous to the new English coast;
and its land lion oddly tolerant of those pacific counterparts to it,
the water lions of the west.
This is a strange fraternity—these sea lions and land lions,
land unicorns and sea unicorns:
the lion civilly rampant,
tame and concessive like the long-tailed bear of Ecuador—
the lion standing up against this screen of woven air
which is the forest:
the unicorn also, on its hind legs in reciprocity.
A puzzle to the hunters, is this haughtiest of beasts,
to be distinguished from those born without a horn,
in use like Saint Jerome's tame lion, as domestics;
rebelling proudly at the dogs
which are dismayed by the chain lightning
playing at them from its horn—

the dogs persistent in pursuit of it as if it could be caught,
"deriving agreeable terror" from its "moonbeam throat"
on fire like its white coat and unconsumed as if of salamander's skin.
So wary as to disappear for centuries and reappear,
yet never to be caught,
the unicorn has been preserved
by an unmatched device
wrought like the work of expert blacksmiths,
this animal of that one horn
throwing itself upon which head foremost from a cliff,
it walks away unharmed;
proficient in this feat which, like Herodotus,
I have not seen except in pictures.
Thus this strange animal with its miraculous elusiveness,
has come to be unique,
"impossible to take alive,"
tamed only by a lady inoffensive like itself—
as curiously wild and gentle;
"as straight and slender as the crest,
or antlet of the one-beam'd beast."
Upon the printed page,
also by word of mouth,
we have a record of it all
and how, unfearful of deceit,
etched like an equine monster of an old celestial map,
beside a cloud or dress of Virgin-Mary blue,
improved "all over slightly with snakes of Venice gold,
and silver, and some O's,"
the unicorn "with pavon high," approaches eagerly;
until engrossed by what appears of this strange enemy,
upon the map, "upon her lap,"
its "mild wild head doth lie."

As we read "Sea Unicorns and Land Unicorns" ("SULU"), we are struck first by its focus on exotic animals, then by its visual impact, literary content, and distinctive style. Except for the title, which also functions as her first line, Moore's poem is a single stanza of free verse. Eschewing most finite verbs beyond the deceptively factual "is"/"are," "SULU" abounds in participles, nouns, quoted phrases and catalogues—all of which lend a conversational style even as they compel the reader to "look 'at' her words" (Leavell, 1995: 94; see also 68, 76-77, 90-93). Like much of her work, "SULU" contains fragments borrowed predominately from prose writers like Henry James and Leigh Hunt (Moore, 1961: 260-61; see Moore, 1967: 274-75). Quotation marks are common, especially in "SULU" and the other verses she composed in 1923-24. Which is why Scofield Thayer, editor and owner of *The Dial*, asked for her sources when preparing *Observations* for publication. She agreed to "append, at the back of the book, notes such as these I am sending you" if "SULU" was also included (Stapleton, 1978: 36). Since then, Moore's poem always appears with notes in her collections.[5]

Throughout her career, Moore offered several reasons for calling attention to these fragments. She told Thayer, "As for quotations, sometimes I think a triviality gains a little weight by quotation marks; for the most part, however, my quotations have authority" (Moore, quoted in Stapleton, 1978: 36 and n.17). Forty years later, she confessed that "acknowledgements seem only honest," a way of sharing authors she enjoyed (Moore, 1967: 262; see Moore, 1961: 260). Or she protested (Moore, 1961: xv):

> Pardon my saying more than once, When a thing has been said so well that it could not be said better, why paraphrase it? Hence my writing is, if not a cabinet of fossils, a kind of collection of flies in amber.... [A poem] is a little anthology of statements that took my fancy—phrasings that I liked.

"SULU" is also a collection of favorite images. "Almost every poem Moore wrote involved a picture or art object at some stage of composition" (Costello, 1981: 192; see Willis, 1987). Moore's passion for the visual arts began when she was young. She contemplated becoming a painter after her graduation from Bryn Mawr College in 1909, illustrated her notebooks with pen and ink sketches, took up watercolors, socialized with visual artists after she moved to Manhattan in 1918, befriended writers who painted (and painters who wrote), visited museums and galleries, and collected books on art throughout her life (Costello, 1981: 186-214; Leavell, 1995: esp. 6, 14, 56). Her poetry is often compared to collage because she mixed "subjects and categories through a literal scavenging of language from magazines, newspapers, atlases, overheard conversation" (Costello, 1981: 212). For Moore, collage—and, by implication, the assemblage techniques she herself employed—provided a "psychic map of the creative mind" (Moore, quoted in Leavell, 1995: 127; see 117-127).

"Maps rank high among the visual inspirations for 'SULU.'"

Previewing the Maps in "Sea Unicorns and Land Unicorns"

Maps rank high among the visual inspirations for "SULU." Moore alludes to one when she describes the unicorn as "etched like an equine monster of an old celestial map" (line 75). Her reference to the *Carta Marina* or "marine map" of Olaus Magnus is more subtle. She names Olaus Magnus, not in the poem but in her note on "disquiet shippers" (line 10). Moore discovered that sea snakes "disquiet shippers" in Violet A. Wilson's 1922 work *Queen Elizabeth's Maids of Honour*, a book she mined for anecdotes during her three-year gestation of "SULU."[6] Wilson was quoting from yet *another* source, which she (and subsequently Moore) identified as *The History of the Goths and Swedes* by Olaus Magnus (Wilson, 1922: 157). The title refers to the *Historia de gentibus septentrionalibus*, a popular ethnography completed by the Swedish archbishop Olaus Magnus in 1555. Wilson's quote came from the first English translation of his work, the abridged *Compendious History of the Goths, Svvedes, and Vandals, and Other Northern Nations,* printed in 1658. At the back of *Observations,* Moore excerpts the passage Wilson took from this translation (Moore, 1924b: 107):

"That Moore found the Carta Marina *is attested by her lines "mighty monoceroses/ these are the very animals/ described by the cartographers of 1539" (lines 3-5). The date, otherwise puzzling in its specificity, is the year Olaus Magnus published his marine map*."

> [The sea serpent] hath commonly hair hanging from his neck a cubit long, and sharp scales and is black, and he hath flameling [*sic*] shining eyes. This snake disquiets shippers, and he puts up his head like a pillar, and catcheth away men.[7]

Neither Wilson nor her 1658 source, however, gave Moore the detail of the snake's "forms looped in the foam" (line 10). *A Compendious History* concentrated on the creature's gigantic size (Olaus Magnus, [1555] 1658: 235 at 21:27), while Wilson emphasized its "terrible appearance and unattractive habits." Moore dug deeper. That she found the *Carta Marina* is attested by her lines "mighty monoceroses/ these are the very animals/ described by the cartographers of 1539" (lines 3-5). The date, otherwise puzzling in its specificity, is the year Olaus Magnus published his marine map. Not only

was the *Carta Marina* his most enduring legacy, but its mapped lands and seas are teeming with creatures like the coiled sea serpent.[8]

Scores of books and articles examine Moore's life and poetry (see, for instance, Abbott, 1977 and 1978). But only one author seems to have identified Olaus Magnus as the cartographer alluded to in the opening lines of "SULU." Moore's reference to Olaus Magnus's *History* led Elizabeth Phillips to argue that "SULU" describes two maps: one earthly, the other heavenly (Phillips, 1982: 128-33). By emphasizing "the cartographers of 1539" and naming the Elizabethan explorers John Hawkins (line 19) and Thomas Cavendish (note on lines 11-13), Moore suggests that the first half of "SULU" alludes to sixteenth-century mapmaking and exploration. For Phillips, these achievements—and the strange animals reportedly associated with them—revealed the palpable transitions in western Europe from a medieval to an early modern perspective (cf. Lynam, 1949: 4). Balancing the terrestrial map is "an old celestial map," part of a simile describing the unicorn in the second half of the poem. Moore's focus on the unicorn in the last forty lines and the creature's willingness to be "tamed only by a lady inoffensive like itself" (line 67) indicated to Phillips that Moore's second map represents a thematic shift from the secular realm to the religious (Phillips, 1982: 131):

"Not only was the Carta Marina *his most enduring legacy, but its mapped lands and seas are teeming with creatures like the coiled sea serpent."*

> The unicorn, common to many cultures, is not an exclusively Christian symbol, but one rich in associations transfigured by the art of Christianity. Moore recovers the religious imagination of the medieval world and reinterprets the legends in a fable for a post-Christian era.

Phillips regarded Moore's "celestial map" as a metaphor for the "spiritual forces" within her life and art: that the poet's unicorn ultimately rests its head "upon the map, 'upon her lap'" supposedly demonstrated Moore's belief that spirit supersedes matter.

There is no doubt that Moore was a devout Christian[9] or that her poetry is quietly didactic, a celebration of the morals and virtues she held dear. That said, it is not my intent to wrestle with the question of how Moore's faith influenced either her poetry or modernism in general, a movement that emphasizes the artifice behind even the most "realistic" art (see Leavell, 1995: 3, 43-44, 91, 136, 144, 157).

"My paper examines the work of Olaus Magnus in depth to reveal how the map may have influenced 'SULU.'"

Instead, my paper expands in different ways upon Phillips's very brief analysis. First, it continues where she left off. Phillips mentions the *Historia* only in passing and limits her description of the *Carta Marina* to fourteen words: "the first detailed map of Scandinavia and the north with any pretensions to accuracy" (Phillips, 1982: 129). My paper examines the work of Olaus Magnus in depth to reveal how the map may have influenced "SULU." Second, it argues that Moore's plural "cartographers" alludes to other makers of terrestrial maps who were active in 1539, especially those featuring the kinds of creatures in Moore's poem. Third, it suggests that "the cartographers of 1539" also encompasses the creator of her "celestial map," a chart every bit as sublime and *real* as the *Carta Marina*. Finally, it ponders the relationship between "SULU" and any celestial map.

"SULU" is not *about* a particular map (or maps), of course, any more than it is *about* the other important works of art to which Moore alludes. But her verbal images remain vivid today because she observed nature and art so attentively throughout her long career. To appreciate her work requires that we attempt to view such inspirations through her eyes. Just as poems about maps are unfamiliar to most cartographers today, the maps woven into the fabric of "SULU" are less familiar than other works

of art to most readers of twentieth-century poetry. When combined with the fact that Latin was the written language of the sixteenth-century humanists, these points account for the dearth of scholarship on the subject. This paper, then, offers some of the opportunities afforded Moore, who benefited not only from the museums and art galleries of New York City, but also from the incomparable treasures of The New York Public Library. During the years she was composing "SULU," Moore worked as part-time librarian at the Hudson Park branch in Manhattan's West Village (Engel, 1964: 13), and her reading diaries are full of quotes from the books and periodicals available to her at The New York Public Library.[10] Seeing the images that inspired "SULU" helps us understand the ways in which Moore used animals to portray the "unreal realities" of the sixteenth century.[11]

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Part II

Moore's magnificent beasts

From title to final line, "SULU" brims with animals. Moore pairs land unicorns with sea unicorns and lions with sea lions, then makes their four-fold combination even more fluid by her use of synonyms. The "land unicorn" can be merely a "unicorn" or, more poetically, "the one-beam'd beast." Sea unicorns are also "mighty monoceroses." "Lions" lengthen to "land lions." And "sea lions" may be hyphenated or called "water lions." To this "strange fraternity," Moore adds sea serpents (line 10), white bears (17), penguin kings (18), long-tailed Ecuadorian bears (41), horses (46), dogs (48-51), salamanders (53), and snakes (77). Such animals are real, brought together in Moore's verse-zoo from different parts of the world.[12]

The unicorn, of course, is fabulous. Yet for over 4000 years it "pervaded human thought and art perhaps more than any other animal, real or imagined" (Bruemmer, 1993: 10; cf. Shepard, 1930: 94)—a paradox that Moore happily exploits in "SULU." Consider its effect on the humble narwhal. Long hailed the "sea unicorn" (Bruemmer, 1993: 13), the narwhal was known as *monoceros*, "one-horned," the Greek cognate of "unicorn" and the name given originally to the unicorn alone (Pliny, *Natural History* 8.31.76). Like its mythical counterpart, the small whale was thought to possess a horn that could detect and counteract poison (Bruemmer, 1993: 26; see Wilson, 1922: 154, and Freeman, 1976: 14, 27-29 and pl.2). Though the unicorn's elegant spiral horn is, in fact, the left tusk of the arctic whale, the narwhal's icy habitat meant that most medieval and early modern readers dreaded the mysterious sea unicorn (Bruemmer, 1993: 55-56).

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Moore took her animals from a kaleidoscope of literary and visual sources. Her "equine monster" springs from classical mythology. She credits Bulfinch's *Mythology* for the story of the unicorn throwing itself headfirst from a cliff and surviving (note on line 57). "This feat which, like Herodotus, I have not seen except in pictures" (62-63) alludes to the ancient Greek historian's fondness for describing fabulous creatures—but only after ascribing such stories to his sources (Moore, note on line 65: Herodotus, *History* 2.73).[13] The salamander is one of the many animals in "SULU" that graced the pages of medieval bestiaries. Those illuminated bestsellers, whose authority waned only in the sixteenth and seventeenth century, touted the Christian "morality" of all manner of beasts, from the common to the imaginary. Moore's phrase "unconsumed as if of salamander's skin" recalls a belief perpetuated by the Roman naturalist Pliny the Elder—that the amphibian could remain unharmed while extinguishing and even living in fire.[14]

Animals in late fifteenth- and sixteenth-century masterpieces are particularly evident in "SULU." The *Carta Marina* itself features a sea unicorn; while Moore, in her note to line 3, attributes "mighty monoceroses with immeasured tayles" to a poet she greatly admired—Edmund Spenser, author of *The Faerie Queene* (Spenser, [1596] 1987: II.xii.23.9; Leavell, 1995: 203). "Saint Jerome's tame lion" (line 47), it has been suggested, alludes to an unfinished painting by Leonardo da Vinci (ca. 1482), the subject of Moore's later poem "Leonardo da Vinci's" (Moore, 1959: 30-31; see Engel, 1964: 76; Costello, 1981: 200; and Marani, 1999: 95-100). Moore enjoyed his drawings (Leavell, 1995: 138), which include sketches of a unicorn with a lady (see Stites *et al*., 1970: 69 and figs. 62a and 62b). There's nothing "tame," however, about the roaring lion in Leonardo's painting. Moore may have envisioned, instead, any one of the studies made from 1492 to 1514 by Albrecht Dürer (Eisler, 1991: 143, figs. 6.7-11, 6.14-15, and pl.21), the German Renaissance master who was one of Moore's favorite artists (Costello, 1981: 193-97). Among Dürer's nearly 2000 works are various depictions of unicorns (Eisler, 1991: pl.26 and figs.11.39-43) and exquisite renderings of the animals and sea creatures he observed during his travels. Moore's poetry notebook of 1922-30, in fact, reveals that she turned from "SULU" to begin writing her Dürer poem "The Steeple-Jack" (see Moore, 1967: 5, lines 1-3; Rosenbach, 7:04:04, 1251/7, p.110): "Dürer would have seen a reason for living/ in a town like this, with eight stranded whales/ to look at..." (1932).

"Animals in late fifteenth- and sixteenth-century masterpieces are particularly evident in 'SULU.' The Carta Marina *itself features a sea unicorn."*

Tapestries are the backdrop for Moore's lines about the lion "standing against this screen of woven air" opposite the unicorn with "its hind legs in reciprocity/ a puzzle to hunters" (lines 40-44). Here Moore refers to the Cluny Museum's Lady with the Unicorn series in Paris and, more obliquely, to the famous Unicorn Tapestries in New York City—both sets of which were woven around 1500 (Sullivan, 1987: 154-56; see Verlet and Salet, 1961: 38-39; and Freeman, 1976: 13, 62-65, pls.75-80). In 1922, six of the Unicorn Tapestries arrived in New York City from Paris and were displayed at the Anderson Galleries before being sold, the following February, to John D. Rockefeller, Jr. (Freeman, 1976: 225 and nn.10-13). Moore's poetry notebook of 1922-23 describes three in enough detail to indicate that she'd visited the Anderson Galleries or seen reproductions of the tapestries in print (Rosenbach, 7:04:04, 1251/7, pp.88-89).

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Moore's preoccupation with beasts in "SULU" reflects a lifelong fascination. Long before she was published, she and her family used animal nicknames for one another. Her mother became "Fawn," "Mouse," "Bunny," and "Mole"; her brother, (John) Warner Moore, "Toad," "Turtle," and "Badger"; and Marianne, "Fangs," "Gator," and "Rat" (Costello, in Moore, 1997: 4-5; Leavell, 1995: 43 and 83). These and other pet names recur in the thousands of letters she wrote to them (Costello, in Moore, 1997: ix-x). While Moore explores heterosexual union in "Marriage," one of the two poems she composed with "SULU," the "strange fraternity" of animals in our poem grapples with more complex sets of relationships—like those the decidedly unmarried Moore sustained with her mother, brother, and later Constance Eustis, whom Warner took to wife when he became a navy chaplain in 1918.

Moore's correspondence around the time of the poem reveals her enthusiasm for the lions and sea lions she watched at Barnum Bailey Circus in Madison Square Garden, and for the animals she encountered at zoos and country fairs (Moore, 1997: 154-55, 162, 167, 169, 205). Moore may have observed sea lions in the wild during her visits to Warner between 1920 and 1923, while his ship was based in Bremerton, fifteen miles west of Seattle (Stapleton, 1978: 47; Moore, 1997: 119-20). Not only did

Warner present his sister with a narwhal's tusk (Stapleton, 1978: 46), but their visits inspired her third companion piece, "An Octopus." Although Moore never composed a poem about maps again,[15] throughout her life she took copious notes on unusual animals, sketched them in her notebooks (see Rosenbach, 7:01:03, Reading Notebook 1250/3, 1921-22, p.79, for her lizard), and featured them in some forty poems written between 1909 and 1967 (Holley, 1987: 128; more are now found in Schulman, 2003).

Asked why she found animals so fascinating, Moore quipped (Moore, 1961: xvi):

> They are subjects for art and exemplars of it, are they not? minding their own business. [They] do not pry or prey—or prolong the conversation; do not make us self-conscious; look their best when caring the least...

Carefully observed in their own right, Moore's animals are lessons in the wonder, variety, and persistence of both life and art. She admired the grace and beauty of animals, their lack of artifice and self-consciousness, their amoral purity of action. To them she often ascribed the qualities to which she herself aspired: "courage, independence, responsibility, genuineness, and a certain ardor in the conduct of one's life" (Engel, 1964: 17). In her verse, animals become "friends and magical protectors" whom she could protect in turn by "'capturing' them, saving them from the danger of extinction through ignorance, classifying and preserving them" (Hadas, 1977: 103 and 107). Exotic beasts, whether real or imaginary, were particularly appealing because her readers were unlikely to be sentimental about them (Engel, 1964: 20). As one scholar put it, "By adopting animals as subjects instead of persons the moral critic could go disguised as animal lover" (Leavell, 1995: 155).

Not that she didn't feel a genuine kinship: she once confessed that whenever she met animals she "wonder[ed] if they [were] happy" (Weatherhead, 1967: 67). But kinship involves ambivalence. In a 1921 letter, the poet acknowledged that "religious conviction, art, and animal impulse are the strongest facts in life, I think, and any one in the ascendant can obliterate the others" (Moore, 1997: 180; cf. 120). In "SULU" Moore's lady—despite her resemblance to the unicorn (lines 67-70)—remains its "strange enemy" (line 80).

"When published in 1539, the Carta Marina *was the most ornate map of Scandinavia ever seen. No fewer than nine woodcuts were needed to create it."*

The Carta Marina *of Olaus Magnus*

Returning to the first half of "SULU," however, we find that Moore's opening lines showcase the sea unicorn. It is here that she reveals her debt to Olaf Magnusson, the Swedish cartographer and historian known by his Latin name, Olaus Magnus (1490-1557).

The *Carta Marina* of Olaus Magnus is the poem's first visual inspiration and analogue (Figure 1). "SULU" resembles this map in its size, expansiveness, and celebration of sea and land creatures. When published in 1539, the *Carta Marina* was the most ornate map of Scandinavia ever seen (Urness, 1999-2001, "The Importance of the Map: Geography"). No fewer than nine woodcuts were needed to create it. Measuring 1.25 meters by 1.7 meters when assembled (4 x 5 1/2 feet: Lynam, 1949: 3), the *Carta Marina* was one of the largest maps of any type and boasted a scale larger than any comparably-sized map to date (ca. 1:1,400,000: Lynam, 1949: 3-4). Gazing at it, our eyes focus on Norway, Sweden, and Finland (center and center right), then wander northwest to Greenland and Iceland (top

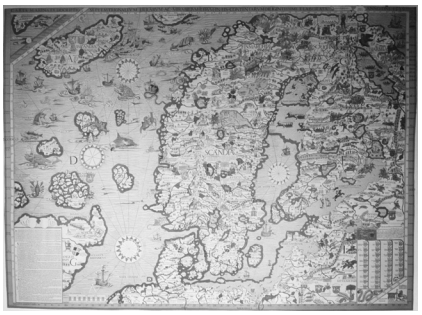

Figure 1: Olaus Magnus's Scandinavia 1539. *Facsimile (1996) of Olaus Magnus,* Carta Marina, *Venice, 1539. Colored facsimile, 67.3 x 86.4 cm (26 1/2 x 34 inches): the original map, created from nine woodcuts, is 4 x 5 1/2 feet. A tapestry of shapes, the* Carta Marina *is packed with the animals and peoples native to northwestern Europe. Courtesy of Wychwood Editions.* *(see page 77 for larger color version)*

left), southward to Great Britain (bottom left), and eastward from there to Germany, the Baltic states, and Russia (bottom to right edges).[16] The land is filled with buildings, towns, forests, and mountains; water appears as streams, lakes, waves, and ice-filled seas. A tapestry of shapes, the *Carta Marina* is packed with the animals and peoples native to northwestern Europe. On land, they hunt, fight, or engage in numerous activities. At sea, monsters threaten ships as sailors hurl cargo overboard, or innocently dine on a whale's back.

The words "Carta Marina" introduce the title that Olaus Magnus has displayed along the top border of his 1539 map:

> *Carta Marina et descriptio septemtrionalium terrarum ac mirabilium rerum in eis contentarum, diligentissime elaborata Anno Domini 1539 Veneciis liberalitate Reverendissimi Domini Ieronimi Quirini: Patriarche Venetiai*.
>
> A "marine map" and description/drawing of the northern lands and of the wondrous things contained in them. Very diligently elaborated in Venice in the year of our Lord 1539 through the generosity of the Patriarch of the Republic of Venice, the Most Revered Lord Hieronymo Quirino.

"Olaus Magnus was clearly proud of his map. He had made it, he would later explain, to enlarge upon the work of Claudius Ptolemy, the revered second-century cartographer from Alexandria, Egypt."

Its publication in Venice is noteworthy. Olaus had been working on his map since 1527, while traveling for his king and the Church outside of Sweden. In 1530, he and his brother Johannes, then archbishop of Uppsala and primate of Sweden, learned that their property had been confiscated. The pretext was religious. Like Moore, Olaus Magnus was a devout Christian. But he was also a Catholic priest caught up in the Reformation. Later he would confess that he had created the *Carta Marina* while "in exile from his native land because of his Catholic faith" (Olaus Magnus, [1555] 1972: *Historia*: preface). After living in Danzig (Gdansk) for several years, Olaus and his brother took refuge in Venice from 1538 to 1540. There they were welcomed by the patriarch of the Republic of Venice, whom Olaus so gratefully acknowledges in his map's title (*ibid*., 16-17). Later they moved to Rome, where Johannes died in 1544 and Olaus, in 1557 (Olaus Magnus, [1555]: 1996-98, vol.1:xxxi; cf. Lynam, 1949: 3; Karrow, 1993: 362-66). The *Carta Marina* and Olaus's subsequent work on Scandinavia are poignant tributes to Sweden—the home to which he never returned.

"Olaus Magnus seized the opportunity to update Ptolemy's representation of northern Europe, an area virtually unknown to the Greeks and Romans."

Olaus Magnus was clearly proud of his map. He had made it, he would later explain, to enlarge upon the work of Claudius Ptolemy, the revered second-century cartographer from Alexandria, Egypt (Olaus Magnus, 1555: *Historia*: preface). The only cartographic treatise surviving from classical antiquity, Ptolemy's *Geography* had been translated into Latin as recently as 1406, after having been "lost" to western Europe until around 1300. By the late fifteenth century, the *Geography* began appearing in print, lavishly illustrated with maps that revealed the spatial layout of the 8000 place-names that Ptolemy had catalogued regionally by latitude and longitude (see Ptolemy, [1540] 1991: Books 2.1 to 7.4). Olaus Magnus seized the opportunity to update Ptolemy's representation of northern Europe, an area virtually unknown to the Greeks and Romans.

He was successful in his attempt. Olaus Magnus created the most accurate map to date of Scandinavia and the northern lands, a vast improvement on the one revised in 1482 by Dominus Nicolaus for the first German edition of Ptolemy's *Geography*, the Ulm Atlas (*ibid*., 168-69; Lynam, 1949: 1). Like other maps illustrating the *Geography*, the *Carta Marina* is

oriented north, boasts a double frame to indicate lengths of longest days and degrees of latitude or longitude, and employs a parallelogram projection found in editions of Ptolemy's *Geographia* (Olaus Magnus, [1555] 1972: 21). Practical as well as scientific, the *Carta Marina* also resembles navigation charts known as *portolani.* Its regional focus, its accurate depiction of coastlines and waterways, its four compass-roses and network of rhumb lines—all typify the *portolani* used by sailors since the thirteenth century. Olaus Magnus included yet another useful device. At the bottom of the map, to the right of Britain, he placed a pair of dividers straddling scales marked with German (*Theutonica*) and Italian miles; he also included a method for converting German into Swedish (*Gothica*) miles (Lynam, 1949: 6). Near the upper-right corner of his map, Olaus Magnus drew a "Magnetic Island" (*Insula Magnetû*) below his *Polus Arcticus*, thus distinguishing magnetic north from geographical north (*ibid*., 10). At times, his intentions exceeded his abilities. Most glaring is his placement of the Arctic Pole beyond 90^0 north latitude (see upper-right corner), a fanciful reconciliation of folktale, hearsay, and science (Olaus Magnus, [1555] 1972: 23-24; see Lynam, 1949: 4-6).

"In the end, his delightful pictures made the Carta Marina *too large for a Ptolemaic atlas."*

In the end, his delightful pictures made the *Carta Marina* too large for a Ptolemaic atlas. Yet Olaus found even its enormous size confining (Lynam, 1949: 10; Knauer, 1981). To minimize description on the map, therefore, Olaus Magnus inserted a large Roman letter in the center of every woodcut. From left to right, the letters "A" to "C" indicate the three sheets at the top of the map; "D" to "F," the three in the middle; and "G" to "I, the three at the bottom. Within each sheet, he used smaller capital letters to identify individual pictures. The curious reader can find more about an image by consulting the box in the map's lower-left corner, where Olaus Magnus has summarized in fifty-eight lines the contents of all nine sheets. Here, for instance, we learn that picture "ᴅ" on Sheet "B" (i.e., Bᴅ) is none other than the *serpens* or sea snake that so intrigued Moore.

This commentary, tastefully relegated to a corner of the map, reminds us of the notes Moore appended to "SULU." But Olaus Magnus still wasn't satisfied. The same year the *Carta Marina* appeared, he published a sixteen-page booklet offering further elaboration on the images (1539). To reach a wider audience, he released his booklet in Italian (*Opera breve*) and German (*Ain kurze Auslegung und Verklerung der neuuen Mappen*: see Richter, 1967). Then in 1555, just two years before he died, Olaus Magnus published the work that Moore cited in her note on line 10—namely, his encyclopedic *Historia de Gentibus septentrionalibus* or "History of the Northern Peoples." Its twenty-two books, 778 chapters, and nearly 900 pages contain a wealth of information about the Nordic races: their warfare and beliefs, mines and buildings, customs and activities, agriculture and physical surroundings. The *Historia* saw over twenty editions by 1670 and remained the most trusted source on Scandinavia for two centuries (Olaus Magnus, [1555] 1996-98: vol.1:lxx; Karrow, 1993: 366). Equally important, it was Olaus's definitive commentary on the *Carta Marina*.[17]

"The encyclopedic Historia de Gentibus septentrionalibus *or 'History of the Northern Peoples' . . . was Olaus's definitive commentary on the* Carta Marina*."*

Olaus Magnus prefaced his treatise with the hope that it would describe "for all future generations, clearly, plainly, and so to speak, in natural colours, what I only sketched incidentally in that geographical work" (i.e., the *Carta Marina*: Olaus Magnus, [1555] 1996-98: vol.1:11; see also vol.1:xxxvi). Every seventh chapter covers some aspect of the map or the booklets that accompanied it (Olaus Magnus, [1555] 1972: 25). A quarter of its nearly 500 images derive from the *Carta Marina* (*ibid*., 31-32; cf. Lynam, 1949: 38; Karrow,1993: 363). Like his map, the *Historia* explores how animals shape the lives of people, defining them as hunters, farmers, fishermen, and whalers (Olaus Magnus, [1555] 1972: 25).

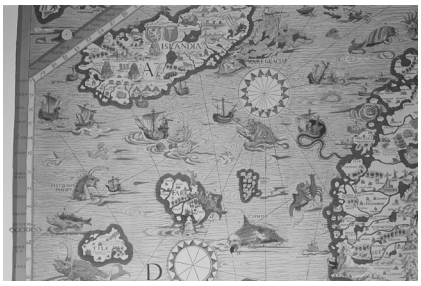

Figure 2: Detail from the Carta Marina *showing the sea serpent (at BD, between the most northerly compass-rose and the whirlpool) and the sea unicorn south of Iceland (left, by the symbol for 73⁰ north latitude). Courtesy of Wychwood Editions. (see page78 for larger color version)*

Olaus Magnus and Marianne Moore, purveyors of exotic creatures

Two of the sea creatures Moore names in the opening of "SULU" are portrayed on the *Carta Marina*: the sea unicorn (line 1), or *monoceros* (line 3), and the sea snake (line 10) (Figure 2). The latter makes its alarming appearance off western Norway near the Lofoten Island, between the most northerly compass-rose and the Maelström labeled "horrendous Charybdis" (*Horrenda Caribdis*: BF). Described in the legend as three-hundred feet long (*300 pedum*), it coils its massive body around an unfortunate ship and bares its fangs before devouring the Swedish sailors onboard (see Olaus Magnus, [1555] 1996-98: vol.3:1140, n.1 on *Historia* 21: preface; and vol.3:1152, note on *Historia* 21: 43). As for the *monoceros*, only its head and horn break the surface of the waters south of Iceland (*Islandia*). Olaus Magnus doesn't label the beast, though we can find it swimming in the lower left of Sheet A.[18] Just below on the map, the Physeter whale looks far more "defiant" ("SULU," line 6) as it spouts torrents at a nearby ship (DO: see also Olaus Magnus, *Historia* 21:6; and [1555] 1996-98: vol.3:1142 n.1). In *Historia* 21:14, however, Olaus Magnus pictures the *monoceros* as a snarling fish with an enormous horn on its forehead (Figure 3). Entitled *De Xiphia, Monocerote, & Serra* ("Concerning the Sword-fish, Unicorn-fish, and Saw-fish"), this chapter describes how the monster uses its formidable horn to puncture ships and drown sailors. "But in this case," Olaus Magnus adds,

> God's pity has provided for the sailors. While the monster may be fierce, its extreme slowness—once foreseen—allows those who fear its approach to flee.

"In Historia *21:14, however, Olaus Magnus pictures the* monoceros *as a snarling fish with an enormous horn on its forehead."*

Although the brittleness of the narwhal horn makes it an impractical weapon, the detail about the beast's lack of speed reveals that Olaus Magnus knows something about the arctic whale, if only by hearsay (Rosing, 1999: 28; Olaus Magnus, [1555] 1996-98, vol.3:1144, n.8-8 on *Historia* 21:14).

Olaus Magnus's familiarity with Scandinavia prevented him from portraying unicorns or sea-lions on the *Carta Marina*, even though the horses with pennants on their heads look a bit like unicorns as they draw sleds across the ice from Finland to Sweden (FA). Instead, he covers his map with lynx (EH), pelicans (FI), wolverines (BG), reindeer (BI, EG), and elk (EI). Among the animals in "SULU," snakes (FC), horses (CI, EF, FN, HA), and white bears also adorn the *Carta Marina.* Identified as *Ursi Albi*, two "white bears" hunt for fish on ice packs in the *Mare Glaciale* ("Icy Sea") off eastern Iceland; another emerges from his island den (AD). As for lions, in the preface to Book 20 of the *Historia*, Olaus Magnus explicitly contrasts Libyan lions with Swedish reindeer. That doesn't mean that Moore's lions are absent on the *Carta Marina*, however. They pose on regal coats of arms beside the monarchs of Norway (*Norvegia*, EC), Denmark (*Dania*, HA), and ancient Sweden (*Gothia*, HG). Near the top-right of the map, a leonine beast accompanies the Swedish giant and strong-man, Starcaterus, whom Olaus Magnus calls "a second Hercules" (*Historia* 5:1). In the lower right corner, under four rows of shields, a tethered lion rests his right front paw on the Magnus family crest. Below the lion is a mouse and the words: "See the frightful lion there. When ensnared, it was set free by a mouse. So are the great often helped by the smallest act" (cf. [1555] 1996-98, vol.1:xlviii). Hopeful of a reconciliation that would never come, Olaus Magnus saw himself as the mouse: he even placed his own name on the other side of the coat of arms opposite

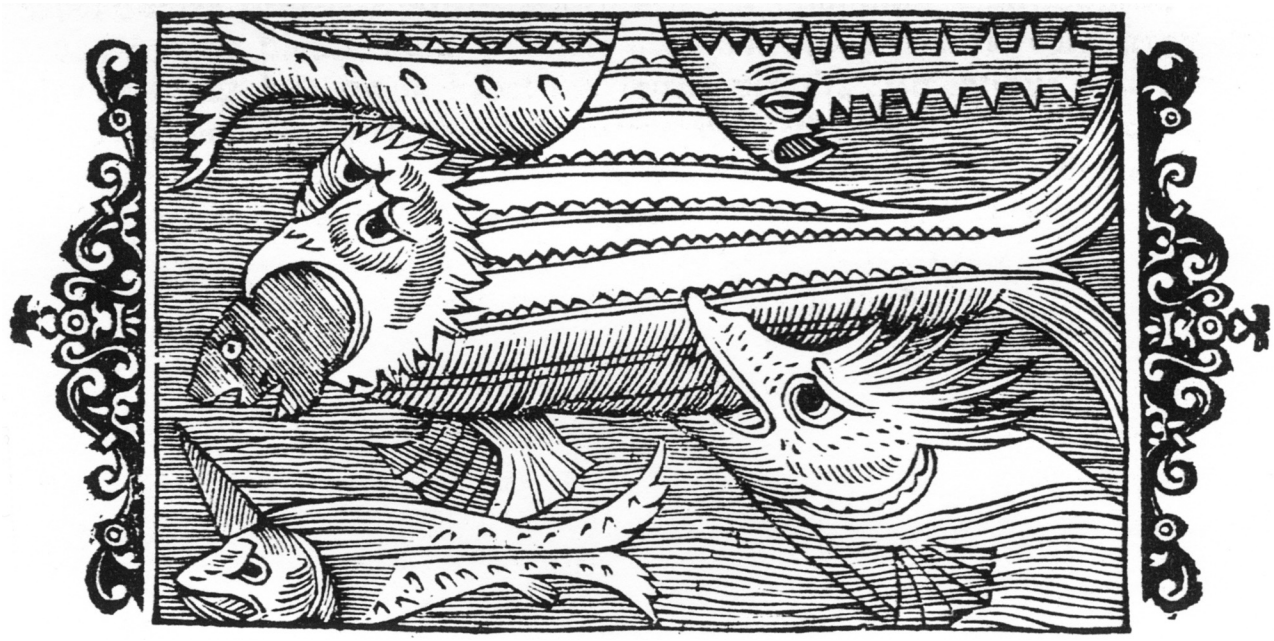

*Figure 3: The sea unicorn (*monoceros*) and other marine monsters in Olaus Magnus's* Historia*, Book 21, chapter 14: "Concerning the Sword-fish, Unicorn-fish, and Saw-fish." (After Olaus Magnus,* Historia de Gentibus Septentrionalibus, Romae 1555*. Copenhagen: Rosenkilde and Bagger, 1972, p.743.)*

the mouse. The lion, of course, is Gustav Vasa, whom Olaus Magnus prominently depicts at the center of the map above his eulogy: "Gustav, most powerful King of the Swedes and Goths" (Eʙ).

The duplication of beasts in "SULU" is made explicit in the *Historia*: both works assume that the sea contains "copies" of land animals. Consider Olaus Magnus's preface to *Historia* 21—one of six books in the *Historia* devoted to natural history, and one of three keyed to the *Carta Marina.* Here is how the 1658 English abridgment translates his description of the phenomenon (Olaus Magnus, [1555] 1658: 222):

> In the Ocean that is so broad, and by an easie and fruitful increase, receives the Seeds of Generation, there are found many monstrous things in Sublime Nature, that is always producing something; which being perplexed and rolled up and down one upon another by the ebbing and flowing of the Waters, they seem to generate Forms from themselves and from other principles; that whatsoever is bred in any part of nature, we are perswaded is in the Sea, and many things are to be found there, that are to be found no where else. And not onely may we understand by sight that there are Images of Animals in the Sea but a Pitcher, Swords, Saws, and Horses heads apparent in small Shell-fish. Moreover, you shall find Sponges, Nettles, Stars, Fairies, Kites, Monkies, Cows, Woolves,...Mice, Sparrows, Black-Birds, Crows, Frogs, Hogs, Oxen, Rams, Horses, Asses, Dogs, Locusts, Calves, Trees, Wheels, Beetles, Lions, Eagles, Dragons, Swallows, and such like...

"The duplication of beasts in 'SULU' is made explicit in the Historia*: both works assume that the sea contains 'copies' of land animals."*

Olaus Magnus was not alone in this belief. That every terrestrial animal had a marine counterpart was a commonplace not only in his day but in classical antiquity as well.

Olaus Magnus's conceit ultimately derives from Pliny the Elder, whose thirty-seven volume *Natural History* dates back to 77 CE. Remarkably influential during the Middle Ages, Pliny's tome spawned other ency-

clopedias of human knowledge, which appropriated its anecdotes often without attribution. After the *Natural History* was printed in 1459, this process of "borrowing" from the Roman naturalist continued throughout the early modern period. More than half of *Historia* 21 comes from sources like Pliny and Aristotle, or from the thirteenth-century encyclopedist Vincent of Beauvais, who himself "plundered Pliny" (Fisher, in Olaus Magnus, [1555] 1996-98, vol.1:li; see also Olaus Magnus, [1555] 1972: 31). At times Olaus Magnus might rely on the thirteenth-century scientist Albertus Magnus rather than on Pliny or Aristotle for material about northern Europe (*ibid*., 1:liv). But in his preface to *Historia* 21, Olaus Magnus declares his debt to Pliny by recommending "the last chapter of Pliny, Book XXXII" to the reader eager to know more about sea creatures (21: preface; *ibid*., 3: 1082).

"Olaus Magnus may have been the first to include on a map so many marine counterparts of land-based animals."

Olaus Magnus repackaged Pliny's notion of terrestrial and aquatic duplicates. The first half of the excerpt from his preface to *Historia* 21 comes almost verbatim from *Natural History* 9.1.2-3; while Olaus Magnus's catalogue is reminiscent of *Natural History* 32.53.144-145 (see Olaus Magnus, [1555] 1996-98, vol.3:1140, n.2-2 at *Historia* 21: preface). The *Carta Marina* also shows its debt to the Roman naturalist. At its center under "Scandia," an inscription prominently advertises Scandinavia as "a second world," ten times the size of Britain and comprising thirteen kingdoms. The expression "a second world" is from Pliny, who attested that the ancient Scandinavians viewed their homeland as *alterem orbem* (*Natural History* 4.13.96). More important, Olaus Magnus may have been the first to include on a map so many marine counterparts of land-based animals.

Part III

Sources for the Animals Engraved on the Carta Marina

Moore's plural "cartographers" compels us to consider other mapmakers active in 1539, especially those who embellished their maps with the types of creatures cavorting in "SULU." As we shall see, others did crowd lands with beasts and pictured monsters in the seas. What ultimately concerns us here is why Moore chose to model her poem on the *Carta Marina* rather than on the terrestrial maps of others who lived before or during Olaus Magnus's time.

"What ultimately concerns us here is why Moore chose to model her poem on the Carta Marina *rather than on the terrestrial maps of others who lived before or during Olaus Magnus's time."*

We'll begin by offering sources for the animals engraved on the *Carta Marina* and in the *Historia*. Zoological maps were among Olaus Magnus's inspirations. To understand how he stood apart from his predecessors and contemporaries, it is necessary to survey how cartographers mapped the four animals that dominate "Sea Unicorns and Land Unicorns": the unicorns, lions, narwhals, and sea lions. Wilma George's pioneering *Animals and Maps* offers insight into the depiction of terrestrial beasts on maps through the end of the eighteenth century (George, 1969). Since no previous study has examined sea creatures on early maps, however, a brief digression is needed to outline what is known, and what may be surmised.

Olaus Magnus observed in nature many of animals later pictured on the *Carta Marina* and in the *Historia*. A native of southeast Sweden, he was well-traveled by the time he published his map. Of the places portrayed, he had visited Oslo when he was fifteen (ca. 1505); studied in Germany for seven years (1510-17); traveled for two years on Church business to the far north of Scandinavia (1518-19); and spent the 1520s on business frequenting the Hanseatic cities on the Baltic Coasts (e.g., Danzig, Hamburg, Lubeck, Bremen) (Karrow, 1993: 362; see Lynam, 1949: 2; Olaus Magnus

[1555] 1996-98, vol.1:xxvi-xxvii, xxxvii; and *Historia* 2:6,29,26, 13:32). What he didn't observe himself, he found in books or picked up from folk stories and sailors' "immeasured tayles" (Moore, line 3). Konrad Gesner, the "German Pliny" whose *Historia Animalium* (1551-58) laid the foundation of modern zoology, adopted many of the images in the *Carta Marina* and *Historia* because they seemed so true to life.[19] If some of Olaus Magnus's sea creatures nevertheless appear bizarre, it is because he attempted, as Gesner did after him, "to draw animals that [he] had never seen from descriptions that [he] misunderstood" (Matthews, 1968: 22; see Lynam, 1949: 26). No wonder Olaus Magnus inserted this disclaimer in the dedication that opens his *Historia*: "Be sure that everything I have reported, whether of natural phenomena or the customs among those races, can be strongly substantiated on the evidence of incontrovertible authorities, who have put in writing even greater marvels, almost transcending belief" (Olaus Magnus, [1555] 1996-98, vol.1: 1-2).

"If some of Olaus Magnus's sea creatures nevertheless appear bizarre, it is because he attempted, as Gesner did after him, 'to draw animals that [he] had never seen from descriptions that [he] misunderstood'."

Visual texts provided many of the creatures he couldn't observe firsthand. Although little is known about their iconography, some of his images may have come from bestiaries (Lynam, 1949: 25; Olaus Magnus, [1555] 1972: 33). Others, from the *Dyalogus creaturarum moralizatus* ("Animals' Dialogues Moralized") of the 1480s. A popular collection of animal conversations and tales from classical works, the Bible, and other traditional sources, the *Dyalogus* was the first book printed in Sweden (1483: Olaus Magnus, [1555] 1996-98, vol.1:xliii, *Carta Marina* Be, and *Historia* 21:28 and 21:34). Other images derive from the *Hortus sanitatis* ("A Garden of Health"), which was first published in Mainz in 1491. That was a medieval encyclopedia on herbs, animals, minerals, and remedies (Olaus Magnus, [1555] 1996-98, vol.1:xliii, and *Historia* 21:38; see Hudson, 1954). And at least one picture, the monstrous "sea-pig," illustrated a 1537 pamphlet condemning the heretical Protestants (Olaus Magnus [1555] 1972: 41-42; [1555] 1996-98, vol.1:xliii, *Carta Marina* Dk, and *Historia* 21:27). Whatever his sources, however, Olaus Magnus probably sketched the original drawings himself. An anonymous Italian artist subsequently embellished and engraved them on the *Carta Marina*, and an inferior engraver copied them into the *Historia* (Lynam, 1949: 19; Olaus Magnus [1555] 1972: 24 and 32; [1555] 1996-98, vol.1:xliii).

The Carta Marina*, pictorial maps, and "the cartographers of 1539"*

Other pictorial maps also inspired Olaus Magnus to adorn the *Carta Marina* with images (Lynam, 1949: 4; Granlund, 1951: 41). Since at least 560 AD—when the Byzantine Madaba map featured a lion chasing a gazelle across a plain in southwest Jordan—cartographers had portrayed animals on mapped lands (George, 1969: 28). Although regional in scope, the *Carta Marina* resembles three thirteenth-century "zoogeographical" *mappaemundi* known as the Ebstorf, Hereford, and Vercelli "world maps"—each showing the distribution of animals throughout the Old World (*ibid*., 186, 113-17). Lions roam the palearctic region on the Ebstorf map (*ibid*., 30); the ethiopian region on the Hereford map (see Westrem, 2001: 364-67); and both regions on the Vercelli map (George, 1969: 35, 109). Some maps depicted animals in their corners. For example, both a portolan chart in the anonymous 1390 Venetian atlas and the Leardo *mappamundi* of 1452 portray the four evangelists: each apostle appears as one of the many-winged, multi-eyed creatures in the Book of Revelation 4:7. On these maps, the flying lion represents Mark; the eagle, John; the angel, Matthew; and the winged ox, Luke (Mollat and Roncière, 1984: fig.10; Harley and Woodward, 1987: fig.18.40). The king of the beasts reappears throughout

"Other pictorial maps also inspired Olaus Magnus to adorn the Carta Marina *with images."*

the Old World on the Borgia map, a pictorial "distribution" chart from the mid-fifteenth century (George, 1969: 49 and 186; cf. Lynam, 1949: 4); on the Miller Atlas of 1519 (George, 1969: 128-29, fig.6.1; see 126-27, 144); and, shortly after the *Carta Marina,* on the Ulpius Globe of the early 1540s (*ibid*., 140-41: fig.6.6).

As for the unicorn, the Hereford *mappamundi* both pictures and describes the creature in Africa. Above the unicorn's image on the Hereford map is a legend derived almost verbatim from *Etymologies* 12.2, the influential encyclopedia by the seventh-century saint and polymath Isidore of Seville. The passage tells a familiar story: that the unicorn, upon seeing a virgin's naked breasts, abandons his ferocity and rests his head upon her flesh (Westrem, 182-83, and fold-out map). In the sixteenth century, according to Wilma George, unicorns reappear in the palearctic on the Maggiolo map of 1504 and on an anonymous Portuguese map made about the time of the *Carta Marina* (ca. 1540; George, 1969: 117-119).

"Sea creatures present a different story. Because medieval world maps focused on land, few sea dwellers were portrayed."

Sea creatures present a different story. Because medieval world maps focused on land, few sea dwellers were portrayed—a mermaid above the words "Mediterranean Sea" on the Hereford Map, and occasional fish in the narrow band of ocean at the edges of the Ebstorf or Beatus *mappaemundi* are among the only examples (Harley and Woodward, 1987: fig.18.19 and pl.13). Then came the fusion of *portolani* and world maps in the late fourteenth century, the translation of Ptolemy's *Geography* in the fifteenth, and the explosion of maritime exploration, trade, and colonization that characterizes the early modern period. Suddenly, oceans became as important as land. Ships joined compass roses, rhumb lines, and flags as popular adornments. Portraits of exotic creatures, once confined to the map's landmasses, began migrating into increasingly vast and empty oceans. The mermaid and her kin could be found preening in the Indian Ocean on Abraham Cresques's Catalan Atlas of around 1375 (Harley and Woodward, 1987: fig.18.77), on the mid-fifteenth-century Catalan world map (Whitfield, 1994: 27), and on the Genoese World Map of 1457—the last of the great "distribution" charts before the discovery of the "New World" (*ibid*., 40-41).

But when a mermaid and merman wander into the Atlantic on Martin Behaim's famous world globe of 1492, they are not alone. Around them are real, if imaginatively realized, "fishes, seals, sea-lions, sea-cows, sea-horses, [and] sea-serpents" (Ernest Ravenstein, quoted in Stevenson, [1921] 1971: 49; Wolff, 1992: pl.11b). Originally a native of Nuremberg, Behaim credited Portuguese explorers for many of the novelties portrayed on his *Erdapfel*. A few years later, in 1500, the magnificent bird's-eye view of Venice by Jacopo de' Barbari depicts Neptune harnessing a sea monster (Eisler, 1991: 280-82 and fig.11.6); while the printed version of Martin Waldseemüller's 1516 world map shows Manuel I of Portugal bestriding a dolphin in the waters below Africa (Wolff, 1992: fig.14).

"Renowned artists may have drawn some of these creatures. The school of Albrecht Dürer is believed to have ornamented Waldseemüller's 1516 map."

Renowned artists may have drawn some of these creatures. The school of Albrecht Dürer is believed to have ornamented Waldseemüller's 1516 map (*ibid*., 119). Not only did Hans Holbein the Younger create the Old Testament vignettes (1538) that Olaus Magnus would use in the *Carta Marina*, but he also decorated maps between 1528 and 1532 (Olaus Magnus, [1555] 1972: 32, and [1555] 1996-98, vol.1:xliii and n.2). Holbein probably designed the decorative vignettes around a world map attributed to Sebastian Münster. Münster's *Typus Cosmographicus Universalis* first appeared in his 1532 commentary on the travel reports collected by Simon Grynaeus and Johann Huttich in their *Novus Orbis Regionum* (Figure 4). On Münster's map, a large fish inhabits the north Atlantic; a

Figure 4: Typus Cosmographicus Universalis*, attributed to Sebastian Münster (world map) and Hans Holbein the Younger (decorative vignettes). From Simon Grynaeus and Johann Huttich,* Novus Orbis Regionum*, Basel: J. Hervagius, 1532. Double-folio woodcut on paper: 35.5 x 55.5 cm (14 x 22 inches). On this map, a large fish inhabits the north Atlantic; a mermaid churns the waves off southeast Asia; and two enormous creatures undulate dolphin-like across the south Atlantic. (After H. Wolff, ed.,* America: Early Maps of the New World*. Munich: Prestel, 1992, 70.)*

mermaid churns the waves off southeast Asia; and two enormous creatures undulate dolphin-like across the south Atlantic.

The decade that produced the *Carta Marina* is particularly rich in its portrayal of sea monsters. In addition to Münster's map, the Nancy globe displays them in its blue enameled waters (ca. 1530; Stevenson, [1921] 1971: 101-2 and figs. 50 and 50b); Georg Hartmann engraved sea monsters on his gores (1535; Shirley, 2001: pl.64); and Gemma Frisius shows them swimming among ships on his terrestrial globe (ca. 1536; Dekker and van der Krogt, 1993: pl.6). Shortly after the *Carta Marina*, the Ulpius Globe featured sea creatures swimming in the Atlantic and Pacific (ca. 1541; Stevenson, [1921] 1971: fig.58), while Gerard Mercator's famous globe sports both sea-cow and physeter (1541; Shirley, 2001: pl.68).

The Uniqueness of the Carta Marina

That Olaus Magnus was not the only mapmaker embellishing his work with animals is confirmed by yet another source. In his *Tratado da Sphera* (1537), published two years before the *Carta Marina*, Portuguese mathematician Pedro Nuñes criticized his contemporaries for the many bears, elephants, and camels on their maps (Wallis and Robinson, 1987: 160).

As maps and globes multiplied after the invention of printing, so did the number of them decorated in this way. Yet Moore chose to focus on the *Carta Marina* because it remains unique. The strange charm and detail of Olaus Magnus's creatures invite comparison to Dürer (Lynam, 1949: 18-19), and the *Carta Marina* may be the first surviving map—or at least the most famous one—to picture the sea-unicorn that Moore featured so prominently in "SULU." Furthermore, the creatures on Olaus Magnus's map fill more space than their aquatic or terrestrial counterparts do on works by his contemporaries. And because the *Carta Marina* is so lavish in portraying sea life—note that Nuñes refers only to land animals—, Olaus Magnus's map may have indirectly inspired the noticeable proliferation of sea monsters prowling among ships on maps from the mid-sixteenth century on.[20]

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We know that the *Carta Marina* influenced subsequent mapmakers; two of the most notable being Gerard Mercator (1512-94) and Abraham Ortelius (1527-98), the "inventor" of the atlas as we know it (Lynam, 1949: 35-40; Karrow, 1993: 364-66). Antonio Lafreri published a new, if smaller edition of the *Carta Marina* in 1572 (Lynam, 1949: 30 and back fold-out map). However, it was the great sixteenth-century geographer Sebastian Münster who paid his contemporary the greatest compliment. For Münster engraved Olaus Magnus's sea and land animals on a double-folio woodcut in the 1550 edition of his *Cosmographia*. While Olaus Magnus's 1539 map became increasingly rare, Münster's *Cosmographia*—dedicated, incidentally, to Gustav Vasa—was the most successful scientific work of the sixteenth century and appeared in thirty-five editions by 1628 (see Strauss, 1965) (Figure 5). This fashion for displaying animals and sea monsters culminated in the baroque maps of the seventeenth century. Then, gradually, such charming excesses were exiled to the map's borders and cartouches, only to vanish during the eighteenth century (see Whitfield, 1994).

The *Carta Marina* itself came to resemble Moore's unicorn in "disappear[ing] for centuries and reappear[ing]" (line 54). Sixteenth-century cartographers referred to Olaus Magnus's map when making their own maps of Scandinavia and Europe. But by the end of that century, not a single copy of the original map seems to have been known. Few may have been printed in 1539, a map of Scandinavia on nine woodblocks having been an expensive specialty item in a predominantly Italian market; and, once issued, the size of the *Carta Marina* would have made it difficult to preserve (Urness, 1999-2001: "The Importance of the Map, Copies" and "..., Keys"; Urness, 2001: 28; Olaus Magnus, [1555] 1972: 21). Three centuries passed. A year before Moore's birth, one copy miraculously reappeared in Munich (1886: Urness, 2001: 32). The other known copy came to light in Switzerland a decade before she died (1962).

"Three centuries passed. A year before Moore's birth, one copy of the Carta Marina *miraculously reappeared in Munich (1886: Urness, 2001: 32). The other known copy came to light in Switzerland a decade before she died (1962)."*

Finally, Moore's lines "these are the very animals/ described by the cartographers of 1539" allude not only to Olaus Magnus as the maker of the *Carta Marina* but acknowledge his contemporaries, who also "described" animals in words and images on their maps. Moore's "cartographers of 1539" may serve a third function by linking the poem's beginning to its closing. Eight lines from the end, she pictures the unicorn as "etched like an equine monster of an old celestial map" (line 75).

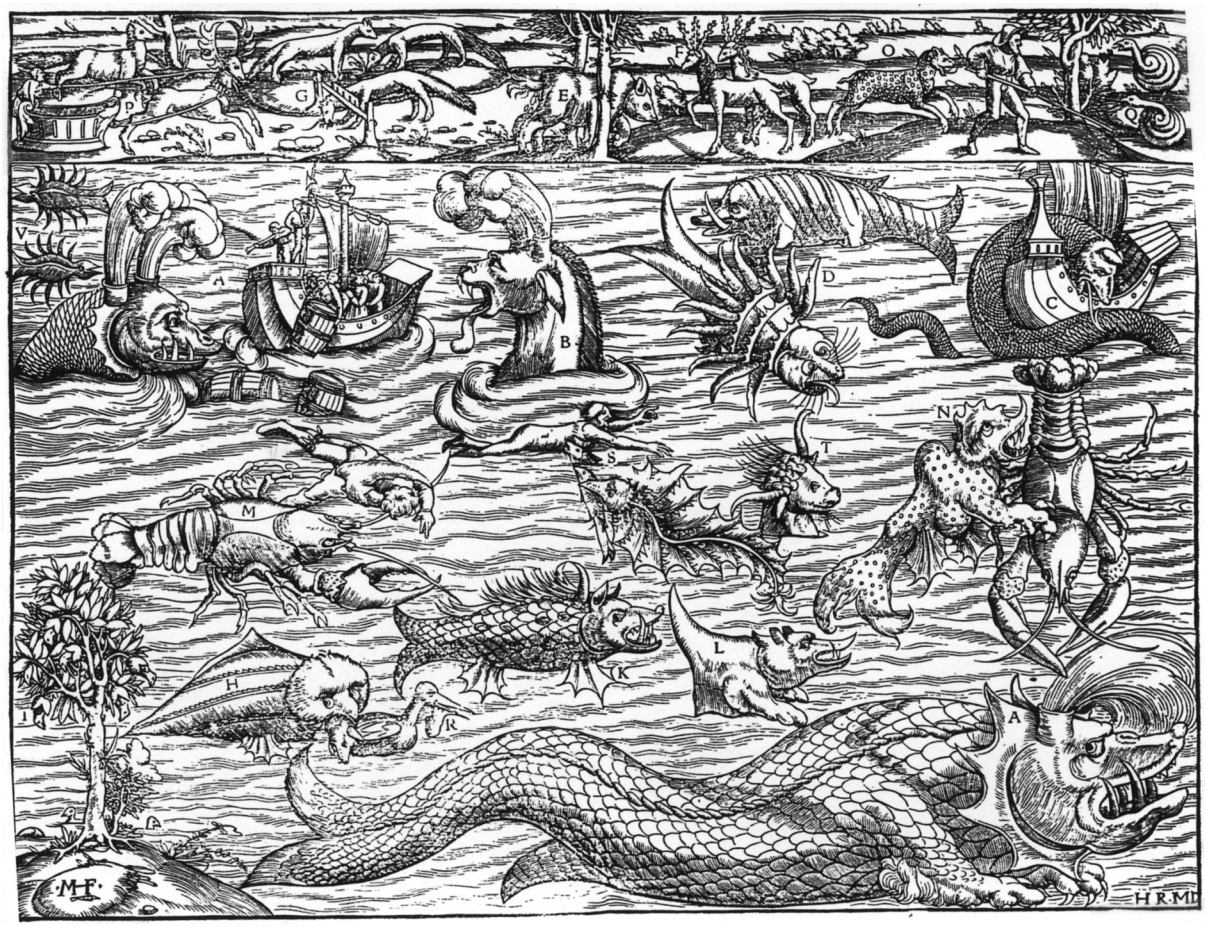

Figure 5: Sebastian Münster, De regnis Septentrion[alibus]: Monstra marina et terrestria, quae passim in partibus aquilonis inveniuntur, *a chart of "the animals and sea monsters found throughout the northern regions." From Book 4 of his* Cosmographiae Universalis, *Basle, 1550, pp.852-53. Double-folio woodcut on paper: image, 25.4 x 33 cm (10 x 13 inches); folio page, 30.5 x 38 cm (12 x 15 inches). Münster has engraved Olaus Magnus's sea and land animals on his own woodcut. (After W.P. Cumming, R.A. Skelton, and D.B. Quinn,* The Discovery of North America. *New York: American Heritage Press, 1972, p.44.)*

Part IV

Pegasus, the "equine monster of an old celestial map"

No matter how fast light travels, when we gaze at the stars we are looking back in time. Even the constellations our parents taught us to identify are outlines of mythological beings thousands of years old. The zodiacal constellation Leo ("Lion"), for instance, had its origins among the peoples of the Euphrates valley several millennia ago. The ancient Greeks probably adopted Leo and invented others like it until their constellations numbered forty-eight, each associated with traditional myths, however tenuously and variously. From the late-sixteenth century to the mid-eighteenth century, that number nearly doubled as navigators explored new regions and observed unfamiliar stars in the southern hemisphere (Whitfield, 1995: 8, 86-87). In 1930, only a few years after Moore composed "SULU," the International Astronomical Union announced its definitive list of eighty-eight constellations—12 in the zodiac, 28 in the northern skies, and 48 in the southern (see Menzel and Pasachoff, 1983: 132-33, and figs.3-4).

"The ancient Greeks probably adopted Leo and invented others like it until their constellations numbered forty-eight, each associated with traditional myths, however tenuously and variously."

Of the forty-eight constellations the Greeks bequeathed us, four can be considered "equine monsters." Sagittarius and Centaurus, both half-

horse and half-human, are certainly "monstrous." But this type of composite creature has no counterpart in "SULU," which celebrates relationships among animals or between animals and people. As for Equuleus, the "little horse" otherwise known as *Equus Minor* or *Equiculus*, there is nothing unusual about him except that his head alone is visible on star charts (Ptolemy, 1984: 358 n.164; G.J. Toomer, in *OCD,* 1996: 382). Which means that Moore's "equine monster" must be Pegasus—the winged horse birthed by the violence of Perseus and tamed by the skill of Bellerophon. Known in most ancient texts as "The Horse" (*Hippos* or *Equus*), Pegasus is the immortal counterpart of the domesticated horses to which Moore alludes in lines 46-47: "those born without a horn,/ in use..., as domestics." Pegasus is undoubtedly "monstrous." Son of sea-god Neptune (Poseidon) and Medusa, he sprang from the severed neck of his mother, the snaky-haired gorgon whose gaze could turn men to stone. Star charts feature the front half of his body, including his very unequine wings.

"Moore's 'equine monster' must be Pegasus—the winged horse birthed by the violence of Perseus and tamed by the skill of Bellerophon."

The constellation Pegasus appears on the earliest extant globe from antiquity. The globe itself is part of a Roman marble statue known as the Farnese Atlas, which portrays the god Atlas shouldering the weight of the celestial sphere. Carved in the late second century and based on a Hellenistic original, the statue was lost during the Middle Ages only to reappear—like Moore's miraculously elusive unicorn—early in the sixteenth century.[21] The Farnese Atlas illustrated the best-selling *Phaenomena,* written by Aratus of Soli in the third century BCE (Aratus Solensis, 1997). Celebrating the constellations as well as their connections on globes and in myth, Aratus's work became more popular than any poem except the *Iliad* and the *Odyssey*. Aratus based his *Phaenomena*, in turn, on the texts of Eudoxus of Cnidus, an astronomer of the fourth-century BCE (Aujac, in Harley and Woodward, 1987: 140-43). Eudoxus made a landmark celestial globe, whose contents he explained in his equally lost *Phaenomena* and *The Mirror.* More important for us, he may have been the first to divide all of the sky seen by the Greeks "into named constellations, which (with some minor changes and additions at later periods) became canonical" (G.J. Toomer, in *OCD,* 1996: 381). So fragmentary is his work, however, that it is not until Aratus's *Phaenomena* that the "horse" constellation can be identified confidently with Pegasus (Aratus, 1997: 261 and lines 216-24; cf. Ptolemy, 1984: 358 n.165).

"Claudius Ptolemy regarded Pegasus in a very different way. Author of the Geography *that inspired Olaus Magnus to create his* Carta Marina, *Ptolemy was also antiquity's leading astronomer."*

Claudius Ptolemy regarded Pegasus in a very different way. Author of the *Geography* that inspired Olaus Magnus to create his *Carta Marina,* Ptolemy was also antiquity's leading astronomer. His magisterial M*athematical Systematic Treatise* rendered obsolete the works of his predecessors, whose contributions Ptolemy meticulously collected, criticized, and updated (Toomer, in Ptolemy, 1984: 1). Ptolemy opened his thirteen-book tome with the earth's relationship to the heavenly sphere (Books 1-2); covered such topics as the length of the year (Book 3), the motions of the sun and moon (Books 3-6), the astrolabe (Book 5), and the fixed stars (Books 7-8); then concluded with the order of the heavenly spheres (Book 9) and an examination of the planets (Books 9-13). In a table spanning half of Books 7-8, he catalogued 1022 stars visible from the Mediterranean and described their position within, or just outside of, the forty-eight known constellations. He assigned each star several numbers, indicating its zodiacal longitude and latitude and its magnitude (relative brightness). Ptolemy's Pegasus has twenty stars, the four brightest stars being slightly less than second magnitude. One of these, now known as α Peg, he located at 26 2/3^0 longitude (within the sign

of Aquarius); 19 2/3^0 north latitude; and, more poetically, "between the shoulders and the shoulder-part of the [Horse's] wing" (*ibid*., 358, Book 7.5, H78; cf. 14-17, 339-40; and Book 7.4, H36-37).

The Ptolemaic system endured for 1400 years. In the ninth century, his treatise was translated into Arabic and retitled *Almagest*, "The Greatest" (Dilke, in Harley and Woodward, 1987: 177-82). In the twelfth century, the *Almagest* appeared in Latin. No ancient copies have come down to us, however, and medieval European manuscripts of the *Almagest* rarely show figures accompanying the text. Even when illustrations are present, they resemble the isolated constellation figures often found in illuminated manuscripts of Aratus's *Phaenomena*: spatially, they offer no sense of Pegasus's relationship to the other constellations, no clue as to what constellations lie "beside" it (Warner, 1979: xi-xiii and 269; Stott, 1995: 40-41; Whitfield, 1995: 35, 42, but see 24-25). Which means that none of these is likely to be Moore's "old celestial map."

"In the end, neither ancient globes nor medieval charts can provide a model for Moore's unicorn 'etched like an equine monster of an old celestial map, beside a cloud or dress...' (lines 75-76)."

Furthermore, Ptolemy followed his predecessors in recommending that the constellations be depicted on a globe. Given the number of stars in his catalogue and the distortion inherent on flat maps, such advice was eminently practical. With the exception of the Farnese Atlas, however, any celestial globe made before the fifteenth century has disappeared (Stevenson, [1921] 1971: 38-42). Moreover, although a globe is a form of map, Moore presumably chose the word "map" at lines 75 and 81 because she meant a flat map, one like the *Carta Marina*. But even if the ancient Greeks or Romans had mapped the heavens on a flat surface, these works too have vanished (Aujac, in Harley and Woodward, 1987: 165-66). In the end, neither ancient globes nor medieval charts can provide a model for Moore's unicorn "etched like an equine monster of an old celestial map, beside a cloud or dress..." (lines 75-76).

The early modern period saw the first printing of Ptolemy's *Almagest* (1515) and the birth of the celestial map *per se* (Warner, 1979: ix-x; Whitfield, 1995: 2, 100). During the sixteenth century, artists and cartographers in western Europe produced celestial charts that successfully packaged Ptolemy's science in Renaissance artistry. In 1515, for instance, Albrecht Dürer made history by producing the first printed celestial maps. His woodcut of the southern sky, entitled *Imagines coeli Meridionales*, portrays the fifteen constellations Ptolemy located there. Dürer's northern sky, *Imagines coeli Septentrionales cum duodecim imaginibus zodiaci*, contains the other thirty-three, radiating outward from Draco and Ursa Minor ("Little Bear"/Dipper) to the zodiacal signs wheeling around the periphery (Figure 6). The circle that encloses the figures is divided into twelve pie-shaped wedges, each widening into a scale of 30 degrees. Although a mathematician and an artist, Dürer did not act alone—as the banner in the lower left of his southern hemisphere attests. The coordinate grid was designed by Johann Stabius (*I. Stabius ordinavit*), the Imperial court historian and mathematician who also partnered with Dürer that year to create a unique map on which the earth is portrayed as a geometrical sphere (see Whitfield, 1994: 52-53; Stevenson, [1921] 1971: 88). The Nuremberg mathematician Conrad Heinfogel, who was associated with the 1503 sources of Dürer's celestial maps (Eisler, 1991: 252-54, figs.10.4-10.5), positioned the stars within the grid and assigned them the numbers from Ptolemy's tables (*Conradus Heinfogel stellas posuit*). As for Dürer himself, he not only engraved the maps but designed the figures of the constellations, then surrounded them with portraits of his venerable predecessors (*Albertus Dürer imaginibus circumscripsit*). Dürer's superb draftsmanship inspired others to combine artistry with science (Warner, 1979: 71-74; Snyder,

"In 1515, for instance, Albrecht Dürer made history by producing the first printed celestial maps."

Figure 6: Albrecht Dürer, Johann Stabius, and Conrad Heinfogel, Imagines coeli Septentrionales cum duodecim imaginibus zodiaci *("Northern celestial figures with the twelve figures of the zodiac"), Nuremberg, 1515. Woodcut on paper, 45.5 x 43.1 cm (18 x 17 inches). Pegasus is at 2 o'clock, surrounded by thirty-two other constellations. In the corners are Aratus of Cilicia (*Aratus Cilix*: top left); Marcus Manilius, the first-century Roman astrologer and poet of the* Astronomica *(*M. Mamlius Romanus, *bottom left); Ptolemy (*Ptolemeus Aegyptius, *top right); and Al-Sufi, the tenth-century Arab astronomer and author of the influential* Book of the Fixed Stars *(*Azophi Arabus, *bottom right). Courtesy of the Map Library of The British Library: BL *Maps 20.(75.).*

1984: 52-55): he certainly helped propagate the naked, classically based constellation figures that dominated early modern celestial maps. Nevertheless, Moore cannot be referring to his unpainted woodcuts, nor to those of anyone else. For the "equine monster" on her "old celestial map" is located "beside a cloud or dress of Virgin-Mary blue."

Peter Apian's "old celestial map"

Enter Peter Bienewitz, the popular cartographer and astronomer better known as Petrus Apianus, or Peter Apian (1495 or 1501-1552; Wattenberg, 1967: 40). During the years that Olaus Magnus was creating his map, Apian abandoned terrestrial cartography to focus on the heavens. In 1536, Apian produced his last map, *Imagines Syderum Coelestium* or "Images of the Celestial Constellations" (Karrow, 1993: 61-62; see Brown,

[1932] 1968: 14). Designed for his students at the University of Ingolstadt in Bavaria, *Imagines Syderum Coelestium* emulated Dürer's constellation figures, his centering of the figures on the northern ecliptic pole, and his view of the heavens seen from outside the celestial sphere. But Apian not only named many of the stars but also placed all forty-eight constellations on a single map, centered like Dürer's, yet extending almost as far as 60^0 south latitude (Warner, 1979: 10). Although the objects on the periphery are much longer than they should be, Apian ingeniously compressed a great deal of useful information onto a single map (Whitfield, 1995: 73).

Four years later, in 1540, Apian reproduced his celestial map in his *Astronomicum Caesareum.* The "Imperial Astronomy" made Apian rich and famous. (It didn't hurt that he was patronized by the Holy Roman Emperor Charles V or his brother Ferdinand I, the Hapsburg monarchs to whom the *Astronomicum Caesareum* was dedicated: see Wattenberg, 1967: 62-65.) Today, Apian's *Astronomicum Caesareum* is still considered "a pinnacle of the bookmaker's art" (Stott, 1995: 38), "a great work of art in and of itself, and ... a source of inspiration to readers who may never have seriously studied the sky" (Snyder, 1984: 56).

"Apian's sumptuous volume appeared just one year after the Carta Marina."

Apian's sumptuous volume appeared just one year after the *Carta Marina.* That lines 75-76 of "SULU" allude to the celestial map in the *Astronomicum Caesareum* is made even more probable by the colors, artistry, contents, and didacticism of Apian's work (Figure 7). In 1536, his *Imagines Syderum Coelestium* had been engraved on a woodblock, then distributed as a monochrome broad sheet without further modification. But Apian intended his *Astronomicum Caesareum* for a more exclusive market. After printing its plates on his own press, Apian had most of the illustrations colored by hand. Although individual copies of the map differ slightly in coloring, a general pattern emerges (Gingerich, 1971: 168). Apian's Pegasus, for instance, is always surrounded by blue. Not only does the winged horse emerge from a blue cloud—which conceals his tail, hind quarters and back legs—but he nuzzles Equus Minor, whose neck is surrounded by a cloud of the same color. In the copies of the *Astronomicum Caesareum* owned by the New York Public Library and the Pierpont Morgan Library in New York, the blue on the celestial map is a pale blue-grey; but it is a deep, vibrant blue in the copy housed at The National Maritime Museum in London (see Stott, 1995: 39).

Figure 7: Peter Apian, the celestial map in his Astronomicum Caesareum*, Ingolstadt, 1540. Hand-colored woodcuts: volvelle, 30.5 cm (12") in diameter; plate, 47 x 31.8 cm (18 1/2 x 12 1/2 inches). Pegasus appears among the other forty-seven constellations at 12 o'clock, below the sea monster Cetus and the oval scale used to determine stellar precession. Opposite Pegasus at 6 o'clock are the long-tailed bear (Arctus Major, i.e., the Big Dipper) and the lion (Leo), both familiar from Moore's poem. Missing from this copy of the celestial map are the silk thread and the seed pearl once attached at the end of the thread. The New York Public Library purchased Apian's celestial atlas in 1919, five years before Moore published "Sea Unicorns and Land Unicorns." Courtesy of the Rare Books Division of The New York Public Library--Astor, Lenox and Tilden Foundations: NYPL *KB+++ 1540.* *(see page79 for larger color version)*

Both shades qualify as "Virgin-Mary blue." Traditionally, Mary wears robes of blue, white, or red in medieval and renaissance art. While white represents her purity, and red, her physical suffering, a blue dress or mantle symbolizes her unwavering faith as well as her association with heaven (cf. "true-blue"; Snyder, 1985: 127-128 and fig.122; Speake, 1994: 152; Hall, 2001: 324). Medieval patrons and artists prized the stable blue pigment made from lapis lazuli, second in cost only to gold in religious art: to paint the Virgin in the deep, rich blue of lapis pigment was considered an exemplary form of veneration. The natural pigment remained in use until the early nineteenth century: Dürer himself even complained about its cost (Gettens and Stout, 1966: 166-67). But renaissance paintings—even those produced by a single artist like Leonardo or Dürer—reveal as many shades of blue as those applied to Apian's hand-colored celestial maps (e.g., Marani, 1999: 19, 35, 48-61, 125-49, and 275-301, for Leonardo; and Dürer, 1968: pls. viii-ix, xxiii, xxxi, xxxvii, xlv, xlviii; Eisler, 1991: pl.26).

To an art-lover, Apian's celestial map is a revelation. In the *Astronomicum Caesareum*, the map is one of 21 paper wheels or volvelles meticulously layered on 60 double-sided pages (Wattenberg, 1967: 52). A hand-

colored woodcut in the shape of a disc, the map is usually attached by a silk string to another disc that extends one centimeter beyond the celestial map. On the narrow border of this larger disc is a ring divided into 360 degrees: twelve colored panels contain six sections apiece, each subdivided into smaller units of five degrees. Both concentric discs revolve on an octagonal background resembling a clock or observational device, Apian also having been renowned as a maker of instruments (Wattenberg, 1967: 40; Karrow, 1993: 52-62; see Clutton and Daniels, 1979: 29-30). Above, a painted arm emerges from a cloud to hold the device by its ringed handle. Like the other volvelles in the *Astronomicum Caesareum*, Apian's celestial map brilliantly epitomizes his century's obsession with scientific diagrams and illustrations (Whitfield, 1995: 63).

"Like the other volvelles in the Astronomicum Caesareum, *Apian's celestial map brilliantly epitomizes his century's obsession with scientific diagrams and illustrations."*

Latin text surrounds the celestial map. Part 1, chapter 4 of the *Astronomicum Caesareum* describes the 48 constellations, their relation to one another, their alternative names, and the number and magnitude of their stars. Opposite the map is a description of the volvelle and an example of how to set the discs for determining the position of the stars and constellations at any given time. An oval scale below Cetus accounts for stellar precession—the stars' increasing longitude or westward shift over time—from 7000 years before Christ to 7000 years after (Wattenberg, 1967: 55; and see Warner, 1979: x and 10; Ptolemy, 1984: Book 7.2). Like Moore's poetry, the *Astronomicum Caesareum* combines science, artistry, and instruction. As the first century of printing led to the wide dissemination of texts, an exponential increase in literacy, and the decline in the type of knowledge passed from instructor to pupil (Whitfield, 1995: 107-108), Apian recognized that books held the key to educating people outside the monasteries and universities. He devised his marvelous volvelles, as he explains in his preface (*Apianus Lectori*), so that readers less proficient in mathematics than he can perform the calculations necessary to practice astrology and study astronomy.

Peter Apian and "SULU"

Nevertheless, Apian's work—like Moore's poem—reflects the transitional character of the sixteenth century. The *Astronomicum Caesareum* illuminated the Ptolemaic system on the eve of its demise: in 1543, Nicholas Copernicus would publish his *De revolutionibus orbium coelestium*, a work he'd completed a decade earlier and whose contents were known to Apian, at least in part (Wattenberg, 1967: 62-67). Although Apian never addresses Copernicus's heliocentric system in print, the formerly prolific astronomer becomes silent after the publication of his *Astronomicum Caesareum*, as if acknowledging its obsolescence. Danish astronomer Tycho Brahe subsequently exposed as myth Ptolemy's theory of crystalline spheres revolving around the earth. Yet in 1599 Brahe presented a copy of Apian's expensive work to someone important, perhaps the scholar who had published his observations (*ibid*., 61). Johannes Kepler in his *Astronomia Nova* (1609) predicted the "perpetual fame" of Apian's *Astronomicum Caesareum*. But Kepler, who ultimately overthrew the Ptolemaic system, also lamented

"Nevertheless, Apian's work—like Moore's poem—reflects the transitional character of the sixteenth century. The Astronomicum Caesareum *illuminated the Ptolemaic system on the eve of its demise."*

> the misdirected efforts of Apianus, who in his *Opus Caesareum*, as a faithful servant of Ptolemy, has wasted so many fine hours and so many highly ingenious arguments on constructing a most complicated maze of spirals, loops, lines and whirls which represent nothing more than what exists in the imagination of man, and is wholly divorced from nature's true image (*ibid*., 62).

Whatever the fate of Apian's cosmology, however, his celestial map allowed Moore to elegantly unite the two halves of her poem. Her line "the cartographers of 1539" accounts not only for the terrestrial maps of Olaus Magnus and his peers but even for the celestial map of another contemporary. By balancing her poem in this way, Moore also alludes to the paired maps and globes popularized during the sixteenth century. Consider the pair of terrestrial and celestial globes that Hans Holbein the Younger had painted on his double portrait *The French Ambassadors* (1533; Chamberlain, 1913: 2, pl.9 and 2.74; Dekker and van der Krogt, 1993: 24 and figs.8-10). Although Holbein's were based on the globes of Johann Schöner (ca. 1515-17), it was the globes of Gemma Frisius (1536-37) and of his student Mercator that opened the market for pairs of matching globes—a market that would thrive through the eighteenth century (Dekker and van der Krogt, 1993: 31, pls.7-8; cf. Stevenson, [1921] 1971: fig.28; Wallis and Robinson, 1987: 29). As exploration revealed more about the enormous landmass separating western Europe from eastern Asia, the double-hemisphere map also became increasingly popular and remained so through the eighteenth century (Whitfield, 1994: 60, 100, 114-15). The earliest one known—a double-hemisphere map made by Jean Rotz in 1542—shows the earth opened out like a locket (Whitfield, 1994: 60-62; cf. Wolff, 1992: 77; Shirley, 2001: pls. 97 and 99); typical examples show the right-hand circle enclosing the Old World, the left-hand circle embracing the New World (see Whitfield, 1994: 75-115). Eventually complementary celestial maps occupied the cleavage between the two hemispheres: one above, the other below (see Portinaro and Knirsch, 1987: pls. LXVIII, XCIII, C; Whitfield, 1994: 106-107). By alluding to a terrestrial map in the first half of her poem and a celestial map in the second half, Moore has incorporated within "SULU" the sixteenth-century expectation of balance and paired counterparts.

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EPILOGUE

A Beautiful Misfit

Fifty years after Olaus Magnus and Peter Apian died, a fifth "equine monster"—*Monoceros* or "Unicorn"—began appearing on the celestial charts in the southern sky. Many still regard Kepler's astronomer nephew Jakob Bartsch as its inventor (see Menzel and Pasachoff, 1983: 143; Whitfield, 1995: 8). But credit probably goes to the Flemish cartographer Peter Plancius (Warner, 1979: 201-206; Dekker and van der Krogt, 1993: 48, fig.22). Plancius seems to have been the first to create entirely new constellations, thus expanding the forty-eight that had been modified only slightly by Islamic and European astronomers after Ptolemy. A promoter of Dutch navigation and trade, Plancius began adding to the list in the late sixteenth century. When he became cartographer for the Dutch East India Company sometime after 1602, the observations from those daring commercial voyages gave Plancius even more information and stimulus (Tooley, 1979: 509). Around 1612, he made a globe with Pieter van der Keere that featured no fewer than ten additional constellations, including Monoceros. Although revolutionary, his globe immediately became rare. Another made by Isaac Habrecht II in 1621 introduced Bartsch to Plancius's creations, though Bartsch mistakenly regarded them as Habrecht's own (Warner, 1979: 14 and 105; see Bartsch's *Planisphaerii Stellati*, 1624).

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A monk turned Calvinist theologian, Plancius chose the name "Monoceros" because the unicorn is conspicuous not only in Greco-Roman

sources but in Judeo-Christian tradition as well. Monoceros is mentioned several times in the Greek Bible, where it is an apparent mistranslation of the Hebrew word *re'êm* or "auroch," the now extinct wild ox; the Latin Vulgate continued the error by translating "monoceros" several times as "unicorn" (e.g., Numbers 23:22, Deuteronomy 33:17, Psalms 22:21, 29:6, 92:10, Isaiah 34:7, Job 39:9-12; see Shepard 1930: 41-45). Its location near the mythical hunter Orion, and between Canis Major and Canis Minor, accords with the unicorn's pursuit by the hunters and dogs portrayed on the Unicorn Tapestries, and in "SULU."

Among the celestial maps depicting Monoceros, the closest match to Moore's "Virgin-Mary blue" is a spectacular hand-colored plate from the *Atlas Coelestis seu Harmonia Macrocosmica* ("Celestial Atlas or Universal Harmony"), first published in 1660. Dubbed "the most beautiful celestial atlas ever made" (Snyder, 1984: 115; cf. Whitfield, 1995: 101), the *Atlas Coelestis* was the work of Andreas Cellarius, a German mathematician and cosmographer employed as rector of a Latin school in Holland (van Gent, 2000). The *Atlas Coelestis* contains twenty-nine engraved plates, including four pairs of constellation maps. One pair pictures only the constellations known in antiquity (Cellarius, 1660: 186-187 and 204-205). Another replaces the Greco-Roman constellations with figures from the Old and New Testaments (*ibid*., 160-61 and 168-69), a trend Plancius inspired with his new "Biblical" constellations (Warner, 1979: xi; and see Snyder, 1984: 99; Stott, 1995: 76-77). On the map entitled *Coeli Stellati Christiani Haemisphaerium Posterius*, for instance, Cellarius replaces Pegasus with Gabriel (*ibid*., 168-69; see Stott, 1995: 19). Two other pairs feature the constellations known by the mid-seventeenth century (Cellarius, 1660: 200-201 and 212-13, 192-93 and 208-209). On these two pairs, Cellarius makes us armchair astronauts, able to view the constellations from space as they float over different parts of the earth. The map of the northern sky entitled *Haemisphaerium Stellatum Boreale cum Subiecto Haemisphaerio Terresti*, an immense celestial globe is steadied by Atlas and Hercules, and surrounded by putti and astonished men (*ibid*, 200-201; Snyder, 1984: 114-16). Near the bottom of the "globe," Monoceros faces toward eastern Africa and the constellation Orion, who turns away from us. Dressed like a Roman centurion, Orion sports a blue cape, which hangs from his right shoulder and almost brushes the unicorn's muzzle (Figure 8). Then there is the map of the southern sky labeled *Haemisphaerium Sceno Graphicum Australe Coeli Stellati et Terrae* ("Southern hemisphere pictured with the background of starry heaven and earth"). With the terrestrial south pole (*Terrae Australis Incognita*) just below center, Cellarius juxtaposes Monoceros at rest beside a blue-caped Orion (right center) and Pegasus galloping across the ceiling of the celestial globe (top left: *ibid*., 208-209; see Whitfield, 1995: 102).

"Unlike Apian's celestial map, however, there appears to be little consistency in the coloration of the plates in the various editions, making it less likely that Moore would have seen the appropriately colored map."

Figure 8: Andreas Cellarius, Haemisphaerium Stellatum Boreale cum Subiecto Haemisphaerio Terrestri *("Northern hemisphere of stars with a terrestrial hemisphere below"), from his* Atlas Coelestis seu Harmonia Macrocosmica, *Amsterdam, 1660. Hand colored engraving on paper, 44 x 52 cm (17 x 20 1/2 inches). Monoceros appears at 6 o'clock, accompanied by Canis Major (below) and Canis Minor (above) and to the right of blue-caped Orion. This 1660 edition of Cellarius's atlas has belonged to the British Library since before 1757. Courtesy of the Map Library of The British Library: Maps C.6.c.2. (see page 80 for larger color version)*

Because the second half of "SULU" focuses upon the unicorn, it is tempting to regard Cellarius's Monoceros as yet another inspiration for Moore's "equine monster of an old celestial chart." Unlike Apian's celestial map, however, there appears to be little consistency in the coloration of the plates in the various editions, making it less likely that Moore would have seen the appropriately colored map.[22] And Cellarius's date in the mid-seventeenth puts him a century or more after most of the sources and events described in "SULU." Following Moore's early reference to "the cartographers of 1539," the first half of the poem deals with English exploration during the reign of Elizabeth I (1533-1603); and, in particular, with the voyage of John Hawkins to Florida in 1564-65 and the circumnavigation of Thomas Cavendish in 1586-88. Yet neither Olaus Magnus nor the Elizabethans knew anything about the constellation that

Plancius would name Monoceros. If anything, Moore's allusions to the unicorn beginning at line 44 look back to the late fifteenth-century tapestries and the artistry of da Vinci or Dürer rather than forward to seventeenth-century innovations. For all its beauty, Cellarius's Monoceros is a beautiful misfit, inconsistent with the overall fixation of "SULU" upon the sixteenth-century.

"For all its beauty, Cellarius's Monoceros is a beautiful misfit, inconsistent with the overall fixation of 'SULU' upon the sixteenth-century."

Looking Back in Time and Space

Today, many refuse to regard *as maps* even such austere constellation charts as those illustrating Menzel and Pasachoff's *A Field Guide to the Stars and Planets.* There is simply too much of the "unreal" about them. That our constellations are named for (or imagined as) mythological creatures is only part of the problem. Maps, after all, are human artifacts; their purpose, appearance, and use often differing markedly among cultures and periods. More subjective is the act of linking the visible stars together within an imaginary construct known as a constellation: the Chinese, for instance, group the stars into smaller and more numerous figures than we do (Stott, 1995: 106). Yet our ubiquitous political maps—with their arbitrary and often disputed boundaries—reveal even more glaringly the differences in peoples' desires and perspectives. Ultimately, skeptics point to the lack of technological sophistication or fault the assumptions underlying constellation figures. Until Brahe exploded the myth in the late sixteenth century, scientists imagined the stars the way Ptolemy had—as "fixed" within a crystalline sphere revolving around the earth at a huge distance (Ptolemy, 1984: 1.6 and 7.1-4). Which is why antique celestial maps and globes could portray the constellations as observed from the earth (front, or man's view) or as if viewed from beyond the celestial sphere (rear, or "god's" view) (*ibid*., 15 and 7.4; see Snyder, 1984: 61; Whitfield, 1995: 100-101).

"As we struggle to comprehend a minuscule earth surrounded by such vastness, we look back with nostalgia to a time when the naked eye allowed our ancestors to imaginatively transform the perceptible stars of the Milky Way into the constellations they believed lay somewhere beyond our solar system."

Our astronomers are now pioneers venturing into an entirely new universe. The twentieth century brought us the Hubble Space Telescope; increasingly sophisticated land-based telescopes capable of picking up not only visible light but also x-rays, radio waves, and other types of electromagnetic radiation; and CCDs (charge-coupled devices) that can project these photonic images onto television monitors. Such technologies reveal a universe measuring more than ten billion light-years in diameter and filled with billions of galaxies, billions upon billions of stars, and far more empty space than matter. As we struggle to comprehend a minuscule earth surrounded by such vastness, we look back with nostalgia to a time when the naked eye allowed our ancestors to imaginatively transform the perceptible stars of the Milky Way into the constellations they believed lay somewhere beyond our solar system. Ironically, that "time" ended within the decade that Moore published "SULU." During the 1920s the Milky Way ceased to be the universe: the American astronomer Edwin Hubble discovered that other galaxies exist (1924) and that they are flying away from us and each another at speeds proportional to their distance (1929; Hall, 1992: 250 and 331). Now that our astronomers can measure distance—the third celestial coordinate that eluded Ptolemy and his successors (Hall, 1992: 354)—, the "Big Bang" has become our myth about the origin and nature of an expanding universe.

"Ironically, that 'time' ended within the decade that Moore published 'SULU.'"

Ptolemy had recommended mapping the stars on a dark surface to represent the night sky, then using a similar color to outline the constellation shapes (Ptolemy, 1984: 8.3). Throughout the early modern period, however, most European mapmakers failed to heed his plea for realistic-looking maps of the stars. Despite the telescope's discovery of stars invisible

to the naked eye, artistic portrayals of constellation figures like Pegasus and Monoceros continued to overshadow the stars on celestial maps until around 1800 (Dekker and van der Krogt, 1993: 14-15). Now, however, while modern astronomers make increasingly sophisticated maps of the stars and galaxies (see Geller, 1997), most of us seek reassurance in old celestial maps and in pointing out the constellations whose shapes have been handed down through generations. Such figures remain memorable precisely because they are so simple, and so fabulous.

"Like 'SULU,' the celestial map combines fact and imagination, nature and art, 'living' creatures and inanimate objects, land animals and aquatic beasts."

Like "SULU," the celestial map combines fact and imagination, nature and art, "living" creatures and inanimate objects, land animals and aquatic beasts. On the page, the constellations float side-by-side, just as they seem to do in space—guides for helping us navigate across the deserts and seas of our own terrestrial geography. Like Moore's unicorn, the mythical figures in the heavens have become "more real than anything modern man can supply in their absence" (Snyder, 1984: 26).

NOTES

1. Harley and Woodward (1987: 1:68ff); see *The History of Cartography,* vol.2.1-2 (1992-94), for mandalas, and vol.2.3 (1998), for aboriginal maps. What follows is further reading on the maps mentioned in my first three paragraphs: Turnbull (1993) for aboriginal and prehistoric maps; Stott (1995) and Whitfield (1995) for celestial maps; Mollat and Roncière (1984) for portolan navigational charts; Westrem (2001) for the Hereford *mappamundi*; Whitfield (1994: 76-77) for the eagle map; Wallis and Robinson (1987: 68-69) for *Leo Belgicus*; George (1969) for animals on maps from 1500 BCE to 1804; Wallis and Robinson (1987: 160-62) for thematic maps; Hill (1978) and Monmonier (1995: 198-99) for zoomorphic maps, including political cartoons; Hill (1978: figs.6-8) and Whitfield (1994: 128-29) for children's games; Patton (1999) for children's geography texts; the Barbara Petchenik Children's Map Competition, sponsored by the International Cartographic Association (http://collections.ic.gc.ca/children), for animals on children's picture maps; Hunt (1987) for children's fiction illustrated with animals on maps; Emery Walker's map of Thomas Hardy's semi-fictious "Wessex" (in Hardy, 1912) for a famous map-with-animals illustrating a novel; Holmes (1991: 105) for one of many modern advertisements; and Storr (1994: 36) for a fine animal map in art.
2. Lucia Perillo's "The Carta Marina (1539)" can be found on-line at http://www.geography.wisc.edu/histcart/broadsht/brdsh9.html.
3. The other two are "Marriage" and "An Octopus." Moore's poetry notebook of 1922-30, preserved in the Marianne Moore Collection at the Rosenbach Museum and Library in Philadelphia, reveals that lines 77-78 of "Sea Unicorns and Land Unicorns" were originally in her draft of "Marriage" (Rosenbach 7:04:04, 1251/17, pp.1-96, esp. 21). See also Moore's letter of 9 September 1924 to Bryher (Winifred Ellerman): "I have been rather lacklustre about speaking of work that I have been doing off and on for two years, but Mother has goaded me into completing it, so I am again at work on it—two poems, "Sea Unicorns and Land Unicorns," and "An Octopus" which is descriptive of Mt. Rainier in Washington" (Moore, 1997: 208; see Stapleton, 1978: 37 n.20 and 46). The Rosenbach houses a carbon copy of "Sea Unicorns and Land Unicorns" dated 13 November 1924 (Rosenbach, I:04:14).
4. None of these versions is identical in punctuation, in its usage of single or double quotes, or in its line divisions (see, for instance, Moore 2003, 164-66, final line). Between 1924 and *The Complete Poems*, Moore changed a few phrases slightly (see, for instance, Schulze 2002, 327), although not enough to affect my arguments. For convenience, I have

added line numbers to the poem. Note that Simon & Schuster owns the rights to early poems, like "SULU," published in *The Complete Poems by Marianne Moore.*

5. Because later collections tend to compress the notes, those in *Observations* are the most transparent and complete. The notes in *Complete Poems* include line numbers—a convenience marred by the misnumbering of lines 65, 80, and 82 (instead of 63, 79, and 81).
6. Moore's notes and journal (Rosenbach, 7:04:04, Poetry Notebook 1251/7; 1923, pp.90-91, 96) indicate that the following phrases come from Wilson (1922, 131-33, 154-55): the horn worth "a hundred thousand pounds" (lines 11-13); the unicorn in "Sir John Hawkins' Florida" (lines 19-22); and words that originally described Queen Elizabeth's embroidered gowns ("'cobwebs, and knotts, and mulberries,'" line 32) and petticoats ("'snakes of Venice gold,/ and silver, and some O's,'" lines 77-78). Because Wilson also describes the unicorn's capture by the lady, her book provided Moore with both "halves" of "SULU" (see below).
7. Wilson (or an intermediary) misquoted the 1658 source, turning the serpent's "flaming shining eyes" into "flameling shining eyes" (Olaus Magnus, 1658: 235). Wilson's actual words also reveal that Moore chose not to quote her exactly, for Wilson and her source agree that the sea serpent "'disquiets *the* shippers'" (emphasis mine).
8. At the time Moore was composing "SULU," a popular source for the map was Nordenskiöld (1889).
9. Granddaughter of a Presbyterian minister, sister of another, Moore lived for nearly sixty years with her mother until Mary Warner Moore's death in 1947. They resettled on several occasions to keep house for, or simply to be near, their beloved clergymen (1894, 1916, 1929). Throughout her life, Moore neither worked nor socialized on Sundays (Leavell, 1995: 29-30). Her funeral was held at the Brooklyn Presbyterian church where she had worshipped for thirty-seven years (Phillips, 1982: 19).
10. Moore's descriptions of the library are found in her letters (e.g., Moore, 1997: 151 and 157). In 1934, Moore also met her protégé and life-long friend Elizabeth Bishop outside the Reading Room of the research division of The New York Public Library on 42nd Street and Fifth Avenue (Costello, in Moore, 1997: xi). Later that same year Bishop penned her seminal map-poem, "The Map" (see Haft, 2001).
11. The phrase is from Lynam (1949: 40), who, unfortunately, restricted belief in "unreal realities" only to scholars living before 1450.
12. Moore expanded the geographical range of her poem during its composition: its title evolved from "Tropics and Unicorns" in 1922, to "In the Tropics," then to "Sea Unicorns and Land Unicorns" (Rosenbach, 7:04:04: Poetry Notebook 1251/7, 1922-30, pp. 1, 8, 87, respectively).
13. In her poetry notebook of 1923, Moore highlighted the words "I have not seen it myself except in a picture (Herodotus: phoenix)" (Rosenbach, 7:04:04, Poetry Notebook 1251/7, 1922-30, p.92). Moore took the quote and three others on the same page from Bulfinch's *Mythology*, though she does not cite the text in her notebook.
14. In her note on line 66 of "SULU," Moore explicitly attributes to Pliny the detail about the unicorn being "impossible to take alive" (see Pliny, *Natural History* 8.31.76). On the salamander in bestiaries, see White 1954/1960, 182-84 and 236; the animals in "SULU" include the lion (*ibid*., pp.7-11); the unicorn enticed by the virgin (pp.20-21); the beautifully horned, horse-like *monoceros* that can't be captured (pp.43-

44); the hunting dog (pp.61-67); the horse (pp.84-88); the salamander (pp.182-84); and sea creatures that resemble land animals (p.195).

15. In verse, Moore's only other reference to maps occurs in her light-hearted rant against clichés entitled "I've Been Thinking" (1963; Moore, 1967: 237-39): "Though flat,/ myself, I'd say that/ "Atlas"/ (pressed glass)/ looks best/ embossed." She clearly enjoyed maps, however. In a 1921 letter, Moore wrote about seeing Marguerite Zorach's "wool map of New York in minute stitches" at a Wanamaker's show (Moore, 1997: 176; see Leavell, 1995: 120-21, 148). The shape of the glacier on a map of Mount Rainier inspired her to name her companion piece "An Octopus" (Stapleton, 1978: 42 and 240 n.33). In the November 1926 "Comment" section of *The Dial*, she named three early mapmakers whose works had impressed her at a New York Public Library exhibition: Diego Ribera, Girolomo da Verrazzano, and William Burgis (Moore, 1986: 175). From 1943 to 1961, Moore corresponded with American artist Joseph Cornell, who made his own type of collage: boxes fashioned from all types of materials, including maps (Moore, 1997: xii and 562).
16. Although in his later work Olaus would call his map *Carta Gothica* (e.g., *Historia* 2:7), the charted islands and peninsulas were never unified politically under the Swedes or their self-styled Gothic ancestors (Granlund, 1951: 37; Olaus Magnus, [1555] 1972: 20; Olaus Magnus, [1555] 1996-98: vol.1:xl). For an excellent website that displays the separate "sheets" of the *Carta Marina*, see Urness (1999-2001).
17. The detail of the *Carta Marina* made the map impossible to reproduce in his *Historia.* Instead, Olaus recycled a smaller, inferior map of Scandinavia that he had made for Johannes's *History of the Gothic and Swedish Kings* (1554). Olaus retitled the map *Regnorum Aquilonarum Descriptio*, "Description/Drawing of the Northern Realms," then inserted it into the *Historia* after his preface (see Olaus Magnus, [1555] 1972).
18. The image from the *Carta Marina* reappears at *Historia* 21:31, where it illustrates a chapter that doesn't even mention the sea unicorn.
19. *quae [animalium figurae] tamen verae aut ad vivum pictae minime videntur*: Gesner, *Bibliotheca universalis*, fol. 526 (quoted in Nordenskiöld, [1889] 1993: 61).
20. One fine example is a map made around 1561 by Giacoma Gastaldi (Shirley, 2001: pl.92), the renowned Italian cartographer whom Olaus Magnus may have met in Venice in 1537-38 (Lynam, 1949: 15). According to Wallis and Robinson (1987: 160), "by the middle of the sixteenth century the convention of depicting animals on maps and charts was well-established and confirmed in instructional works."
21. Warner (1979: xii-xiii, 31). Illustrated in Dekker and van der Krogt (1993, fig.2); Stott (1995: 6); and Whitfield (1995: 23). The Farnese family who acquired the globe used the unicorn resting on the virgin's lap as their *impresa* (Hall, 2001: 316).
22. The British Library, for instance, owns three copies and a later 1708 edition. According to Peter Barber, Head of Map Collections, the three copies from the 1660s are very different in their coloration. Our Figure 8 comes from the 1660 edition. Of the two 1661 reprints, one is uncolored, like the copy in the New York Public Library. The other features a bluish wash covering all the figures (Peter Barber, e-mail to the author, 27 September 2003). Contrast these to the very differently colored plates from the 1661 copy housed in the J. Willard Marriott Library at the University of Utah (http://www.lib.utah.edu/digital/cellarius.html).

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