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A heart-shaped world:
Johannes Stabius, Oronce Fine and the meanings of the cordiform map.

DISSERTATION
PRESENTED IN PART FULFILMENT
OF THE REQUIREMENTS
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Abstract:

"The heart of the map: material projections in art and cartography" researches uses of cartography in contemporary art. The work explores how visual constructions of the world-image offer opportunities to alter the way we see our world, focussing particularly on the choice of map projection and the material used to make the work. The Dissertation, "A heart-shaped world: Johannes Stabius, Oronce Fine and the early development of the cordiform map", argues that our understanding of a group of cordiform (heart-shaped) maps from the sixteenth century has not fully explained the use of the heart and contextualises its use in cartography of the time. Research taking the form of an installation titled "Between light and dark matters", held at the former Yale Observatory, Mt. Stromlo, Canberra from February 24 - 27, 2005 along with the Report which documents the course of study undertaken and other works made throughout the candidacy, comprises the outcome of the Studio Practice component (66%), plus the Dissertation (33%).

Declaration of originality

I, (..f.F ./.9 .V ../.° S ? ) hereby declare that the thesis here presented is the outcome of the research project I have undertaken during my candidacy, that I am the sole author unless otherwise indicated, and that I have fully documented the source of ideas, references, quotations or paraphrases attributable to other authors.
For my Mother
and
In memory of my Father

*In Manu Dei Cor Regis Est*
Acknowledgments

As I transferred universities in the middle of my candidacy, I have twice as many people to thank. Thanks must first go to my supervisors Dr Martyn Jolly and Gordon Bull, preceded by Dr. David McNeill and Graham Forsyth, all of whom all smiled patiently as I began by wishing to describe the world and all therein. Martyn Jolly and Gordon Bull read every word several times, visited exhibitions and made many helpful suggestions. Post-graduate course co-ordinator Nigel Lendon also helped me navigate this process. Both the University of New South Wales and the Australian National University provided funds to help me attend two international conferences, as did American Friends of the J.B. Harley Research Fellowships for the 2003 International History of Cartography Conference. There I met some great scholars who have been ongoingly helpful with opinions, resources and information, including the late David Woodward. At the 2001 conference The City and The Sea, Nigel Rigby and Jonathan Lamb were both instrumental in aiding an artist’s participation. The Art Theory Workshop of the Canberra School of Art also supported my attendance at the workshop Challenges to Perform in 2003, convened by the eminent Greg Dening, Mandy Thomas and Donna Merrick, an unforgettable experience.

Special thanks are due to two external readers, Helen Ennis and Dr. Robert Karrow, whose respective expertise aided my writing and my understanding of the history of cartography. I have also received advice from other expert scholars: Drs. Waldo Tobler, Keith Hannabuss, Bob Bryce and Tom Conley; some have even tolerated being asked to help with translations, including Drs. Elizabeth Minchin, Ann Moffatt, Judith Holcroft, Graeme Clarke and Hans Kuhn. Maura O’Connor at the National Library of Australia, curators at the Houghton Library at Harvard University and the Map Collection of the Library of Congress were all very helpful. Some private collectors in Sydney also generously allowed me into their home to examine a rare map. Staff at both the Fine Arts Library of the ANU and College of Fine Arts Library were patient with sometimes difficult requests. Gail Craswell of Academic Skills and Study was unsparing in her attempts to improve my writing; this was invaluable.

As my candidacy has largely been exhibition-based, many thanks are due within my arts world(s). Further acknowledgements are therefore also to be found at the start of my Studio Report.
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Murmurs of the heart

It may come as a surprise to discover that Europeans once made some world maps in the shape of a heart. It may be even more surprising to discover that these maps were made in the sixteenth century, that era of great discoveries, and that they were made by some of the finest mapmakers of their time. Since I have been making works of art based on these maps since the mid-nineties, I frequently encounter this surprise. Then I am asked the question: why did the mapmakers use a heart? As I had had my own purposes for using these map projections as a basis for art, I would generally use the answer I had gleaned from cartographic historians. My answer, therefore, would follow along these lines: these heart-shaped maps, known as cordiform maps – from the Latin, cor, for heart – came in the wake of the Renaissance rediscovery of the second century Roman geographer, Claudius Ptolemy. New mathematical projections were being devised either from his suggestions, or extending those suggestions further, especially for the purposes of representing the ‘New World’. But this answer rarely satisfied my interrogators, who would look skeptical or puzzled by this explanation. A new question would follow, along these lines: if the mathematics had produced other similarly recognisable shapes, for example an apple, would that have been used? Since the world map as a three-leafed clover and as a winged horse did appear in the sixteenth century, this question might not seem outlandish.


2 Heinrich Bunting made world maps using both these shapes in the late sixteenth century. The three leaf-clover was the emblem of Bunting’s hometown of Hanover, as well as reflecting a traditional, tripartite
been used. I came to think then, and do now, that the question of why the heart shape was used has not been adequately addressed.

The generalist tone of this opening paragraph is deliberate, for several reasons. One is that this relatively short dissertation is only a part of my full doctoral candidacy, predominantly based on studio practice. Another reason is to indicate the broad, synthesising nature of my study. Contemporary academic scholarship favours a microscopic view, but in the case of cordiform maps a broad consideration of issues surrounding the meaning of their invention has not yet been undertaken. A search for new documents in relation to this subject does not seem appropriate when existing literature and information has not yet been subjected to critical scrutiny or challenge, as I intend to do here. This review of existing attitudes towards the cordiform maps is important as I shall show that a relatively recent issue, concerning the naming and classification of the maps derived from nineteenth century research, has made the subject far more complicated that it needs to be.

To date, only one scholar has made the interpretation of the heart shape the main focus of a study. In 1998 Italian scholar Giorgio Mangani wrote about the use of the cordiform projection by eminent mapmakers of the sixteenth century, bringing out the social and theological interrelationships between these men and their ideas and concluding that the cordiform map was potentially an allegory of religious tolerance. While Mangani discussed Oronce Fine (1494-1555), the first cartographer to make a heart-shaped world map (see Figure 1), the inventor who preceded him was only mentioned. Most of the article focussed on later uses of the projection, from the so-called Map of Hajji Ahmed to works by Abraham Ortelius. Mangani’s article was published in a major cartographic journal and has been cited on at least one occasion.

One fundamental premise of my study differs greatly from Mangani’s. It concerns the issue of naming and classification mentioned above, that have directly influenced which maps are defined as being cordiform. This fundamental difference in approach will lead me to depart from Mangani’s conclusions.

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3 For full reference see n. 1, above. Another author who briefly mentioned meanings of the heart, Monique Pelletier, will be discussed towards the end of Part I.

This reconsideration of what should be called a heart-shaped map is a major departure between my study and the existing literature. This forms the basis of my reevaluation of the early development of the cordiform projection. I shall, therefore, focus on the invention of the projection around the turn of the century by Johannes Stöberer, known by his Latin, humanist name Stabius (?1460-1522), and look at issues at the time of the first manuscript map by Oronce Fine in 1519. That this was the first heart-shaped map is a claim I shall have to justify. Neither Stabius’ original work or Fine’s original manuscript map have survived. This dissertation relies, therefore, on what we know about Fine’s map and Stabius’ invention from later evidence. As mentioned above, a major difference between my study and Mangani’s concerns the classification of cordiform maps, or to be more precise, issues of naming based on the map’s classification. The study of cartography did not run concurrently with the maps or mapmakers themselves and was largely established in the nineteenth century. Contemporary understanding of what constitutes a cordiform map, based on nineteenth century studies, is significantly different to how they were understood in the sixteenth century. This is of great importance in any discussion of the meaning of a cordiform map and subsequently much of Part I is concerned with these issues. I shall, therefore, outline how the cordiform maps have been represented in cartographic histories until the present time. Both of these tasks must be undertaken before extending Mangani’s work in considering a range of extra-geographical issues from the time in which the cordiform maps were invented and first produced. This is the work of Parts II and III, which relate to the cultural contexts around Fine and Stabius respectively.

One idea upon which this dissertation is based is that representations are not separable from the desires, minds and methods that produce them: the map is by definition mutable; it is also, by definition, a projection – using several senses of the word. This attitude stems from my background and training as an artist and has contributed to the directions of this dissertation, taking visual theory, art history and social themes into consideration. Oronce Fine’s legends in his cordiform maps underlined the corporeal nature of the heart-image. Fine’s own words have encouraged me to consider the nascent changes in anatomical investigations in the late fifteenth and early sixteenth century as having an impact upon the development of the map. This was no generalist influence, however; I shall show that François I’s, for whom the map was made, had his own personal relationship to heart imagery. The medico-astrological implications of heart imagery will also continue this focus on the body.
Part II of this study examines issues surrounding the first cordiform map by Oronce Fine in 1519, but Part III moves back in time to the map’s invention at the turn of the sixteenth century. I shall also contextualise the map-idea by Johannes Stabius, who was part of a wide group of humanists and artists working for Emperor Maximilian I. The subject of imperial designs arises even in Part II, as Fine’s map appeared in 1519; this was the year in which François was bidding to become Maximilian’s successor as Holy Roman Emperor. In Part III, I shall propose that some of the reasons Fine and François found the cordiform projection useful in that context was already prefigured at the time of the map’s invention. Visual precursors will be proposed for the map’s invention, showing existing uses of heart imagery, a relatively recent iconographic sign on the rise since the middle of the fifteenth century. Finally, I shall try to untangle an intricate web of possibilities for politico-theological interpretations of the idea of a world map in a heart. An interdisciplinary approach is necessary to attempt this topic; to do full justice to the story of Johannes Stabius requires a consideration of mathematics, court diplomacy, art history, astrology, classical poetry, astronomy and theology. I hope this study will reinvigorate an appreciation of this interesting, and truly interdisciplinary, personality of the early sixteenth century.

Another idea informing this dissertation is that, even in the case of sixteenth century cartography, non-geographical aspects of the map can be equally as important as its ostensible geographic purpose. Since the cordiform maps were referred to in the sixteenth century as “cosmographic hearts”, a fuller view of their role beyond the strictly geographic is justified – if not necessitated – by the mindset of the time. In some ways, this requires considering the map as an image. It follows from this that I shall also place “cartographic imagery” alongside other contemporary images; images between which I suggest a conversation is taking place. One reason for doing this is that these other images suggest possible meanings and functions for a heart-shaped world map at the turn of the sixteenth century. I will suggest that these other, non-cartographic images using the heart may have had a bearing on the development of the map by Stabius and later, Werner, and perhaps even upon their eventual use by Fine and others. This is relatively unusual, as few of the existing studies of cordiform maps look at contemporary visual contexts for these maps.

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5 By Johannes Schöner, in his work Opera Mathematica...in vnvm volvmen congesta, (Nuremberg, Ioannis Montani) of 1551. This will be discussed further in Part II.
6 I am using the word image throughout this dissertation in the everyday sense of a graphic representation.
7 There are exceptions; see my discussion below of Tom Conley’s analysis of the Cimerlino map.
Another important interpretation of the heart involved astrological and medical understandings. Astrological theories were intimately connected with ideas about the universe and its structure—the relationship between the macrocosm and the microcosm—and affected decisions on matters large and small. Each of the planets was considered to have a correspondence with a bodily organ. And astrology bears a direct relationship to the matter at hand, the meaning of the heart image in the sixteenth century. Consider this, from Renaissance historian Eugenio Garin, who wrote:

The same heart-sun correlation on which Galileo insisted, and with which William Harvey opened his *Exercitatio anatomica de motu cordis* (Anatomical essay on the movement of the heart) ‘cor animalium, fundamentum... vitae, princeps omnium, microcosmi sol...’ (‘the animal’s heart is the basis of its life, its chief member, the sun of its microcosm...’), is simply a commonplace inherited from astrological literature.8

If the heart-sun relationship is a commonplace astrological notion, why then is it missing from the discussion of cordiform maps?9 William Harvey, whose exploration of the heart would forever change its role in the scheme of things, was working much later than Stabius, Werner or Fine; yet the microcosmic/macrocosmic notion was firmly in operation centuries before him. Ideas of the sun as the ruler, as synonymous with either God or Christ, predate and feed the new-forming heliocentrisms10 of the fifteenth and sixteenth centuries. This conception of the structure of the universe will be taken into account as part of the cordiform heritage, or even, I would suggest, a ‘cordiform mindset’ of the time.

It is not my intention to offer a single interpretation of the role of the heart in these maps. Even if this study will argue for a range of specific interpretations, it does not

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9 Astrology is not mentioned outright in Mangani’s discussion of Fine, himself an astrologer who was imprisoned, probably for a botched prediction. He does have a footnote to the subject, noting that the heart at the centre was common in astrological circles; ibid, n. 26, p.80. My suggestion is that contemporary medical thinking and practice reflected the commonness of astrological ideas.

10 Copernicus’ heliocentric theory was presaged in the fifteenth century by others such as Oresme, Cusanus and Regiomantanus. Copernicus was also a fervent neoplatonist and his ‘discovery’ must be seen within that context; Ficino’s (d. 1499) *Commentary on Plato’s symposium* is replete with notions of the sun as ‘master and king of the visible universe’. For more discussion on this with references for
follow that others are thereby discounted. Significantly, I shall establish that one of the reasons the heart-shape was used for the maps was due to the multivalency of the meanings for the heart in the period before the Reformation. It is necessary to look at how the image of the heart functioned in a time before it became associated with particular groups, starting with the Society of Jesus. I will show that this early period of imaging the heart offered intriguing, hybrid imagery, which poses questions of the mutability and migration of symbols. Important here is the idea that heart imagery was not yet fixed in connotation and, therefore, that the heart symbol was available for use in a variety of ways. If ideas about the actual, physical heart were undergoing change in this time, would not the imagery also have the potential to signal these changes?

In support of considering the maps alongside other, non-cartographic imagery and ideas, I shall use a point made by David Woodward and G. Malcolm Lewis in their introduction to *Cartography in the Traditional African, American, Arctic, Australian and Pacific Societies*. The point is that the maps discussed in that volume are made for “reasons that are almost always local”. They quoted anthropologist Clifford Geertz on the relationship between context and methodological approach:

> If we are to have a semiotics of art (or for that matter, of any sign system not axiomatically self-contained), we are going to have to engage in a kind of natural history of signs and symbols, an ethnography of the vehicles of meaning. Such signs and symbols, such vehicles of meaning, play a role in the life of a society, or some part of a society, and it is that which in fact gives them their life.... This is not a plea for inductivism – we certainly have no need for a catalogue of instances – but for turning the analytic powers of semiotic theory, whether Peirce's, Saussure's, Lévi-Strauss's, or Goodman's, away from an investigation of signs in abstraction toward an investigation of them in their natural habitat – the common world in which men look, name, listen, and make.\(^\text{13}\)

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1\(^\text{12}\) Ibid, p. 9.

Since maps are clearly not axiomatically self-contained sign systems, there is no reason why this does not apply to maps made today, or those of Europe in the sixteenth century. Geographic historian Denis Cosgrove recently called for more emphasis upon the study of maps within popular culture. To this I would add the study of popular culture within the map, even in the sixteenth century. By doing this I hope to contribute to a discussion about the possibilities for interpretation of the cordiform maps, interpretations that allow a greater appreciation of the multivalent nature of cartography’s visual products.

**It’s the world, ...but not as we know it**

I wish to briefly address some broad issues before this study begins. A contemporary mindset concerning the heart, and even the image of the world, needs to be put aside before a sixteenth century view can be considered. Today, the stylised, iconic image of the heart is only one of many images of the heart commonly in use. Medical imaging has provided us with a quite different picture of the heart than the simplified icon. The relative ubiquity of medical imaging has made us familiar with a variety of such images, from generic diagrams of the heart’s structure to electronically generated images of, perhaps, our own hearts. We may have been exposed to such images either at school, in a doctor’s consulting room, or even through television and film, where the experience of such procedures in dramatic contexts is becoming common. For example, forensic pathology has become a subject for entertainment in the last decades. A twenty-first century western mind generally sees the iconic image of the heart, therefore, in a number of distinct ways. One of these represents romance, affection or love, in a generalised rather than individualised sense. The image of the heart also still appears today in the context of Catholic symbolism, amongst devotees to the Sacred Heart of Jesus, or Mary, or as a Jesuit symbol. Several well-known saints are routinely depicted with heart imagery. With Catholicism’s wide geographical spread, such images can be found in a large number of countries with

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14 A quote from his keynote address at the International History of Cartography Conference, Portland, Maine June-July 2003.
15 This limited number of readings is not new; it was a common reading in the twentieth century and perhaps earlier.
diverse ethnic and cultural backgrounds. To be at the heart of things still means to be at their centre, although this is less often imaged than used as a spoken or written device.

Our contemporary construction of the meaning of the heart image would be alien to an early sixteenth century mind, when the idea of a world map in a heart was first imagined. A physiological description of the heart, based on autopsy, was in its earliest phases and was not available for public consumption. Romantic imagery, mostly from earlier times, used the heart image not in a general sense for love but to refer to the actual organ of the oft-suffering lover. The Counter-Reformation movements that took the heart as their symbol were not yet operational. Even the idea of the heart in relation to Christ’s Passion was only a few centuries old; most scholars agree that its imaging had arisen only in the fifty years or so before the invention of the cordiform maps. Importantly, the heart in either Passion or romantic imagery was resonant with meanings we today no longer accept; those of the heart being the site of memory, perception, knowledge, and the portal, therefore, to wisdom. The Christianisation of pagan beliefs had rendered these ancient ideas inextricable from Christian thought; that which was to be remembered, perceived, known and understood was God. Legends of heart-exchange with Christ, or hearts inscribed with his name set up an almost one-to-one relationship between Christ’s heart and one’s own. A longstanding tradition, derived from Biblical usage and prevalent in Germany, considered and elaborated a metaphor of the heart as a container. A parallel system of correspondences rendered the heart, like the other organs of the body, in a definite and very important place in the world. In the heart’s case, it was at the centre of both the body and the universe, aligned with the sun. Those ideas were deeply entangled with notions of divinity, royalty and leadership. Medically speaking, an eclipse of the sun wasn’t good for one’s health, especially not for rulers; just such an eclipse in 1518 was taken as an omen of the Emperor Maximilian’s death. This roughly characterises the background I will establish for heart shaped maps of the world. Altogether, these contexts expand what scholar Tom Conley called a “cordiform iconography”\(^\text{17}\) alive at the same time into an even broader ‘cordiform mindset’. Meanings based on a twenty-

\(^{16}\) The 1980 Dictionary of Visual Language (eds. Thompson and Davenport, London, Bergstrom and Boyle Books) is a good example: they have the heart as “a symbol of love and affection”, p. 123. The appearance of a heart as a menu icon for ‘Favourites’ on some computer screens is another.

first century version of the meaning of the heart are not particularly helpful and, indeed, can hinder full appreciation of the wider implications this image once had.

Nor was a world map or globe what we often think of today. If forensic pathology as visual entertainment would be heart-stopping to a sixteenth century visitor to our world, so too would our attitude to the imaging of the world. What would cosmographers such as Fine or Mercator make of the globe as a chocolate candy, a rubber bouncy ball, patterns for men’s ties, tissue box covers or the other myriad of global or map imagery available today? A casual perusal of magazines, especially business ones dealing with global trade issues, can reveal a plethora of globe and map imagery, using either as a device for the visualisation of global exchange and connectivity. The world map, as an image, is today available for many to use; common and manipulable in the myriad ways a graphic designer or publications editor may desire. There is no room here to discuss the history of this, but we might note several things about these contemporary usages. One is that we believe a world map to be, somehow, ideologically neutral. Another is the pre-eminence of western images of the world, amongst many alternatives: our versions are supposed to be everyone’s images of the world. Another notion, perhaps underlying the previous two, is about the map or globe as an objective record of the way things are. This idea is so strongly held amongst Westerners that the idea of a world map as an emblem, symbol or spiritual artifact is almost alarming or laughable. Yet world maps are probably the most symbolic items in a cartographer’s palette, even today. A world map on a child’s bedroom wall would be astounding to our sixteenth century cartographers; for them, the world map was a precious, numinous image, for elite consumption. It was a God’s-eye-view, after all. That children use maps and globes for dreaming of futures and possibilities, might be a last, remaining link with past attitudes to these images.

Much of our contemporary mindset – about both the image of the heart and the map of the world – needs to be put aside or recognised for what it is before a sixteenth century point of view towards the cordiform maps might be approached. In this study, I shall present many contexts for understanding the heart image in the sixteenth century. The possibility of focussing directly upon the meaning of the heart has been opened up by my reconfiguration of naming and classification issues. Also, I will focus more upon

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18 The visualisation of geographical information is still a subject of ‘state’ secrecy, for example the United States military use of GPS is structured to operate at a level not available to the general public; this might not be unfamiliar to our imaginary sixteenth century visitors.

19 See Cosgrove, Apollo’s Eye: A Cartographic Genealogy of the Earth in the Western Imagination.
the imaging of the heart than of the role of the map as I hope this will balance the lack of discussion of the meaning of the heart image in cartographic histories.

It is now time to commence my study.
Part I: The cordiform map across five centuries
Figure 2: Peter Apian, Ingolstadt, 1530. 550 x 395mm
Reclassifying the heart

In this section of my study I shall offer a redefinition of the cordiform map that departs considerably from existing histories. I shall do this by examining an important classificatory system devised in the nineteenth century that strongly affected the way in which the maps were perceived. I shall then show how a misconception about that classification came to affect issues of the naming of the maps, resulting in maps that are not heart-shaped being called cordiform. That the majority of scholars investigating the maps have followed this nomenclature has led to confusion about this family of maps, affecting our understanding of their early development and issues surrounding the use of the heart shape. After I have demonstrated that the current system of naming is neither useful nor appropriate, I shall turn to issues of how these maps have been regarded in the histories of cartography. I shall examine the most recent studies, all of which reflect these nineteenth century conventions for the discussion of the heart-shaped maps.

What is a cordiform map? Cordiform maps, at least those of the sixteenth century, were all maps of the world and those earliest versions incorporated the most up-to-date information about the world in their time. All of the extant heart-shaped maps were printed and were therefore part of the booming new print economy. Some of the maps are quite well known in the history of cartography, but most are not; reasons for this will be explored later. The cordiform map was a rare form, largely confined to the sixteenth century. Some reasons for this may become clearer in the course of this study. It could also be said that they were surely amongst the most extraordinary, and perhaps beautiful, maps made in an era of extraordinarily beautiful maps.

The first map relevant to my study, drawn in 1519 by French mathematician Oronce Fine, no longer exists. We only know of this manuscript version because Fine drew another, mentioning his earlier work in the legend of the newer map, titled *Recens et integra orbis descriptio*. This was printed between 1534 and 1536 (Figure 1). In the meantime, another cartographer had printed his own map. The first printed heart shaped map, therefore, was by German Peter Bienewitz, more commonly known as Apian, or Apianus, in Ingolstadt in 1530, sometimes titled *Tabula Orbis cogniti* (from

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1 It is, of course, possible to make your own cordiform map of the world today, but my discussion here is limited to those single cordiform maps of the sixteenth century. Originally I wished to examine the double cordiform maps too but the length of this dissertation was prohibitive.
Figure 3: Giovanni Cimerlino, Verona or Venice, 1566. 520 x 580mm
its dedicatory panel; see Figure 2). Both Fine’s and Apian’s maps are obviously shaped like hearts and were referred to as such in their own time. Apian and Fine were drawing upon earlier work by Johannes Stabius and Johannes Werner (1468-1522), both mathematicians working in the Holy Roman Empire. Werner had published the formulae for the cordiform projections in 1514, noting in his dedicatory text that the idea had come from Stabius.2

Fine’s map spawned several interesting copies, one by Giovanni Paolo Cimerlino in 1566 (Figure 3), one by Giacomo Franco in 1586-87, and another known as The Map of Hajji Ahmed (Figure 4) from 1559 or 1560, containing text entirely in Ottoman Arabic. Unsurprisingly, that unusual map has attracted the majority of the scholarship concerning cordiform maps, although I am referring to around a dozen articles in toto. Oronce Fine in 1534 also designed and published a double cordiform map, and this form was used by Gerardus Mercator in a map often called Orbis Imago of 1538 (Figures 5 and 6, respectively). Fine’s double cordiform map was the model for copies by Antonio Salamanca in 1560-66 and Antonio Lafrieri, after 1566.3 By the end of the sixteenth century the cordiform projection was no longer used and would make only sporadic appearances in the histories of cartography that followed.

Some of what I have written above already assumes a position in relation to issues of map classification. As mentioned, I must justify my claim that Fine’s 1519 map is the first of relevance to my study, since a larger group of sixteenth century maps than those already referred to have been called cordiform. This group includes maps without any overt heart-shape, having upward ‘peaks’ instead of the top-central ‘dip’, less rounded sides and often, a flat bottom (or largely flat bottom with a smallish pointed dip). Sometimes these maps are called pseudo-cordiform or truncated cordiform.4 This group includes some important sixteenth century maps such as

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3 As my dissertation is not concerned with these maps, I have not given their full details. For full descriptions and titles, see Karrow and Shirley, op.cit.

4 Or “so-called cordiform”; confusion about nomenclature is almost as common as the use of the term. For “so-called” (re the double cordiform projection by Fine) see Karrow, op.cit. p. 179; for “pseudo” (about the Sylvanus 1511 map, and Apian 1520 and Waldseemüller 1507) see Keuning, op.cit. p. 11; and “truncated cordiform” (for the Ortelius 1564), see Kenneth Nebenzahl, Maps from the Age of Discovery: Columbus to Mercator, (London, Times Books, 1990), p. 121; also Kish, as per the discussion below.
Figure 4: "The Map of Hajji Ahmed", Venice, 1559? [printed 1795]. 1100 x 1065mm
The first two double cordiform maps of the sixteenth century:
Figure 5 (top): Oronce Fine, *Nova, et Integra Universi Orbis Descriptio*, 1531.
Figure 6 (below): Gerardus Mercator, *Orbis Imago*, 1538.
Please note: in these reproductions, contrast appears exaggerated in the Mercator map and reduced in Fine’s map.
Bernard Sylvanus’ two-coloured 1511 map of the world, Caspar Vopel’s magnificent 12 sheet map of 1558, and the ten million dollar map itself: Martin Waldseemüller’s huge, multiple sheet world map of 1507 purchased for that sum by the United States Library of Congress between 2001 and 2003. Cartographic historian George Kish’s 1965 article The Cosmographic Heart: Cordiform maps of the sixteenth century, largely devoted to issues of classification, accommodated this broad grouping. Kish identified three categories: “true” cordiform maps, double cordiform, and the group mentioned above, that he called “trunctated” versions. Kish considered these versions as a sub-category of the entire cordiform family.

An existing classificatory system laid down in early days of the history of cartography is at the base of this. It was the product of French aristocrat and scholar, Marie Armand Pascal d’Avezac-Macaya, Directeur des Colonies for the Ministère de la Marine in Paris. D’Avezac was in a strong position to have his views taken seriously; he was President of the Société de Géographie in Paris and could read Ptolemy in both Latin and Greek. D’Avezac’s article Coup d’oeil Historique sur la Projection des Cartes de Géographie of 1863 was a major shift in the classification of map projections in its time. D’Avezac invented names for classes of maps, many of which are still in use today. This publication was taken very seriously; one commentator wrote “D’Avezac’s complete historical account….leaves absolutely nothing to be said on the subject.” D’Avezac’s table of maps, classified by groups, was titled “Synoptic chart of varied methods of map projection, classed methodically according to the principle of their construction” (see detail, Figure 7). D’Avezac necessarily advanced the idea of a wider category that included the overtly heart-shaped maps since, mathematically speaking, they and the other maps of the expanded category are indeed related. They can be considered part of a family of ‘equal-area’ maps (see Figure 8). D’Avezac called this group ‘homeotheric’ projections (homéotère) and, consequently, lists Sylvanus’ map of 1511 as the first of the group.

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5 See press releases such as http://www.loc.gov/today/pr/2003/03-110.html. The map used in the extraordinary print known as The World Under the Fool’s Cap from the 1580’s has also been described as cordiform; Mangani included it in his discussion.
6 For full reference, see n.1 above.
7 For full reference, see n. 1, above.
8 Plat-carée, trapezoid, pseudo-cylindrical, conic, sinusoidal and more are amongst the terms first proposed by d’Avezac; other terms conformed to his usage of them. Snyder, op.cit., pp. 5, 8, 10, 12, 49; then 289, n.28.
9 Snyder, op cit, p. 146. The comment was from Thomas Craig in 1882, in his own Treatise on Map Projections for the U.S. Coast and Geodetic Survey.
10 D’Avezac, Coup d’oeil..., ibid, unpaginated foldout.
Figure 7: detail of the synoptic chart from d’Avezac’s *Coup d’oeil Historique...,* 1863.

Figure 8: Clearly of one family, should they all be called heart-shaped? Diagram kindly supplied by Dr. Waldo Tobler, Professor Emeritus of Geography, University of California at Santa Barbara.

Figure 9: Map of the world by Jodocus Hondius of 1589, based on Ortelius’ map of 1564 (large in size and hard to reproduce here, as is the Waldseemüller of 1507). Reproduced and discussed in Mangani’s article, p. 69, this is an example of a map often called cordiform.
There are two issues of importance here. The first is that d'Avezac’s knowledge of these underlying relationships between all the different maps is based on developments in mathematics from the seventeenth century. Mapmakers or mathematicians of the sixteenth century did not know of these relationships. In some senses then, the grouping together of these maps is a form of retrospective attribution. Even if this classificatory system is still useful today, it is very significant for the study of cordiform maps that in the sixteenth century this connection was not made. Sixteenth century commentator Johannes Schöner – publisher of the most up to date works of science, including Copernicus’ theories – did not include the Sylvanus or Waldseemüller maps in his description of the pedigree of the projection, referring only and with the greatest respect to Fine and Apian. Another early commentator on these and other map projections of his time, Jacques Severt, in 1598 referred to Oronce Fine as the first maker of such a map: “...the first heart of Oronce, which is so called because it truly displays the image of the heart of living beings...”. It is notable that the appearance of the shape in relation to the body was mentioned, and accepted. Surely the designation ‘cordiform’ to cover maps that do not appear in any way heart-shaped is open to question.

The second issue of importance, therefore, is the naming of the wider group, as this has significant consequences in relationship to any meanings attributable to the heart-shape. If Sylvanus’ 1511 map, or another by Apian from 1520, or later works by Ortelius are to be taken as cordiform maps, then it is not really possible to argue for meanings associable with the heart shape per se, or speculate upon related motivations for their invention, construction and use. Furthermore, iconographic differences are not the only basis for making a distinction amongst the class of maps shown in Figure 6. Only the single and double cordiform maps use the pole as their standard parallel; the Bonne maps at the other end of the continuum do not. As map projection expert Waldo Tobler put it, concerning the homeotheric maps as represented in Figure 6:

First they are all equal area maps. One way of looking at this is that they are all Bonne Projections but this projection has a standard parallel along which the

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11 D’Avezac, Coup D’Oeil... ibid, unpaginated classificatory chart plus text, p. 467.
12 Schöner, writing in Opera Mathematica (1551) focussed upon the mapmakers. Although Werner was not mentioned, neither were mapmakers Sylvanus or Waldseemüller. Opera Mathematica will be revisited in the section on Fine.
13 From Jacques Severt’s work De Orbis Catoprici, seu, Mapparum mundi principiis, Paris, Ambrosium Drouart, 1598. Unpaginated (seen at the New York Public Library). The translation is taken from Karrow, op.cit., p. 171. Fine’s own words on the subject of the heart-shape will appear in Part II.

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scale is correct. ... When this standard parallel is the equator it is known as the sinusoidal projection. When the standard parallel is the North (or South) pole it's the Werner (Stab-Werner) projection. From a mathematical point of view they are all the same but using a different constant for the standard latitude. It is possible to do an animation in which the standard parallel varies from zero (the equator) to 90 degrees (the pole) by small increments (essentially continuously) between these two locations and getting all of the intermediate maps. So the best way to distinguish these many maps is to specify the standard parallel.14

Although d'Avezac was the first to identify and promulgate the idea that the heart-shaped maps were part of this wider class of equal-area maps, nowhere in Coup d'oœil... did d'Avezac call the entire group cordiform. On the contrary, he had coined his own term for the family of maps, calling them ‘homeotheric’. In an article two years later, Note sur une Mappemonde Turke...15 d'Avezac actually made a distinction between the cordiform and other variants of the homeotheric group, those retrospectively called Bonne projections, and those directly based on Werner’s treatise. Since d’Avezac also noted that it was Oronce Fine who had made popular the projection “justly compared to the outline of a heart”, I think it very unlikely that he would have ever considered using the name for the cordiform maps as synonymous with the entire group.16 As this has important implications for my study I must look further at d’Avezac and subsequent histories.

D’Avezac’s identification of the relationship between the Bonne and cordiform maps was adopted by others who were perhaps less careful with any distinctions between the groups. Siegmund Günther’s extended article Johann Werner aus Nürnberg und seine Beziehungen zur mathematischen und physischen Erdkunde, still quoted today as a major source of information about Werner’s mathematics, used particularly strong language. In 1877, two years after d’Avezac’s death, Günther wrote:

Up until recently it was assumed that Werner's work was, on the whole, original and not influenced by older role models. D’Avezac's critical knife has, as is common, destroyed this illusion...17

14 Personal email communication, 8 July 2003. Dr. Tobler is Professor Emeritus of Geography at the University of California at Santa Barbara and a recognised international expert in map projections.
15 For full reference, see n.1 above. This article will be further discussed later.
16 D’Avezac, Note.... op.cit, p. 679.
17 “D’Avezac’s kritisches Messer hat hier, wie auch sonst oft, eine Illusion zerstört...” Günther, Siegmund, “Johann Werner aus Nürnberg und seine Beziehungen zur mathematischen und physischen...”
According to Günther, d'Avezac “proves that Bernhard de Sylva... had published "un aspect cordéiforme [sic]". While D'Avezac did use this phrase, it was in a sentence listing two different manifestations of the homeotheric group, not as a title for the entire group. Günther also stated that Sylvanus’ “Nuremberg successor [i.e., Werner] had the sole job of mathematically working out all the raw ideas until they became complete.” That Werner was responding to Sylvanus’ work is not an idea found amongst sixteenth century commentators; it is a consequence of d'Avezac’s identification of the mathematical relationship between these maps, a relationship that was not known at the time. Eventually, Günther was not alone in naming the entire group of maps cordiform. In the decade after d'Avezac’s death in 1875, almost any cartographic historian of any note linked the broader category of maps with the term cordiform.

I do not challenge the fundamental idea that these maps are mathematically related, only the naming of the ‘expanded’ family group as cordiform. As the knowledge required to understand the relationships between the instances of the wider group was not yet operational in the sixteenth century, our later appreciation of these relationships has impacted our interpretation of the heart-shaped maps of that era. There is another issue of perhaps even more relevance. ‘Homeotheric’ was not an appropriate term to apply only to this small family of maps; many more equal-area projections were developed in both the nineteenth and twentieth centuries, not related to the Bonne/Werner continuum. The term ‘homeotheric’ implied this equal-area property and could not usefully be applied to only this small group of maps. As the Bonne projection was often in use during the twentieth century for regional maps in atlases, ‘Bonne’ also would not have been a useful name to apply to the group. It may have to be admitted that for the English speaker, the term ‘cordiform’ seems more abstracted than its actual meaning, heart-shaped; so perhaps this was another reason for its application to the entire group. Finally, the sixteenth century

Erdkunde”, from his Studien zur Geschichte der Mathematischen und Physikalischen Geographie, Verlag Louis Nebert, 1877, p. 303.
18 “…la reproduisirent sous cet aspect cordiforme ou turbiné…” The ‘it’ (la) referred to was “la projection homéothère”, i.e., the entire group. D’Avezac, Coup d’œil historique... op.cit., p. 467.
19 This sentence and “un aspect cordéiforme”, Günther, op.cit, p. 303.
20 The name ‘Bonne’, often used for those at the other end of the continuum to the heart-shaped maps, is another retrospective attribution in operation. If it were used as the name of the entire group it may have less confusing consequences, but perhaps my unwieldy ‘Bonne/Stab-Werner continuum’ could also do. See Snyder, op.cit., p. 60.
21 Many equal-area maps exist; for summaries of nineteenth and twentieth century examples see Snyder, op.cit, pp. 150-154 and 277-286.
understanding of the maps is surely more relevant to a discussion of their meaning and use at that time.

Further support for my position comes from two more recent sources. Although the term cordiform became common for the wider group after d'Avezac's time, it is notable that in his comprehensive 1993 book *Flattening the Earth: 2000 years of map projections* John Snyder does not refer to either the Waldseemüller or Sylvanus maps as cordiform.23 Snyder may have been influenced by an article that perhaps should have registered more strongly with George Kish, being published a decade before his own: Johannes Keuning's *The history of geographical map projections until 1600*. This article was published in 1955 and due to its valuable and detailed scholarship remained a standard text on the subject until the publication of Snyder's book.24 Keuning carefully traced the histories of and distinctions between the groups.25 In Keuning's classificatory system, Kish's "truncated" group appeared in a separate category called "pseudo-cordiform". The caution of scholars such as Keuning and Snyder notwithstanding, some have not hesitated to describe these other maps as cordiform.26 Although this broad nomenclature is still common and perhaps increasing due to the extensive coverage of the purchase of the Waldseemüller map, I am basing my analysis on a definition of cordiform that effectively excludes the broader group.

In d'Avezac's system of classification, it is quite possible to see the influence of the Linnean system and the abandonment of "non-scientific" notions in the pursuit of this task. The findings of his classificatory system are not here under question, but two issues have arisen. One is the mistaken use of the term cordiform for all the members of the Bonne/Wemer continuum. The other is that other kinds of classifications might be more relevant and useful in our understanding of cordiform maps. For example, what is their relationship with other early sixteenth century images using the heart? Where might a heart fit in with depicting the New World? What features, if any, do these maps share with other, non-cartographic images of the same time? D'Avezac's definition has been useful to help us understand mathematical interrelationships and

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22 Snyder, op.cit. p. 181 for a table of twentieth century usage of map projections in atlases.
23 Snyder, however, clarifies the issue only when discussing Bonne himself. Snyder, op.cit., pp. 60-61. See pp. 33-38 on the single and double cordiform maps, and pp. 52-54 for Snyder's classifications.
25 Keuning, ibid, p. 11.
26 Cartographic scholar Mark Monmonier, in private conversation at the ICHC 2003, in answer to my question "why are the Waldseemüller and other similar maps included in the cordiform category?" replied (provisionally, on the spot) that perhaps the term was used to give the map a certain cachet.
Cardiac arrest: cordiform maps in the history of cartography

From this discussion of the classification of maps, we can see how the era in which the study is undertaken influences the approach to maps. The description and understanding of cordiform maps was, therefore, no exception. In this section, I shall outline how they have been represented since the inception of the discipline, the history of cartography, from the mid-nineteenth century. I use ‘the inception’ rather than ‘the establishment’ of the discipline as over one hundred years later, in 1987, in the preface to the first volume of the *History of Cartography*, editors Brian Harley and David Woodward wrote:

As an independent subject, the history of cartography occupies a no-man’s land among several paths of scholarship. History, Geography and Bibliography, for instance, are well represented in literature, but the treatment of maps on their own terms is sketchy. Theoretical studies of the nature and historical importance of maps are relatively few.²⁷

Although much has changed in the nearly twenty years since this was written, this is surely a surprising claim for a discipline towards the end of the twentieth century, especially for a subject with so long a history. This raises many questions, such as why this study came so late, and why other existing disciplines had not embraced it.

Maps had no contemporary Vasari to trumpet their glories or muse upon their makers. Maps did not, like aesthetics or music, have centuries of theory about their nature and purpose to rest upon, or perhaps be limited by. A history of cartography would have been unthinkable during the Renaissance itself, as maps often contained material of a commercially sensitive nature, important to the nation states that had commissioned them. Diego Ribiero’s world map of 1529 famously – and falsely – placed the Moluccas east of the Tordesillas Line, thereby making them part of Spain’s, and not

Portugal’s, domain. Comparative studies, whether public or private, of other world maps of the same era would surely not have been in Charles V’s interest.

One important reason a history of cartography could not exist during the Renaissance has to do with the classification of disciplines themselves. Cartography as we know it today emerged from the discipline of Geography, itself emerging during the Enlightenment from the broader field of Cosmography. This division of disciplines stemming from the Enlightenment has become quite cemented into place(s) in our own time. One significant feature of the split from Cosmography was the adoption of empirical, autopic methodologies that, amongst other things, sought deliberately and consciously to exclude social and theological features from consideration. As we shall see, recent scholarship has been trying to reintegrate the science of the Renaissance with co-habiting paradigms of astrology, cabala, neo-platonic thought, theologies, and so forth. Gerardus Mercator, so often described as the founder of modern, “scientific” cartography, wished he could have devoted his life to theological history, of which cosmography and, therefore, his mapping activities, were a part. Both Mercator and Fine’s first maps were of the Terra Sanctae, the Holy Land. The world’s first atlas by Abraham Ortelius of 1570 has been convincingly described by scholar Luca Nuti as a device for the contemplation of human ethics in relationship to God’s plan for the known world. While I shall discuss the comments of contemporaries in the sixteenth century on the cordiform maps in Parts II and III, it is not really until the mid-nineteenth century that the cordiform maps appear in what could really be called histories of cartography.

Paris in the middle of the nineteenth century was the site of the first clear grouping of scholars of cartography. The most notable included the Viscount de Santarem, a Portuguese nobleman living in exile in Paris; Edme François Jomard, the French founder of the Maps and Plans Department of the future Bibliotheque Nationale; Polish émigré Joachim Lelewel and several others. They were not the first to write

29 From the sixteenth to eighteenth centuries, the notions of cosmography and geography had been inseparable. See David N. Livingstone, The Geographical Tradition: Episodes in the History of a Contested Enterprise (Oxford: Blackwell, 1992), pp. 12-23.
30 Mangani is good on the subject of Mercator’s religious beliefs. Mangani, op.cit. n. 16, p. 80.
upon the subject; Santarem referred to earlier articles, although he described them as ‘curiosités’. Santarem and Jomard had a famous rivalry over who was the first to think of the history of cartography as a discipline. Santarem’s coining the term ‘cartography’ and the publication of his work in 1849 – an earlier date than Jomard’s – seems to have resolved this debate, at least in our time. Unfortunately, none of these men were concerned with any of the cordiform maps.

Santarem wrote *Essai sur l’histoire de cosmographie et cartographie pendant le Moyen-Âge et sur les progrès de la géographie* to provide evidence for the contribution of the Portuguese and their maritime achievements as a contribution to human civilisation. Appropriately for his task, Santarem’s focus is on the portolan tradition (mariner’s charts) and the nature of particular discoveries and ‘firsts’, especially regarding the coast of Africa, about which heated debate ensued. Santarem’s *Essai…* was followed by its companion piece, a ‘facsimile’ atlas of 1849-52 titled *Atlas composé de Mappemondes, de Portulans et de Cartes Hydrographiques et Historiques depuis le Vlieme jusqu’au XVIIieme siècle*. This work may have been originally motivated by his nationalistic pride, but as Santarem continued with the work – three of six planned volumes were published – he moved away from the nationalist concerns towards issues of ‘progress’ and ‘development’.

Santarem’s model of the gradual takeover of one system by another (especially the medieval *mappemonde* by the *portulan*) has had an immense influence upon the history of cartography as a discipline: this is a common theme of most published

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33 There may be one exception: a single eighteenth century article on *The Map of Hajji Ahmed,* by S. Assemani: “Dichiaratione d’una mappa turcesca incisa in quattro tavole ritrovate nell’archivio dell’Eccelso Consiglio de’ Dies”; Venice, 1795. The reference is in Fabris (see n. 66, below).


37 I have put facsimile in quotes because this was an era prior to photo-mechanical reproduction, which is how we use the term today. Santarem’s maps are copied by hand.
histories, even recent ones. The imprint of European expansionism upon the study of maps, therefore, has been considerable. It cannot be denied that exploration produced new knowledge in the west, and that this knowledge needed a visual form of representation and distribution, thereby producing changes within the representational process itself. While this is part of the history of what happened, however, it is not automatically the most important feature of cartography. It is simply a large part of how we present this history in the West. The history of cartography could have focussed on other, similarly worthy, legacies.

Amongst the next group of significant map historians was one who was very interested in the cordiform map. One of Santarem’s younger rivals was French nobleman Armand d’Avezac-Macaya, who we have already met as a founding expert in map classification. D’Avezac had supported other French critics of Santarem’s such as Louis Estancelin over the issues of the African discoveries. This did not stop d’Avezac from having friendly relations with Santarem, even helping him occasionally with the *Atlas composé de Mappemondes*... It is not impossible that the context of nationalistically-inspired scholarship inclined d’Avezac towards a more Frankish-oriented cartographic history, with greater consideration of the works of Fine and the Germanic scholars and traditions with which he was associated.

Two years after the classificatory *Coup d’oeil historique*..., d’Avezac published an article – really a supplementary publication to a journal – dedicated to one of the cordiform maps, “*Note Sur Une Mappemonde Turke du XVIe siècle, conservée à la Bibliothèque de Saint-Marc à Venise*”, about the Map of Hajji Ahmed. D’Avezac examined the provenance and authorship of the map as well as its geographical contents. No discussion of the meaning of the heart shape was undertaken, although it is arguably even more intriguing in an Ottoman context. As I have noted, d’Avezac

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41 d’Avezac-Macaya, "Note Sur Une Mappemonde Turke Du Xvie Siècle, Conservée à La Bibliothèque De Saint-Marc à Venise,", pp. 674-757.
commented that the shape of the map is justifiably compared to the outline of a heart, like the one made by Oronce Fine. That this observation was not accompanied by any history of its meaning indicated that by this time, any meaning associated with the map had been lost. D'Avezac had to assume that the development of new, equal-area projections derived from Ptolemy was enough to explain the shape. As I have shown, d'Avezac's writings affected the descriptions of cordiform maps in most histories to come. The cordiform map will now appear in two main contexts, one stemming from classificatory passions and models of development. The second context is one that was not yet of interest in D'Avezac's time and concerns only the double cordiform map: who wrote 'America' on what map first.

The examination of the cordiform projection in the context of the Renaissance rediscovery of Ptolemy was continued and elaborated by Scandinavian minerologist and explorer, Adolf E. Nordenskiöld. His Facsimile-atlas to the early history of cartography with reproductions of the most important maps printed in the XV and XVI centuries was published in 1889. A beautiful, large and expensive production (like Santarem's Atlas, if the facsimile of the facsimile is anything to go by), Nordenskiöld's Facsimile-Atlas..., published in both Swedish and English, was arguably of even greater influence than D'Avezac's article, published only in French, in a scholarly journal. Even in the twentieth century, some thought Nordenskiöld's work would never be superceded. Nordenskiöld's Facsimile-Atlas... contained an entire chapter on map projections. Cordiform maps appear as part of Section C, “Map projections introduced during the first half of the 16th century”. He included two illustrations, made especially for the publication (and subsequently reproduced elsewhere) of Werner's first and second projections. These illustrations were designed to demonstrate the extent of the projection regarding equatorial longitude, or rather, how much of the world can be seen in each of the two projections. He also reproduced the 1566 Cimerlino map, which was based on Fine's single cordiform map. Nordenskiöld's cordiform category, however, begins with Peter Apian's 1520

42 D'Avezac, Note..., ibid, p. 679.
43 Fine's 1531 map was also a 'first', in its use of the term Terra Australis.
45 This facsimile atlas used photomechanical reproduction; for the first time, readers were looking at images of the actual maps themselves.
46 Kish, ibid, p. 498. The comment was originally from Leo Bagrow, but echoed by Kish and later, in discussion, by R.A. Skelton: despite their acknowledgment that, in many instances, Nordenskiöld's theories had indeed been superseded.
world map, one of the broader category discussed above. Nordenskiöld makes no attempt to discuss any meaning inherent in the choice of the heart shape; his focus was clearly on ‘developmental’ issues.

The first half of the ten chapters of the Facsimile-Atlas deal with ancient maps, mostly derived from Ptolemy, and the second half is largely concerned with discoveries, projections, then what Nordenskiöld calls the ‘early’ period of cartography followed by a transition to ‘the modern period’ (Gastaldi, Apian, Ortelius and Mercator). This division follows and reinforces the traditional notion of the epistemological revolution of the Renaissance, valorised and reified with reference to its chosen precursors and influences, Ptolemy in particular. As the history of cartography continued with this theme of progress and development, an obvious consequence was the diminution of medieval cartography (or to be more precise, the entire period from Ptolemy himself to the early Renaissance). With this kind of interpretation to the fore, any tendencies resonant of the late Middle Ages in the cordiform maps could not be recognised.

Nationally oriented accounts of cartographic history flourished in the late nineteenth century. In France, geographical scholar Lucien Gallois was interested in Oronce Fine and his first map of France. Gallois was in an excellent position to write upon Fine and the cordiform maps, as his doctoral thesis was Les Géographes Allemandes de la Renaissance, a book with three chapters on the schools of Nuremberg, one almost completely devoted to Werner. In directly addressing the work of Fine, however, Gallois had to undertake a mammoth task: the resurrection of Fine’s reputation, which had languished somewhat since his own time (more on that subject later). Gallois’ 1890 book De Orontio Finaeo Gallico Geographo firmly put Fine back on the map.

47 Based on Werner’s own diagrams, but more finessed; they are therefore often reproduced instead of Werner’s. It may be worth noting here that one of Nordenskiöld’s errors was to have wrongly attributed the use of Werner’s second projection to Fine in one instance; See Snyder, op.cit., n. 87, p. 292.

48 Twentieth century historians of cartography have often noted the hard work needed to resurrect the value of medieval cartography. Evelyn Edson, author of the 1997 Mapping Time and Space: How Medieval Mapmakers viewed their World (London: British Library) begins with this point in her preface: “Until the recent revolution in the history of cartography, medieval maps were looked upon as quaint, amusing, and quite simply WRONG.” (the opening sentence, p. vii). Nordenskiöld describes medieval ‘zone-maps’ as “roughly designed drawings”. (Nordenskiöld, op.cit., p. 85).


50 Gallois’ De Orontio Finaeo Gallico Geographo (Paris: E. Leroux, 1890) is in Latin; while I have examined it at the New York Public Library, most of what I understand of it is from Richard Ross’s dissertation Studies on Oronce Fine (1494-1535), Columbia University Phd, 1971; see p. 264f.
Sadly, for my purposes, Gallois was unconcerned with any meaning related to the use of the heart.51

Nordenskiöld’s and even Gallois’ work continued to reflect concerns that would continue to be raised for decades to come: the interrelationships between geography, exploration and the ongoing project of European expansion. Notably, Nordenskiöld himself said his Facsimile-Atlas… was to “to supply a defect in the geographical literature of the day” [italics mine]. Notions of progress in cartography were firmly combined with geographical ideas. The context of British nationalism and its legacy of empire resonated through C. Raymond Beazley’s three volume *The Dawn of Modern Geography*, a work published over almost a decade, the first volume appearing in 1897, the second in 1901 and the third in 1906. A product of its time, Beazley referred to races, and Dark Ages (“those centuries when the tide of life seemed ebbing”)52 alongside advances and developments. The privileging of medieval maritime and explorative traditions over religious or symbolic systems continued.53 The importance of expansionism was clearly aligned with notions of value:

Geographical progress of the Middle Ages and of modern times is, from our point of view, essentially connected with the expansion of Europe and Christendom into its present dominion over the best and largest part of the earth... And the history of this progress falls naturally into two parts – the medieval time of dejection and recovery, and the modern age of consequent success.54

Clearly it was going to take some time – and a major shift in epistemologies – before the rhetoric of the day could more positively accommodate the heart-shaped maps.

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51 Written after D’Avezac’s two articles, Gallois rejects the term hométère for Sylvanus’ map on the basis of Ptolemy’s distinction between his first and second projections – in Greek, which I have not had translated. See *Les Géographes Allemandes…*, n. 3, p. 127.
53 Beazley, however, seems to have acted out of some repressed fascination/horror for the medieval: the bulk of his three volumes are filled with the “monstrosities” of medieval mapmaking. Beazley, ibid., p. 528.
54 Beazley, ibid., Volume One, Chapter One, Page One.
Worrisome palpitations

As one dominion was faltering, another was growing. By the twentieth century the increasing dominance of America would create a new issue that histories of cartography would now all have to comment upon: which map first used the word ‘America’? In the years after World War II, several eminent scholars published general introductions to the history of maps and mapmaking. In these works, cordiform maps did appear, or to be more precise, one of them regularly appeared. The Mercator double cordiform map of 1538 was reproduced mostly for one reason; its use of the word ‘America’. Leo Bagrow and Lloyd Brown, two of these eminent historians of cartography, both reproduced the Mercator double cordiform map in their respective books, *History of Cartography* and *The Story of Maps*. Brown’s illustration was accompanied by the caption “Mercator’s map of 1538, naming North and South America for the first time”, also noting that Mercator used ‘America’ after Waldseemüller in 1507 (hence the large sum of money for that map’s recent purchase). Mercator did have the added distinction of using the name for both northern and southern parts of the land-mass. Brown described the Mercator map as being on an “unusual” projection, used before by Oronce Fine. It was also noted for its “more advanced” hypothesis of a northwest passage between Asia and North America.

Bagrow’s case was a little different. This broad yet still scholarly book could have been directed at both a lay audience and, in its depth of knowledge, other historians of cartography. He reproduced the Mercator 1538 map, without mentioning its ‘first’ in naming, instead noting that it was based on the work of Fine (and calling it double heart-shaped). Peter Apian’s 1530 single cordiform map was one of the many plates in the book; both Werner and Stabius are credited. Other cartographic works by Stabius

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55 Leo Bagrow and Raleigh Ashlin Skelton, *History of Cartography* (London: C.A. Watts, 1964) was published in English in 1960, from the German 1951 *Geschichte der Kartographie*. Bagrow’s bibliography cites several early authors on the history of cartography; see p. 284. He has 10 items listed from before the 1890’s.

56 Lloyd Arnold Brown, *The Story of Maps* (Boston: Little, Brown, 1949) was first published in 1949; his *Map Making: the art that became a science* was 1960. I have used the Dover Edition of *The Story of Maps* from 1977 here.

57 Brown, *The Story of Maps*, ibid., p.159. A continuing consequence of the ongoing focus on geographical content rather than representational languages is that it is still common for us to consider the information ‘in’ the map separable from the visual forms that represent it. *The Story of Maps* has a section on Mercator and one of the aims is to present the idea that he “…perhaps did more than any other one man to raise map making from a low art to an exact science.” Low art, exact science: this concept is echoed in the title of Brown’s 1960 book, *Map Making: the art that became a science*. (Brown p. 158). As a scholar of the mid-twentieth century, Brown was not predisposed to an art that was a science. Chapter 5, on pre-Renaissance maps, is titled “The End of Make-Believe”. The overt dedication in
are discussed: his collaboration with Dürer of 1515, the lost maps of Austria58 and his work on an instrument for measuring altitudes and distances, based on earlier work by mathematician Georg Peuerbach.59 While Bagrow is happy to devote chapters to “Nautical cartography of the sixteenth century” or “The cartography of the Great Discoveries”, his overall interest was in what he called “the externals of maps” or maps as craft products.60 One can, therefore, also find chapters upon “Map Workshops and the world map in the sixteenth century” and a postscript on “Craftsmanship and design in early cartography”. All cartographic products were placed in their social and cultural context, as much as was possible in a work spanning so broad a terrain (the earliest maps, the mapping of America and some historical Asian cartography were all covered).

Another overview of map history in the mid-twentieth century was R.V. Tooley’s *Maps and Map-Makers*, first published in 1949 and running to multiple editions (a seventh edition was published in 1987).61 While Tooley did not illustrate any of the cordiform maps, he devoted a paragraph to the work Oronce Fine, mentioning twice that the maps were “heart-shaped”.62 Neither ‘cordiform’ nor ‘heart-shaped’ is used in the section dealing with Mercator, “the greatest name in geographical science since Ptolemy”.63

Few of these general overviews, excellent as some of them are, escape the still dominant themes of the ‘progress’ of mapmaking towards representational ‘accuracy’ and the related issue of the impact of western exploration and expansionism. It is perhaps unsurprising, therefore, that most research into cordiform maps appears in articles by scholars not involved in these popular publishing ventures. Indeed, the post- World War II period saw a comparative rush of articles on matters cordiform. 1955 saw Keuning’s “The history of geographical map projections until 1600”, including the section on cordiform maps that I have discussed earlier.64

Mercator’s double cordiform map to Johannes Drosius – a noted humanist, also imprisoned for heresy along with Mercator in his early years – is certainly not mentioned.

58 Bagrow, op.cit., p. 156. In 1505, Stabius was commissioned by Maximilian to survey Austrian lands and produce maps from his findings; sadly, none have survived.


60 From the Introduction by R.A. Skelton, ibid. p. 6.


62 Tooley, ibid, p. 38. Tooley’s book was directed at an intelligent, but non-expert reader, so using a technical term such as cordiform may have been deliberately avoided. But using the term ‘heart-shaped’ might raise the question of why the heart was employed, a subject perhaps more easily hidden behind a technical term. Not that Tooley approached this question.

63 A claim for which no reasons are given in the text, ibid, p. 31.

produced two works, the 1957 *The Suppressed Turkish Map of 1560* and 1965’s aforementioned “The Cosmographic Heart: cordiform maps of the 16th Century”. Oriental scholar V.L. Ménage wrote his magisterial “The Map of Hajji Ahmed and its makers” in 1958. Through a detailed analysis of linguistic evidence, he ultimately concludes the map’s authorship to be a fiction, of still unknown intent. Ménage’s scholarly article revealed even greater complexity than had been before considered and read like a tale from Borges.

Two of these articles refer to only one of the maps, the 1560 *Map of Hajj Ahmed*. As already mentioned, this Islamic-scripted yet western map has attracted ongoing scholarship even before the time of d’Avezac. While both of Kish’s intriguingly-titled articles are full of scholarly detail, neither attempts any interpretation of the map’s shape and despite the title of his second article, Kish does not explore the cosmographic nature of the cordiform maps. Ménage’s article is concerned solely with the complicated issue of the map’s authorship. *The Suppressed Turkish Map of 1560* and a 1989 article by Antonio Fabris also investigate aspects of that map’s history, as convoluted as its authorship. I will not be discussing the map directly, although I hope that my conclusions will have implications for future study of this map. I will return to this in my conclusion, Part IV: “Last Words”.

Recent cartographic histories: a more cordial affair?

Volume One of *The History of Cartography*... followed its Introduction with a sub-chapter on the development of the discipline itself, titled “The History of Cartography as Handmaiden: Traditional Themes From the Nineteenth Century”. Brian Harley’s account of the history of cartography was a depressing read, even into the twentieth

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66 Antonio Fabris’ article “The Ottoman Mappa Mundi of Hajji Ahmed of Tunis” includes references for several articles not mentioned above; one by Assemani is dated 1795, which may make it the first scholarly article upon any of the cordiform maps. Fabris’ article was first published as “Note sul mappamondo cordiforme di Haci Ahmed di Tunisi” in *Quaderni di Studi Arabi*, 7, 1989, pp. 3-16. The most recent article on the subject of this map is by Benjamin Arbel, “Maps of the World for Ottoman Princes? Further Evidence and Questions Concerning ‘the Mappamondo of Hajji Ahmed’,” *Imago Mundi* 54 (2002), pp. 19-29. Arbel further investigates issues of its commissioning, perhaps from within the Ottoman Royal family itself.
century. He noted, despite an increase in scholarship, forums and the work of committed individuals, a decrease of interest in the twentieth century from the discipline of geography. Perhaps this shift away from geography was just what was needed to escape the role of the study of maps as a “handmaiden” to other disciplines. Eventually, a conversation with semiology was begun and the role of map study within the humanities was increasingly recognised. The humanities themselves, however, only vaguely appeared in his chapter. Perhaps Harley was writing in the calm before the storm.

Today, numerous scholars from a variety of disciplines are concerned with critiquing maps and some of the contextual histories that surround and valorise them.68 From the 1980’s and onwards a variety of books and articles were published that provided challenges to the status of the map as an objective record or as a simple reflection of reality. Developments in anthropology, literature, social theory and even the visual arts began to impact upon other fields of enquiry. Some of these theories were structuralist, some post-structuralist, others postmodern. There was a shift away from the cataloguing of ‘developments’ in the depiction of a coastline or the publishing of *catalogues raisonnées* on the works of individual cartographers or eras, useful as this work still is. I am being simplistic here; many map historians have been concerned with wider contexts in which any particular map was produced. Nevertheless the sudden demands to bring previously ‘background’ issues to the fore produced interesting clashes of cultures, insights and scholarship.

The chapter on the history of the history of cartography was written at a turning point for Brian Harley himself, as he was to become one of the leading proponents of the new theories as applied to cartography. The introduction to the first volume of *The History of Cartography* series was published in 1987, and in the following two years the articles with which Harley was to become synonymous were published. “Maps, Knowledge and Power” and “Silences and Secrecy: The Hidden Agenda in Early Modern Europe” both appeared in 1988,69 and “Deconstructing the map” was first

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68 See my bibliography for works by Jeremy Black, Jeremy Brotton, David Buisseret, Paul Carter, Tom Conley, Denis Cosgrove, Felix Driver, David Livingstone, Gillian Rose, Frank Lestringant, David Turnbull, Denis Wood and many more. Some of this change can be credited to *The History of Cartography* series.
published in 1989.70 In the second article Harley wrote "...cartography was primarily a form of political discourse concerned with the acquisition and maintenance of power."71 Goodbye catalogues raisonnées; hello, theories of power and the social construction of the map. Harley’s articles are by no means the only critiques of this sort, but they created a response that still echoes in the history of cartography today.72 The remarkable thing is to realise how relatively recent all this is.

Amongst the new interdisciplinary scholars were some that found ways of making contributions to the study of cordiform maps. In The self-made map: cartographic writing in early modern France (1996), Tom Conley was interested in issues of the expression of selfhood in a variety of visual languages, including geographical ones, and he did discuss meanings of the heart in French courtly culture of the sixteenth century. As I have mentioned, Conley suggested that a “cordiform iconography” in operation at the time, although, as this was not the primary focus of the work, he did not extend this theme as greatly as Mangani did two years later. In support of his argument about the presentation of the self, Conley looked closely at the decorative book devices employed by Oronce Fine, such as initials bearing his own image and emblems, or his decorated frontispieces for publications of his own and others’ works. Along with a consideration of Fine’s two cordiform maps, Conley gave a full if not fulsome reading of the Cimerlino map of 1566.73 The discussion of the Cimerlino map came at a point where Conley could play with the interrelationships between the form of the map and its surrounding decorative devices. Conley grafted a Rabelaisian inflection into a Deleuzian mind-set to approach this (already somewhat ribald) map in a lively manner, opening new possibilities for interpretation relating to the physical aspects of the map. Both Conley’s discussion of decoration and his emphasis on the corporeal aspects of the map have been of great relevance if not inspiration to my study.

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72 Harley’s work echoes in the overall direction taken in The History of Cartography project itself, although the future will no doubt give us critiques of its extent and relevance in each instance. I began my dissertation at a point where ‘interdisciplinary’ approaches are now generating criticism, but still could generally be considered a norm in much scholarship today.
73 Tom Conley, The self-made map: cartographic writing in early modern France. (Minneapolis: University of Minnesota Press, 1996), p. 124: “The dividing line below the coccyx of each putto and between the nipples of the androgyne’s bare breasts makes the North Pole a zone whose erogenous force elicits more than the effect of the world growing out of an Arctic navel. The generative traits of the woodcut version of the cordiform map are held in check; in Cimerlino’s copperplate, the surrounding allegorical figures mobilize and eroticise the potential force that had been retained in a more intellectual and mystical sense in the works of 1519 and 1534.”
One article that offered some interpretation of the use of the heart, and pre-dated Mangani’s article, was Monique Pelletier’s *Le Monde dans un Coeur: Les deux mappemondes d’Oronce Fine.* Pelletier, who discussed both the single and double cordiform maps by Fine, offered a broad historical account of their origin and development. Pelletier was clearer than Mangani on the relationship between the broader group of maps and those she called “truly cordiform”. Since she was confining her comments about the meaning of the heart to the context of Fine’s work, there was no need for her to account for that meaning in other contexts implied by the broader grouping, such as Ortelius’ work. She briefly noted several things about the heart image in that time. Firstly, that it was an emerging icon from the middle of the fifteenth century, arriving at the same time as the revolution in printing. Also, that the heart existed as a sign in representations of both sacred and profane love, of publishers’ marks, and playing cards. She suggested that the relatively late appearance of this imagery was connected with the Renaissance rise of the individual. But this musing on the meaning of the heart was offered in two tiny paragraphs, only amounting to a few column inches. She does not make any link between the meaning of the heart and the representation of the New World, or why a heart might be useful in the cosmographic context of the time.

1998 was the year in which Giorgio Mangani published his article *Abraham Ortelius and the Hermetic Meaning of the Cordiform Map.* Until now, this is the only work that took the interpretation of the heart-shape as its main subject, and has been, therefore, of central importance to my study. Although Mangani began with Fine and possible symbolic interpretations of the use of the heart-shape, including astrological and cabbalistic ones, he followed the convention derived from the mistaken interpretation of d’Avezac and therefore considered that some of the equal-area maps by Ortelius were cordiform. The main focus of the paper was to draw out links between meanings of the heart and the circle of people surrounding Ortelius, such as the Family of Love, who used the heart as an emblem. Mangani examined the work by French polymath Guillaume Postel on Ortelius’ atlas, the *Theatrum Orbis Terrarum,*...
and examined the ways in which images in that book (i.e., maps) functioned as talismanic objects. Since Mangani accepted the broad classification of the cordiform maps, it followed that the early history of these maps’ invention and use is necessarily blurry, as he had to account for other, very un-heart-shaped maps by a variety of mapmakers. The broader category, however, had to be invoked if some of Ortelius’ maps were to be considered cordiform. The issues of classification and the consequences of naming, as I have outlined above, have necessarily made me depart from some of Mangani’s conclusions.

This is a small number of articles for such an intriguing issue. Compared to the floods of studies on maps of the explorers before and after World War II it would seem that the cordiform maps were hardly worth commenting upon. Some of this could be due to the exact opposite reason: a ‘sacred cow’ problem. In the case of Mercator’s double cordiform map, not only the cartographer’s reputation but the mantle placed upon that particular map (‘first to use the word....’) makes it hard to approach, especially in a speculative manner. An example of gentle yet conservative reification was Nicholas Crane’s 2002 book, *Mercator: the man who mapped the planet*. Crane seemed at pains to establish Mercator as a religious moderate weaving his way through the minefields of the Reformation. Although he noted that Mercator included Luther’s thesis-posting as the most recent part of the world’s chronology in a book on that subject, published in 1569, Crane did not connect this strongly with events of some decades before, which he did discuss: Mercator’s imprisonment for heresy in 1544. This was an extremely dangerous charge; others arrested at the same time as Mercator were put to death, some by being buried alive. Publishing controversial works such as the *Chronologia*... would seem to make Mercator a rather active promoter of his clearly unorthodox religious beliefs. Crane did, however, discuss Mercator’s dedication of his 1538 double cordiform map to Johannes Drosius, a fellow member of a secretive, religious community. Although Crane noted Oronce Fine’s own lack

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77 Consider the enormous and influential output of scholars such as R.A. Skelton, Eva Taylor, Roberto Almagia, W.G.L. Randles, cartographic scholars associated with the Hakluyt Society or the Society for the History of Discoveries and so many more. Not that what explorers knew is uninteresting, on the contrary. But one must be allowed to say that it became a dominant topic in the history of cartography, one that perhaps made it difficult to see other worthy topics.


80 Crane described Mercator’s religious beliefs as a “terra incognita between the Anabaptist and Catholic polarities. Mercator was one of many Erasmians who quietly shared the view that faith in Christ was
of religious orthodoxy, about the heart shapes in Fine’s 1531 double cordiform map – the model for Mercator’s map of 1538 – Crane wrote: “This was, however, a mapmakers map, and few of Fine’s readers can have looked at it without scratching their heads”.\textsuperscript{81} This kind of idea, that the maps were somehow anomalous or obscure, is something I wish to challenge in this study. Since ‘Fine’s readers’ would only have been \textit{cognoscenti}, they were likely to have understood the map either without issue, or had the tools of understanding necessary to decipher it, tools perhaps lost to us today.

We have now seen how histories of cartography have constructed the framework within which these maps have been placed. After the nineteenth and twentieth centuries, they came to be seen as anomalous, their choice of shape and decorative quality rendering them problematic. Perhaps only the ongoing fame of their makers kept them from appearing in catalogues of map curiosities. Yet it is precisely those problematic aspects that may be a means of understanding them better. They may prove to be an important part of the meaning of the map, and perhaps contribute to a deepened understanding of how cartography functioned in that time. By the end of this study, neither the heart shape nor the decorative features of the maps could be considered extraneous to the maps’ overall purpose. Since the “recent revolution”\textsuperscript{82} in map scholarship, cultural, theological, literary, artistic and cosmographical connotations to these maps may now be considered. I shall now begin my examination of relevant issues surrounding the first cordiform map, by Oronce Fine, in 1519.

\textsuperscript{81} Crane, \textit{ibid}, p. 96.
\textsuperscript{82} Edson, \textit{op.cit}, p. viii (see n. 48, above).
Part II:
1519 and the First Heart-Shaped Map of the World
A preamble for Part II: The Coronation of Oronce Fine

In 1531, before he was 40 years old, Oronce Fine became Royal Mathematician to François I, King of France, a post he would hold until his death in 1555. The position had been created after Fine's plea for the worthiness of the study of mathematics at the new Collège de France that François had founded, in a poem directed to the King in perhaps 1530. This sounds like a story of great success, and it was. But the life and reputation of Oronce Fine also had another side: exhausting financial struggle, followed by almost 300 years of oblivion. The words of Oronce's son Jean after his father's death give a personal account of the family's fortunes:

After three decades and more spent and devoted to restoring and explaining mathematics not only by lecturing but also by writing, all this time waiting and begging for payment for his efforts and being mocked and put off with courtly pittances, all this time watching his family shrink and old age come upon him while the number of his published works continued to mount, having borne such indignity as unworthy he died cheerfully and steadfastly in the Lord in his sixtieth year from a fatal disease. My beloved Mother, who had sailed in the same deplorable ship of hopes and troubles, followed a short while after, leaving behind six little sheep to wander among starving wolves without a shepherd.

Yet when the Renaissance volume of The History of Cartography series is published — a defining collection that will stand for years to come — it will not be a work by the still-famous Abraham Ortelius or Gerardus Mercator that will grace its cover, but Oronce Fine's heart-shaped map of the world. Fine's story is a remarkable one, including the later resurrection of his reputation. The most recent chapter is that Fine's role as a failed circle-squarer — the cause of his damaged reputation — has become largely irrelevant compared to his work in book illustration and cartography. Yet the

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1 The Epistre Exhorative.... See Richard Peter Ross, "Studies on Oronce Finé (1494-1555)" (Columbia University, 1971), pp. 21-23.
2 Above is the story I have gleaned from a variety of sources, best summarised in Ross, ibid., especially Chapter One, "Fine's life", pp. 1-31. Also Karrow, op.cit., pp. 168-190.
3 Ross, ibid., p. 30; also quoted by Karrow, p. 189. Fine, without powerful relatives or money behind him, had succeeded in Paris in the service of his King, where no doubt others would have wished to do the same. In this context one could question the onslaught against his reputation.
4 This volume is in proofing stages and may appear in late 2005 or 2006.
5 I shall briefly discuss the circle-squaring claims in the final section of Part II. Ross wrote: "Fine's contemporaries considered him equally outstanding as an illustrator of scientific books and as an author of scientific books." Op.cit., p.36; see Ross pp. 37-39 for his overview of art historians' assessment of Fine's work in illustration, his relationship to Geoffroy Tory and Renaissance style in general. The new
irregular royal remuneration he experienced, that included a decade-long legal wrangle over the family lodgings, formed a significant background against which many of the choices he made in his work can perhaps be understood. Fine regularly took it upon himself to win the favour of his King and employer, François Ier; the heart-shaped map was made at a very early point of his career, to bring himself to François’ attention. I think that Fine’s desire to make himself known to his King affected his choice of imagery and was probably the motivation for the production of both his cordiform maps. As always, the purpose of a map is very important, yet so often the answer given to the purpose of a Renaissance map is limited to geographical issues. Fine probably had multiple purposes for his maps, and the display of geographical knowledge is but one aspect of a larger scheme. We may infer that Fine’s maps were engaged in dialogues with other, non-cartographic, images of their own time.

In order to understand why Oronce Fine was attracted to making a world map for his King in the shape of a heart, more than one line of investigation needs to be followed. It is well understood that Fine used Werner’s treatise of 1514 to make the map and this would have demonstrated Fine’s abilities and knowledge of the most up-to-date works coming from Nuremberg, at that time a primary centre for astronomical and cosmographic works. I will begin by turning my attention away from the usual mathematical and publishing provenance towards sixteenth century beliefs about the physical heart, and how developments in contemporary medical thought impacted upon these beliefs. Possible connections between the cordiform maps and the revolutions of anatomical study have not yet been explored. This is especially relevant here as Fine, like his father and grandfather before him, was a trained physician. It is also relevant because the sixteenth century laid the ground for radical rethinking of human anatomy, especially concerning the heart. At the outset of the sixteenth century, the more than a thousand year-old medical practices of Galen were still the norm; but anatomical investigations were already underway that would eventually supercede them. The century ended as William Harvey was formulating his groundbreaking ideas on the function of the heart. Mid-century was the work of Vesalius,

focus on Fine’s self-representations, his cartographic output and illustration, is reflected in Conley’s The Self-Made Map... op.cit.
* Ross, op.cit., p.26; the case was over his family’s use of rooms at the College.
accompanied by its still astonishing illustrations. The body and the heart were, therefore, subjects at the forefront of enquiry and speculation in this time.

The changing history of medical thought also sheds light upon two other themes of my study. One is the simultaneous existence of what are to us mutually incompatible systems of understanding, for example the co-habitation of astrology and science: more than one way of seeing things can exist at the same time. The heart-shaped world map was not only a product of the new Renaissance mathematics, but of inherited ideas about the heart that had existed for centuries beforehand. Some of these ideas about the heart – as we shall see in Part III of my study – had been growing in popularity during the late Middle Ages and some of these tendencies were still operational within the map. Secondly, I am suggesting that this context of change and uncertainty about the physical heart created an extra frisson around the image of the heart.

I will begin the next section with an examination of Fine’s single cordiform map, then move to the contemporary medical context and Fine’s relationship to it. That section includes some biographical information, and also looks briefly at the anatomical studies of Leonardo da Vinci in the first decades of the sixteenth century. As François I drew directly upon heart symbolism in his own funerary memorial, I will use this as one of the non-cartographic items that can help illuminate aspects of beliefs about the heart in Fine’s time. I will then shift to exploring reasons why Fine might have made the map in 1519 by introducing a wider, political context. To support this, I will introduce another non-cartographic item: a woodcut of Maximilian, the Holy Roman Emperor, made by Albrecht Dürer and his workshop, from the same year. This gives me an opportunity to canvas François’ investment in astrologically derived heart/sun imagery and similar self-presentations as those of Maximilian, most of which represented imperial concerns. Another issue involved in the relationship between the 1519 map and 1519 woodcut concerns decoration, a subject I believe of relevance here and which I shall examine more fully in the last section titled “An ornament of the world”. The subject of imperial projections is continued in Part III, in my study of the overall purposes for Stabius’ invention that, I propose, laid the groundwork for Fine’s use of the projection.
Placing cartographic work alongside other, non-cartographic imagery of the same era is different from the usual approach taken by cartographic historians. As extra-geographical information is as important as geographical or mathematical information in understanding a map, this form of comparative cross-referencing is crucial. I will demonstrate that distinct visual and artistic contexts of the time impacted upon the choices cartographers made in using a heart-shaped projection and that the map was entangled in contemporary understandings, not only of cosmography, but of the heart itself.

First blood

In 1519, when he was 25 years old, Oronce Fine drew his first heart-shaped world map. This was the first time a map had been drawn from Werner's calculations and unfortunately, it no longer exists. We know of this map from part of the legend in Fine's cordiform map (Figures 1 and 10), printed between 1534 and 1536. Sadly, therefore, we cannot say for certain what the first cordiform map of the world looked like. The geography of map was certainly revised for the 1534-36 map as it clearly shows part of the eastern coast of North America as *Terra Francesca*, after the state-sanctioned voyages of exploration by Giovanni da Verrazzano of the 1520s (Figure 14). It is not impossible, therefore, that the decorative aspects of the map may also have changed. Although I will give reasons below for suggesting the devices remained from the earlier, manuscript map, it should be remembered here that the description below is of the 1534-36 map.

The map is a coloured woodcut in two blocks, and quite large, being some 510 x 570mm. Fine was a master draughtsman whose execution of type as well as image is as pleasing to the eye as it is legible. The heart-shaped map portion of the image projects from its illustrated surroundings in several ways. Set against a dark reddish

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8 Karrow, op.cit., p. 172.
9 Shirley, *The Mapping of the World: Early Printed World Maps, 1472-1700* p. 77 (entry 69); reproduced as a two page frontispiece is the copy in the *Bibliothèque Nationale de France* (the only other known is in the *Germanisches Nationalmuseum*, Nuremberg). There may be more significance to be derived from the colouring of the map, as colours still had spiritual connotations, even in this time.
Figure 10: *Recens et Integra Orbis Descriptio* by Oronce Fine, 1534-36; Figure 11: candelabra with festoons, knots, skulls, *fleurs de lis* and sirens; Figure 12: Royal crest surrounded with festoon with knots of Louise de Savoy; Figure 13: lion’s face from the bottom of the columns; Figure 14: *Terra Francesca*. 
background, that is itself framed by a decorated, architectural structure, the map’s lowest point reaches outside the frame and the northernmost sections push slightly forward over the lowest tier of the structure. It therefore appears to sit forward, giving emphasis to the heart shape and not appearing too contained by the frame. This is further reinforced by cross-hatching around the edge of the heart-shaped map, especially on the lower right hand side, as if the heart were a three-dimensional, physical object.

There are many creatures busily decorating the architectural frame. Starting at the bottom, in small recesses at the bases of these columns are lionish faces: Leo is the constellation most connected astrologically with the sun, and since the sun was the most important ‘planet’, it was frequently used as a royal device (see Figure 13). Moving up the columns are a pair of dolphins, supporting a frieze of acanthus leaves (Figure 10). About halfway up the columns are bare-breasted sirens of the sea. They are trussed to the columns; this is a classically derived sign for the conquest of sin. They, in turn, support candelabra-like column sections, within which *fleurs-de-lis* are embedded. On the architrave itself, inside niches like those with the lion faces below, are tiny rampant dolphins. Along the top of the architrave are *putti*, peering over the edges of the columns on both sides. Tiny skulls appear in each of two bell-pulls hanging over the edge of both columns; these seem attached to the *putti*, who in turn link their arms with the noses of four dolphins spread across the top of the architrave, and the image. In the centre top of the image is a coat of arms, bearing a crown and three *fleurs-de-lis*, symbol of French royalty (Figure 12). Surrounding the shield is a festoon with the patterned knots of François’ mother, Louise de Savoy, that often accompanied his royal insignia. And since anyone using the bell-pull would set off a chain reaction culminating in the King’s coat of arms getting a shake-up, one could assume the intended viewer or user of the map was François. All of this is visually readable – on the 1534-36 map at least – without reading the Latin legend with its direct dedication to the King.\(^\text{11}\)

The map surround also contains faces, generalised botanical flourishes, festoons, knots and other signs of the fashion for the grotesque, still a new fashion in the Paris of 1519. These classically-inspired trends, with the architectural framing device being the most prominent, point to Fine having good knowledge not only of classical

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\(^{11}\) "Idque in gratidam Christianissimi ac potentissimi Francisci Francorum regis, Mecoenatis nostri clementissimi". From Karrow, op.cit., p. 171.
sources but contemporary fashions in illustration. Fine’s ongoing connection to the major printing houses of Paris, as well as his family heritage, must account for his knowledge of European trends. Fine worked with the printing workshops of Simon de Colines and Michel Vascosan, amongst others, and would have come across many of the latest imported books from Germany, Italy and other countries. Just how relevant questions of decoration and national trends are will become clearer below.

Fine’s map is often considered the source of all the other single cordiform maps. It has been suggested that Peter Apian may have seen the 1519 version of Fine’s map,\(^\text{12}\) that maps by Giovanni Cimerlini, Giacomo Franco (both in Italy) and the maker of the so-called “Map of Hajji Ahmed” were all directly based upon Fine’s map. Consequently, Fine’s imagery, choices of presentation, as well as the possible underlying messages of the map, may have had a considerable impact on a select group of men, able to see the potential and power of the image. Fine’s choices of style and presentation are therefore relevant to an understanding of how this kind of map image developed.

A line-up of fabulous creatures encircled this world. The curvaceous, prow-like women supporting each column appear at the projection’s widest extent, reinforcing the map’s pin-up qualities. May one reference François’ formidable reputation as a womaniser in this context? There is no reason a map cannot amuse and delight as well as inform. I will put this reading at the door of Tom Conley’s analysis of Cimerlino’s version of Fine’s map, made in 1566 (Figure 3).\(^\text{13}\) In that map, clusters of overgrown, pre-pubescent putti rested their plump buttocks (or ‘cheeks’) on column-tops, very much echoing the curves of the map. Fine’s map may have begun this bodily effusion, although by contrast with the Cimerlino, his map appears much more restrained. The playful figures on both Fine’s and Cimerlino’s maps, including the long-nosed dolphins, are otherworldly, but not very heavenly, creatures.

The decorative devices of the Cimerlino map — with its extensive strapwork, another Renaissance decorative device — were clearly derived from a Fontainbleau-inspired style. Fine’s 1519/1534-36 map, by contrast, would have to be described as ‘transitional’ in style; like the chateau of Chambord, it is a Renaissance construction

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\(^{12}\) Karrow, op.cit., p. 171. Karrow finds Apian’s imagery so different as to think they were independent developments, an opinion with which I concur.

\(^{13}\) Conley, op.cit., p. 124. Regarding the date of Cimerlino’s map, Shirley notes that the date of 1556 had been suggested for the map but he could not substantiate it. The date however is not an issue here.
with somewhat Gothic undertones. The decorative devices of another important map by Fine – his 1531 double cordiform map (Figure 5) – may shed light upon the dating of the illustrative border of the single cordiform map. By comparison, the framing devices and features displayed in the extant single cordiform map appear to be from an earlier period. The Gothic style was already less popular by the mid-1530s, and Fine’s use of a more fashionable decorative schema in the double cordiform map indicates his knowledge of this. This indication of Fine’s use of style is one indication that the framing device of the map was unchanged from 1519.

The skulls of the bell-pull, although small in themselves, remind me of the severed heads that appeared alongside representations of the New World in the frontispiece of the world’s first atlas, Abraham Ortelius’ 1570 Theatrum Orbis Terrarum. Reminders of mortality, however, abounded in this era and many others. Perhaps the very ‘body-lieness’ of all these figures underlined the physicality of the heart image. In the Latin inscription on the map itself, Fine described his single cordiform masterpiece as “a complete map of the world in this shape of a human heart”. In a word-play based on the Latin word for heart, cor, he added: “And so we cordially present to you, eager reader, and to all men of good will, the corrected image of the geographical heart itself.” Whether or not this word-play was part of the original manuscript map of 1519 remains unknown. It certainly appeared in the legends of his first published map, the double cordiform map of 1531, and its later editions (Figure 5). For the first edition of that map, Fine wrote it was “a description of the whole world by means of the twin figure of the human heart and contained on a single sheet of paper.” An edition of 1531 differed in the text of its legend, making another word-play around the Latin word cor. Fine offered his map “…which indeed has the appearance and form of

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15 Yet Fine used similar devices in his frontispiece for his Protomathesis of 1532, including similar candelabra-like columns and the same bell-pulls with skulls. Yet the total effect seems much more open and lively than the map; perhaps the spatiality of the triumphal accounts for this. Also, the general arrangement of the decorations along the top of the image is more botanical and abstracted in the style of the Renaissance use of the grotesque, about which I shall write more, later.
16 “…quo uniuersam orbis terrarum designationem, in hanc humani cordis effigem primum redegimus…”; Karrow, op.cit. p. 179; this translation and those following unless otherwise credited are by Dr. Elizabeth Minchin of the Classics Department, Australian National University, to whom I am much indebted.
17 “…& eme[n]datam ipsius geographicci cordis imaginem, tibi studiose lector, cunctisq[ue] bon[a]e volu[n]tatis hominibus, cordato ac liberali praesentamus animo.” Karrow, ibid, p.179.
18 “…uniuersam orbis terrarum descriptionem[m]…gemina cordis humani formula in plano coeXtensam: quorum laeua borealem, dextra uero australem mundi partem complectitur…” (a description of the whole world… laid out in the doubled shape of the human heart, of which the left hand side encompasses
the human heart” and then he added, in brackets, that he would “…check to see that it is concordant with you…” The medical, bodily aspect of the heart was underlined by Fine the doctor-cartographer. But these word-plays might not be as simple and vivacious in intent as they seem. As a young man, Fine had been imprisoned, perhaps in 1523 or 1524, probably on the basis of a botched astrological prediction. Since the liver and the heart had traditionally been sources of divination and prognostication, Fine’s frequent reminders of the physicality of the heart might be an indirect, yet safe way to reference questions about the future as well as the past. Certainly, this emphasis on the heart by Fine is a good justification for a fuller examination of ideas about the heart in his time.

Cordial relationships

Fine, who was born in 1494 – the same year as François – had been sent to Paris after his father’s death, sometime between 1505 and 1510. The family lived near Briançon in the province of Dauphiné, in southeastern France, close to Italy. France at that time was very much split into northern and southern cultures, with differing languages. The young Fine in Paris therefore would have been somewhat provincial, even if he had a gentlemanly upbringing. Fine would have been under pressure to succeed in Paris and the need to create strong bonds with his new surroundings would have been crucial to his survival there. It is thought that Fine gained his bachelor degree in the arts around 1516 but the only extant record is for his bachelor of medicine degree.
from 1522, when he was 28 years old. In this he was following in his father François’ and grandfather Michel’s footsteps; both were physicians. In 1522 Fine also published an essay by his grandfather concerning the plague. Despite his relative youth, this was probably his sixth book publishing venture. Fine supported himself in those early days in Paris by entering the world of publishing as an illustrator, then proofreader and editor, along with teaching mathematics and studying to be a doctor.

Fine’s book on the plague had a rather basic but nonetheless interesting woodcut as its frontispiece. The simple line drawing shows a male figure, seated on a stool, holding open his skin — cut from his neck to below the navel — to reveal his internal organs. Although it is a very simple woodblock print and not all the organs are revealed in their complex arrangements, the heart is clearly visible, in a clearly recognisable form.

As the heart is often represented as partially obscured by the lungs, it stands out here all the more. The hand of the man, pulling his skin back, also appears to point towards the heart. Since the heart does not play a large role in the plague, its prominence seems noteworthy. Two lines of script run up and down the sides of the image, reading *Descriitio membrorum principalium humani corporis* (A description of the principle members of the human body); the heart clearly dominated the ‘description’ offered by the woodcut.

This image, in conjunction with the words around it, was also related to general medical thought and practices of the day. Many illustrations of this type can be found — the inner organs of the body revealed through the split skin, or shown as if the skin were transparent — with each organ connected to the name of its analogous, celestial body (Figure 15). This is one of the most important themes in medicine of the sixteenth century: the relationship of body to the universe and cosmography, connected via astrological thinking. Although links with celestial bodies was not part

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26 Titled *Succinta et utliissima preseruatio epidemie, seu febris pestilente: una cum bonu[m] emissa.* Karrow, ibid, p. 174.
27 All of which was in the family; Fine’s uncles were painters, with interests in astronomy and perspective. Karrow, op.cit, p. 168.
28 I have not included a reproduction as the only version I have access to is a copy of a microfiche from Ross’ dissertation. To reproduce this – from a photocopy of a microfiche copy, itself already several generations removed from the original – would not be doing Fine any favours. As mentioned, the line drawing is very basic, and I don’t believe the reader is overly disadvantaged by it not being reproduced. See Ross, op.cit., p. 52. The title of the essay is “*Succintae et utiissima preseruatione epidemie, seu febris pestilente...*”.
29 An explicit example of this is pasted into the inside cover of Fine’s 1515 edition of Georg von Peuerbach’s *Theoricarum nouarum Textus Georgii Purbachii cu vili ac preclarissima expositione Domini Francisci Lapuani de Manfredonia ...* at the Houghton Library of Harvard University.
of Fine’s woodcut, we are left with the poor man split open and gesturing towards his own heart, perhaps as a prognosticating signal. Medical historian Nancy Siraisi notes that astrological thinking in medical practice had in fact been increasing between the fourteenth to sixteenth centuries, probably in response to the ongoing outbreaks of the plague. There was a relationship between the heart and the plague: not medical, but iconographic, theological and prophetic. I shall return to this subject in Part III when examining a print by Lucas Cranach and again, in a section called The apocalyptic heart.

That astrology never left Fine’s work or understanding was all the more remarkable due to the imprisonment early in his career. He would publish three works on the subject, the first a broadsheet in 1529 concerning medicine and astrology. Later in life, in 1543 he produced a practical ‘how to’ book on the same subject. This book, printed in French — Les canons & documens tresamples... (The principles and simple documents concerning the usage and application of the common almanac...) was Fine’s only work to be translated into English. It contains practical ‘when to’ advice. In the chapter titled Negociations humaines, he gave recommendations on when was the best time to take medicine, send children to school, make friends with princes or even talk to women. Ten years later, in 1553, the year before his death, Fine published De duodecim caeli domiciliis... (The Twelve Heavenly Houses). From the diagrams in this book, similar to the 1543 work, it is apparent he was refining and simplifying his theories over time.

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30 Nancy G. Siraisi, Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice (Chicago: University of Chicago Press, 1990), p. 189. Paris had suffered over 40 separate outbreaks of the plague between 1348 and 1500. In the Germanic territories, records exist for outbreaks in every single year between 1472 and 1545. From David Levine, At the Dawn of Modernity: Biology, Culture, and Material Life in Europe after the Year 1000 (Berkeley; London: University of California Press, 2001), pp. 334 and 335 respectively. Levine described this as a “bacteriological holocaust”.

31 Karrow quotes from the letters that establish the imprisonment, although the date is unclear. This letter, from Fine’s friend and colleague Joannes Angelus, hints at the root of Fine’s plight: “Wonderful it is how in these days the theologians, who rave against every type of learning, would not be difficult to conquer if faith were strong and constant in those things in which it ought to be.” Karrow, op.cit, pp. 174-175.


33 In 1550, physician Antoine Mizauld, who dedicated his book Aesculapij et Uranie medicum... to Oronce Fine, devoted entire chapters to sun / heart relationships: Colloquium VII is titled De Solis cum corde humano aptatione (Concerning the analogy or correspondence between the sun and the heart). Mizauld’s book includes many aphoristic dialogues between Urania, the muse of astronomy, and Aesculapius, the god of medicine.
None of this is particularly unusual. Astrology would continue to be taken seriously, controversial or otherwise, well into the next century and beyond, existing alongside the theories of Copernicus or Kepler. Just as centuries of tradition were not abandoned immediately for theories of a heliocentric universe, medical insights from the rising, autopic empiricism did not instantly replace the everyday prognostications based on astrological theories that had been around for centuries. And it was part of mainstream practice across Europe. Lynn Thorndike characterised these beliefs in his classic study, *History of Magic and Experimental Science: The Sixteenth Century*:

Natural and occult science, medicine and mathematics, were like the classics in offering a neutral territory and in affording a common meeting ground where religious and political differences could be ignored or completely forgotten. A dative was a dative, and Scipio Africanus the conqueror of Hannibal, Saturn was a cold planet, and scammony moved bile, alike for Catholic and Lutheran, Calvinist and Libertin, Frenchman and German.34

What is unusual is the relative absence of astrological considerations from the history of cartography, especially as no one relevant to this study, from Ptolemy to Werner, eschewed it as a practice; it was an intrinsic part of their mathematics and astronomy.35 Next, I shall consider the broader medical trends within which these practices were taking place.

### Cardiographies of the Renaissance

During the Renaissance, humanist scholars prompted a rush of critical (re)evaluations, especially of scholastic interpretations of the recent past. They called for direct examination of ancient texts in their original languages, and were able to reveal

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35 “Originally: (a collective term for) geometry, arithmetic, and certain physical sciences involving geometrical reasoning, such as astronomy and optics; spec: the disciplines of the quadrivium collectively. In later use: the science of space, number, quantity, and arrangement, whose methods involve logical reasoning and usually the use of symbolic notation, and which includes geometry, arithmetic, algebra, and analysis; mathematical operations or calculations.” From the Online Oxford English Dictionary, http://dictionary.oed.com/cgi/entry/00303352?query_type=word&queryword=mathematics. The date chart indicates the earlier definition was the norm in the sixteenth and seventeenth centuries.
interesting discrepancies, one being particularly relevant here. Arab physician/philosopher Avicenna, whose \textit{Canon of Medicine} had indeed stood as a canon since it was written around the turn of the millennium, was found to be guilty of over-reconciling Aristotle with Galen on the subject of physiology.\footnote{Thorndike described some of this re-evaluation of Arab authorities as a belittling, based on a desire to shift the emphasis toward Greek sources. Thorndike, op.cit. p.430.} Since Aristotle was a major source of ideas about the heart and its function, this proposed concord of Galen’s work with Aristotle was profoundly important in the study of anatomy. Galen was definitely not in accord with Aristotle on the subject of the heart. For Galen, the brain and not the heart was the site for the mediation of motion and of sensation.\footnote{Siraisi, op.cit, pp. 81-3; she includes an illustration on p. 83 indicating how late fifteenth century commentators themselves reconciled the now clear division between Galen and Aristotle.}

Contemporary ideas about the heart were often reflected in writing about the pulse as a diagnostic tool. This can be seen in \textit{Epiphanie Medicorun}, a practical, diagnostic handbook published in 1506 by Nuremburg physician Ulrich Pindar:

\begin{quotation}
...through the pulse we come to a better knowledge of the vital life-forces, and from that [the pulse] itself attests without premeditation on the subject of the disposition of the life-force, which is in the heart, and consequently it is judged better and more sure concerning death and life [than urine]; therefore the heart is the member which lives first and dies last, according to Aristotle.\footnote{Ulrich Pindar, \textit{Epiphanie Medicorum. Speculum videndi urinas hominum. Clavis aperiendi portas pulsuum. Berillus discernendi causas & differentias februm.} Nuremberg, Printer of the Sodalitas Celtica, 1506 (unpaginated). Seen at the Rosenberg Collection of The Library of Congress. The translation above is courtesy of Dr. Ann Moffatt, Classics Department, Australian National University.}
\end{quotation}

There was still, therefore, little escape from the ancient authorities: the improved study of ancient texts continued without practitioners being able to publicise – or perhaps, even conceive of – departures from tradition. As Siraisi pointed out, even the field of anatomical investigation constantly justified itself with reference to Galen.\footnote{Siraisi, op.cit., p. 191. Galen’s dissection manual was only published in Latin in 1531. On page 193, Siraisi notes that in Germany, the mystic Paracelsus (1493-1541) was one of the few who set himself up as rejecting the academic canons (in favour of a practice based on alchemic, occult and folk medicines).} William Harvey’s introduction to his great work on the heart, a small part of which was quoted in the Introduction of my study, showed Harvey’s deference to traditional thought. Nevertheless, new investigations were underway, particularly in anatomy. Andreas Vesalius would publish \textit{On the Fabric of the Human Body} in 1543. Yet the decades before had paved a way for Vesalius’ work; the fame of Leonardo da Vinci
and his involvement in dissection and anatomy was testimony to these subjects being at the forefront of investigation.

The conjunction of physician/cartographer was relatively common in this period. In 1536 while Vesalius was studying at Louvain University, he took a corpse from some local gallows for dissection. His partner in this action was fellow medical student, mathematician, cartographer, and future teacher of Gerardus Mercator, Gemma Frisius. One of Vesalius' later room-mates (and eventual plagiariser) may have been Thomas Geminus, a cartographer who also worked as a surgeon in England in the 1540s. While it is well known that in the later sixteenth and early seventeenth centuries poets and writers made much use of cartographic metaphors for the body, the cultural history of physician-cartographers who may have paved the way for this is not as well covered. Fine was by no means unusual in combining these disciplines. Occasional cartographer Lorenz Fries' 1518 *Spiegel der Artzny* (Mirror of Medicine), perhaps the first book on internal medicine published in German, included his own anatomical illustrations.

Perhaps the most famous physician-cartographer was Michael Servetus, burned at the stake for heresy in 1553 at the behest of his former colleague John Calvin. Like Fine, although not at the same time, Servetus trained as a physician at the University of Paris (1536-38), after having worked as a book editor. Servetus was the first to publish a description of the relationship between the circulation of blood and the respiratory system, as part of a theological work, his 1553 *Christianismi Restitutio*. Servetus was concerned with the issue of blood circulation as it related to when and how the divine spirit was to enter man's body. He wrote: "It is not said that the divine spirit is principally in the walls of the heart, or in the body of the brain or of the liver, but in

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41 'Room-mate' is Robert Karrow's description of their likely relationship (in conversation at the ICHC June/July 2003). Geminus' cartographic achievements were not highly original, involving re-issuing versions of others' maps. See Karrow, op.cit., pp. 250-254.

42 John Donne, born in 1572, was one of the greatest of these; see his wonderful "Hymn to God my God, in my Sickness", Smith, A.J. (editor) *John Donne: The complete English Poems*, London, Penguin Books, 1971, pp. 347-248. In his lengthy poem "An Anatomy of the World", composed in the early seventeenth century, he wrote "Knows't thou how blood, which to the heart doth flow, Doth from one ventricle to the other go?"

43 Fries worked with Martin Waldseemüller on the ill-fated Ptolemy project of Pirckheimer that incited Düer's ridicule; see Karrow, op.cit. p.199. For a fuller account of Fries' medical work, see Thorndike, op.cit. pp.430-438. Fries would also write to defend astrological practices against Luther's attacks.
the blood, as is taught by God himself".\footnote{Charles Donald O'Malley, *Michael Servetus: A Translation of His Geographical, Medical and Astrological Writings, with Introductions and Notes* (Philadelphia: American Philosophical Society, 1953), p. 200.} The Divine Spirit was drawn into the nostrils and the mouth, "... but the inspiration extended to the heart. The heart is the first living thing, the source of heat in the middle of the body. From the liver it takes the liquid of life, a kind of material, and in return vivifies it...."\footnote{O'Malley, ibid, p. 204.} Servetus' description of the blood as it moves through the lungs moved beyond the work of either Galen or Vesalius. This important medical insight was produced, not in the context of anatomical, but of theological, speculation.

That Fine studied medicine at University was evidence of his gentlemanly upbringing, as few actual medical practitioners – the barber-surgeons – had this option. University medicine was one of three fields necessary to a liberal education, along with law and theology, and was the scene for much discussion of the ancient authorities. Paris was a site of anatomical study, although not as important as Padua.\footnote{Padua was where William Harvey was to train, forming his discoveries regarding the circulation of blood and the function of the heart at the beginning of the seventeenth century. His book *On the Movement of the Heart and Blood in Animals* was published in 1628.} Dissection was returning to western medical training from the late thirteenth century onwards, but was still a relatively rare event; universities conducted dissections only on an annual basis. The first was held at the University of Vienna in 1404, by a professor from Padua.\footnote{Siraisi, op.cit., p. 88.} Dissection by itself, however, is no proof of gaining insight. Several anatomists continued with erroneous beliefs derived from textual authorities.\footnote{Siraisi, ibid., p. 91.} Seeing was, as always, a conceptualising practice, not a simple absorption or direct perception of reality. Leonardo's anatomical drawings concerning the heart and brain, from the late fifteenth and early sixteenth centuries — exactly the period in discussion — show the influence of Galen, especially in the depiction of a two-chambered heart (see Figures 16-18).

The point here is not so much about specificities of particular beliefs or thought, but to affirm that at this time the heart and its function was a subject of debate and controversy. In this context, the image of the heart must have had an extra frisson that could not have existed in a less questioning time. Today, we believe we have fully understood the heart; perhaps new discoveries will show that the reduction of the heart to a simple yet powerful muscle is itself as over-exaggerated as the previous long list.

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\footnote{Sidney, ibid., p. 100.}

Figure 16 (above left): A study of the heart and respiratory system, based on drawings of an ox’s heart, c. 1513 (O’Malley #174);

Figure 17 (above right): A study of Ventricles of the heart, c. 1513 (O’Malley #103; it is believed the drawing of the youth may have been added later as this would account for the misplacement of the heart);

Figure 18 (left): This, one of Leonardo’s most famous drawings, shows the entire inner organs and genito-urinary system of a woman, c. 1510. (O’Malley #202). O’Malley notes that most of the organs—especially the heart—are based on studies of animal organs.

of attributions, which I shall discuss below. There is nothing like uncertainty to contribute to a desire to focus on, and speculate about, the subject in question. In the sixteenth century, from the first quarter to the last, the status of the heart was definitely one such subject. I propose that the use of the heart in the cartographic context in this specific time bore a relationship with these medical and theological discussions. The subsequent heightened awareness of the heart produced a situation in which the use of the image of the heart in the sixteenth century was a more speculative process than it ever had been before – or is today. Speculation was perfectly suited to the cartography of the era; again, at its core, cartography is a process of projection, not a simple reflection.

The famous Leonardo lived in France from 1516 until his death there in 1519. He had been invited there by François, who was a great admirer and who was reputed to spend much time in his company. While Leonardo’s most famous anatomical studies were made before his time in France, the actual works were present at Cloux and were seen there on at least one documented occasion. Antonio de Beatis, secretary to Cardinal Louis d’Aragon, breathily recorded:

[Leonardo] has compiled a special treatise of anatomy with pictorial demonstrations of the limbs as well as of the muscles, nerves, veins, joints, intestines and whatever can be imagined in the bodies of men as well as women, such as never have been made before by any person. All this is what we have seen with our own eyes. And he said that he had dissected more than thirty bodies of men and women of all ages.

As the drawings were at Cloux, and François was a regular visitor, it is likely he saw them too. I am not trying to suggest that Leonardo’s anatomical drawings inspired the cordiform maps. Nevertheless, since Leonardo and others were engaged with this new interest in anatomy and dissection, this would have added considerably to a heightened awareness of the heart and its functions in France in this time. Leonardo’s work helped define the zeitgeist. It was possible, therefore, that Leonardo’s

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49 In 2003, several papers researching Alzheimer’s, a disease of the brain, have explored links with cardiac health issues; see Archives of Neurology, February 2003, p. 199, and Archives of Neurology; July 2003.
achievements, fame and royal recognition affected the French court and those associated with François, including Oronce Fine.51

Around and about the King's heart

Above I have discussed some of the medical context for the heart in the first quarter of the sixteenth century. Yet scientific (or theological) developments alone are not sufficient to explain understandings of the heart in this time. I shall now introduce a sculptural monument that represents other important concepts of the heart that existed in France, long before the sixteenth century, as well as demonstrating the intimate connection between François and concepts of the heart. It is an object that seems strange to us today: a monumental urn for the heart of François Ier, his vase du coeur (Figures 19 and 20). A chubby, casserole-like urn squats upon a carved, matching pedestal, all carved from white marble. Four lion's feet support the stem of the urn as it transits onto the pedestal. The urn itself tapers upwards to a point, where today two leather-like scrolls support an innocuous finial. This is a twentieth century replacement for what was originally a heart, as represented by the engraving in Figure 20.52

François, one year older than Fine, died on 31 March 1547 — aged 54 — from the ongoing complications of venereal disease. The King's lengthy funeral procession from where he died at the chateau of Rambouillet to the Cathedral of Notre Dame in Paris several weeks later was the grandest royal funeral France had ever seen, staged almost like a triumphal entry into a city.53 The funerary urn for the King's heart was not part of the procession, the heart having been accommodated elsewhere, awaiting

51 Fine's descendant and 'historian', Claude-Oronce Fine de Brianville, claimed that François had put Fine in charge of fortifications at Milan and had been a consultant on the siege of Pavia (François' great military failure); yet Karrow, reviewing all available literature, says there is no other evidence for this claim. See Karrow, p. 175. Was Claude-Oronce trying to suggest that his ancestor was engaged in similar activities as the illustrious Leonardo?
52 Paul Wingert, in "The Funerary Urn of François Ier" (Art Bulletin 21:4, 1039, pp. 383-396) noted that in 1793, in the period after the French Revolution, the heart at the top of the urn was replaced by a pinecone, visible in the photograph in Figure 19. Leon Palustre, in his La Renaissance en France (Paris, Quantin, 1881) noted that the original heart still existed and was in the possession of a French Baron in Paris — and provided the Baron's address at the time! Since the engraving in Figure 20 is from the nineteenth century, it is still only an impression of what the original top heart may have looked like.
53 Ralph E. Giesey, The Royal Funeral Ceremony in Renaissance France (Geneve: E. Droz, 1960), p.10. François' funeral was grand in part because two of his sons, already dead — brothers of the new King Henri II — were also being reburied at the same time.
Figure 19. Detail of the monumental urn for the heart of François I, showing the modern 'pine-cone' on top, replacing the original heart motif (below). Reproduced from The History of Decorative Arts: The Renaissance and Mannerism in Europe, edited by Alain Gruber, New York and London: Abbeville Press, 1993.

Figure 20. Monumental urn for the heart of François I. Pierre Bontemps, 1550-1556. Now installed with Francois' tomb at St. Denis. This engraving is reproduced from Leon Palustre's La Renaissance en France, Paris: Quantin, 1881.
depositing in the urn.\textsuperscript{54} The urn was originally installed in the priory at Haute-Bruyère in 1556, so it is not something that Fine would have seen, being after his own death in 1555.

What Fine and others would have known in 1547, however, had been commonplace for French kings for several centuries: that François’ heart and viscera were removed and buried separately from his body.\textsuperscript{55} In the ceremonies surrounding the ‘burial’ of François’ heart and entrails, the heart received special treatment. On the 6\textsuperscript{th} April (almost a week after François’ death, giving the royal doctor some time to work), the heart and entrails were carried in procession into the church at Haute-Bruyère. The Marshall and Admiral of France, Claude d’Annebaut, carried the heart, while four gentlemen of the chamber carried the entrails.\textsuperscript{56} Separate burial for body parts also allowed the opportunity for recognition of interests and allegiances perhaps not able to be easily represented in the Royal tombs.\textsuperscript{57} More importantly, however, it reinforces the idea of the heart representing the core, the most important part of a human being; it is the receptacle of, at least, those things considered most close.\textsuperscript{58} That we still use this idea today does not lessen its symbolic stature. This and other ideas about the heart are very much in operation in François’ monumental urn. Without the power of the heart’s symbolism, the heart would likely have been buried with the other viscera.\textsuperscript{59}

\textsuperscript{54} The urn was carved by Pierre Bontemps between 1550 and 1556. Bontemps also worked on the main royal tomb for François and his queen at Saint-Denis, where the urn now resides.

\textsuperscript{55} See Elizabeth A. R. Brown, "Death and the Human Body in the Later Middle Ages: The Legislation of Boniface on the Division of the Corpse," \textit{Viator: Medieval and Renaissance Studies} 12 (1981), pp. 221-270, for an overview of the practice in Northern Europe. Her study had a special focus on \textit{Detestande Feritatis} ("Hateful Ferocity"), the papal bull of Boniface of 1299. Boniface wished to ban the practice of the division of the body after death and Brown showed how the French nobility went about gaining exemption from the new legislation (in 1351, Clement VI allowed all Kings of France a blanket exemption from the bull). She also discussed the notion that multiple resting sites for noble bodies may have been an opportunity for more intercessions or prayers, perhaps even by differing religious groups (see n. 65 for other writers who reinforce this point). Giesey discussed these practices generally, and the Funeral of François I in depth. The practice of boiling the body to separate the bones from the flesh- the bones then being able to be transported back to Europe from afar- was once referred to as a ‘more teutonico’.

\textsuperscript{56} Giesey, op.cit., p. 3.

\textsuperscript{57} Louisa Young’s popular book, \textit{The Book of the Heart}, (London: Harper Collins Publishers, 2002), has a section on (mostly English) hearts buried elsewhere from their bodies. Richard the Lionheart of England’s body lies at Fontevrault, and his heart in Rouen, \textit{en remembrance d’amour}. Richard was likely to have been rewarding the city’s ‘loyalty and cordiality’ (both references, p. 437) by the ‘gifting’ of his heart. Unfortunately Young gives no references or sources. See Brown for more in-depth examples.

\textsuperscript{58} The \textit{Oxford English Dictionary}, while suspicious of the notion that the English word ‘core’ is from the French for heart – the french word \textit{coeur} was formerly spelt \textit{cuer}, hence the suspicion – is unable to provide any robust alternative.

\textsuperscript{59} The ‘necessity’ of burial in royal sites often demanded long journeys for the corpse. European embalming practices were not so efficient that even a King’s body was not in need of a lead-lined coffin for these processions, even with their viscera pre-disposed of. But this practical cause does not explain why the heart was kept separate from the other organs, and the symbolic purpose is clearly demonstrated by the following example. For noblemen dying abroad or at a distance from their home estates, a simpler version was found; the body was buried at the site of death and only the heart was removed and sent
Images on the sides of the urn and pedestal give us a further indication of François’ priorities. The pedestal bears four cartouches, with carved relief images inside. These four reliefs on the pedestal represent astronomy, instrumental music, song and lyric poetry. But it is the four represented on the urn itself that I think most telling. For the man who built many of France’s most beautiful chateaux, for whom Cellini made his extraordinary salt cellar and for whom Leonardo da Vinci worked, dying in France while in this employ, three of the four images will come as no surprise: architecture, sculpture and painting. To this group, of those things now literally closest to François’ heart, is added geometry. This list, like the urn itself, is a mixture of the new styles and the old traditions: part medieval quadrivium, part the new, secular arts of an Italianate Renaissance. Like so much in the Renaissance, a clear-cut division with earlier traditions cannot be made. While the sixteenth century was no stranger to death, the skull and bones lying at the base of the pedestal (on all four sides, as far as I can tell) would not have gone amiss anytime in the preceding 500 years. The urn bears various emblematic symbols of the king, from the group of three fleurs-de-lis in a heraldic shield on one side, to the crowned letter ‘F’, to François’ personal emblem, the salamander. Altogether, reading the signs, a viewer of the time – whether literate or not – would have been in no doubt about what was inside the urn and to whom it belonged.

Today we still use the idea of the heart as meaning the centre, or ‘the most important’. The endurance of this symbolism is interesting, as we are now more likely to preserve and celebrate the importance of the brain. Indeed the contemporary elevation of the brain to the top of the physical hierarchy has its roots not long after the sixteenth century, primarily with René Descartes. His relegation of the heart to the status of a home for burial. This practice of separate burial for the heart indicates the importance of the heart’s symbolism in this time.

Wingert, op.cit. p. 384.

Fire enflames the hearts of believers as well as consuming the souls of the damned; hence the accompanying motto Nutrisco et extinguo. The salamander had been chosen for François by his mother, Louise of Savoy, who was forward thinking enough to choose a sign with a classical heritage that would not go amiss in the new age François was to nourish. Knecht, op.cit. pp. 10-11. The salamander represented endurance, as the animal was thought to be able to live in fire. Jorge Luis Borges’ small piece on the salamander in his Book of Imaginary Beings (Avon, Discus Books, 1970, pp. 123-126) summed up the classical issues nicely. Just as animals existed that survived in the elements of air, water and earth, an animal had to be found to live in the fourth element, fire, “for the dignity of science”. No such classical connotations surround the emblem of François’ predecessor, Louis XII’s porcupine.

The widely diverging worldviews of Harvey – who was still steeped in Aristotelian mysticism – and Descartes is examined in an article by German medical historian Richard Toellner, "The Controversy between Descartes and Harvey Regarding the Nature of Cardiac Motions," in Science, Medicine and Society in the Renaissance : Essays to Honor Walter Pagel, ed. Allen G. Debus (London: Heinemann, 1972), pp. 73-89.
pump had many purposes, one of which was to remove it from the central, dominant position it had held for centuries. This was no less than a symbolic lèse-majesté. Part of the strength of the heart symbol in the sixteenth century was because other beliefs about the heart existed, very different from our own. Many of the features now associated with the brain were once thought of as part of the heart’s function, particularly the heart being the primary seat of perception and the main organ of knowledge. So when François I put architecture, sculpture, painting and geometry closest to his heart, he not only made a statement about their importance to him, but also suggested his expertise in those arenas.

There was a weight of tradition for the idea of the heart as the primary site of perception, and Aristotle was one of its main exponents. Aristotle believed that perception involved both the brain and the heart: the heart was the primary site for the reception of impressions from the external world, and the brain was for storage. This idea can be seen consistently throughout the following centuries in the medical discussions of the origins of the pulse and the motion of the heart. The idea of the heart as the primary organ of knowledge nevertheless continues in metaphor today, when we talk of ‘learning by heart’, also in the verb to record (from the Latin, to recollect = recordari). All these connotations of the heart were used, with somewhat less distinction than the ancient Greeks about heart/brain roles, in both the Old and New Testaments. Most generally, there the heart meant the core, the centre of things. The simplicity of the heart in the Bible may have been in part due to the still-powerful attributes of the liver and kidneys, which accounted for the emotions. The heart stood in, metonymically, for the whole person – pars pro toto – while at the same time,

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63 Just as Descartes had the brain topple the heart from its dominant position, the heart too may have had a predecessor on this throne: the liver. For further information on the liver in a cartographic context, see Volume One of the History of Cartography, containing an illustration of a liver used as a map for divination: “The Bronze Liver of Piacenza” pp. 203-204; see also Jacques LeGoff, "Head or Heart? The Political Use of Body Metaphors in the Middle Ages," in Fragments for a History of the Human Body, ed. Michel Feher, Ramona Naddaff, and Nadia Tazi (New York, N.Y.: Zone, 1989), pp. 12-27, especially p. 16. A major text for this discussion is Richard Broxton Onians, The Origins of European Thought About the Body, the Mind, the Soul, the World, Time and Fate: New Interpretations of Greek, Roman and Kindred Evidence Also of Some Basic Jewish and Christian Beliefs, 2nd ed. (Cambridge: Cambridge University Press, 1954).

64 Or desired expertise; Joan Evans described François as an “amateur”. Evans, op.cit., p. 22.

65 Mary Carruthers, The Book of Memory: A Study of Memory in Medieval Culture (Cambridge: Cambridge University Press, 1990), pp. 48-49. Not all of Aristotle’s writing about the heart was speculative, however; as he wrote in De Partibus Animalium, “The heart alone of all the viscera cannot withstand injury. This is expected because when the main source of strength (the heart) is destroyed, no strength can be brought to the other organs which depend on it.” De Partibus Animalium, Liber III, cap. 4 (Opera Edidit Academia Regia Borussica), 3:328.

66 Carruthers, ibid, p. 48.

the heart was the governing centre. The heart therefore had intellectual and volitional attributes. 68 Both the Greeks and Romans saw consciousness as residing in the chest, in both heart and lungs, often called the *praecordia).* 69 Those organs, as well as the liver, were often consulted for knowledge of the future. 70 That the Greeks had more discussion and debate about the role of the heart than is apparent in the Bible would not have been unattractive to scholars of the sixteenth century, especially those with a humanist bent. This would be another contributing factor to the fascination and potency of the heart sign in that era.

Today, westerners have the heart icon firmly wedded to the notion of romantic love and liking. The sixteenth century idea of affection was more closely tied to the idea of 'affect' and the corresponding relationship to knowledge and perception. This was an era in which categories of seeing involved direct visions of God; God also was able to speak directly to/through one's heart. 71 Medieval scholar Michael Camille's book *The Medieval Art of Love* had several illustrations in which the heart of the lover is removed from the body and brought closer to the object of its affection. An example from the manuscript *Le Roman de la Poire* of 1260-70 showed the poet 'Sweet Looks' offering, with extended arms, the somewhat pear-shaped heart of his master to his lady. She appears suitably alarmed, arms akimbo, like the Virgin fending off the knowledge of imminent conception. In the 1460-70 illustration by Barthelmy d'Eyck of "Desire takes the heart" from the *Book of the Love-Smitten Heart (Livre du Cuer d'Amour Epris)*, a more iconically-shaped red heart is being removed from the author's body as he lies in bed. 72 I mention these examples to suggest that the medieval tradition of using the heart to represent the lover's feelings had a much more

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68 Ibid, p. 563. The dictionary also notes that the Hebrew lêb/lêbah is sometimes translated today as 'mind'.
69 Onians, op.cit, pp. 40-42, 123. Others have defined the category of what organs constitute the *praecordia* differently, but Onians rejects their interpretations on linguistic grounds. On p. 63 Onians noted that, due to the functions of the chest and heart, the Germans saw the soul and blood as intimately connected. For the ancients, however, there was more than one soul: the mortal soul resided in the chest and the immortal one, in the head. This is reflected in Plato's *Timaeus*. See Onians, pp. 118-119. See also Caroline Walker Bynum, "The Blood of Christ in the Later Middle Ages," *Church History* 71, no. 4 (2002), pp. 685-714 for a fuller discussion on the understanding of blood's role, especially as distinct from eucharistic interpretations.
70 Onians, op.cit., p. 506. Hence the naming of the breast-bone as "wish-bone" (p. 60, n. 2).
72 Michael Camille, *The Medieval Art of Love: Objects and Subjects of Desire* (New York: Harry N. Abrams, Inc., 1998), pp. 29, then 114. The *Book of the Love-Smitten Heart* was by King René of Anjou, from c. 1457. René, being a Valois, was a relation of François. The heart-shaped prayerbooks and heart-shaped songbook Camille illustrates will be mentioned again in Part II of this study. When the book is opened, it creates two hearts, side by side. Ibid, p. 116.
physical reference than today. Combined with the notion of the heart as being the physical receptacle of perception, knowledge, God’s messages and even, perhaps, the future, the image of the heart of the lover was a more potent sign than we understand it now. I shall further discuss romantic heart imagery in Part III, with a more historical, iconographic focus.

The centrality of the heart also relates to the existing medical-astrological equation of the heart with the sun, discussed above. But a sixteenth century viewer could have understood all of these varied meanings. The given context would have allowed for one meaning or set of meanings to predominate. It is not the case that romantic love would have automatically been the primary reading of the sign, as it is in our time. Today we find the use of a heart-shape for a world map an extraordinary idea. But perhaps the different audience for world maps in the sixteenth century — at royal courts and amongst a small number of educated users — can account for the use of the heart sign in cartography. European royalty had for centuries been deeply interested in, and invested heavily in, self-representations that utilised emblems, devices, classically derived puns and visual symbols. Yet any ruler — François or Maximilian I, as we shall soon see — had similar rights to exploit associations of the heart that long preceded them as individuals. Words to do with coronation and crowning come from the Latin root for heart (as does the German krönen), as do many sun-related words (e.g., corona). Heart-shaped world maps, therefore, were not only expressions of geographical knowledge, but were intimately connected with political aspirations and beliefs as well.

The idea of the King as being like the Sun has long roots, some classical, some pagan. Kings emphasised classical and astrological themes in the use of sun symbolism, as the sun was a primary symbol of Christ (also utilised, therefore, by popes). While we are familiar with this in connection with a much later period, that of the ‘Sun-King’ Louis XIV, Louis was merely bringing an existing tendency to a crescendo. The sun motif can be found amongst French royal symbolism as far back as 1380, and consistently from that time onwards. During François’ 1532 entry into Caen, accompanied by his queen, heir and other children, a performance was staged in which

73 For a fuller discussion of the crown as the signifier of the King’s whole realm, see the classic study by Ernst Kantorowicz, *The King’s Two Bodies: A Study in Mediaeval Political Theology* (Princeton, N.J.: Princeton University Press, 1957), pp. 336-346.

the sun, surrounded by orbiting planets, suddenly arrives to illuminate the city. In 1538, jurist Charles de Graissaille extolled François in writing as “a second sun on earth”. The sun image was not the only thing Louis XIV would take to new heights. He turned the church of Val-de-Grâce, built by his mother in thanks for his conception, into “a national shrine to the hearts of nobility of the royal blood”, thereby demonstrating the ongoing importance of the separate burial of the heart. As we have seen, the sun and the heart were considered related through their predominant positions within universal and bodily systems.

The “representations mentales” of François Ier included a variety of guises and methods to reinforce his power, his rights and virtues as King, as well as the virtues of his person and, by extension, the nature of France itself. These emblems made use of existing notions of the symbolic meanings of the heart and the sun, both of which were understood differently from today. These meanings were manifested in a variety of emblematic and etymological devices, written and visual. All of this had continuity with the past, but was sometimes recast through the newfound styles based on classical and other traditions, such as a new passion for hieroglyphics. These methods of representation also occurred in a context of increasing royal absolutism and

75 Lecoq, ibid., p. 178.
76 Knecht, op.cit., p. 522. The quote is from Graissaille’s book Regalium Franciae libri duo and is in fact a chapter heading. Other such headings include François as “a corporeal God”.
77 Giesey, op.cit., p. 20. The noble hearts of Val-de-Grâce apparently suffered an interesting fate, ending as red paint pigment after the French Revolution. While my source for this is a tourist guidebook (Jensi, Paul, “Paris Kiosque”, April 2001 - Volume 8, Number 4, 2001), not given to citing sources, it does fit in with other documented sales of royal artifacts after the Revolution, including François’ urn itself (see Paliustre, op.cit., p. 35, then Wingert, op.cit., pp. 383-384). Sergio Bertelli, The King’s Body: Sacred Rituals of Power in Medieval and Early Modern Europe, New rev. & enl. ed. (University Park, Pa.: Pennsylvania State University Press, 2001) notes that the heart of Marat was displayed after his assassination in the Cordelier’s Hall (see p. 34; his reference was Clark, T.J., “Painting in the Year 2 (Marat)”, Representations 47). This would seem to imply that the separation and display of hearts for important personages in France did not die out easily.
78 Anne-Marie Lecoq, François Ier Imaginaire: Symbolique Et Politique à L’aube De La Renaissance Française (Paris: Macula, 1987), p. 15. These signs proliferated, too; Joan Evans noted François’ salamander appears at Chambord around 800 times. Evans, Pattern: A Study of Ornament in Western Europe from 1180 to 1900 op.cit., p. 118.
79 From the earliest days of his reign, commencing in 1515, François Ier actively encouraged the identification of himself with the French nation. As he had not been in direct line of succession, perhaps this branding was more urgent than was usually the case. One obvious place to begin was with his name: François. In 1506, even before his reign, it would be written “Monsieur Francoys qui est tout francoys”. (LeCoq, François Ier Imaginaire, op.cit., p. 68.) This splendid book examines the extensive nature of the symbolic construction of François, his family and his reign. The quote was from Thomas Bricot to King Louis XII, pleading with him to give his daughter Claude in marriage to François. Also in LeCoq, p. 68: François would use a double ‘F’ sign to signify his union with France, and in another etymological layer, the notion of ‘franc’ as free and forthright would be evoked. The following was written in 1517, in an attempt to persuade Erasmus to come to Paris and head the Collège royal, by France’s most eminent humanist Guillaume Budé. “Ce Roi est non seulement Franc, ce qui est déjà important en soi, mais aussi François par son nom, lequel, premièrement, renvoie par lui-même à des choses royals et ensuite, comme il est permis de l’augurer, annonce de grandes choses”. (This King is not only Frank [forthright, French, and free], ... and also France by name...).
national branding, alongside a secularist trend towards individualism. They also occur in a time of increased competition between leaders in Europe, and their competition took place not only in fields of war, but in representation. These conventions and contexts were likely to have influenced that aspiring royal employee, Oronce Fine.

Since some of these ideas about the physical heart were of long duration, they cannot entirely explain why a heart-shaped map might have arisen in the first quarter of the sixteenth century. Now it is time to introduce the wider, political context within which Fine’s map was produced.

**Imperial projections of 1519**

1519 was an important time for François Ier. The year before, his first son and heir, the Dauphin, was born, and a second son was born in March 1519 (the future Henri II). Given François’ own indirect line of succession, the perceived fortune of having produced two sons, following two daughters, would have been palpable and this fortification of the Valois dynasty would have been a cause for public celebration. Perhaps more importantly, 1519 began with the January 12 death of the Holy Roman Emperor, Maximilian I. Seven men were to vote on the new ruler of the Holy Roman Empire, as the office was elective, not hereditary. From 1516 onwards François had been pitching himself as a candidate.80 This was not unusual; Kings of France had before sought this role. Both François and his chief rival, Maximilian’s grandson the King of Spain, and the eventual winner, Charles V, spent fortunes bribing first one then another of the Electors. The outcome was a fraught issue for both men. In François’ case, were Charles to succeed in his bid, French territories in Italy would be challenged, which is exactly what happened.81 Had François become Holy Roman Emperor he would have become, as Charles did, an inter- and supra-national figure.

As we know, in 1519 Oronce Fine was a young university graduate, teaching mathematics and working in the publishing world while studying also to be a doctor. To have made a world map, based on the latest publications from Germany, seems an

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80 Henry VIII of England also suggested himself for the role. But the French had closer claims than Henry, related, in part, to founding emperor Charlemagne being a Frankish monarch. Tanner, op.cit, follows the concept of the Roman Empire in Western Europe, but see also Knecht and Bérenger.
act of the precocity that characterised his career. One must assume he brought his map to François’ attention; it was probably made specifically to gain the favour of the King. Why Fine made his map in this year, and in the way he did – using the new projection and decorated the way it is – I shall explore here by using another, non-cartographic image.

The woodcut in Figure 21, dated 1519, represents the wider, political context in which Fine’s first map was produced. This image is clearly based on Albrecht Dürer’s portrait sketch of Emperor Maximilian from June 1518. Dürer’s portrait sketch had been made as a forerunner to a painting for a series that had begun with Charlemagne and Sigismund, to celebrate Maximilian’s imperial lineage as Holy Roman Emperor. The section of the woodcut based on Dürer’s original sketch shows Maximilian bearing few of his usual insignia; only the order of the Golden Fleece hangs around his neck and he wears a medallion of the Virgin and Child upon his hat. The print excludes one of Maximilian’s personal signs, shown in the finished painting: the pomegranate, a subject I shall return to in Part III. A heavily decorated border, attributed to Hans Weiditz, was added. From the text across the bottom of the image, the print is a death notice, made to satisfy the desire for images of the Emperor after his death. The text around his head – *Imperator Caesar Divus Maximilianus Pius Felix Augustus* – by using the term *Divus*, an honour reserved for Roman Emperors after death, also confirms this. The text also reinforced Maximilian’s desired link with the Imperial Roman past, about which much more will be discussed in Part III.

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81 By 1525 François was fighting to retain his holdings in Italy. He was decisively crushed at Pavia and he himself was taken prisoner; he spent most of 1526 in a Spanish prison. Over 10,000 French forces died at Pavia, compared to only 500 Imperialists. See Knecht, op.cit., p. 224.
83 Strictly speaking, these do not appear in the sketch- Dürer has only indicated where they would go, but not filled them in. Although we do not know if this was what Maximilian actually wore, it is safe to surmise that the final outcome was not random. The sketch, reproduced in Peter Strieder, *Albrecht Dürer: Paintings, Prints, Drawings*, Revised ed. (New York: Abaris Books, 1989), p. 75, shows clearly that Dürer concentrated on Maximilian’s face.
84 Hollstein, op.cit., attributed the print to Dürer. He also attributed the decorative frame to Hans Weiditz. Weiditz contributed one print to Maximilian’s *Theuerdank* (see p. 206). Hans Weiditz (c. 1500-1536) did not regularly sign his own work and, therefore, has never been well known; see Giulia Bartrum, *German Renaissance Prints 1490-1530* (London: British Museum Press, 1995), pp. 160-163, for a discussion of Weiditz’ relative anonymity and a short bibliography.
85 “The most precious noble Emperor Maximilian has on the 12th January, in his 59th year, blessedly departed from this world in the year of the Lord 1519.”
86 “The word *divus*, which was regularly attached to the Emperor’s name to show his divinity, came gradually to have the meaning of “man made into God” and when it was proposed to erect a temple of Divus Nero during the lifetime of the emperor, Nero himself thought the proposal a bad omen and would
Figure 21:
Albrecht Dürer and studio
(Hans Weiditz is credited with the decorative border)
Emperor Maximilian I,
1519.
Plus details of the columns,
showing heart-shaped decorations and dolphins.
Reproduced from Walter Strauss,
The architectural frame by Weiditz with its wealth of decorative devices if also of note. Maximilian is set in a frame, flanked by two wide columns. The columns are decorated with designs made from sculptured leaves, creating a series of unmistakable heart-shapes up the shaft of both columns. At the top of the columns are dolphins. Are the leaves stemming from the mouths of putti just coincidentally like upside-down fleurs-de-lis? Above the dolphins and at the top of both columns, large and clearly dominating, are the imperial griffons. Reaching across to join the gap between the two columns is a veritable cornucopia of imperial insigniae, from the double-headed eagles of Germany to the open crown of the Holy Roman Empire. In amongst this plenitude are many Burgundian symbols, from the decussate (“X”-shaped) cross of St. Andrew to the flint and striking iron, signs later exploited by Charles V in his self-representations. In the same way that François’ coat of arms in Fine’s map was surrounded by a chain representing his claims in the Savoy from his mother, here the Order of the Golden Fleece was repeated around the Imperial crest, with its double-headed eagle. The Order of the Golden Fleece was a Burgundian Order that Maximilian had claims to as a result of his marriage early in life to the heiress Mary of Burgundy. Savoy was relatively close to Maximilian’s territories. Burgundy is not that far from Paris; it had been a French fiefdom and the Valois dynasty had claims upon it. Habsburg-Valois rivalry over a variety of territories was rife throughout the late fifteenth and almost the entire sixteenth century and resulted in several wars. Maximilian’s death notice clearly focused upon the Burgundian claims, inherited by François’ rival, Charles V.

I believe Fine’s map and this image of Maximilian have a relationship to each other. While the woodcut clearly had a function in relation to Maximilian’s death, the nature of its decoration raises questions about rivalry politics between Valois and Habsburg. As I must reiterate, we cannot know for certain if this kind of decoration was in Fine’s 1519 map, although we now know it existed in Germany in 1519 as shown by the

not permit it to be erected.” From Lily Ross Taylor, The Divinity of the Roman Emperor, Philological Monographs; No.1. (Middletown, Conn.: American Philological Association, 1931), p. 241.

87 Maximilian’s marriage to Mary of Burgundy had been a masterpiece of political strategising by his father, Frederick III. When Mary died in an accident in 1482, Burgundian lords regarded Maximilian only as the father of their baby Archduke, Phillip (eventually father to Maximilian’s successor, Charles V). Maximilian spent much time and money protecting his relationship to Burgundy, even ceding Artois and the Franche-Comte to France as part of the dowry of his and Mary’s baby daughter’s engagement (she was the Archduchess Margaret, who played a scary role in Mercator’s imprisonment) to the Dauphin, the future Charles VIII. See Jean Berenger, A History of the Habsburg Empire: 1273-1700 (London ; New York: Longman, 1994), p. 124.
Is it simply a coincidence that this kind of decoration appears in Fine’s map as well as in this print of Maximilian? I am inclined to think not, and one reason is as follows: generally speaking, the flow of artistic influences from Italian sources arrived in Germany later than in other countries except in one discipline, in which the Germans excelled – printing and illustration. With Fine working at various printing houses in Paris, he had much opportunity to come across the latest works printed in Germany. The pressures on him to adopt and enhance current styles would have been crucial to Fine’s survival in Paris and at that point in time, to his success in bringing himself to François’ attention.

In the print of Maximilian, the architectural frame with its heart shapes, dolphins and upsidedown fleurs-de-lis were quite subsumed by the Emperor’s image and insigniae. Hearts and dolphins were put in their place, seconded into support structures for the imperial symbols. The two columns that flanked Maximilian’s image – and Fine’s map – were probably the least innocent of imperial designs. Such columns were a main feature of Charles V’s device, along with the motto Plus Ultra, which came to be inextricably tied to notions of world exploration and dominion. That a rivalry between rulers was manifested in the decorative schemae of visual products was not unusual. I am suggesting here that, like Reformation propaganda imagery, the employment of signs in both woodcut and map utilised a process common in its day.

As Robert Scribner described it, there was a transformation "from simple signification to a second-order system of signs, to metalanguage" meaning that “the signs of one system are used as signifiers in another”. Fine’s use of devices such as the columns

88 And with a more successful Renaissance feel to it than shown by Fine’s map; if Fine’s decorative devices on the map were from 1534 it probably would have looked very old-fashioned. To offer some counterpoint to this argument, however, the frontispiece to Fine’s Protomathesis of 1532 is not dissimilar to that of the map, although it may follow that both appeared old-fashioned. Ross gives a good, if fast, overview of art historians’ opinions on the sources and currency of Fine’s decorations. Brun, op.cit., also noted that, by comparison with the wholly classical and contemporary Geoffroy Tory (who, after all, studied in Italy) Fine’s work was “only slightly responsive to the Italian spirit,... prolong[ing] not the Renaissance but the spirit of the Middle Ages...” Ross, op.cit. p.34. Brun also opted for Fine being influenced by German-Swiss, and not Italian, sources, p. 33.

89 “Printers as a class [in the late fifteenth and early sixteenth centuries] were known as les allemands (the Germans)...”” Douglas Crawford McMurtrie, The Book: The Story of Printing and Bookmaking, (New York: Oxford University Press, 1943), p. 191. German prestige in the field of new print technologies was changing, at least by Fine’s time in the printing houses of Paris, as French typography and printing were experiencing a “Golden Age”; ibid, p. 327. Technical and artistic rivalries in this arena would have been at a high point at this time. See also Warren Chappell, A Short History of the Printed Word (Boston: D.R. Godine, 1980), pp. 72, 98 and Brun, op.cit.


91 Scribner, op.cit., p. 243; Scribner’s semiotic distinctions were based upon the work of Roland Barthes.
to surround his map of the world for François was potentially a way of entering a representational debate over imperial rights and significations. Whether the Dürer-Weiditz woodcut was an inspiration or response I do not claim to know, but an exchange was underway.

Two other images support this idea. François’ bid to become Holy Roman Emperor in 1519 was put into writing, titled *Oratio oratorium Francisci I*. This document has an interesting frontispiece that exploited columnar imagery (Figure 22). Dated 28 June 1519 and printed in Augsburg, its decorative border is attributed to Hans Weiditz, who had made the border for Maximilian’s woodcut. This image used more generalised Renaissance decorative flourishes than the woodcut of Maximilian, demonstrating Weiditz’ knowledge of contemporary Italianate fashions. It is notable that it employs a prominent heart-like colophon, often utilised by Oronce Fine. Weiditz also worked on an image of Charles V in 1519 (Figure 23). This image is clearly related to the Dürer portrait of Maximilian and the death notice discussed above, as well as a family portrait of 1516. I suspect there was a rush of images needed for the change of Emperors; six months is not a long time in sixteenth century politics. From the similarity of the images of Maximilian and Charles, it appears that the representation of continuity through the similar employment of signs was considered important.

I have suggested here that maps do not exist independently from other images of their own time and may even be engaged in a dialogue or exchange with some of these other images. While much work is being done currently to connect maps with their social and political contexts, the relationship to other, non-cartographic images is perhaps not as common as it could be. In the case of the cordiform map by Oronce Fine, connecting it with other images of the day may be one way of unravelling the function of the heart in cartography. Above I seemed to imply that it was the columns that were the link between all four images. I have done this in order to suggest that while imperial pretensions remained an issue for French, if not all European royalty, in 1519 it had a special urgency. The border of Fine’s map as we know it from 1534-36 may indeed have been designed at that earlier date. In conjunction with this, when

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93 A column with its shaft concealed by bands of sculpted leaves is one variation of what would become known as the French Order. Curl, J.S. *Oxford Dictionary of Architecture* (Oxford: Oxford University Press, 1999), p. 255. Columns and other imperial signs will be further discussed in Part III.

we consider the heart-shaped, map portion of the image, the heart-sun-ruler links, supported by astrological understanding of the time, are clearly compatible with my argument about the map being a support for François’ imperial projections. In Part III, this theme will be further elaborated for Maximilian.

An ornament of the world

There is another role for the image of the heart in the early sixteenth century that can help shed light upon its use in cartography: decoration. In this section I wish to focus on ornamental patterning having cultural and even political meaning. To do this I have chosen some important decorative frescoes made under the supervision of Raphael, from that important year of 1519. Although I am reluctant to introduce yet another non-cartographic image at this point, I believe Raphael’s reputation at this time gives weight to my arguments concerning heart imagery. Discussing these frescoes can demonstrate how the new Renaissance fashions signalled intellectual and social prestige, as well as cultural allegiances.

The subject of decoration is not unprecedented in cartographic study, especially as the seventeenth and eighteenth centuries revelled in the use of decorative devices. Some of the major approaches to this subject in the past have treated decoration as important historical information, such as an aid in dating, and as a source of pleasure. While I

94 I refer to Bernhard Strigel’s painting, Maximilian I and his family, now in the Vienna Kunsthistorisches Museum. For a reproduction see Stephan Füssel and Bayerische Staatsbibliothek, The Theuerdank of 1517: Emperor Maximilian and the Media of His Day (Köln ; Los Angeles: Taschen, 2003), p.4.
95 In writing about ornament, one must be careful not to over-read it; ornament is not always deeply symbolic. See James Trilling, Ornament : A Modern Perspective (Seattle: University of Washington Press, 2003). I agree with Trilling that a Jungian version of the nature of symbols has had a huge effect on the twentieth century appreciation of ornament, even if Jung never wrote specifically on the subject. Carl Gustav Jung, the psychoanalyst, believed in a universal system of ‘archetypal’ images that resounded across time and culture. This position is clearly at odds with a postmodern view of the nature of signs – here I am using signs and symbols interchangeably, rather than in their linguistic/semiotic use – that tends towards an appreciation of the cultural specificity of sign making and use. As we have already seen from the changing meanings of the heart, an overall, fixed meaning is not something I could support for the topic at hand. Again, the purpose of this study is not to find a single, previously hidden meaning for the sixteenth century cordiform maps. Instead, I wish to propose alternative contexts for the production of the maps that allow multiple, possible interpretations that makers and viewers of these maps may have held. 96 R.A. Skelton’s book Decorative Printed Maps of the 15th to 18th Centuries, London, Staples Press, 1952 has an introduction that discusses decoration directly; see pp. 16-19. Another important study was “Period Ornament, Writing and Symbols on Maps, 1250-1800 by Edward Lynam, from The Geographical Magazine no. 18, 1945/46, pp. 365-368. Both Skelton and Lynam are concerned with the type of ornamentation and their usefulness for dating, rather than imparting strong meanings to the decoration itself. Again, this is where Tom Conley’s study was inspiring, as he derived meaning from the ornament itself, not just for the historical information it could offer. J.B. Harley decried the status of the study of ornament in cartographic study, as not yet achieving “the depth of iconographic analysis” seen in
have used both approaches already in this study, I am also suggesting another
direction, in that I am not making a separation between the function of the map per se
and its decoration. This is meant on two levels. One is that the decorative devices such
as dolphins or columns of Fine’s map played a part in the purpose of that map, which
was more than only geographic description. The second, more unusual thing I am
suggesting here is that the structure of the projection – the map itself – is a decorative
device that signals meaning on the basis of its shape. In other words, the entire map
was decorative, and in itself had meaning and purpose. And those purposes may be
considered through an examination of similar uses of the same shape.

Raphael’s frescoes (Figure 24) were made for apartments in Rome, owned by Pope
Leo X and used by Cardinal Bibbiena, called the Loggetta. They were painted under
Raphael’s direction and executed by Giovanni da Udine, Guilio Romano and others.
Bibbiena, like Leo (for whom he was a powerful private secretary), was a classical
enthusiast and humanist who commissioned work from Raphael on more than one
occasion. According to Alain Gruber, these frescoes had an influence on the
decorative arts of the sixteenth century. They represented the forefront of a
movement for artists to draw upon designs from the recently rediscovered palace of
Emperor Nero, called the Domus Aurea. Despite the importance of the frescoes in
their own time, however, they were painted over and only rediscovered in 1906. With
Raphael’s name attached to the project, they might have been even better known given
the nineteenth century’s preoccupation with the art history of Renaissance Italy. I am
not claiming that Fine knew of Raphael’s doings in 1519. Instead, if by that time heart
shapes were already at the forefront of fashionable design in Italy, it is not impossible
that this knowledge would have filtered northwards. The use of heart shapes as part of
a decorative pattern was a fashion that caught on, especially since their use resonated
with humanism and other contemporary currents, such as the rejection of Gothic
styles. Why this was so is as follows.

The frescoes of the Loggetta show a series of delicate, interlinking grotesques, with
heart shapes a primary motif. The hearts are intertwined with putti, garlands, birds,
fantastical animals and other adornments. As with many grotesque designs, there is

the work of historians such as Frances Yates. See his section titled “The ideology of cartographic
decoration”, in Harley, “Maps, Knowledge and Power,” op.cit., n. 100, p. 311.
97 Alain Charles Gruber, The History of Decorative Arts: The Renaissance and Mannerism, 1st ed. (New
98 Gruber, op.cit, and Brun’s Le livre français illustré de la Renaissance, op.cit, both discuss specificities
of grotesques and rinceaux as cultural signifiers. Brun also discusses Fine as an illustrator.
Figure 24: Frescoes in the Loggetta of Leo X, 1519. Under direction of Raphael, executed by Giovanni da Udine and others. Reproduced from Gruber’s The History of Decorative Arts: The Renaissance and Mannerism, op.cit.

Figure 25 (right): detail from the top right of the fresco.
considerable play and mutation of motifs. This is clearly visible in Figure 25 where
the heart is transformed into a variety of alternative shapes, even an inverted heart
shape. The presence of the putti and pairs of birds would incline the reading of these
frescoes towards the romantic, in a generalist sense.99 "Grotesque" was a term derived
from the decorated grottoes of the Domus Aurea, the rediscovery of which in the last
decade of the fifteenth century had inspired much enthusiasm amongst artists. The
grotesque 'tradition', as it became, was part of a strategy in which leaders, from Italian
Popes to French Kings, aligned themselves with the glories of the classical world.
François, as much as Maximillian, was concerned to show himself in an Imperial
guise, to evoke a lineage deriving from that glorious past. Fontainbleau became
François' ultimate manifestation of this impetus. Its decoration had to equal, if not
surpass, the glories of the ancient past; hence the employment of so many Italian
artists and artisans. The designs on Fine's double cordiform map of 1531, therefore,
were not 'mere' decoration: they directly referenced these imperial desires and thereby
signalled clearly François' intentions.

This consciousness of the functions of ornament in the sixteenth century was broken
during the twentieth century, creating a problem for the serious consideration of the
role of decoration in cartography. Contemporary scholar of ornament James Trilling
called it 'cosmophobia': a distrust and disdain for ornament. Yet that most important
field of study, cosmography, itself came from the same Greek root as does cosmetics,
kosmos100. Expert in geographies of the Renaissance Frank Lestringant elaborated the
connection by pointing out that "an ancient etymological play on the Greek word
kosmos... tended to assimilate the universe to a visual spectacle, precious in its
inexhaustible diversity and reserved by God from the beginning for man's pleasure
and instruction."101 Oronce Fine was no stranger to this idea. In 1530, Fine was
working on a cosmographic paper, published in 1532 as part of his "Protomathesis",
another major work produced for François' edification. "Cosmography", Fine wrote,
"was one of the prettiest and most delightful parts of mathematics".102 Our post-
twentieth century, popular conception of the superficial nature of ornament is being

99 It would be interesting to know exactly when these influential designs were painted over; Gruber says
they were covered for '300 years', which would indicate the beginning of the seventeenth century. Once
the heart had become aligned with the Jesuit order, after the 1540s, could papal lodgings still be decorated
with hearts, or did they simply go out of fashion?
100 Frank Lestringant, Mapping the Renaissance World: The Geographical Imagination in the Age of
101 Lestringant, ibid, p. 32. Lestringant noted this idea is to be found in German editor Simon Grynaeus'
preface to the Basle edition of Novus Orbis in 1532; the Paris edition of the same year contains Fine's
double cordiform map. See Shirley, op.cit. p. 73. I do not know if the preface was unchanged or not.
challenged by new research\textsuperscript{103} of a kind certainly not present in the nineteenth century, when the history of cartography as a discipline was being established.

The sequence of hearts in Raphael's frescoes were also a form of \textit{rinceaux} (sometimes called 'scrolling' in English, but not to be confused with the strapwork of later periods). \textit{Rinceaux} are perhaps the most ubiquitous of Renaissance ornamentation as they permit infinite variation and adaptation. Consisting of linear patterns of curves and counter-curves, often made from abstracted foliage, the patterns can be embellished with other ornamentation such as plants, animals or devices. This system of patterning can be adapted into friezes, fill gaps in any architectural spot or illustrated book, and generally take on the pattern and tone of any surrounding as required. \textit{Rinceaux} were perhaps less resonant with contemporaneous desires than grotesques, even if they were also found in the archaeological rediscoveries of antiquity. In some cases they were simply adaptations of medieval forms of decorative script. Regardless of their history, the curve and counter-curve lend themselves easily to heart shapes. Even a short perusal of Alain Gruber's magnificently illustrated \textit{A History of the Decorative Arts: The Renaissance and Mannerism} reveals much heart-shaped imagery used as a decorative device, from the patterns of brocade gowns to engravings on the hilts of swords. From the number of images in Gruber's book, this usage was widespread across Europe. This form of decoration is another wider context for cordiform imagery: part of fashionable decorative schemae, one with the excitement, newness and \textit{frisson} mentioned above as being associated with physiological imaging of the heart. Interestingly, on the cover of a copy of Vadianus' 1540 edition of Pomponius Mela's \textit{De Situ Orbis} (in a private collection in Sydney) into which Fine's double cordiform map was bound, was embossed exactly such a decorative device; vaguely botanical, definitely decorative, and referencing the map inside: two interlocking hearts.

\textsuperscript{102} Ross, op.cit., p.28.
\textsuperscript{103} Also see Michael Snodin and Maurice Howard, \textit{Ornament: A Social History since 1450} (New Haven: Yale University Press, in association with the Victoria and Albert Museum, 1996). To my mind, Trilling does not leave modernism far enough behind; a postmodern (or post-postmodern) theory of ornament is not yet available.
To argue for a greater role for ornamentation or illustration in the stories maps tell, I would use an interpretation of ornamentation as “the provision of whatever properties or means increase the efficacy of the thing or person with reference to which or whom they are employed.” This contrasts strongly with the contemporary notion of decoration or ornament as not useful, not intrinsic to the object’s function, or for pleasure only. Influential twentieth century scholar of ornament Oleg Grabar had argued just this point for several decades, resisting the desire to impute ideological or cultural meanings to ornamentation, lest it become “ethnic publicity and propaganda.” Yet Grabar’s argument surely required that an ornamental system be ascribed with fixed, rather than mutable or contingent, meaning.

Take, for example, the image of the dolphin. So far, I have suggested it was strongly associated with French royalty, through the name of the heir to the throne, Dauphin (dolphin). Yet the dolphin was also a sign borrowed from classical imagery, thereby becoming increasingly fashionable during the rise of humanism. The dolphin image can be found on Roman sarcophagi and henceforth became part of the generalised Renaissance vocabulary of ornament. The dolphin can be found in rinceaux, from woodcarvings to book illustrations, across Europe. Yet it is by no means the case that this excluded a specific association with French royalty. A sixteenth century viewer could judge when it applied in one case, when in another. The very slippage between alternative readings of such a symbol is probably what allowed Oronce Fine to use it so liberally in his own designs. The dolphin, simultaneously, proved Fine’s up-to-dateness in illustrative devices by demonstrating his knowledge of classically inspired motifs and their application; it referenced his royal employer as well as his heir and Fine’s future employer; and was also a self-referential device noting his place of origin in Dauphiné (Orontio Fineaus Delphinatus). This is not complicated; human beings are sophisticated users and readers of signs in context. It is when contexts are lost that the multivalence of symbols is reduced and we are confronted with things we

106 Fine consistently forged links between himself and his royal employer, and the fact of his birthplace provided one such opportunity. It is not impossible that the 1519 map was made to celebrate the birth of the Dauphin, so perhaps Fine’s adoption of this symbol as part of his personal repertoire is another way of connecting himself with the royal family. Tom Conley has pointed out the emergence of a visible, authorial self as a part of Fine’s illustrative process. Unthinkable in the centuries before the Renaissance, this self promotion would have been seen as very modern, part of the new liberal, humanist trend of which Fine was a part. The personalisation of insignia is surely useful as a professional device. Fine needed to present himself as supported byFrançois and even identifiable with François’ power.
no longer understand, and perhaps develop theories of ornamentation that deny context is relevant because it has become less accessible.

Applying new theories of ornamentation to maps is another job. This section reinforces that *all* of the imagery in a map has a role to play in the functions of that map. It needs to be remembered that world maps, no matter how up-to-date their information, have never been the most useful of objects in a practical sense. They are not particularly useful for navigation, especially in the era prior to Mercator's projection of 1569 – the cartographic equivalent of obtaining the holy grail. World maps also did not automatically present a favourable display of territories relating to the commissioner, especially in the sixteenth century with its need to include newly discovered continents upon the map.¹⁰⁷ The role(s) of world maps in the sixteenth century are therefore particularly interesting. World maps are possibly the most overtly symbolic item in the range of cartographic products, both in the sixteenth century and today. As mentioned in Part I, the world map can be seen as a device for contemplation, political or religious. Again, we must remove the notion of a map as a recording device. A map can reiterate, confirm, present and always, by definition, project. The visual labelling of space and its signification in an arrangement conducive to French national interest was to some extent achieved, via this map.

In Fine’s map, the most obvious item that reflected François’ interests was the clear labelling of the East Coast of North America as “Terra Francesca” (Figure 14). François Iᵉʳ was the first French King to show an active interest in overseas expansion. Throughout the 1520’s, official French expeditions led by Giovanni da Verrazzano were sent to find new routes to Cathay in direct competition with Portuguese and other such missions.¹⁰⁸ Verrazzano’s voyages resulted in much of the East Coast of North America being explored; France thereby gained a foothold in the competitions over the New World. The way in which the New World curved around as if to meet the old perhaps suggested that travelling there was a much easier proposition than it otherwise might be, a not insignificant proposition for a royal patron. Was there any advantage

¹⁰⁷ Only in the Nineteenth century, in combination with the Mercator’s Projection, would the British Empire appear to dominate the world. Of course, Fine’s map did not really have a Pacific; the knowledge of the vastness of that ocean had not yet become clear. Rodney Shirley notes that the “whole eastern coastline of north, central and south America is, for the time, relatively accurately drawn”, even if North America became one with Asia rather too quickly. Shirley, op.cit., p. 77.
¹⁰⁸ Knecht, op.cit., pp. 369-370.
in the diminished appearance of the unknown south, with its possibly huge terrains? Peter Apian’s cordiform map of 1530 left the south well alone, without any visual hint of unknown lands. No such reticence is accorded the viewer of Oronce Fine’s extraordinary map. The lands represented in the lower part of the map loom oppressively large, looming along the sides of the map towards the already known worlds. Arguably less dramatic than the huge Antarctica we have been used to, strewn across the bottom of the world, which followed from Mercator’s projection of 1569, the clasping, almost engulfing appearance of Fine’s southern mass has its own unusual affect. This New World of discovery does not appear one of comfortable certainty. Would religious connotations of the heart offer any consolation? This is a question for the final part of this study, Part III.

\footnote{In the single cordiform maps, I have not seen the issue of the south cordum, or bottom extremity (‘tail’?) discussed enough. I have only found one mention; George Kish quoted contemporary scholar Jacobus Severtius as describing the south pole as ‘the least conspicuous’ (Kish, op.cit. p. 13; his reference is “Jacobus Severtius: \textit{De Orbis Catoprici}. Paris, 1598. See Karrow p. 719 for full reference).}
A postscript for Part II: Worlds apart

I wonder if Oronce Fine watched the funeral procession of François Ier as it moved through Paris in late May 1547. This huge ceremony, unlike anything seen in France or indeed Europe before, included the parading on a deathbed of a life-like wax effigy of the King. Whether or not Fine chose to witness the ritualised passing of François, he probably had conflicting emotions. Sorrow and fear for the loss of such a significant employer, with whose reign he would have had much to sympathise, particularly regarding the fostering of the arts and liberal humanism. François was the same age as Fine, so perhaps thoughts of mortality were not far away. Perhaps he felt frustration over the unpredictable pay to himself and the other Lecteurs Royaux. Surely he had fears for the future of his royal patronage; a huge change of personnel was underway from the moment of the transition of power from one monarch to another. Fine remained in his job until he died, but given the documented legal battles over his family’s lodgings and his comments on the jealousy of others, the circumstances of his life seemed quite precarious, Royal Mathematician or not.

If we look at the timeline of Fine’s publishing output, there was an uncharacteristic gap around the years following François’ illness and death; this gap in publishing only happened once before, in the years around Fine’s imprisonment. By 1551 Fine was taking surveying work for extra money, followed by a spate of publishing before his own death in 1555. Fine’s reputation was not at a high point even before this time. He had claimed on more than one occasion to have solved one of the oldest problems in geometry, the squaring of the circle, but his attempts were met with profound ridicule. Consider this, by Petrus Nonius in 1546, published nine years before Fine’s death: “Fine hallucinated on the matter of finding two mean proportionals on account of his ignorance of Euclid’s Elements, Book VI.”

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110 The Turkish ambassador was so impressed he had the ceremony translated and sent back to the Sultan. French influences in Turkish royal funerals after this date have been detected. Giesey, op.cit. pp. 10-11. One wonders if this ceremony was also designed to outdo the funeral of Henry VIII of England, who had died in January that year (François died in late April). The life-like effigy was created by François Clouet, painter of the King’s most well known portrait.

111 According to Giesey, the sixteenth century was a transitional period in which a change from the medieval tradition, of empowerment of the new monarch coming at time of coronation, to the modern trend of power residing with the new King from the moment of the predecessor’s death. The elaborate funeral ceremonies reflected this change. See his unpaginated Preface.


113 Ross, ibid., pp. 224-259. Ross covered this subject fully, having examined both Fine’s equations and the responses to them. See Chapter 7, “Fine’s work in Advanced Geometry: the Unsolved Problems” (pp. 222-266), or Chapter 12, Fine’s Influence (pp. 363-374), or his Conclusion (pp. 375-385). On Gallois’ trouble to resurrect Fine’s reputation, see p. 266.
But 300 years of silence on the subject of Oronce Fine, Royal Mathematician, was fortunately not presaged in his own lifetime by German colleagues who valued his work highly. In 1551, cartographic publisher and scholar Johannes Schöner would mention Fine’s work as amongst the best of its time. In his work *Opera Mathematica* Schöner would celebrate Fine’s role in the development of the cordiform map, using his own simple yet brilliant description: “... we will attribute the greatest things to the most learned men, D. Orontius Fineus Delphinatus and D. Petrus Appianus in the description of the cosmographic heart...”\(^{115}\) Gerhardus Mercator too would find Fine’s 1531 double cordiform map a direct influence upon his own in 1538. So no matter what the state of Fine’s mind upon the day of François’ funeral procession, it would turn out that the prettiest and most delightful part of his life’s work would finally save his reputation. Schöner’s chapter concerning the description of the earth, from which the above quote was taken, began with a decorated initial not used elsewhere in the book. Two rampant dolphins face each other, the curves of their backs forming the outline of a heart; a homage to Fine and to his style.

Fine made his first cordiform map in the year François made his most direct efforts to become Holy Roman Emperor. I have suggested that Fine’s cartography was a means to an end, not all of it geographic. Fine’s maps were not designed to accompany explorers and there are no records of any of them gracing the decks of ships. They were, however, helping François navigate the tricky terrains of imperial desires. Imperial themes resonate throughout Part III, surrounding the invention of the heart-shaped projection by Johannes Stabius at the court of Maximilian I, Holy Roman Emperor.

\(^{114}\) It seems even worse in Latin: “*Orontium Finaeum hallucinatum*...” Ross, op.cit, pp. 262-263.

\(^{115}\) Schöner, Johannes, *Opera Mathematica*, 1551. Translation courtesy of Dr. Ann Moffatt.
Part III: The Last World Emperor... and other Strange Things
The end of one world (a preamble)

On his deathbed in 1519, the Holy Roman Emperor Maximilian I had Jacob Mennel, an expert in Maximilian’s family history, read aloud a long list of all his ancestors. As Mennel spoke, actors adorned with the emblematic signs of these august personnages—which included Charlemagne, and Clovis with his shield from heaven—paraded in front of the sick and dying man. This was no act of sentimentality on Maximilian’s behalf. The parade of these ancestors was, at least, a reminder of his place within an imperial lineage. This was a subject into which Maximilian had funded extensive research; research that was to show his ancestry extending back to the ancients and further, to include Noah, Saturn and even Christ. Maximilian’s plans for his tomb in Innsbruck which he had begun some seventeen years earlier included representations of many of these personnages. This ‘lineage’ wove together aspirations, legacies and privileges of pagan, Hebrew and Christian origins. Literary origins too, for the formulations of these histories were largely the work of poets. From Virgil onwards, poets had been busy extolling and legitimising rulers in their positions of power (in Virgil’s case, Augustus Caesar). Maximilian, too, employed and encouraged artists, poets and humanist scholars to do this work for him.

Maximilian’s imperial designs, stemming from his role as Holy Roman Emperor as well as heading the Order of the Golden Fleece, would have a large influence upon his actions, whether political or as a patron of art and science. The idea of the map of the world made in the shape of a heart was the invention of one of Maximilian’s close courtiers, Johannes Stöberer, known by his Latin humanist name, Stabius. While

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1 Jacob Mennel had spent a decade working on Maximilian’s genealogy. The first edition of his magnus opus, Förstliche Kronik, appeared in 1507, the final edition in 1518. Mennel was not alone in the task of furnishing Maximilian’s ‘genealogies’; he and Stabius were amongst a group of humanist scholars put to work on the subject, of which more below. This information (including mention of the parade of figures at the deathbed) is from Marie Tanner, The Last Descendant of Aeneas: The Hapsburgs and the Mythic Image of the Emperor (New Haven: Yale University Press, 1993), pp. 107-108. For a list of the scholars, see p. 101. Tanner’s own reference is Alois Schulte, Kaiser Maximilian I als Kandidat für den Päpstlichen Stuhl 1511, (Leipzig, 1906), p.77.

2 For an image of the tomb see Percy Ernst Schramm, Denkmale Der Deutschen Könige Und Kaiser I-II, Veröffentlichungen Des Zentralinstituts Für Kunstgeschichte in München ; 2, 7. (München: Prestel, 1978), pp. 300 (image) 104-105 (notes). Maximilian wanted 40 larger than life-size statues of his ‘ancestors’, 100 statues of his Habsburg forbears, and 34 busts of related rulers. Only a fraction of his plan was achieved, including one sculptural masterpiece, Peter Visscher’s bronze statue of King Arthur, the mythical English King. The Innsbruck tomb is also empty; a topic to which I shall return.

Stabius is known mostly as an astronomer, mathematician and poet, he was intimately involved in Maximilian’s genealogical researches, both as a scholar working for the office established for this purpose, as well as the manifestations of these genealogies in several major artistic commissions. That the son of a humble hunter or forester rose to the inner circle of the Holy Roman Emperor was but one example of the high value placed on intellectual achievements in that time, and may have formed a model inspiring Oronce Fine a few decades later. One of Stabius’ contemporaries wrote: “The Emperor took constant pleasure in the strange things which Stabius devised, and esteemed him so highly that he instituted a new chair in Astronomy and Mathematics for him at Vienna”. Since it is known that Stabius worked in Vienna after 1503, could one of the “strange things” that brought Maximilian pleasure have been Stabius’ idea of a heart-shaped map of the world that he had invented a few years before, at the turn of the century?

Stabius became intimately involved in Maximilian’s genealogical histories in many different ways. One was to pose as the model for a painting of one of Maximilian’s most famous ‘ancestors’, no less than Charlemagne himself. This painting was to be part of a series to decorate the Nuremberg Treasure Chamber, where the Imperial Regalia of the Holy Roman Empire were held. The City Council commissioned Dürer to paint these works in 1512. As there were no reliable visual sources for Charlemagne a sitter had to be found. In Figure 26, the completed painting, we see Stabius’ face. While it certainly could be Dürer’s own lively intelligence reflected in the portrait, it

(Graz: Verlag Hermann Böhlau Nachf., 1963). Also, there are many references to be found in Wiesflecker (see n. 10 below, and bibliography for other volumes) and some of the books concerning Dürer used in this study. Größing, writing in 1968, brought together many of the contemporary sources for accounts of Stabius, as well as later literature.

4 Johannes Stöberer from Hueb matriculated from Ingolstadt University in 1482; Größing, ibid, p. 241. The evidence for his father’s occupation lies in ‘stöuber/er’ being German word for hunter, or perhaps forester.

5 From T. Sturges Moore, Albert Dürer; [sic] (London, Duckworth and Co., New York, Charles Scribner’s Sons, 1905), but without further reference. I saw this as part of the ‘Gutenberg ebook project’ at http://www.ibiblio.org/pub/docs/books/gutenberg/etext06/8duiTl0h.him. From Größing’s article, the commentator appears to have been Georg Tannstetter (Collimitius), fellow mathematician and doctor to Maximilian. Tannstetter wrote a Viri Mathematici with a section on Stabius. Größing, op.cit., pp. 244 and 262.


7 A fuller discussion of the dating of the invention is at n. 11, below.

8 Even if there had been reliable sources available, the use of a living person to sit for important images was a common Renaissance practice. I have not here gone into this important aspect of Renaissance portraiture; there may be further meaning extricable from Stabius’ posing for Charlemagne and Saint Coloman (see below). That Stabius posed for the Charlemagne ‘portrait’ has long been accepted by art historians; August von Eye, founding Director of the Germanisches Nationalmuseum suggested that Stabius’ face had “something lionish about it”; Größing, op.cit., p. 261. Dürer scholar Peter Strieder describes Stabius’ face as a “God-the-father type”, Strieder, op.cit., p.71. Stabius would have been 52 years old in 1512.
Dürer was paid for the painting in 1513. Stabius had been in Nuremberg in 1512, the year many of the major print projects (The Great Triumphal Chariot..., The Great Triumphal Arch, and more) with which both he and Dürer would be involved with over the next few years. Both reproduced here from Strieder, Peter, *Albrecht Dürer: Paintings, Prints, Drawings*, New York: Abaris Books, revised edition, 1989, pp. 68, 72. Strieder noted that Stabius’ “God-the-father type” served as the general model for other images of Charlemagne well into the nineteenth century.
is possible to think of it as a portrait of Stabius himself, imperial regalia notwithstanding. Given the high seriousness of the imperial ancestry to Maximilian, was there any wit to using Stabius as a sitter (who could be discussing the commissions for the print projects at the same time)? Stabius also posed for a Dürer woodcut in the guise of Austria’s patron saint, Coloman (or Kolman; see Figure 27). Posing for ‘portraits’ of foundational Holy Roman Emperor Charlemagne and the patron saint of Austria was, at least, further evidence of the trust and high esteem Maximilian had for his deviser of strange things. And during the sleepless nights of Maximilian’s last, fatal illness, it was Stabius who read aloud to him from the work on the royal genealogies.

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9 This was in 1513; Figure 27, reproduced from Walter Strauss, op cit., pp. 483-485). This print was the subject of a letter from Henry VIII of England’s court astronomer, Nikolaus Kratzer, to Dürer, asking him for news of Stabius and of a copy of the print (ibid, p. 483).

10 Stabius reading aloud during the sleepless nights is from Hermann Wiesflecker, Gründung Des Habsburgischen Weltreiches, Lebensabend Und Tod, 1508-1519, vol. IV, Kaiser Maximilian I : Das Reich, Österreich Und Europa an Der Wende Zur Neuzeit (München: R. Oldenbourg Verlag, 1981), p. 424; based on numerous cited sixteenth century sources. The causes of the Emperor’s “brave” and “humbling” illness and death, mostly from intestinal cancer, inspired several pages of explanation by Wiesflecker; see pp. 629-632. Anyone who knew the Emperor seems to have found it necessary to comment upon his illness and manner of dying; see p. 420 for a long list of contemporary sources.
Directions of the heart

My overall argument requires that in order to understand the cordiform map, it needs to be seen alongside other heart images of its own time. While it is true that the shape is mathematically constructed, I propose that the existing connotations of the heart in the beginnings of the sixteenth century made the choice of its shape a deliberate one. It was neither coincidental upon the mathematics, nor simply religious or romantic as it might be thought of today. Furthermore, I will present a case that will show it was no coincidence that the cordiform maps featured ‘firsts’ in regard to the New World – the heart carried with it meanings that were intimately entangled with beliefs about the pursuit of the New World at that time.

Before introducing the directions Part III will take, I wish to outline the generally accepted version of the history of the heart-shaped projection. It is thought Stabius developed the mathematical basis for his projection around 1500-1502 and that he probably transmitted this information to pastor and mathematician Johannes Werner in 1502, since he was in Nuremberg that year to construct a sundial at the Church of St. Lawrence.11 It is unknown to what degree Stabius and Werner collaborated on the

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11 This is reported in Karrow, op.cit, p. 171; also in Keuning, op.cit, p.12. Gallois’ 1890 work, Les Geographes Allemandes... op.cit p.127, is usually the source for the transmission date of 1502, but Gallois himself may have got it from the 1885 article (cited on p. 117) by Steinhauser, "Stabius Redivivus, Eine Reliquie Aus Dem 16. Jahrhundert," , op.cit. p.289. Steinhauser, notably, did not state 1502 but implies it from the two pieces of information he has, Stabius and Werner’s friendship and the dating of Stabius’ construction of the sundial at St. Lawrence (at Werner’s behest). Yet Größling, op.cit, writing in 1968 and drawing together all Stabius related studies from the nineteenth and twentieth centuries, placed Stabius in Nuremberg on multiple occasions. He presents a picture of a highly mobile individual, constantly on the move between Ingolstad, Vienna, Augsburg, Nuremberg and other places, from the very earliest days of his career. Due to the confusion surrounding naming and classification – in which Sylvanus’ 1511 map is considered a publication prior to Werner’s treatise – the dating of Stabius’ invention has not been considered very important. Yet, if my revision of the naming and classification issues is adopted, and Sylvanus’ map no longer has to be taken into account, the issue of the dating of the invention becomes moot (see my concluding remarks, “Last Words”). In the absence of primary research on this subject, however, I have proceeded with the traditionally ascribed date.

In recognition of Stabius’ role in the invention, cordiform projections are sometimes referred to as ‘Stab-Werner’, as well as just Werner. Johannes Werner, although he was born and died in Nuremberg (1468 and 1522 respectively), had studied in Ingolstadt and also in Rome. He was in Rome between 1493 and 1497, where it is likely he learnt Greek. He was ordained there and returned to the Nuremberg region in 1498 where he stayed for the rest of his life. The general consensus is that Werner’s role as a pastor was an apparently easy post, giving him much time to develop his mathematical and astronomical work. It has never been suggested that his religious inclinations had any effect on his studies. Yet it remains to be asked: as a man of the Renaissance, working on the eve of the Reformation and in Germany, is it not possible that the culture around him influenced his worldview and work? Werner’s mathematical work was largely concerned with spherical triangles and conic sections (Snyder, op.cit page 34). This is a field of mathematics with major practical consequences, allowing navigators or astronomers to measure distances between two distant points while allowing for the earth’s curvature. In this field, Regiomantanus’ On Triangles of 1533 was a breakthrough work, influencing Copernicus. Werner’s work in this area, however, may have surpassed Regiomantanus’ in its presentation and practical applicability Menso Folkerts, "Johannes Werner," in Dictionary of Scientific Biography, ed. Charles Coulston Gillispie, for the American Council of Learned Societies (New York: Charles Scribners, 1970), p. 274).
mathematics of the projection, or in what form Stabius’ information was transmitted to Werner. In 1514 Werner published a treatise in which the mathematical formulae for three variants of cordiform projections are given. All were derived from Ptolemy’s second projection and were, appropriately, published in Werner’s version of Ptolemy, *Primi libri Geographiae Cl. Ptolemaei paraphrasis*. An important feature of his elaborations of Ptolemy’s second projection was that they attempted to extend the earth’s circumference across the surface of the map, not only the *oeicumene* or ‘known world’. These developments were crucial to the imaging of the world, especially as the new discoveries were revealing the limitations of the standard Ptolemaic depictions. The cordiform projection was, therefore, very much a part of the Renaissance mentality, at once drawing upon ancient texts and creating new forms based on the received information.

This short version of the history of the projection reflected the priorities of the history of cartography as it was established in the middle of the nineteenth century. It has remained largely unchallenged, despite the recent efforts of scholars such as Lestringant, Mangani or Nuti to re-integrate cosmographic concerns back into scientific accounts. The shorthand version prioritised the notion of developments in mathematics and cartography over these other, wider concerns. The promotion of the cordiform maps as primarily a product of the new Renaissance thinking discounted any continuing themes from the Middle Ages. The cultural context in which the idea of the world shaped as a heart was developed is noticeably absent, as if mapmakers or mathematicians operated in isolation from the cultural world around them, and despite expectations to the contrary at the time, the world did not change overnight. As I stated in my introduction, I am committed to demonstrating that other aspects of the story must be included to create a deeper understanding of the cordiform map.

In Part III I shall establish direct links between heart imagery and Maximilian I, for whom the concept of the heart-shaped world map was invented, even if no actual map

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12 The best account of the mathematical differences between the different projections (as well as clearing up some errors of past attribution) is by Snyder, op.cit, pp. 33-38 (and n. 87, p. 292). Fine used Werner’s third projection for his maps of 1519/1534; Apian used the second projection for his single cordiform map of 1530 and Fine adjusted Werner’s second projection to produce the double cordiform map of 1531.

13 Keuning, op.cit., p. 11; the section containing the new projections is called *Libellus du quatuor terrarum orbis in plano figurationibus ab eodem Joanne Verno novissime compertis et enarratis.*

14 Stabius would perform multiple tasks for Maximilian, including several collaborations with Albrecht Dürer (one project not discussed here was the 1515 collaboration on a large, spherical map). Dürer sought mathematical advice from Johannes Werner, whose work Stabius had published in a collected volume of geographically related works in 1514. Stabius, like Werner, was also an astrologer. Werner, apart from
eventuated in the Holy Roman Empire during Maximilian's lifetime. I have already proposed that the reasons Oronce Fine found it attractive to use the cordiform projection in 1519 were already prefigured at the concept's origin at the turn of the century, and this section of my study will demonstrate why this was the case. I have already presented a general background of concepts with which a sixteenth century mind would approach the image of the heart: beliefs about its status as the most important, central organ of the body and its role in housing the spirit, memory, wisdom and affect. One subject side-stepped thus far has been religious contexts for the heart image, which I consider to be extremely important to understanding the cordiform map.

I shall also discuss ideas about a nascent, Germanic self-consciousness and confidence under the rule of the new Emperor and related ideas about the century's end, the Apocalypse and the Second Coming. The 'discovery' of the 'New World', while inspiring thoughts of wealth, conquest and the new Golden Age, was also intimately bound up with concerns of religious union under Christ and the Second Coming. Since I consider the 'New World' aspect of the sixteenth century story to have been well examined elsewhere, it has not been a focus here. The extent to which I do wish to approach its impact upon the development of the cordiform map is in its relationship to home-grown ideological concerns and political agendas. This shifts the representation of the 'New World' away from being considered the starting point for cartographic developments, towards the world map as a concept, and physical object, that European rulers employed as part of their self-aggrandising projections.

In Part III, I will begin with important aspects of the mindset in operation around the turn of the century, when Stabius first had the idea for a world map in the form of a heart. Just as I used François' *vase du coeur* as a way of linking François directly (and intimately) with heart imagery, I shall now also establish Maximilian's own personalised relationship with heart imagery. This is visually manifested in a section of Albrecht Dürer's famous print, *The Great Triumphant Chariot of Maximilian I*.

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his religious training in Rome, worked in or close to Nuremberg for most of his life, a city that in the early sixteenth century was experiencing a flourishing of intellectual and cultural life.


16 François had a portrait medal made, which had on its reverse side an image of two globes – a celestial and a terrestrial sphere – topped by a crown and inscribed with the words *Unus non sufficit orbis* (One
Although this print was conceived in 1512, the ideas represented in the print were of much longer provenance. Given the close contact between Stabius and Dürer, that provenance may have included knowledge of Stabius’ invention. I shall begin Part III, therefore, by examining the relevant section of Dürer’s massive print. The purpose of doing this is to look more closely at the imperial mindset that may have formed a framework within which the heart-shaped world map idea arose.

Maximum impact

The colossal print projects involving Albrecht Dürer and other reputable artists took place against a background of combined mythologies that included Maximilian’s role as Holy Roman Emperor, Sovereign of the Order of the Golden Fleece, his Hapsburg heritage and his genealogical constructions. One of these projects was *The Great Triumphal Chariot of Maximilian I*, probably the grandest part of a multifaceted project conceived by Maximilian in 1512. It may have been completed (that is, the blocks cut) in 1518 but was not published until after Maximilian’s death, by Dürer himself. *The Great Triumphal Chariot*... is a large woodcut, made in eight blocks. The sketch for the woodcut and the print itself are over two metres long. Dürer worked closely with Nuremberg humanist and patron of the arts Willibald Pirckheimer...
(1470-1530) on this project, to perfect the iconographic associations and presentation of the Emperor’s identity within the conceit of the progressive movement of a triumphal chariot, shown as if in procession.

In *The Great Triumphant Chariot...* Maximilian, seated in his elaborately decorated chariot, is accompanied on his journey by various allegorical figures and devices. In one section of the print we encounter the image of a heart used as part of a rebus (see Figures 28 through 30).\(^{19}\) This visual rebus (presented as if on some kind of hanging shield or *aegis*) is situated very close to Maximilian, particularly close to his head. His head, shown in profile with his eagle-like nose—another ‘proof’ of his Imperial destiny\(^{20}\)—looks directly towards this device. The rebus consists of some text, with one particular image substituted for a word: the image of a heart is used instead of the Latin ‘cor’. The full Latin text, *In Manu Dei, Cor Regis Est* (the heart of the King is in the hand of God) is from Proverbs 21:1.\(^{21}\) There is another rebus, above the Chariot’s canopy, echoing the literary form of the biblical rebus: *Quod in Celis Sol, Hoc in Terra Caesar Est* (As the sun is in the sky, So is Caesar on the earth).\(^{22}\) To the right of the rebus is a shield with the double-headed imperial eagle, surrounded by laurel leaves: Virgil’s Apollo is surely here manifested. In this sun rebus, however, the word ‘sol’ is not replaced by the image of the sun, as the heart replaces the word ‘cor’. Did the replacement of the word with the image make the heart rebus more or less interpretable, or was this exchange negligible? Certainly there is no ‘collapsing’ of the lettering of the sun rebus; perhaps, as it was not a Biblical quotation potentially known to many, everything needed to be crystal clear. The seeming complexity of the heart rebus might be an indication that the words from Proverbs were better known than the sun rebus, the verbal structure of which is based upon the biblical quotation of the former. In *Paper Pageants: The Triumphs of Emperor Maximilian I*, Larry Silver suggests the heart rebus could also have had a memorial function (remembering the print was published after Maximilian’s death).\(^{23}\) Yet it appears even larger in the

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\(^{19}\) The heart appears more ‘iconic’ in Dürer’s sketch for the print.

\(^{20}\) Tanner, op.cit., p.124, 189, 191. One must presume that the nose of François I, with his own Imperial intentions, was exploited in representation for similar ends. One could write perhaps of a “War of the Noses”.

\(^{21}\) Proverbs 21:1-2: “The King’s heart is in the hand of the Lord, he directs it like a watercourse wherever he pleases. / All a man’s ways seem right to him, But the Lord weighs the heart.” Conley noted this link in his discussion of a “cordiform iconography” that may have informed Fine’s single cordiform map; Conley op.cit., p. 120.

\(^{22}\) As mentioned in Part I, the zodiacal sign associated with the heart is Leo, that old imperial sign. The term, *Cor Leonis* (also the name of a star), translated as ‘the heart of the lion’, allegorically refers to ‘the mind of princes’.

\(^{23}\) Silver, "Paper Pageants: The Triumphs of Emperor Maximilian I," op.cit., p.297. Silver also notes Maximilian’s comment to the effect that you must begin your own memorialising process as no-one else
Figure 28:  
As the sun is in the sky  
So is Caesar on the earth  
(Quod in Celis Sol  
Hoc in Terra Caesar Est)

Figure 29:  
In God’s hand  
Is the heart of the King  
(In Manu Dei, Cor Regis Est)

Figure 30:  
These two devices surrounding  
The Emperor (detail of print  
adjusted for emphasis). Detail of  
Print by Albrecht Dürer, The  
Large Triumphant Chariot, (also  
known as The Large Triumphant  
Procession) 1507/12-1522);  
Woodcut.

Note that these two devices are  
linked, as well as their proximity  
to Maximilian.
preliminary sketch made by Dürer long before Maximilian’s death. Also, the echoing of textual style of the Biblical rebus for the sun indicates the importance and centrality of the heart rebus to the overall aims of the print, as much as the appearance of the Virtues, or the iconography of the Emperor’s office.

The heart rebus, in its shield or aegis, hangs from a cord or link from this canopy, directly below the sun rebus. This link is not just a device for suspending the lower rebus from the chariot’s canopy but reflects the long connection between heart and sun in astrological and related medical thinking. The most important planet in the sky was the sun and the most important organ in the body was the heart. The idea of ‘most important’ in its realm also implied a leadership role. *In Manu Dei, Cor Regis Est*: the importance of this phrase lies in its relationship to ideas of the Divine Rights of Kings, what Silver describes as “the sanctification of the Holy Roman Emperor as God’s vicar among the Kingdoms of Christendom”. Soon, we shall see how Maximilian saw the Holy Roman Emperor as closely aligned with some of God’s other projects. In Dürer’s *Great Triumphal Chariot* we have direct evidence of the importance of heart imagery to Maximilian’s self-representation and the heart-image’s relationship with notions of rulership. The heart rebus in Dürer’s print also shows that the use of the heart sign was intimately connected with religious notions in a sense far wider than any specific illustration of an order or aspect of the Passion. To put this another way, this use of the heart image in the print was not as a discrete religious symbol but rather, as part of a visual and textual reminder of the interrelationship of Kingship in relation to God’s plan. The heart, therefore, was used in *The Great Triumphal Chariot* to serve imperial designs, and Maximilian’s self-projections.

The pious heart

The use of Proverbs 21:1 in Dürer’s print underlined the notion of kingly piety. Piety was an important theme in the discussions of the Golden Age and the Second Coming,
and was also considered important as it had supposedly been a trait of Augustus Caesar, attributed to him by Virgil. Virgil had taken the concept of piety from the myths surrounding Aeneas, the "founder of Rome", who escaped from Troy as it was burning. Maximilian’s piety and religiosity, therefore, served a political purpose, as these self-representations were to justify the global aspirations of the Holy Roman Empire and the Hapsburg dynasty. In a text inside another of the massive print projects commissioned by Maximilian (utilising the skills of Dürer and many others), The Great Triumphal Arch, one of the poems Stabius wrote reads:

The Lord to him His grace has shown
And ever more pious he has grown.
Adept to play a Knightly part,
For this he had the wish and heart.25

Our century’s interpretation of the word ‘heart’ here would emphasise its relationship with desire, making ‘wish’ and ‘heart’ almost a redundancy. Although both centuries might still associate the heart with courage, the sixteenth century reader would have further readings of the heart aligned with wisdom, intelligence and expertise, as well as implying that one’s spirit and soul were on the line. Again, the connection Stabius draws between the Emperor’s Christian worthiness – manifested in his heart – was related to leadership and rulership. Here we have heart concepts tied to rulership concepts, surely a context within which an image of the world in the shape of the heart could please an Emperor.

The imperial aspirations implicit in The Great Triumphal Chariot... would come to greater fruition under Maximilian’s heirs, Charles V and Philip II of Spain, each of whom were determined to be regarded as the Last World Emperor. The relationship between piety and world domination was connected to the discovery of the New World. Columbus’ journey in turn would become linked to Argonautic and other mythologies.26 The New World, as a symbol, more than a geographic reality, combined with prophecies about the end of the world and the promise of great, new

beginnings which made the turn of the century into a major event. Just why this was so, and Maximilian’s part in this, is the subject of the next section.

Core concerns of the Holy Roman Empire

Maximilian was born a prince of whom high expectations were held. His father, the Emperor Frederick III, had a dream of the Holy Roman Empire — in his mind, synonymous with Austria — extending far beyond its reaches. One of Frederick’s personal devices, AEIOU, stood for *Austriae est imperare orbi universi* (Austria rules the whole world) and reflected his global vision for his Empire. When Maximilian was born in 1459 the weight of this mantle was extended to him, but with an extra proviso: he was to be the prince who would liberate Christians from the threat of the Infidel, especially since the Holy Roman Empire was theoretically responsible for all of Christendom. Such concepts were not esoteric abstractions; Maximilian’s contemporaries understood them and urged him to act upon them. These ideas, however, were not unique to either Maximilian or even his father. As Marie Tanner extensively demonstrated in *The Last Descendant of Aeneas: The Hapsburgs and the Mythic Image of the Emperor*, the Holy Roman Emperor was often identified as the one who would prepare the world for the return of the Golden Age. This meant also that the time of the Last Judgement and the final return of Christ was also nigh. These ideas about Maximilian had extended from earlier rulers and poets who sought to combine mythic versions of Augustus Caesar with the new purposes of crusading, that is, defeating the infidel. Virgil had hailed Augustus as paving the way for the Golden Age. This story was transformed by later Christian writers as heralding a new Golden Age, a one-dominion earth, under Christ’s rule.

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27 Prophecies were needed to help ascertain just who was to be this ‘Last World Emperor’. For a full discussion of prophecies, see Marjorie E. Reeves, *The Influence of Prophecy in the Later Middle Ages: A Study in Joachimism* (Oxford: Oxford University Press, 1969), especially Part Three, “Antichrist and the Last World Emperor”.

28 The German, *Als Erdreich ist Osterrich Vnderthan*, is translated as All the Earth is subject to Austria). From Gerhart Ladner “The Middle Ages in Austrian Tradition: Problems of an Imperial and Paternalistic Ideology” from his *Images and Ideas in the Middle Ages: Selected Studies in History and Art*, (Rome: Raccotta di Studi, 1983), pp. 975-1010; quote is from p. 990. Ladner noted that the seminal study that interpreted this device was by Alphons Lhotsky in 1952. Ladner also mentioned a ‘graffito’ in a castle in Vienna: “*Aller erst ist Osterreich verdorben*: Before all (other lands?) Austria is ruined”, p. 991. Frederick had adopted the AEIOU device above after visiting Jerusalem in 1437.

29 Sebastian Brant’s poems and an image will be discussed in the last section of Part III.

30 Virgil’s Fourth Eclogue was a major source of these ideas: “Now is come the last age of the song of Cumae; the great line of the centuries begins anew. Now the Virgin returns, the reign of Saturn returns,
The retrospectively Christianised Virgil was utilised in the service of first one, then another, European ruler. Augustus’ rule, within which Christ was born, was seen as proof of God’s plan for a unified world. This would require both the reconciliation of Eastern and Western churches\(^{31}\) as well as the subjection of the infidel. First, reconciliation and the recapture of Jerusalem would prepare the way for the spread of Christianity across a unified world, including the New World. The corollary of this was that the myths and symbols of ancient Rome had to be incorporated into Christian iconography. As the Roman Empire “moved” to Northern Europe, successive Emperors had to work hard to justify, present and represent their connections with and rights to the claims of Empire. From Clovis to Charlemagne and onwards, each ruler had to connect himself, his histories and destinies to the ancient past. As one of the founding myths of Rome was connected with the Argonautic journeys (which instigated the first destruction of Troy and paved the way for the second, in which Aeneas was involved), these too became part of the mantle of history inherited by Frankish, then Germanic Emperors. The destruction of Troy was also now seen as a prefiguration of the defeat of the infidel, and the establishment of a ‘new Troy’ to prepare for Christ’s return. One after another, Holy Roman Emperors all thought, suggested, and actively promoted the idea that they were the one to do this. Maximilian was no exception.

What was unusual was the dedication Maximilian showed to his personal genealogical researches, motivated by this history and, as mentioned above, they were of such importance to him that even on his own deathbed he was preoccupied with these ideas. Maximilian sent some of the best minds of his generation — from Konrad Celtis to Conrad Peutinger and Johannes Stabius amongst them — on missions across Europe to find evidence to justify his claims of kinship to saints, martyrs, rulers, gods and demi-gods, Egyptian, Hebrew or pagan. A link was made to the tree of Jesse, the

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\(^{31}\) Christianity had undergone two major schisms, one of relatively recent occurrence. The major split between the Eastern and Western churches of Christendom had long and deep roots, but the recent rejection by the Eastern church of the push for reunification made at the Council of Florence in 1472 still rankled in Latin Christendom. The Western Schism, in which two Holy Sees and two popes vied for power, was only resolved at the Councils of Pisa and Constance in the early fifteenth centuries. Both upheavals were considered threatening to the unity of Christendom.
lineage including Christ. Surely someone descended from such great personnages could not fail to be worthy of the great millennial task. And if it turned out that he was not the one, then Maximilian had at least laid a path for one of his heirs, just as his father had done for him.

These matters were what Stabius was concerned with for most of his working career with Maximilian. Later, once Maximilian had established an office of genealogical study, Stabius’ role became increasingly focussed upon this work. Stabius proved both a faster worker than an older colleague in the task, Ladislaus Suntheim, and more amenable to Maximilian’s wishes or, as exhaustive Maximilian scholar Hermann Wiesflecker puts it, the Emperor’s “fantasies”. While Stabius was reputedly critical of some of Suntheim’s genealogical propositions, it was he who happily adopted a connection between the house of Habsburg and Noah. This, and other concepts such as the Frankish-Trojan link, were incorporated by Stabius into The Great Triumphal Arch, arguably Maximilian’s most extraordinary work of genealogical self-promotion.

In Maximilian’s case, it was not only the office of Holy Roman Emperor that was related to these notions. As already mentioned, at a young age his father Frederick had arranged a most auspicious marriage for him, to one of Europe’s most eligible heiresses, Mary of Burgundy. To their marriage in 1477 Mary brought something of almost as much significance as the connection to Burgundy and the fortune that came with it: the Sovereignty of the Order of the Golden Fleece. Philip the Good, Mary’s

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32 Earl Rosenthal noted that one of Maximilian’s lineages went from Noah, Cham, to Osiris (the Egyptian god), and beyond. See “The Invention of the Columnar Device..., op.cit, pp. 198-230. See Tanner for other references, pp. 103-109.
33 Wiesflecker, op.cit, p. 363.
35 While directly relevant to issues of Maximilian’s self-representation and his genealogical empire building, there is no room to do this print project justice here. The Great Triumphal Arch does not contain heart imagery (outside Stabius’ aforementioned text) as The Great Triumphal Chariot does. Two other projects also cannot be covered here. Maximilian himself was involved in the authoring of two major texts of self-mythologising, the Theuerdank of 1517 and Weisskünig, only published in the seventeenth century. Both of these projects utilised lavish and contemporary woodcuts and print technologies. See Füssel and Bayerische Staatsbibliothek, The Theuerdank of 1517: Emperor Maximilian and the Media of His Day, op.cit.
36 With the exception of Venice, Burgundy was Europe’s richest state, extending from Amsterdam and Flanders to Swiss territories outside Basle, even towards the Black Forest. Lying therefore between France and Germanic territories, Burgundy was interested in alliances with the Holy Roman Empire and England (i.e., France’s adversaries). Later, Italians would call Maximilian “Maximiliani senza denaro” (Maximilian the penniless) despite his marriage to one of Italy’s most wealthy heiresses, Bianca Maria
grandfather, had established the Order in 1429, to fuse the idea of the Argonauts with Christian Knights and their “crusading objectives”. The Golden Fleece became equated with the Lamb of God, so the image of a lamb—not a fleece—that hung from the collar of the order represented both concepts. In the final versions of the image of Maximilian discussed in Part Two, the only insignia he wore was a Virgin and Child brooch upon his hat, and the Order of the Golden Fleece around his neck.

Maximilian’s piety and a specific set of political agendas were thereby presented as the core of his rulership. This is a politicised interpretation; Maximilian’s allegiance to Burgundian legacies was also heartfelt. Apparently the match between the teenagers Maximilian and Mary was most compatible. They shared interests, including the hunting that brought about Mary’s death in a freak accident in 1482, when she was only 25. The grandiose tomb at Innsbruck mentioned at the outset of Part III is empty; most of Maximilian’s remains were interred in the Georgs-Kapelle at Wiener-Neustadt, the place of his birth and alongside other Habsburgs. But 37 years after her death Maximilian had his heart, inside his *vase du coeur*—or *Herzurne*—placed in the Liebfraukirche in Brügge, inside the tomb of Mary of Burgundy.

At this time, European princes did not head states or nation-states of wealth or achievements comparable to those of antiquity (or other contemporary kingdoms). The Renaissance in Europe was a time of aspiration, of empire building. Even so, for all his efforts Maximilian would not leave a legacy of a centralised empire, represented by palaces, civic architecture or cathedrals. He was instead a *Wanderkönig*, moving his court from host to host, a model exploited to greater advantage by his grandson, Emperor Charles V. Was Maximilian the first Prince, or just the last Knight? Maximilian seems to have been the first ruler to create a specific office for researching his personal chronology and connections gained through marriage. Since Stabius became central to this work, could not his map-idea have

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37 Tanner, op.cit., p. 6. Germany also had a tradition of Mary-venerating Knight crusaders: the *Marienritter* (Knights of Mary).
39 “...western Europe in the fifteenth century [was] the least promising of the world’s civilizations and, to objective scrutiny, among the worst equipped to profit from the world’s ‘age of expansion’, which began with initiatives weighted in favour of China and Islam and... states of greater dynamism in Africa and the Americas than any visible in the Latin west.” Felipe Fernández-Armesto, *Millennium: A History of the Last Thousand Years* (New York: Scribner, 1995), p.146.
40 Bérenger, op.cit., p. 120. Maximilian was called the Last Knight in his own time, as a harbinger of future greatness. Bérenger seems to have turned this around.
41 Wiesflecker, op.cit, p. 321.
been connected with it? It is my contention that any such world-map proposition would at least be in line with the Emperor’s overall goals for his rulership. Right from the early days, Maximilian’s conception of his rule centred on the idea of one ruler for one world (*imperium orbi*) and associated religio-political connotations. Artistic and scholastic excellence were a part of this mission, since knowledge would play a part in this coming to pass, though stirring up the Reformation was not quite what Maximilian had in mind. For Maximilian, the son of Eleanor of Portugal and, therefore, great nephew of Henry the Navigator, the New World was necessarily a part of this overall mission for the house of Habsburg. It is possible to see how a map that is designed to enhance the representation of the New World could be intimately connected with the imperial desires: my task here is to explain how a heart-shaped world map could have supported and enhanced this. Before drawing a closer link between a Last World Emperor’s aspirations to unify the world and heart imagery, I shall establish the context of existing religious connotations of the heart image in the late fifteenth and early sixteenth centuries. This is the subject of the next section.

*Arcanum Cordis: Hearts of Passion*

The devotion to the Sacred Heart was an important context that must be considered in relation to the cordiform maps. In this section, I shall begin with a short introduction to the subject and its imaging and give some examples from Germany in the late fifteenth and early sixteenth centuries. Later, in the section “Theological concord”, I shall expand these religious considerations to wider theological issues. The iconography of Christ’s Passion was not an unchanging orthodoxy, even at the end of the fifteenth century. Certainly, traditions existed within which artists and artisans operated. For example, conventions for the depiction of the hole in Christ’s side—pierced by the lance of the Roman soldier, Longinus—were of crucial importance to those involved in representing the scene. Yet the traditions surrounding the meaning of Christ’s Passion, representational and liturgical, had been in a process of flux and change from the time of the Crucifixion and the thoughts of the early Church fathers.

42 For centuries the spear’s wound was depicted as being on Christ’s right side. In the nineteenth century, Manet would inspire controversy over his choice of (medically correct) left side over the traditional right side. See Vladimir Gurewich, “Observations on the Iconography of the Wound in Christ's Side, with
Given the importance of the theme in the history of western art and culture, it is unusual to find so few monographs devoted to the history of the subject, at least in English. Benedictine Monk Dom Louis Gougaud’s 1927 work *Devotional and Ascetic Practices in the Middle Ages* still remains very useful in setting out the early history of the devotion to the Sacred Heart.43

Gougaud’s essay charted the changing focus of the Passion, beginning with the worship of the cross, without the figure of Christ. Christ on the cross became common only after the sixth and seventh centuries. There was a shift in emphasis towards contemplation of the five Divine Wounds (hands, feet and the side) during the earlier Middle Ages, a period characterised by the emergence of saints whose visions and stigmata reinforced, if not inspired, this shift. In the late Middle Ages, this culminated in a more ‘inward’ focus on worship of the Precious Blood44 and finally, through the hole in Christ’s side, the wounded heart itself. Jesus’ body and its sufferings as objects of veneration, therefore, became increasingly refined in focus over the centuries.

Gougaud noted that the five wounds were accorded special names, in Germany being known as the “Signs of Love” (*Minnezeichen*).45 Notably, the language of worship and the visions of the devoted come long before actual imagery.46

In the period 1450-1500, there was a resurgence of interest in the writings and visions of the Saints from centuries before who had contributed to the focus on the wounds of Christ.47 Many of these earlier saints, such as the Cistercian Bernard of Clairvaux and

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44 Part of the heart’s importance lay in its relationship with blood as the site of entry of the Divine Spirit. See my discussion above about Servetus’ all-important discovery of the pulmonary circulation of the blood. Also, see Onians, op.cit. pp. 63-64 for classical references, and Bynum, "The Blood of Christ in the Later Middle Ages," op.cit.

45 Gougaud, op.cit, p. 87. Many other authors have noted the relationship between romantic love and Christian devotion. A good article with many references is by Caroline Walker Bynum, "The Body of Christ in the Later Middle Ages: A Reply to Leo Steinberg," *Renaissance Quarterly* 39 (1986), pp. 399-439.

46 Anne Sauvy, in “L’image du cœur” (a chapter of her book *Le Miroir du Cœur: Quatre siècles d’images savantes et populaires*, (Paris: Editions du Cerf, 1989), pp. 45-53, wrote that the image of the heart appeared only towards the end of the Middle Ages. The idea that heart imagery arises mostly from the mid- to late fifteenth century, is also supported by Eric Jager (see my section below, “Sacred (im)printed hearts”).

47 Giles Constable, "Twelfth-Century Spirituality and the Late Middle Ages," in *Medieval and Renaissance Studies*, ed. O. B. Hardison (Chapel Hill: University of North Carolina Press, 1971), p. 30-31. In France, Jacques Lefèvre d’Étaples (d. 1536), a controversial scholar, was interested in earlier female German mystics such as Hildegard of Bingen and Saint Mechtilde (once considered the author of the *Vitis Mystica*, one of the greatest early mystical writings about Christ’s heart).
Saint Gertrude of Helfta\textsuperscript{48}, were republished and their words and thoughts found in the works of local preachers. In the fourteenth century the Monk of Heilsbronn, near Nuremberg, writing in German, drew on ideas from Bonaventure, Bernard and the Victorines.\textsuperscript{49} The Upper-Rheinish Dominican mystic Heinrich Seuse or Suso (?1295-1366) took a stylus to his chest and inscribed the letters IHS over his heart, the scars of which remained for the rest of his life.\textsuperscript{50} The sermons of St. Birgitta of Sweden, whose work is important in the history of the devotion to the sacred heart, featured alongside the parade of ancestors that diverted Maximilian in the last days of his illness. He also read the penitential psalms and, notably, works on the Passion.\textsuperscript{51}

Birgitta's version of the Passion in her "Seventh Book of Revelations" was written in a 'you-were-there' style, focussed on the personal, emotional and physical sufferings of Christ. Her rendition of the spearing of Christ's side is particularly gruesome.\textsuperscript{52} St. Birgitta was also one of the prophetic saints. Amongst her Fourth Book of Revelations were admonitions and advice to Kings and Emperors, including a conversation with St. Denis, the patron saint of France.\textsuperscript{53} But Birgitta was not alone. Devotion to the sacred heart in the middle ages had, at times, prophetic and apocalyptic overtones; it was "an announcement of the reign of the spirit".\textsuperscript{54}


\textsuperscript{51} Heer, op.cit, p. 147.

\textsuperscript{52} Marguerite Tjader Harris, Albert Ryle Kezel, and Olai Petrus, Birgitta of Sweden: Life and Selected Revelations, Classics of Western Spirituality. (New York: Paulist Press, 1990), pp. 188-190. Note the three pages it took compared with the brevity of the Apostles' accounts. Here is an extract from the text, from before the spearing: " 18. Then too, his fine and lovely eyes appeared half dead; his mouth was open and bloody; his face was pale and sunken, all livid and stained with blood; and his whole body was as if black and blue and pale and very weak from the constant downward flow of blood. 19. Indeed, his skin and the virginal flesh of his most holy body were so delicate and tender than, after the infliction of a slight blow, a black and blue mark appeared on the surface. 20. At times, however, he tried to make stretching motions on the cross because of the exceeding bitterness of the intense and most acute pain he felt. 21. For at times the pain from his pierced limbs and veins ascended to his heart and battered him cruelly with an intense martyrdom; and thus his death was prolonged and delayed amidst grave torment and great bitterness". Ibid, p. 189. Here is the spearing: "29. And while the crowds were thus standing about, one man came running with the greatest of fury and fixed a lance in his right side with such violence and force that the lance would have passed almost through the other side of the body. 30. Thus, when the lance was extracted from the body, at once a stream, as it were, of blood spurted out of that wound in abundance; in fact, the iron blade of the lance and a part of the shaft came out of the body red and stained with the blood." Ibid, p. 190. The editors noted Birgitta's many diversions from St. John's account. One example was the spearing in the side: John had the spearing as a coup de grâce; Birgitta described it done with the greatest of fury (cum furia maxima).

\textsuperscript{53} Tjader Harris, ibid, p. 35.

Part of my argument concerns the mutability of signs. We know that two counter-Reformation movements relied heavily upon images of the heart, forming the basis of the imagery with which we are familiar today. The devotion to the Sacred Heart, as an Order in itself, was formed in the mid-seventeenth century and the Jesuit Order was begun in the mid-sixteenth century. While neither of these movements was inventing a visual sign structure from scratch – images of the sacred heart pre-dated them – it is important that the idea of a heart shaped map of the world, as well as the first maps, appear before both movements. It also appeared in a time when the imaging of the heart was still relatively new and therefore would have had some excitement and novelty associated with it. The timing of the heart-shaped world concept before the Reformation is also significant. Once the Jesuits claimed heart imagery as clearly aligned with their Order, it would arguably become more difficult to use the heart for other purposes, such as cartographic ones – unless the connection was a desired one.

In the early sixteenth century the heart image, while having strong religious connections to the Passion, was not uniquely associated with any one group. Heart devotion was an individual choice amongst the mystical traditions of many orders. An example taken from an orthodox doctrine of salvation, found in a book “Help to Preparing [sic] for the Holy Communion” from Basle in 1500 read:

Enter into the depths of thine own heart, and find thy Jesus and bury thyself in his sacred wounds. Banish all confidence in thine own merits, for all salvation comes from the cross of Christ, in whom place thy hope.

This kind of popular rendition is reflected in the Passion prints that shall be examined in the next section. Interpretations of these devotions differed amongst the thinkers who were engaged with meanings of the Passion, or even the nature of devotion itself. Tensions between older traditions, their contemporary interpretation, and new trends such as humanism would have placed these issues in the forefront of debate on the eve of the Reformation. A major point of contention between the Lutherans and others concerned the Eucharist, that is, the embodiment of Christ in ritual. Christ’s body –

55 Saint Ignatius Loyola founded the Company of Jesus, later known as the Jesuits, in 1540.
56 Mary Alvarita Rajewski, "Sebastian Brant: Studies in Religious Aspects of His Work with Specific Reference to the Varia Carmina" (Catholic University of America, 1944), p. 6.
and its representations – was central to the controversies of the sixteenth century. Both Martin Luther and Jean Calvin used heart imagery in their personal emblems. Just as the physical heart was an object of great interest, not yet fully understood, I argue that in the early sixteenth century a similar frisson surrounded the religious image of the heart. Before the Reformation was well underway, the religious image of the heart could have become more available for a new variety of significations – more multi-functional, open to change, and mutable than perhaps it had been before, or ever would be afterwards.

Mystical devotion to the sacred heart before the sixteenth century is an enormous topic, beyond the scope of this dissertation. I will limit my exploration of relevant aspects of the religious heart through images, most of them created in Germany, in the years leading up to or not long after Stabius' invention. Nuremberg, Maximilian’s most important imperial free city, had a special relationship with one aspect of the Passion: in 1424, Pope Martin V declared that a fragment of Longinus’ spear was one of the city’s treasures. That Germanic peoples held special beliefs about the soul residing in the blood made the Holy Roman Empire an important crucible for conceptualising and imaging the Passion.

Sacred (im)printed hearts

The new print technologies made images of the sacred heart more accessible than previous manuscript images had been. While individual prints may have been well distributed, the Passion imagery itself was not particularly common and therefore does not exist in extensive variations. John O’Malley, discussing the Jesuit emblems of the seventeenth century, wrote: “There had been isolated examples of religious heart emblems before, but Cor Iesu… is the first fully developed series of cardiomorphic

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57 Luther’s emblem was a five-petalled, white rose inside a blue circle with a gold trim; inside the rose is a heart with a cross within it, presumably in red and black respectively. Calvin’s emblem used a flaming heart, held in an outstretched hand, as if offered to God.
59 Onians, op.cit. pp. 63-64; this shall return in the section “The humanist heart” regarding pectoral imagery.
emblems. His claim that these later emblems are ‘fully developed’ is relevant to my argument that prior to this, the heart-sign was not yet tied down to specific readings and was, therefore, potentially more multifaceted in meaning, as well as still new in their effect. That O’Malley refers to older images as “isolated examples” is also a moot point. In this section, I shall show some of the images of the heart device in a variety of configurations. The first are religious, relating to the Passion. Then I shall discuss writing and the heart, from saint’s legends to actual heart-shaped books. Some discussion of the romantic heart follows, mostly as they intersect with Christian concerns.

Figures 31 and 32 show some of the kinds of images available in Germany in the fifteenth century, when production and distribution of single-sheet woodcuts was established. These small, simple wood or metalcuts were designed for private use and were probably obtainable at fairs, churches, or as souvenirs of pilgrimage places. These simple prints were not associated with the workshops of master printers or painters. Figure 31, The Christ Child in the Sacred Heart, dated around 1475-80 and from Upper Germany, clearly shows many of the signs of the Passion: the five wounds as well as the lance itself, the Cross with its INRI inscription and the crown of thorns. The Christ Child was a subject of devotion in its own right, and may be unusual in combination with the signs of the Passion. Figure 32, The Sacred Monogram in a Sacred Heart on a Cloth held by an Angel, is from Nuremberg around 1480. The cloth held aloft is reminiscent of the vera icon tradition, in which the face of Christ is represented on a cloth. The text below the image reads that the print itself was rent by Longinus’ spear, although, in this instance, the print was not torn in the described manner. But the idea of the print actually being rent in the same way Christ’s side was an example of the hoped-for veracity of the image, the contemplation of which would bring one towards union with Christ.

The relative simplicity of these little woodcuts makes Figure 33, by Lucas Cranach the Elder, seem all the more striking. Four Saints Adoring Christ Crucified on the Sacred Heart is considered by Cranach scholar Werner Schade to be one of the first images of

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61 Field, op. cit., unpaginated; see Field’s “Introduction to the Woodcut”.
62 Field, ibid., unpaginated, see item 115.
63 Field, ibid., unpaginated, see item 259.

Figure 32 (top right): *The Sacred Monogram in a Sacred Heart on a Cloth held by an Angel*. Augsburg or Nuremberg, c. 1480. 80 x 61mm. Item 259 of above.

its kind. The work is a largish, single sheet woodcut, a size Cranach would rarely use again in his career. Ostensibly a crucifixion image, it has two distinct spaces. In the foreground, kneeling, from left to right, are Saint Sebastian, Mary, Saint John and Saint Roch. Saint Sebastian and Saint Roch are both called upon to protect against the plague, Saint Roch in particular as he had fallen victim to the plague himself. They are shown outdoors in a contemporary setting; behind them at some distance is a largish hunting schloss. Above the saints are four angels (like putti, but clothed), who hold aloft a shield, within which is another scene set within a modelled, seemingly three-dimensional heart shape: the crucified Christ, suffering on the cross. The wound in his right side is clearly visible and the 'squiggles' to one side probably represent drops of the Precious Blood. Above the heart yet inside the shield is a crown, relating to ideas of Rex Gloriam, Christ as King of the World. Christ's loincloth is in wild disarray, floating up to either side, but effectively serves as a dramatic visual device, underlining the horizontal of the cross above. A scene of the Passion, combined with Saints associated with the plague, makes the print much more alarming in connotation than we might read it today. For the plague, as we know, had been incorporated into a belief system about the end of time and the Second Coming of Christ. Images such as Cranach's must not be read through a 20th or 21st century mindset of solace or compassion, but with an attitude of the warning of immanent tumult. Things had to get worse before they got better.

Lucas Cranach is an interesting figure in the context of cordiform imagery as, unlike the arguably more famous Dürer, he is usually remembered for his later, Protestant imagery. 1505 was Cranach's earliest time in Wittenberg, before becoming friends with Luther and creating works that were central to the reconceptualisation of

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64 Werner Schade, Die Malerfamilie Cranach, 2. Auflage ed. (Wien: Anton Scholl & Co., 1977), p. 23. The title Four Saints Adoring Christ Crucified on the Sacred Heart is from Hollstein, op.cit., Vol 6, p. 44. Schade called the print Verehrung des Marienherzens and Scheffler and Glaser Verehrung des Herzens Jesu, indicating disagreement about whether this is a sacred heart of Mary or sacred heart of Jesus image. In Hollstein's reproduction of the print (not the one used here), the words 'Virgo Mater Maria' appear on the scroll around Jesus' feet. For my purposes here this distinction is not relevant.

65 The relative insignificance of these appearances further reinforces the extraordinariness of the 1505 woodcut. It is also worth noting that the hearts in these two later prints appear as insignia in a knightly, aristocratic setting. In their role as signs within a language of imprese they can refer to courtly, romantic meanings.
religious imagery, as he, "more than the theologians, showed the Gothic Christ from the new perspective of freedom and faith."67 Unlike Dürer, Cranach is not usually mentioned in close connection with mathematicians or astronomers. Yet he was certainly linked with the scholars of both Vienna and Wittenberg, especially in his early years. This was a wide circle that extended to both Stabius and Werner.68 Cranach’s 1505 print expressed a mindset typical of the late Middle Ages, but shows a scene fashioned with a new graphic grace and verve in the representation of the human figure, traits traditionally associated with the Renaissance. This mixture of a mindset not unconnected with the late Middle Ages expressed within a Renaissance methodology was also a feature, I propose, of the cordiform maps.

The little woodcuts and the elaborate image by Cranach demonstrate the existence of sacred heart imagery in both popular culture and the world of the arts, scholars and patrons.69 Also the images share certain iconographic features: all use the heart as a symbol or emblem; there is no interest in a physiological representation of a heart; the actual heart is only referenced through its signification. Also, the simple woodcuts and Cranach’s sophisticated image place other emblems inside the heart, thereby loading one set of signs on top of another. This is not unique to heart imagery – emblems, devices and rebuses all pile on the signs.70 I have already mentioned Heinrich Suso with his scarified letters of Christ upon his chest. He was subject to the following vision: “...it seemed to him that some kind of light flooded out of his heart, and he looked toward it. There on his heart appeared a golden cross into which many precious jewels had been skilfully inlaid. These sparkled beautifully...”71 The heart image,  

68 All were friendly with Albrecht Dürer and acquainted with his patron, Willibald Pirckheimer. For Pirckheimer, Werner would translate Euclid’s Elements into German for 100 taler. (Folkerts, op.cit., p. 274), and cast a horoscope. Another recipient of a Werner horoscope was Christoph Scheurl; friend of both Dürer and Cranach. Nor was Scheurl the only link between Cranach and Werner; the humanist Konrad Celtis tried to get Werner to move to Vienna in 1503, the last year that Cranach was there (and the first of Stabius).  
69 Holm Bevers’ book Meister E.S.: Ein Oberheinischer Kupferstecher der Spätgotik, (München: Staatliche Graphische Sammlung, 1987), illustrates another Christ-Child within a heart. Bevers, unlike Sauvy or Jager, suggested this imagery was not uncommon and cites references that I have been unable to obtain; see pp. 73 and figure 89, p.177.  
70 This is one of the original meanings of the ancient Greek "symbolon", that implied a 'drawing together' of disparate items. See Gerhart B. Ladner, "Medieval and Modern Understanding of Symbolism: A Comparison," Speculum 54, no. 2 (1979), p. 253. Another important feature of heart concepts that preceded the cordiform maps (forming a background to the maps I shall call a 'cordiform mindset') was the idea of the heart as a container, house or cloister. Derived from biblical sources, in Germany a specific literature of the late fourteenth century, known as the Herzklosterallegorien, elaborated the metaphor of the heart as a monastery or cloister, representing different virtues. See Gerhard Bauer, Claustrum Anima: Untersuchungen Zur Geschichte Der Metaphor Vom Herzen Als Kloster, vol. I: Entstehungsgeschichte (München: W. Fink, 1973)  
71 Tobin, op.cit, p. 71.
therefore, was already being used to contain other images, other sets of signs. Sometimes those other sets of signs were images, sometimes they were writing, sometimes they included both. Visually speaking, to find a map inside a heart emblem was not far removed from these existing trends.

Within the western religious tradition, well established by the late fifteenth century, were stories surrounding the inscribed heart. Even more well known than Suso was that of Saint Ignatius of Antioch, an early Church bishop who was martyred between the years 98-117 AD. A short, generalised outline of the legend goes along these lines: during Ignatius' martyrdom, for which he had been transported to Rome, he repeatedly called out Christ's name. After his death his body was opened to reveal a heart inscribed with Christ's name in letters of gold. The inscribed heart addition to the Ignatius of Antioch myth, that already included his being the child mentioned in Mark 9:36 during Christ's teaching the apostles, seems unknown before the early thirteenth century, perhaps appearing for the first time around 1245. This story combined the letters on the heart with another of Ignatius of Antioch's famed attributes: his role as letter-writer, to Saint John the Apostle and the Virgin Mary, amongst others. There are variations to the story and other sources, including centuries of controversy about Ignatius' letters. These variations are elaborated and grow throughout the thirteenth century; in an era fascinated with unity with Christ, the imitation of God and Christ's suffering would surely find these stories useful. What is interesting is not only the legacy of the Ignatian stories but also their continuing fascination for the late fifteenth and early sixteenth centuries. Famed Renaissance artist Sandro Botticelli painted the extraction of Ignatius' heart perhaps between 1485-1490 as a predella to an altarpiece for San Barnaba, the Madonna Enthroned with Saints (now at the Uffizi in Florence). Ignatius also appears inside the altarpiece as one of six saints clustering around the enthroned Madonna and Child. His heart is represented on his breast to which one hand, bearing a stigmatic wound, is raised. Botticelli's painting is evidence of the sixteenth century interest in earlier stories concerning the heart in this time.

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72 This is a summation of some main features of the story, for which variations exist. Also, Christ's name was considered to have been written as "IHR" or "IHRT".
73 The story appears as a short mention in Speculum Historiae by Vincent de Beauvais; but de Beauvais wrote as if it were already established. See Marie Anne Polo de Beaulieu, "La Legende Du Coeur Inscrit Dans La LitteratureReligieuse Et Didactique," in Le "Cuer" Au Moyen-Âge (Réalité Et Senséiance), Senéfiance (Aix-en-Provence: Centre Universitaire d'Etudes et de Recherches Médiévales d'Aix, 1991), p. 303.
The idea of writing on the heart also exists in medieval illuminated manuscripts. Some of these books, literally heart shaped, are prayerbooks; others were chansonniers (songbooks; Figure 34). The liber cordis (book of the heart) has been explored by contemporary historian Eric Jager, who traced the relationships between the heart as a seat of memory and learning and then connected these with textual metaphors. Jager explored relationships with predecessors of the book, first the tablet and then codexes of the heart, later discussing how this largely verbal and written tradition became manifested in visual products such as the prayerbooks. This materialisation of the concept may have stemmed from Augustine, who had connected “interior writing” with actual contemporary objects, i.e., the codex. Figure 34, the Chanonnier de Jean de Montcheau from circa 1475, opens out to become two hearts, lying side by side. In a portrait by the Master of Saint Gudule, which adorns the cover of Jager’s book, a young man holds a book that opens out in the shape of a single heart. Jager cited a variety of sources to support the idea that heart shapes, in images and objects, increase in number from the 1450s onwards.

The story of the inscribed heart, images and other artefacts that combine heart shapes with other texts, often inside the heart, form another context within which the cordiform maps can be understood. The maps are, after all, heart images, full of text.

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74 Polo de Beaulieu, ibid, p. 303. That this writing on the heart (on each of the morceaux of the heart) is a form of imprinting is clearly connected to other forms of imprinting, including stigmata and the appearance of the cicatrice on Saint Catherine of Siena.


76 Jager, ibid., p. 1 and 3; Jager was responding to Jacques Derrida’s call for further study of this metaphor in Of Grammatology in 1976.

77 Jager, ibid, p. 17, n. 90. In an article about a wooden statue of St. Catherine of Siena that depicts her holding a heart in her left hand, Michèle Flusin noted that, with a few exceptions, Catherine was not represented with the heart until after her canonisation in 1461 (she had died in 1380). Catherine’s relationship with heart imagery is based on her ‘exchange’ of hearts with Christ. Flusin’s article reproduced an intriguing image: a late fifteenth century popular broadsheet, showing the saint with the heart, and a ribbon with the following words: Cormundem Crea Inme Deus, an instance of the heart image combined with mundus, a word with two meanings, as I shall discuss below. See pp. 152, 153 of Michèle Flusin, "Art, Société Et Dévotion: Les Dominicains Et La Premiere Statue De Sainte Catherine De Sienne," in Symboles De La Renaissance, ed. Daniel Arasse (Paris: Presses de l’Ecole Normale Superieure, 1982). Another image elsewhere of St. Catherine intrigued me. Catherine, with book and heart, surrounded by a decorative border featuring grotesques, dolphins, acanthus leaves – and a decorative heart. Unfortunately the author did not give a date or source for the image. Nevertheless, the representation of saints and the timing of their association with the heart in imaging is pertinent. Augustine is another example; I have been unable to ascertain when he began to be represented with the heart, the superb new study by Schaubelt and van Fleteren notwithstanding (Joseph C. Schnaubelt and Frederick van Fleteren, eds., Augustine in Iconography: History and Legend (New York: Peter Lang, 1999). For the example of St. Catherine with the decorative border, see Figure 12 of Christiane Raynaud, "La Mise En Scene Du Coeur Dans Les Livres Religieux De La Fin Du Moyen-Âge," in Le "Cuer" Au Moyen-Âge (Réalité Et Senefiance), Senefiance (Aix-en-Provence: Centre Universitaria d'Etudes et de Recherches Médiévales d'Aix, 1991).
Figure 34: The Chansonnier de Jean de Montcheau, Savoy, c. 1475.

Figure 35: Master Caspar of Regensburg, *Lady Love's power over Men's Hearts*. Woodcut, 1479.
Reproduced from Camille, *The Medieval Art of Love*, p. 117.
And all of these kinds of images mentioned here, including the world maps, were designed less as objects of use than of contemplation.

The hearts of romance

If images of the heart before the turn of the century contributed to the context in which a heart-shaped map might be invented, what of romantic images of the heart? Everything I have thus far been concerned with, from shifting ideas about the physical heart to imperial aspirations would suggest that the romantic heart has little or no place within this story. This, too, is less simple than at first glance. At times, medieval affective piety – the religious combination of devotion with feeling and understanding, located in the heart – can be found in conjunction with the language, tokens, ardour and actions of romantic love. Religion and romance, the sacred and the profane, existed side by side and were often deeply entangled. In a German woodcut of 1479, Master Caspar of Regensburg drew *Lady Love's Power over Men's Hearts* (Figure 35). Many of the hearts in this picture are tortured in ways closely related to Christ’s Passion, although there was much inventiveness in Caspar’s depictions. The connection of romantic language with love of Christ was manifest on other levels too, expressed in the ecstasies of saints’ mystical experiences and in the application of marriage-lore to worship (known as *Brautmystik* in German). Again, this is a huge field and largely outside the scope of this study. It is sufficient here to notice that the entanglement of romance and religious descriptions was not alien to the sixteenth century, or dissociable from the wider, long-standing philosophical concepts surrounding the heart (memory, perception etc).

A very notable feature of late medieval and early renaissance use of heart imagery in a romantic context is that the heart is not used in a generalised sense, representing ‘love’ or ‘romance’ *per se*, as we understand it today. The image of the heart refers to the physical organ, as site of affect. In René of Anjou’s *Book of the Love-Smithten Heart*, a masterpiece of mid-fifteenth century manuscript design and illustration, the heart is also put centre stage: personified, capable of relatively independent action (see
The heart, known as *Cueur*, was depicted as a handsome young man who sets off on (eventually unsuccessful) adventures to win his true love. *Cueur* was accompanied by an equally charming companion, a dandy called Desire, whose impeccable white garb is adorned with little flame-bursts. It is interesting that in the beautiful illustrations, while Desire’s face is clear and often turned to us, *Cueur* spends most of his time hidden behind a full-face helmet and usually in full body armour. This helmet is topped by a red heart with upright wings and festooned with pretty flowers. In Figure 36, *Cueur* is being pulled from a river after losing a joust with the Dark Knight of Trouble and Anxiety, shown leaving the scene in the background. The young woman hauling him from the river is Hope. Desire, often cast in dramatic postures, is waving his hands in horror; his perfect white outfit draws attention to whatever he is doing. Unlike *Cueur*, who is often headstrong and unthinking, not to mention getting into several fights, Desire seems the more in control of the pair, often organising matters and on the whole, seemingly less volatile. In Figure 37, *Cueur* is hastily boarding the boat taking him and his companions to the Isle of Love, while Desire waits patiently to one side, with his page and new companion, Generosity.

One more example of the entanglement of religious moral ideas with secular life was another of King René’s books, one that preceded the *Love-Smitten Heart*. This was *The Mortification of Vain Pleasure* (*Le Mortifiement du Vaine Plaisance*), from around 1455. This allegorical tale, like the *Love-Smitten Heart*, contains several personifications such as ‘Fear of God’, ‘Love of God’ and ‘Grace of God’. In the story, the “simple heart of vain pleasure” is nailed to the tree of the Cross and Grace of God spears him with a lance in his side (Figure 38). As René was descended from Valois Kings of France, he was a relation of François and the Burgundian rulers, the family that Maximilian married into. Jager cites writers who suggest the Burgundians in particular may have had a strong *penchant* for the heart image. This fashion for

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79 The heart is surrounded by pansies; our English word is from the French pensée (thought).
81 Jager, op.cit., p.19, n. 100. The writers are J. Porcher and E. Droz, discussing the cordiform songbook mentioned above, “la forme du coeur, infiniment rare, paraît avoir été à la mode autour de 1470 dans les pays d’obéissance bourguignonne....”

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Figure 36 (above): Detail, minus page ornamentation and text, of Hope pulls Cueur from the river, from the Book of the Love Smitten Heart. Illustrations by Barthelmy d’Eyck, written by King René of Anjou, c. 1457.

Figure 37 (below left): Small detail from Folio 51v, Cueur enters the boat taking him to the Isle of Love. Reproduced from Franz Unterkircher’s King René’s Book of Love, New York: George Braziller, 1980.

Figure 38 (below right): The four virtues do their worst to Vain Pleasure; from King René’s Mortification of Vain Pleasure, c. 1455. Reproduced from Leo Olschki’s Manuscrits français à peintures des bibliothèques d’Allemagne, Geneva: L. S. Olschki, 1932.
images of the heart, along with a strong patronage of book illustration, might therefore be something else Mary of Burgundy brought to her marriage with Maximilian.

René’s books reworked the allegories of love from an earlier age of chivalry. This disembodied, personified, romantic heart existed in a courtly and rarefied realm, in a book intended for few eyes only. If *The Book of the Love-Smitten Heart* demonstrated a high point in the mid-fifteenth century representation of the romantic heart, it did so only amongst a select audience, a *cognoscenti*. Like Oronce Fine’s maps, this is the specialist, rarified heart for the delectation of kings, queens and courts. Maximilian’s court in the Holy Roman Empire, the context within which Stabius invented the heart-shaped map, was a similarly rarified environment. Stabius’ map-idea was not necessarily for popular or public consumption.


Stabius, the world and the heart, in the same place and time

Rivalling Sacred Heart and romantic imagery are other visual products using the heart that have to be considered as part of the context for Stabius’ invention. I shall now present some images of the heart and the world combined that predate his idea for the world map. These images suggest that the combination ‘heart plus world’ was not unusual in and before the year 1500 and, furthermore, that these were images Stabius could have easily seen. They might be simple and diagrammatic, but they are heart and world combinations nonetheless, that speak to some of the same issues brought up by the map. More modest than images by Dürer, less highbrow than illustrations to works of hoped-for national import that appear in the next section, these little images are highly suggestive of the acceptability of the combination of ‘world’ with ‘heart’ in the late fifteenth century, and later, too. I am referring to printers’ marks. Mangani mentioned one such mark in his 1998 article, although it was from the mid-sixteenth century and used an image of a heart “burning with the fire of charity”.82 The printers’ marks I am presenting here are from an earlier time, more synchronous with Stabius’ invention. These printer’s marks use the heart in conjunction with a sign for the world: they are heart-shaped variations of the orb and cross.
This sequence (see Figures 39-44) is an elementary selection from available secondary sources, all dated from before 1500. They are from a variety of printers working in the late fifteenth century, who have modified the more common device of the orb and cross to become a heart-shaped orb and cross. The orb and cross was a device that became quite common after the fourteenth century, although it was itself derived from classical and perhaps older sources, from the earth-globe emblem. Seen in royal imagery across the centuries, from paintings to illustrations, the orb and cross was considered “a singular Ensign of Royal dignitie”. Stabius holds just such an item in the painting of him as Charlemagne discussed earlier. The orb and cross commonly had a tripartite division representing the three sections of the known world, like a medieval ‘T & O’ map: Asia at the bottom, Europe and Africa on top, dots in the centre of the orb designating Jerusalem. Yet the ball and cross appears on church steeples and other sites of non-royal signification and was able to be inverted upon occasions where an expression of mundus contemptus, disdain for the earthly world, was desired. Obviously it is not the orb and cross that is of interest here, but the modification of the orb into heart and the equation of heart with world that are notable. The printers’ initials inside the emblem also support my argument that text or images inside the heart were formal precursors to the idea of a map inside the heart. These printer’s marks, predating Stabius’ invention, continued to be used throughout the sixteenth century. Figure 46 shows this variation amongst other devices, featuring many orb and cross combinations; note how the bottom row features a more physiological icon for the heart.

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82 Mangani, op.cit., p. 60.
83 For this section I have used works by Hugh Davies, Devices of the Early Printers, 1457-1560 : Their History and Development : With a Chapter on Portrait Figures of Printers (Folkestone: Dawson, 1974), Wilhelm Josef Meyer, Die Französischen Drucker- Und Verlegerzeichen Des XV Jahrhunderts (Hildesheim, New York: Georg Olms Verlag, 1970), and Ernst Weil, Die Deutschen Druckerzeichen Des XV Jahrhunderts (Hildesheim, New York: Georg Olms Verlag, 1970) Figures 39-44 are from France, but since Davies noted the existence of heart/orb and cross devices used by German printers John of Cologne and Nicholas Jensen, working in Venice, their geographical origin is not being considered of strong relevance.
84 Davies, ibid., pp. 44-58; p. 45 and 48.
85 Davies, ibid, p. 45; if this is a quote, Davies does not reference it.
86 John Gillies, Shakespeare and the Geography of Difference (Cambridge: Cambridge University Press, 1994) gave a good explanation of this concept as it was manifested in the works of Ortelius and Mercator. Davies discusses some examples; op.cit., p.48.
87 Figure 46 is part of a larger set shown on p. 293 of McMurtrie, The Book: The Story of Printing and Bookmaking. It was itself taken from William Roberts’ Printer’s Marks, a Chapter in the History of Typography, (London and New York, 1893). I have been unable to obtain a copy of Roberts’ book and therefore cannot offer dates and places for the examples in Figure 46. I am using the diagram only as an opportunity to see the device in context with others.
Figures 39-44 (above): A selection of printers marks from before 1500, showing the heart-variant of the orb and cross device. Reproduced from Meyer and Davies (see text for references).

Figure 45 (below left): The printer’s mark of Anthoine Vérard from 1485/1492, notable for its banderole and the play of ideas about the heart.

Figure 46 (above right): A selection of printer’s marks, showing orb and cross and variations, including two hearts. Reproduced here from Douglas McMurtrie’s The Book: The Story of Printing and Bookmaking, London: Oxford University Press, 1943, p.293. Note the shape of no. 29.
Figure 39 was the mark of Pierre Levet and was found in books from 1486 and 87. The date of 1486 is from Davies (item 177, page 538-39), and 1487 from Meyer (item 117, p. 104); both were in editions of Expositio Hymorum. Levet had another mark from a later time, not reproduced here, that featured a very chubby heart mounted on a tau (T-shaped) cross, pierced by thorns from an encircling crown of thorns, and with the head of a spear in the right side. All of this was depicted within a shield, held aloft by two angels, not unlike the arrangement Cranach used in his 1505 woodcut.

Figure 40 is one variant of a pair from Nicholas de la Barre, from 1495; Figure 41, from 1490, was from Matthieu Vivian of Orléans. The IHS is for Jesus, the M for Mary. Figure 42 is a slightly more elaborate variant of a pair by Jean Lambert, from 1493, gracing Maillardus’ Histoire de la Passion. The words Espoir en Dieu (Hope/Faith in God) appear on both variants. Figure 43, from Denis Meslier (or Mellier), appeared in the 1491 edition of Destruction de Jérusalem. Figure 44, from before 1503, was from Georg Mittelhus. This race-through could continue: Meyer illustrated 15 or more heart variants of the orb and cross, depending on your definition of what constitutes a heart icon. Hearts do appear in printers’ marks as straightforward Passion devices. But at times, even an image of Christ on the cross can have a cartographic significance: the cross itself came to be identified with a directional, compass-like meaning. Its four ends pointed to the four corners of the earth. A cross could sometimes be knowingly employed to reference the world, regardless of what was shown upon it, the body of Christ or a heart. This is but one of the connotations of the cross symbol and it was not always used in this fashion. The cross, as I am arguing for the heart, is another sign for which the meanings could migrate depending on context and association with other imagery.

Figure 45 shows one mark of an important Parisian publisher, Antoine Vérand, from 1485. It does not bear the cross above the heart and therefore is not a cross and orb variant, unless you wish to argue for the French royal insignia as a significant replacement. Vérand’s mark is notable for its interconnection of notions concerning

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88 The date of 1486 is from Davies (item 177, page 538-39), and 1487 from Meyer (item 117, p. 104); both were in editions of Expositio Hymorum. Levet had another mark from a later time, not reproduced here, that featured a very chubby heart mounted on a tau (T-shaped) cross, pierced by thorns from an encircling crown of thorns, and with the head of a spear in the right side. All of this was depicted within a shield, held aloft by two angels, not unlike the arrangement Cranach used in his 1505 woodcut.

89 Meyer, op cit, item 104, p. 93.

90 Meyer, ibid, item 77, p. 70.

91 Meyer, ibid, item 107, p. 96. The other (not shown here) is item 106, p. 95.

92 Meyer, ibid, item 130, p. 114.

93 Meyer, ibid, item 131, p. 115.

94 Meyer, ibid, pp. 58-59, described forms that appear to me like a carpenters’ plumb as Herzförmigen (heartshaped).

95 I have taken the date from Meyer (items 159, p. 136), but other versions exist, including Meyer item 160 on the next page, from 1492/3. Davies had that second version of the device in a book from 1517 (item 41, pp. 260-263). Davies mused about the falcons, while Meyer’s item 160 was from a book on Falconry. Vérand was at the forefront of Books of Hours publishing. He supervised the production of hand coloured printed books, employed several printers, and was – unsurprisingly, given the scale of his production house – patronised by many Kings, not only of France (Charles VIII, Louis XII, the future Francois I, Henry VII of England, and French queen Anne de Bretagne). Andre Lejard, The Art of the French Book, from early manuscripts to the present time, (London: P. Elek, 1947) reproduced a luscious, illustrated miniature of Vérand presenting a book to Charles VIII: the frontispiece from Le Gouvernement des Princes, Paris, no date. Lejard, p. 51.
the heart, some of which I have already discussed. Note the inscribed border with the words:

*Pour provocuer Jesus ta grant miséricorde*
*de tous pecheurs faire grace et pardon*
*Antoine Verard humblement recorde*
*Ce qu’il a – Il tient de lui pardon.*

(To bring forth the great mercy of Jesus
To give grace and pardon to all sinners
Antoine Vérand humbly records what he has-
He has Jesus’ pardon.)

I wonder if placing one’s initials within a heart was a cause for asking pardon — another sin? This kind of individualisation or self-representation, even when in conjunction with a professional undertaking, is part of a very un-medieval mentality, but may have required some obsequies to ward off accusations of vanity and worldliness. Note the layering of heart references in the text quoted above: the play between *miséricorde* (mercy), record (with its connotations of memory and witnessing) and the image(s) of the heart (the physical organ, site of perception/knowledge and the ‘door’ to Christian wisdom). Vérand’s mark also has the little heart with the letters IHS inside. This is positioned top centre, at the apex, the centre. This is the place where François’ royal insignia are to be found in Fine’s map. That little heart is also amongst the words of the banderole, reinforcing Jesus’ ‘logo’ amongst this writing. This would be invaluable if seen by someone who could not read the words. This layering of meaning reinforces that the image and idea of the heart had multiple readings for a late fifteenth/early sixteenth century viewer, even if it sometimes had to be literally spelt out.

These little printed images may not have been grandiose in design or intended impact, but they do have one important trait: mobility. Regardless of their geographic origin the books within which they were published crossed international borders. The commonness of the orb and cross device in this time makes it very difficult to imagine that its variation into a heart-shape could be some kind of anomaly. While there is not yet proof that Stabius had knowledge of these signs, it can be safely assumed that his access to contemporary publications would have been very great and the likelihood of
his having seen them very high. As a mathematician and astronomer, it is impossible that he could have worked without the latest developments to hand. As a poet, part of the wide circle of humanists associated with Vienna University – and even before that, teaching in Ingolstadt – he must have been familiar with a wide range of contemporary literature, not just mathematical but literary and theological. Both Stabius' position at court as well as his former role as a professor would have necessitated wide reading. It would seem to me possible to prove the existence of such devices in works owned or handled by Stabius, but this is beyond the scope of this study. Stabius was a mathematician before he worked for Maximilian. His involvement with other map projections – such as the oblique orthographic projection used in the 1515 collaboration with Dürer – also attests to his experience in this field. This, however, does not mean he was unaffected by non-mathematical ideas and that these may have influenced his choices. Stabius employed much creativity and intelligence in servicing the emperor's 'scholastic' desires. To suggest Stabius' mathematical inventions were completely separate from his work for Maximilian implies a retrospective attribution of the values of contemporary science onto an era that shared few of those values.

Even if Stabius' knowledge of these marks were proven, it does not automatically imply influence, so the suggestion that they contributed to his development of the cordiform map remains speculative. And of course the elaboration of combining the heart with a world map shows sophistication well beyond these little prints. But did that sophistication represent a conceptual leap beyond what is actually implied by those little devices? The image of the globe surmounted by a cross was so widespread and well known in this time that its abstraction into multifarious variants, including the heart, were probably still instantly recognisable by anyone. The charming banderole text in the Vérard example also gives some hint that the heart is not simply a Passion device, that the fuller, albeit Christianised, senses of the heart can also be invoked by the use of its image.

96 For mention of German printers using such devices see n. 83 above.
97 Further proof of Stabius' access to literature: he was appointed the cataloguer of Maximilian's library after his death and, as an important part of the genealogical excavation team, would surely have had access to the imperial library throughout his career at court. See Größing, op.cit. p. 252.
98 See Snyder, op.cit. pp. 18 and 23; Stabius' claim (published in the Werner book of 1514) that he invented what is now called the oblique stereographic projection was rejected by Snyder, who identified prior users. All may have developed the projection independently.
The humanist heart

In this section I shall examine three aspects of the humanist venture of the Renaissance, as manifest in Germanic territories, relevant to my study of the meanings of a heart-shaped world map in the early years of the sixteenth century. I shall start by looking at the circle of humanists around Maximilian, of which Stabius was a part, noting how intimately his career and work were involved with his colleagues' humanist ventures. In the last decade of the fifteenth and the first decade of the sixteenth century, humanist scholars in the Holy Roman Empire were deeply concerned with issues of national history and national identity. Some of this related to ideas about the end of the world, but some also concerned issues of a specific, Germanic national consciousness, too. Then there is an issue about the role of the heart in a humanist conception of things. I shall offer an image as an exemplar; again, it is by Dürer.

By the time of The Great Triumphal Chariot..., Maximilian was a known entity to his subjects. They had borne witness to a variety of astounding events including his self-crowning as Holy Roman Emperor in 1508, the first time this had not been done by a Pope in Rome.\(^9^9\) That he would become Emperor had not always been certain. Twelve years earlier, around the turn of the century, Maximilian was only King of the Romans and Emperor-Elect (even though Frederick III had died in 1493). It was a low point in his career.\(^1^0^0\) The imperial reforms he had been struggling to introduce seemed to be backfiring; the powerful princes and dukes were trying to restrict his powers by withholding taxes from him, and by 1502 there were calls for his abdication.\(^1^0^1\) Although there were plenty of manifestations of discontent amongst the general populace, Stabius may have been caught up in a wave of Germanic national self-consciousness that had taken over, if not the populace, at least its intelligensia.\(^1^0^2\) In

\(^{99}\) Julius II had blocked access to Rome as he was not keen on the idea of Maximilian and his 12,000 troops arriving there. Maximilian had already been elected and crowned King of the Romans in 1486. Charles V would be the last Holy Roman Emperor to be crowned by the Pope in Rome.

\(^{100}\) 1499 was not a great year for Maximilian, or Latin Christendom. The French had invaded Milan, taking from Maximilian his greatest source of income. There had been Turkish activity in the Adriatic too. See Walter L. Strauss, The Book of Hours of the Emperor Maximilian the First, Decorated by Albrecht Dürer and Others (New York: Abaris Books, 1974), p. 331.

\(^{101}\) Strauss, ibid., p. 331.

\(^{102}\) Gerald Strauss, Manifestations of Discontent in Germany on the Eve of the Reformation: A Collection of Documents Selected, Translated and Introduced by Gerald Strauss (Bloomington, Indiana: Indiana University Press, 1971). This useful collection of documents includes several that have informed this section, including "Heinrich Bebel's Oration in Praise of Germany, Given before Maximilian I (1501)", pp. 65-72. The three documents comprising Section XI, titled Prospects for the Future, including "Sebastian Brant on the Inevitable Fall of the Holy Roman Empire (1504)" and "Sebastian Franck on the
the context of this uncertainty over the role of the Emperor-Elect, the humanist ventures of this time seem to have political overtones: praising Maximilian, extolling his virtues and urging him to inhabit the roles for which he was believed to be destined form the basis of many works.\textsuperscript{103} The humanists were not insignificant agitators, either; Frederick III had bequeathed to Maximilian something perhaps as important as his patrimony: an intellectual and artistic climate of excellence.\textsuperscript{104} As Augustus had his Virgil, Maximilian too supported artistic and scholarly works that enhanced his prestige and contributed to the means by which his rule was conceptualised.

In 1497, Maximilian called Stabius’ mentor, Konrad Celtis, to a professorship at the University of Vienna and to be Poet Laureate. Before his call to Vienna, Celtis (1459-1508) had been a Professor in Ingolstadt, where he had known and befriended the younger Stabius.\textsuperscript{105} Even the pastor Johannes Werner called Celtis, known as much as a \textit{bon vivant} as for his scholarship, his “most beloved teacher”.\textsuperscript{106} In Vienna, Celtis founded the \textit{Collegium poetarum et Mathematicorum} (Academy of Poets and Mathematicians) which would impact upon Stabius’ own career. The \textit{Collegium} included poet Johannes Cuspinian\textsuperscript{107} and mathematician Conrad Peutinger; the combination of their professions reflected Stabius’ own. After several years of travelling between Ingolstadt and Vienna, Stabius gave lectures for and may have become part of what was known as the “fifth faculty” of Vienna University.\textsuperscript{108}

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\textsuperscript{103} Leonard Forster, ed., \textit{Selections from Conrad Celtis 1459-1508} (Cambridge: Cambridge University Press, 1948), p. 109. “In supporting the political tradition of the Holy Roman Empire and giving it new significance Celtis clearly had his eyes fixed on the Emperor himself as a symbolic figure embodying his own aspirations. … Like many humanists of his generation he was more concerned with political ideals than political reality. Maximilian recognised the importance and inspirational power of the poet’s ideas for his own plans, and it was doubtless for that reason that he called him to Vienna and created a post for him. But he too was fascinated by the symbolic importance of the imperial dignity rather than by its reality.”

\textsuperscript{104} That visual arts and technologies flourished in this era is well known, but Maximilian would add to this by becoming a great patron of religious and secular music, founding the Vienna Boys Choir in 1498.

\textsuperscript{105} Größing, op.cit., p. 242.

\textsuperscript{106} Folkerts, op.cit., p. 273. For an exposition of Celtis’ warm character, see p. 82 of Chapter V, “Celtis – the Archhumanist” in Lewis William Spitz, \textit{The Religious Renaissance of the German Humanists} (Cambridge, Massachusetts: Harvard University Press, 1963), pp. 81-109. Spitz wrote “Celtis was the one really genial personality among the German humanists. As a university professor he dismissed classes for weeks at a time while he went to visit a friend and missed many a lecture while he went off to taste the new wines. “May sweet liberty remain mine!,” he exclaimed.”

\textsuperscript{107} Johannes, with his wife Anna, sat for portraits by Lucas Cranach in 1503. The youthful Cuspinian wrote “my spirit thirsts for cosmography.” Schade, op.cit., p. 18.

\textsuperscript{108} Größing, op.cit., pp.242-244, is the best on this convoluted subject. Although Stabius lectured under its aegis, it is unclear if he was officially on the \textit{Collegium} payroll. He indeed had a specially funded position at the university, paid for by Maximilian, and at one time was also poet laureate himself. See also Aschbach, op.cit. What is clear is that Celtis’ mentorship brought Stabius to work for Maximilian.
Through Celtis and his close contacts with the Emperor, it was not long before Stabius came to be doing work directly for Maximilian. In 1505 Stabius was sent around Austria to gather information for a set of regional maps, a task of great responsibility. If we take the dating of the invention to be between 1500-1502, the cordiform projection seems part of the rising success of Stabius’ career.

Around the turn of the century, Celtis began a series of massive publishing projects designed to celebrate the mid-millenium as a date of monumental, epochal significance. This has been discussed by Joseph Koerner in his monumental work on Dürer’s 1500 self-portrait as Christ, *The Moment of Self-Portraiture in German Renaissance Art*. Koerner showed how Celtis’ publishing projects were to both anticipate and commemorate the idea of the century’s change as a turning point in human history. The humanist circle around Maximilian and Celtis especially were to spearhead this “secularized eschatology” and their works would help bring about peace in the world and harmony between God and Man. Celtis planned to publish his own complete works as well as reissue, edit and translate important Germanic texts. These included works by the influential German Cardinal and theologian Nicolaus of Cusa (Cusanus), and the recently rediscovered *Germania* by Tacitus, amongst others.* Koerner noted that this publishing frenzy extended well past 1500, but that later works were backdated to that all-important year; Celtis even managed to organise a posthumous biography to state he had died in 1500 rather than the actual date, 1508.

Koerner was interested in the relationship between self-identifications and the constructions of history. I am using Celtis’ focus on the turn of the century and what this portended to support my interpretation of the function and meaning of Stabius’ invention, also influenced by this mindset. We have been warned recently against interpreting constructions such as Celtis’ as signs of Europe’s future role as a dominant world power. Here I am only considering Celtis’ productions as part of home-grown concerns of the day, concerns that were not without desired social, political and even spiritual outcomes.

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110 Koerner, ibid., p. 184, n. 64, p. 483 (referencing Karl Löwith’s *Meaning in History*).
111 Another set of works were the recently rediscovered poems of Roswitha, an tenth century German nun who had written a heroic poem dedicated to Holy Roman Emperor Otho I – a source, therefore, of information about Germany’s and Maximilian’s history. These poems was the subject of correspondence between Celtis and Charitas Pirckheimer, the sister of Willibald, and a highly lettered nun. See Lina Eckenstein, "Chapter XII: The Memoir of Charitas Pirckheimer," in *Woman under Monasticism: Chapters on Saint-Lore and Convent Life between A.D. 500 and A.D. 1500* (Madison, Wisconsin: University of Wisconsin Digital Collections Center, 1896). Available at: http://libtext.library.wisc.edu.
112 Fernández-Armesto, op.cit., p. 161
Stabius' idea for the map of the world inside a heart was contemporaneous with Celtis' ambitious, epochal works. He was close to Celtis' thinking and was even involved with some of his productions, such as the dramatic work *Ludus Dianae*, first performed in Linz in 1500.\(^{113}\) That Stabius was so closely connected to Celtis, Dürer and the other humanists is strongly suggestive of his support for this wave of thought.\(^{114}\) I am suggesting that Stabius, like other humanists of his time, may have been interested in a brave new world, united and in harmony with God. What better way of representing this idea – resonant with other pre-existing legacies of knowledge, compassion and piety – than to depict the world in a heart? Even this broad humanist context might be enough to explain why a heart used as a map projection was not an unwelcome sign, although I believe it was even more multi-layered than this context alone.

As well as providing information about important cultural issues around the time of Stabius' invention, the humanist circle also had a take on the idea and image of the heart. An image from one of Celtis' publishing projects reveals some of these concerns about the role of the heart as it was filtered through neo-platonic influences, current amongst humanists in Germany. Dürer's *Philosophia* woodcut of 1502 (Figure 47) was made to accompany Celtis' work *Four Books of Love (Quatuor Libri Amorum).*\(^{115}\) In that book, Celtis sought to represent the union of Germanic territories via an allegory of love that he had apparently found in all four corners of the land.\(^{116}\) For the figure of philosophy, Dürer apparently followed drawings by Celtis that were themselves based on the description of Philosophy from Boethius' *Consolatione Philosophiae.*\(^{117}\) Philosophy, as the repository of all knowledge, has flowing to her

\(^{113}\) Steinhauser, op.cit., p. 289. Despite problems with the dating of the invention (see n. 12, above), on the basis of documents demonstrating Stabius' knowledge of related mathematics a date prior to 1510 is extremely likely; see Größing, op.cit, p. 256.

\(^{114}\) James E. Biechler, *The Religious Language of Nicholas of Cusa* (Missoula, Montana: American Academy of Religion and Scholars Press, 1975), p. 14, noted that many of the European humanists came from less than noble backgrounds, and that embracing humanism was a known route to social advancement. Like Fine, Stabius also may have got a new job out of his maps; he seems to have easily moved from Vienna University to working directly for Maximilian. Größing, op.cit., pp. 244-249.

\(^{115}\) Smith, *Nuremberg: A Renaissance City...*, op.cit., p. 103.

\(^{116}\) At least one of the four loves left documentary evidence of her existence; Hasilina the Pole wrote to him after the work was published “expressing surprise and pain of the now sedate matron at his publication of poems dealing with her intimacy with him when she was young...”. In Forster, ed., *Selections from Conrad Celtis 1459-1508* op.cit., p. 7. Celtis' quasi-geographic work was to be a foretaste of a giant project, a *Germania Illustrata*, similar to existing projects in Italy, but sadly this did not eventuate before Celtis' death in 1508. Smith, op.cit., p.103.

\(^{117}\) Smith, ibid., p.103. Roman philosopher and former statesman Boethius wrote *Consolatione Philosophiae* in prison while under sentence of death. It focussed on and extolled the virtues and powers of the mind.
Figure 47: Albrecht Dürer, Philosophy.
From Konrad Celtis, Quatuor libri amorum, Nuremberg 1502.
heart-centre a sequence of Greek letters that represented the ascent “from the senses to contemplation.”118 Along this ascent were the seven liberal arts of grammar, logic and rhetoric (the trivium), arithmetic, geometry, astronomy and music (the quadrivium). As we know from François’ *vase du coeur*, knowledge and learning were intimately connected to the heart centre. The Latin poem at the top and bottom of the image, words from Philosophy herself, reads:

Whatever the heaven contains, what earth, the air and the water,
Whatever can exist among all the things that are human,
Whatever the fire-god makes in the whole circle of earth,
All that I, Philosophy, carry within my own breast.119

In my section concerning the Passion, I noted that Germanic peoples held special beliefs about the chest as the site of the soul. These augmented and enhanced pan-European beliefs about the chest or breast as the site of wisdom and knowledge. With this image Celtis, therefore, simultaneously connected wider European legacies – classical and medieval – as well as those from his own country. Narratives of descriptive geography such as Celtis’ were not unrelated to geographical researches underway at the time, such as those undertaken by Stabius. Geography had its place in the image; Egypt was represented by Ptolemy (as was Rome by Cicero and Virgil, Greece by Plato, and Germany by Albertus Magnus). All of these figures were linked with four seasons, four elements and the four bodily humours,120 a further elaboration of the ongoing European idea of the body, world and the universe existing in harmonious, analogous interrelationships. Although the heart was not shown directly in Dürer’s illustration, all this learning culminated in the heart-centre –what Jager has called ‘pectoral psychology’ – thereby demonstrating the ongoing importance of this idea amongst humanists of this era. The idea of the whole world carried within the breast, or heart-centre, is significantly similar to the idea of the heart-shaped world map.

118 Silver, “Germanic Patriotism in the Age of Dürer”, op.cit., p. 45. Silver has included this definition from Dieter Wuttke (cited in Koerner’s study), although it may be at variance with the (simpler?) interpretation, of a transition from *phi* (philosophy) to *theta* (theology).


120And the four winds; for example, Boreas from the cold north, is linked to earth, melancholy, the oak leaf and winter, and so on. See Smith, *Nuremburg: A Renaissance City*, op.cit. p. 103.
Theological and literary concord

As I have mentioned, it is important to consider wider theological issues than only those connected with the Sacred Heart. Here I shall introduce some specific ideas about concordia or harmony that were resonant in both humanist and theological contexts. Concordia was an ancient concept that, after its Christianisation, had important symbolic meanings for the unity of the church, both as a political notion and as a reflection of God’s plan for the world. I shall also consider that Stabius’ invention of the cordiform map may have related to word-play around mundus, a word in Latin meaning both world and purity. I shall begin by showing how the concept of concordia was used by an important theologian, influential in the late fifteenth century, some time after his death: Nicholas Cusanus.

Many of the great Germanic humanists of this time were interested in neo-platonism and had strong contacts with their Italian colleagues. Celtis had travelled extensively in Italy in his years before Ingolstadt and Vienna and personally knew Marsilio Ficino. As Lewis Spitz took care to point out, the Italians were not the only important figures in neo-platonism. The German Cardinal Nicolaus Cusanus (?1400-1464) was not only a theologian of great influence in Rome but one of the great figures of fifteenth century thought, sometimes considered a precursor to Copernicus, Bruno, Spinoza, Liebniz, Kant and Hegel. As a Cardinal-politician, he was deeply committed to issues of the unification of the Church – he had been born while the Western Schism was still operational – as well as promoting war against the Turk. In De Concordantia Catholica of 1433, Cusanus repeatedly stressed the role of concordia (harmony) in the structure of both the church and the universe as a

121 Spitz, op.cit, pp. 13-14.
122 Jasper Hopkins, A Concise Introduction to the Philosophy of Nicholas of Cusa (Minneapolis: University Of Minnesota Press, 1978), p. 15. For a taste of his pre-Leibnizian method, Cusanus called God the “Posses”, i.e., “Posses-est” – the “possible-actual”. Kristeller wrote “Cusanus, Ficino and Pico were the most vigorous thinkers of the fifteenth century”. See p. 88, Paul Oskar Kristeller, Renaissance Concepts of Man and Other Essays (1972) For an excellent overview of Cusanus literature, which is extensive, see “The Origins of Modern Cusanus Research in Germany and the establishment of the Heidelberg Opera Omnia”, pp. 35-58 of Morimichi Watanabe, Thomas M. Izbicki, and Gerald Christianson, Concord and Reform : Nicholas of Cusa and Legal and Political Thought in the Fifteenth Century, Variorum Collected Studies Series ; Cs709. (Aldershot ; Burlington, VT: Ashgate, 2001).
123 Between 1378 and 1417, Latin Christendom had seen a split resulting in two, and sometimes three, Popes, one of whom operated out of Avignon in France. The Schism was only resolved during the Council of Constance, between 1414 and 1418. The Council had been instigated through the persuasions of the then Holy Roman Emperor Sigismund (1361-1437), the second subject after Charlemagne of the portrait series Dürer was commissioned to paint mentioned at the beginning of Part III.
124 The work was presented to the Council of Basle, which ran from 1431 to 1445.
125 Cusanus used both concordantia and concordia in De Concordantia Catholica as meaning the same thing, but used concordantia more, perhaps since it had been used earlier in reference to church
This idea was partially derived from a generalised notion of harmony common in both ancient and medieval thought, but also from Cusanus’ use of Augustine’s notion of *concordia ordinata* in which the order and harmony of the universe was deliberately placed there by a beneficent God. In *De Concordantia Catholica* Cusanus wrote:

> And from the One of infinite harmony in peaceful rule that sweet spiritual harmonious concord flows by graduated yet connected degrees through all the members subject and united to it. The one God is thus all in all.

*Concordia* itself was an ancient concept. The Roman goddess of Concord or Harmony was often represented by a matronly figure, holding either an olive branch or a cornucopia; she was often seated and cloaked. She often carried standards, as *concordia militum* (military harmony); this image is found on coins of several Emperors including Constantine, the first Christian Emperor. She is also sometimes shown holding a pomegranate. As this is a fruit that bears multiple seeds inside one skin, it is itself a symbol of concord. As mentioned earlier, the pomegranate was Maximilian’s personal insignia (as the salamander was for François). By his time,
symbols of concordia meant the unification of the church and, for a Holy Roman Emperor, the unity of all under one Christian kingdom.130

In the centuries after Constantine, the concept of concordia was Christianised and Concordia Mundi became the ideal of the unified Christian world. A notable contemporary of Oronce Fine, Guillaume Postel, described by a contemporary as an "abyss of knowledge"131 and whose work ranged from mathematics and philology to Hebraic studies and cartography,132 wrote De orbis terrae concordia in 1542-43. In the work, Postel set out arguments for the refutation of Islamic, Judaic and pagan teachings. With its practical ideas for religious conversion, Postel provided a "manual for missionaries" with the aim of promoting "one God, one law, one faith, one shepherd, and one king".133 In his important study on cordiform maps, Giorgio Mangani connected Postel with cordiform imagery, noting that he must have at least met Oronce Fine while teaching mathematics and oriental languages at the Royal College in Paris.134 Postel taught there between 1538 and 1542; both Fine's cordiform maps were already in existence. Postel scholar William Bouwsma wrote that concordia was the "key to his mind"; perhaps Fine's maps had contributed to this.135

One purpose in this dissertation is to show that the heart-shaped world map may not have had one single meaning, that it was not an emblem for any particular group and that its meanings, layered and allusive, were still subject to speculation and change. The physicality that Fine so insisted upon in the legends of his maps was not automatically a major motivation for their invention, nor was it, apart from the somewhat ribald nature of the Cimerlino map, particularly a part of the map's later

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130 St. Gregory discussed the pomegranate as symbol of the unity of the Church; Tanner, ibid p. 19. She also notes how the pomegranate idea can be detected in Cusanus (from On Learned Ignorance): “Now this union is the Church, the gathering together of the many into one, as the many members are gathered into one body, each in his own degree… Whence all diversities that become united take their unity from... Christ.”

131 The contemporary was Antoine du Verdier, who wrote La Prosopographie ou Description des Personnes insignes, enrichie de plusieurs effigies, & réduite en quatre livres in 1573 and who was probably part of the mythologizing of Postel in his later years. From William James Bouwsma, Concordia Mundi: The Career and Thought of Guillaume Postel (1510-1581), Harvard Historical Monographs ; 33. (Cambridge, Mass: Harvard University Press, 1957), p. 1 – one of the first things Bouwsma noted about Postel. See p. 30 for an exposition of the range of Postel’s knowledge.

132 Postel’s 1581-82 map of the world can be seen in Shirley, op.cit., p. 166-167. It is a large (900 x 1200mm) six-sheet woodblock, described by Shirley as a ‘tour-de-force’. It was not cordiform.

133 Bouwsma, op.cit pp. 9 and 28.

134 Mangani, op.cit, p. 68. Mangani linked Postel with the ‘Turkish’ map, both generally and specifically, as the text cited Arabic works that had been introduced into Venice by Postel.

135 For concordia as the key to Postel, see Bouwsma, op.cit, p. 64. See pp. 8-9 for the dates; Bouwsma noted that Postel became friends with the great humanist Guillaume Budé, who was Fine’s mentor and mentioned that Postel at one point criticised François to his face, prompting the (recorded) comment from the King that he “thought him wiser than he was”.

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incarnations. The idea of ‘one Christian world’, of which Postel was a sophisticated elaborator, could indeed be a part of the multiplicity of meanings to Stabius’ invention. Either Maximilian or François would not have been unhappy with that. But in the early sixteenth century, the realities of the New World were not yet fully apprehended and such ideas had the status of speculations, rather than being blueprints for action as they became by mid-century.

Should we consider Stabius only as a simple illustrator of Maximilian’s imperial desires? His intellect ranged widely and the use of allegory and other literary tools characterised his work for Maximilian. These hallmarks of Stabius’ work encourage me to think that more than one simple idea was made possible by his map invention. Stabius would have expected a layering of meanings, operating at several levels simultaneously, some literary in construction, and not all would have to be specific to Maximilian. That heart words like concordia and misericordia had both ancient and modern uses would not have been unattractive to Stabius, whose poetry is full of classical allusion. Stabius’ heart-shaped world map idea might not work quite so well if left only in the vernacular.

The literary aspect of Stabius’ work for Maximilian suggests another meaning for the heart shaped world map. As mentioned above, in Latin, the word mundus has two meanings. The first is for purity, cleanliness or goodness, or even elegance. Its second is for the universe, the world, or mankind. While we might find this combination unusual, to an ancient or medieval mindset that already connected harmony with the structure of the universe, neatness and purity were also part of that ordered, beautiful,

136 A fascinating example of yet another image by Dürer that could elaborate interrelationships between thoughts of the New World, theological concerns and heart concepts can be found in the “Prayerbook” of Maximilian, for which Dürer was one of several eminent artists providing illustrations. Although really a Book of Hours, the work is known as a Prayerbook, as the contents are selections from the Bible made by Maximilian. August von Eye (first Director of the Germanisches Nationalmuseum) described this selecting as a digression from the norm and as a Reformation act in itself (see Strauss, The Book of Hours of the Emperor Maximilian the First, Decorated by Albrecht Dürer and Others, op.cit., p. 323.) One of the beautiful, delicate illustrations (p. 81) Dürer made to decorate the borders of the text – much room had been left for these illustrations – shows an indigenous American in native costume. Psalms 19 and 24 are used in the text: “Let the words of my mouth and the meditation of my heart (meditatio cordis) be acceptable in thy sight, O Lord, my strength and redeemer.... The earth is the Lord’s and the fullness thereof; the world, and they that dwell therein”. Von Eye, a nineteenth century commentator on the work, complained “What purpose does a North American Indian or a Turkish camel driver serve in a prayer book? ...the Reader’s attention is drawn away from the prayers”. Strauss, ibid., p. 323 and n.19, p. 329. I have demonstrated how thoughts of those people of the New World, or Infidels, related clearly to theological issues of the day.

137 The visual attack on Trithemius described by Borchardt as a “nasty and clever cartoon” may be a good example of this; I have only read a synopsis of it in Erich Egg, ed., Ausstellung Maximilian I (Innsbruck: Land Tirol, Kulturfernt, Landhaus, 1969), item 387, p. 102.

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harmonious world. In that time, purity, like piety, had come to have overt Christian meaning. Matthew 5:8 clearly expressed this concept: Beati mundo corde, quoniam ipsi Deum videbunt (Blessed are the pure in heart, for they will see God). Here is the role of a pure heart, from Cusanus:

Dispositio autem fidelis volentis deum videre, quae necessario requiritur, est munditia cordis.¹³⁹

(Now, purity of heart is the preparation, which is necessarily required of the believer who wills to see God).

Cusanus' text reinforced biblical thought. This, and other, biblical references may be yet another way in which the heart-shaped world image worked, offering a pleasing, self-reinforcing circularity. In I Samuel 16:7 we find the following:

But the Lord said to Samuel, Do not consider his appearance or his height, for I have rejected him. The Lord does not look at the things man looks at. Man looks at the outward appearance, but the Lord looks at the heart.

God looked at man and saw the heart while man, via the workings of a cosmographer or cartographer, came to see God's creation, he came to see and know God's love and compassion. The heart, therefore, was central to this reciprocal exchange of glances between man and God. If a world map was a God's-eye-view, and if the world was created in the image of his love, then it should come as no surprise that what he sees is heart-shaped.

At this time purity, like piety, was not a free-floating, human attribute but a Christian quality. That the natural world manifested harmony and concord would also be reflected in the moral and spiritual worlds. No wonder the young Cuspinian declared "my spirit thirsts for cosmography", for understanding the world meant understanding God, and the mind/heart of God. A heart-shaped world map could indeed have been a simple plea for a respublica christiana - a world united under Christianity. But that interpretation overly restricts the use of the heart-sign. In this study, I have given

¹³⁸ Strauss described the poem that accompanied the print of Saint Coloman as a "sapphic ode". Strauss, ...Woodcuts and Woodblocks, op.cit., p. 483.
¹³⁹ Hopkins, A Concise Introduction to the Philosophy of Nicholas of Cusa, op.cit., p. 102-103.
many examples of the ancient connotations of the heart that, while well Christianised by the sixteenth century, would allow the heart-image to allude to wider concepts. The heart-shaped map idea could say: since we are made in God's image, the world is sacred, divine, itself an image of God and his love. It could also say He is everywhere: *Dieu sans frontières*. In the next section, I shall show how the worship of the heart on the eve of the Reformation also had prophetic, apocalyptic overtones; this was the world about to come, so prepare yourself. And regarding the New World, the message of a heart-shaped world could be: God has seen you, we are all part of His *concordia*. If even only a few of these concepts were operational in the conception of a heart-shaped world, joy, awe, hope and delight could all have been the response to Stabius' strange invention. Since God was a mathematician, it might take another one to reveal His true workings. All of his creation, at least the part we live in, would surely be a representation of His calculated love.

The apocalyptic heart

Around the turn of the century, apocalyptic themes in everyday thinking, expressed via art and literature, were strong. Accumulated tensions may have accounted for the resurgence of these longstanding beliefs. The plague, the seeming frailty of Christendom – both in face of the advances of the Turkish and from forces within (the two schisms, only one of which had been resolved) – even agricultural stresses, all played a part. In 1498, Dürer published his well-known suite of engravings on this

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subject derived from the Book of Revelations. The success of these images formed the basis of his fame across Europe. Still considered masterpieces of graphic art, it is necessary for us to imagine them fully charged with the widespread belief that the end of the world was both definite and imminent. The ruminations on Last Things, the Last Day and the Last Judgement were not only the domain of the Last World Emperor; everyone was on the lookout for signs and portents for when this time was coming. Even a simple woodblock like those discussed earlier could be a reminder in everyday life of the future of things to come: a picture of the Christ Child holding a bird was not designed to charm but was an image pregnant with thoughts of the future. Many artists and illustrators had rendered versions of the Apocalypse, but Dürrer's prints became influential in part due to their exploitation of the new print technologies and their advantages for wide distribution. An intriguing example of works derived from Dürrer's prints was a set of stained glass windows, or vitraux, in the church of St. Florentin in the Yonne district of France, dated circa 1529 – made in the form of flaming hearts (Figure 48).

Apocalyptic themes were connected to the heart via the imaging of the Passion. Lucas Cranach's 1505 print of the Sacred Heart, worshipped by saints associated with the plague, can be seen as related to these discussions. The plague in itself was not necessarily an instigator of apocalyptic themes; rather, the plague was integrated into existing understandings of how the end of the world was to be manifested. But these discourses may have overlapped with the late-Medieval focus on the sufferings of Christ and their relatively newfound imaging, especially of the heart. The cordiform mindset must take account of these myriad and mutable meanings, meanings that were

141 See Dürrer sources listed in n. 18, above.
142 See Delumeau, op.cit, p. 66, 73-81, 89.
143 Cusanus divined that the End would come between 1700 and 1734. Apocalyptic belief continued strongly amongst humanists and the Reformation, in fact the sixteenth century was a high point of apocalyptic thinking. Luther, who characterised the Pope as the anti-Christ, wrote “we have reached the age of the pale horse of the Apocalypse... the world will not last another hundred years.” French humanist scholar and Fine mentor Guillaume Budé wrote in 1535: “O how unfortunate is the fate of our age, which has marvelously restored letters to their former glory, but which, through the crimes of a few and the sins of many, has become burdened by sinister and unforgivable impiety... as for me, I am inclined to think that the last day is coming to an end, that the world is in decline, and that it is old and lacking in sense, and that it indicates, presages and foretells its imminent fall and end.” In Delumeau, op.cit, p. 89.
144 Field, Woodcuts and Metalcuts..., op.cit, unpaginated; Item 113 is just such an image; the bird was a cuckoo, believed to have prophetic powers.
Figure 48 (top): Stained glass windows from St. Florentin, France, circa 1529, based on Dürer's woodcuts of the Apocalypse.

Figure 49 (above, left): detail from top left corner of Peter Apian's 1530 cordiform map of the world. For full image of map, see Figure 2.

Figure 50 (above, centre): detail from top right corner of Peter Apian's 1530 cordiform map of the world.

Figure 51 (above): detail from Peter Apian's 1530 cordiform map, showing Magog.

Figure 52 (left): Woodcut of Maximilian outside the gates of Jerusalem, from Sebastian Brant's Varia Carmine, 1498.
functional and widespread long before they became associated with specific religious orders. To repeat, the appearance of the maps before the imagery became aligned to counter-reformation orders that used the heart as their emblem must be accounted for.

If the example of the vitraux connected apocalyptic imagery very directly with heart imagery, further support for my proposal that an apocalyptic theme informed the cordiform map comes from a possibly surprising source: Peter Apian’s single cordiform map of 1530 (Figure 2). I say surprising because Apian’s map, more than Fine’s or any others, can justifiably be used to support the mathematical-development model of the history of cartography. Why this is so is as follows.

Apian’s map, unlike Fine’s, is not surrounded by a busy, ornamental frame. The heart-shaped map portion of the image does, however, have some companions, and it is these that clearly indicate some of the map’s agenda. The first, Figure 49, is at the top left of the image. A cosmographer is shown holding up a diagram of a heart, within which we can clearly see an old version of the world, the oecumene. The words above the diagram suggest this is the worldview of Ptolemy or intended as a ‘portrait’ of the man himself. On the top right of Apian’s image is another small figure, repeating the same gesture (Figure 50). This diagram is almost the reverse of the first. The wider parts of the heart now can show far more of the globe than any previous world map made on more traditional Ptolemaic projections. The inscription above the diagram, Observatio Vespu, probably indicated Vespucci, thereby directly referencing the New World, the clearly visible sliver of land on the far left of the diagram. The way in which Apian demonstrated his case through the use of full/empty, dark/light juxtaposition was a simple yet masterly example of graphic exposition. That the cordiform map was hereby presented as better for the purposes of representing the New World supports the developmental model of the history of cartography; Apian’s map may have set the tone for the appreciation of the entire group.

That the cordiform map can better represent the New World than the older style of map, however, does not contradict my thesis that these maps had apocalyptic tones. On the contrary, the representation of the New World is precisely at the core of the prophecies concerning the Second Coming: the entire world must first be united under Christianity. The discovery of the New World was seen as an important step in the move towards Christ’s return. In Apian’s map, in the top right hand side, we can find evidence of an important part of the apocalyptic story: Magog (Figure 51). Magog –
along with Gog, which does not appear on the map — were considered either lands full of unclean barbarian hordes, or the hordes themselves.147 Stories of their existence appeared across the Bible, from Genesis to the Book of Revelations, where they were associated with the release of Satan before the end of time. While differing accounts of their presence and activities abounded throughout the classical and medieval worlds, some classical variants had it that Alexander had contained these peoples behind huge gates or walls. Through this and other actions, Alexander himself was seen as a prefiguration to the Second Coming, synonymous with Christ as a battler of evil. Just before the end of time, the monstrous hordes of Gog and Magog would burst through the walls holding them in check and overrun Europe, causing destruction and mayhem. That Magog was represented on a world map is by no means unusual, yet it is usually discussed in the context of medieval cartography.148 But Apian’s map was not alone in the sixteenth century in depicting this site of imminent danger to western Christianity.149 This should not be surprising, given the prevalence of discourses surrounding the apocalypse throughout the century.150

Neither of Fine’s cordiform maps depicted Gog or Magog but Apian’s and Mercator’s *Orbis Imago* of 1538 were alone amongst the cordiform maps to do so.151 Fine’s single cordiform map was the primary model for all the other cordiform maps, with Apian’s as perhaps the only exception. That the geography of Apian’s map of 1530 is so different from Fine’s encourages me to support Karrow’s opinion on the independence of the two maps, i.e., that Apian’s map was made either without knowledge of or simply not based upon Fine’s manuscript version of 1519.152 If the first single cordiform maps were made independently of each other, but both derived from Werner’s treatise of 1514, both may still have had the same intentions in using the

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149 Gog and Magog can be found on maps by Juan de la Cosa in 1500, Francesco Rosselli in 1508, Martin Waldseemüller in 1516, Antoine de la Salle in 1522, and Gerardus Mercator in 1538 (as ‘Amagoch’). Apian’s map is from 1530. From Andrew Gow, "Gog and Magog on Mappaemundi and Early Printed World Maps: Orientalising Ethnography in the Apocalyptic Tradition." *The Journal of Early Modern History* II, no. February (1998), pp. 61-88. I am indebted to Evelyn Edson for directing me to this article.

150 Delumeau, op.cit, pp. 89-90.

151 Gow, op.cit., p. 86. Had this dissertation been a longer thesis I would have studied the double cordiform maps and their relationship with the arguments set out here.

152 Karrow, op.cit, pp. 57 and 171. Also, Fine’s map is made from Werner’s third projection, and Apian’s is based upon the second. Snyder, *Flattening the Earth: Two Thousand Years of Map Projections*, p. 292, n. 87.
new projection, even if manifested in different ways. Apian’s map was made with imperial protection, a form of copyright for the time, but without direct dedication to Charles V. If the intended audience for the map was not a royal one, its intentions may have had to have been spelt out more. As a professor of mathematics at Ingolstadt, Vienna and Innsbruck, Apian undoubtedly knew of Stabius and his work. He certainly knew of Werner’s work, having published an annotated version of Werner’s cordiform treatise in 1533.

The absence of any southern continent and the relative lack of currency in Apian’s depiction of the New World, especially by comparison with both of Fine’s maps, may indicate Apian was more concerned with the opportunities afforded by the projection rather than actually furnishing it with geographical information. If my thesis is correct and the cordiform projection signalled intentions over and above the solely geographical, the focus may have been upon method of construction and cosmographic concerns, of which the world and its history was an important instance. Not that Apian’s cartography has been considered the height of originality. Perhaps he was too busy with his best-seller, the *Cosmographicus Liber* of 1524 or his astrology to be overly concerned with cartography, only one subset of his wide cosmographic interests.

Back at the turn of the century, Maximilian was under pressure to act upon his destiny. A best-seller of the 1490s, Sebastian Brant’s *Narrenschiff* (Ship of Fools), along with berating the church for its excesses and the people for theirs, called upon Maximilian to reclaim Jerusalem and spurn the infidel. In poem 99, “Of the Decline of the Faith”, after a long list of the woes Latin Christendom had suffered during the fifteenth century – the fall of Constantinople in 1453 was still within living memory – Brant wrote:

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The noble Maximilian
He merits well the Roman Crown.
They’ll surely come into his hand,
The Holy Earth, the Promised Land,
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153 Apian was a close friend of Stabius’ pupil Georg Tanstetter, who provided a commentary on Stabius’ in the *Viri Mathematici*; see n. 5, above. Tanstetter was also physician to Maximilian.
154 Karrow, op.cit, p. 58.
155 Bagrow, op.cit. p. 130; but Karrow pointed out Schöner’s praise; op.cit. p. 57.
156 Apian’s book ran to 29 editions over 85 years, in five languages; Karrow, op.cit. pp. 52-53.
157 The first German edition was published in 1494, the year of Fine’s birth.
Brant was very definitely attracted to this theme, repeated in a variety of works. In the *Varia Carmine*, a book of poems dedicated to the Virgin Mary published in 1498, Brant had a woodcut made of Maximilian outside the gates of Jerusalem, presumably about to recapture it for the benefit of the world (Figure 52). Regaining Jerusalem was another of the tasks that had to be achieved before Christ would return. But Maximilian spent his 19 years in the sixteenth century engaged in battles with his neighbours, rather than the infidel. These wars revolved around maintaining the rights of his patrimony, those gained by marriage, and advancing the aims of the Holy Roman Empire. The years leading up to the turn of the century were dotted with unsuccessful engagements with the French, first with Charles VIII then Louis XII. In that context, Stabius' invention – if we are to interpret it as a concept of the world, united under Christianity and reinforcing Maximilian's role as the new Augustus – may have provided either inspiration or solace. Earlier in the same poem Brant had warned:

All things have more efficiency
When they exist in unity
Than when there's discord in the world,
For concord's banner once unfurled
Will give us strength to thrive and grow,
But where discordance seeds may sow
The greatest, noblest things are razed.

In the *Varia Carmine*, Brant had celebrated Maximilian's election to the King of the Romans with the words: "Another of Caesarian seed has been sent from heaven./ You, Maximilian, are the bringer of peace to the world." I believe it is now possible for us to see how intimately heart concepts were connected with these concerns about

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159 In 1488, Maximilian was imprisoned for several months in Bruges during political turmoil over Burgundy in the wake of Mary's death and French exploitation of the uncertainty. The turmoil was also attributed to Frederick's old age and waning power; he had been ousted from his beloved Austria by the Hungarians for a short period. Leopold von Ranke, *History of the Latin and Teutonic Nations (1494 to 1514)* (London: George Bell and Sons, 1909), pp. 95-96; also p. 21 for the gains made at Maximilian's expense by the French.
rulership, Christianity, the future of mankind and how closely Maximilian’s role as Holy Roman Emperor was aligned with issues of the Last Days. Maximilian’s last words used a German verb not directly translatable in English that invoked his role as a soldier, a role he undertook in life that was central to his self conception as the Last World Emperor: “Ich bin für diese Reise mit Gottes Gnade ganz gerüstet.”\(^{161}\) (With God’s grace, I am fully equipped – as a soldier would be – for this journey with God).

Poetic accord

I have already used some of the text Stabius wrote for the *Great Triumphant Arch* and suggested that one meaning of the cordiform map related to word-play around the Latin word *mundus*. In this final section, I shall examine two further uses of heart concepts by Stabius in his published poetry. We do not have material evidence of his invention of the cordiform map, but in his poetry we can clearly see how he understood and used heart concepts in other contexts. These examples, therefore, help elucidate the context for the invention.

The dedicatory poem that Stabius wrote for Johannes Werner, published in his treatise explaining the cordiform projection, began with a long introduction exalting Werner and his skills. Stabius then urged him to continue with his work despite the “madness of the mob”\(^{162}\) and encouraged Werner to place his trust in his powerful patron, Cardinal Wellenberg, and also those other leaders “born of heavenly origin” – i.e., Maximilian – who appreciated his work and held him in high esteem. Finally he indulges in a little word play to finish the well-wishing, that also references the content of the publication:

\[
\text{Et si non vano stimulant precordia motu} \\
\text{Musae: nec pulsant fallacia sidera mentem}
\]

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\(^{160}\) Zeydel, op.cit. p. 320.  
\(^{161}\) Wiesflecker, op.cit. p. 429.  
\(^{162}\) Dedicatory poem by Stabius to Werner, “Ioann. Stabius Au. Ioanni Vernero Nurenbengen. foelicitem”, in Werner’s *Primi libri Geographiae Cl. Ptolemaei paraphrasis*, Nuremberg, 1514. The ‘mob’s madness’ may have been an allusion to the ever-present possibility of being charged with heresy, a frequent pitfall for astrologers and cosmographers, as clearly shown by the histories of both Oronce Fine and Gerhard Mercator. This translation is courtesy of Professor Graeme Clarke.

(And if the Muses do not move your heart in vain
and the stars impinge upon your mind deceptively,
you will be immortal, renowned, and famous. Farewell).

Precordia motu, the motion of the heart region, was a chapter heading in many a medico-astrological textbook of the sixteenth century and its movements were reflected in the astronomical world of which Werner was such an expert. The Muses, as much as astronomers, were involved in a process of divination, too. The movement of the heart was also crucial to the discussion of when God enters the spirit. That the ancients so loved memorialising and celebrity, as it aided immortality, and that memory, valour and worth were ascribed to the heart, did not go amiss in the intertwining of concepts invoked in the poem. Werner’s work, glory and spirit are all invoked in Stabius’ warm paen.

A third use of heart-related concepts can be found in another of Stabius’ poems published in a book about Austria, by his younger colleague Johannes Cuspinian, who we have met as a member of the Collegium poetarum et Mathematicorum. Titled “In Sanctos Austriae Patronos Precatio Ioannis Stabilii” (Johannes Stabius’ Prayer to the Holy Patrons of Austria), the poem was written in dactylic hexameter, the classically-derived meter used in the epic poetry of Homer and Virgil.

_Tartareo sonitu reboent nec classica Martem,
Sed pax alma ferens raman felicis oliue
Illustret terras, soror & Concordia mitis,
Sed comitem Astrea societ cum virgine sancta._

(Let not the trumpets with Tartarean sound call for war
but may kindly Peace bearing an auspicious branch of olive
shine upon the lands, along with her gentle sister Concord
but may she unite her companion with the blessed virgin Astraea.)

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163 “In Sanctos Austriae Patronos Precatio Ioannis Stabilii” was published at the end of Johannes Cuspinian, Avstria ... _Cvm Omnibus Evisdem Marchionibus, Decibus, Archidibus, Ae Reeva Praceclare and Haec Vaque Tempora Ab Isdem Gessis. Evisdem Ioannis Cuspiniani Oratio Protreptic Ad S. Ro. Imperii Principes ... Ubi Bellum Suscipiant Contra Turcum, Cum Descripptione Conflictus in Hungaria Facti, Quo Pertiti Rex Hungariae Ludovicius ... _Cvm Gasparis Bruschi ... Praefatione ... 1601_ ed. (Francofurti: Typis Wechelianis apud Claudium Marmium, & heredes Ioannis Aubrij, 1635). Translation courtesy of Dr. Elizabeth Minchin, Classics Department, ANU.
This section of the poem, from towards its end, clearly referenced several of the themes I have proposed as part of the cordiform mindset of the age. Concordia appears, contrasted with the threats of war from afar and she is to join with Astraea, the goddess of justice. Astraea’s return to earth was one of the most important signs heralding the return of the Golden Age. She was, therefore, a significant figure in the mythologies of imperial destiny so important to Holy Roman Emperors.164 Astraea/Justice had been the last virtue to flee the world during the Iron Age, a time in which humankind’s wickedness had gained the upper hand. She sought refuge amongst the stars, in the constellation Virgo, hence her evocation as the sacred virgin. Virgil’s Fourth Eclogue165 described Astraea’s return with the words *iam redit et virgo, redeunt Saturna regna* (Now returns the Virgin, now returns the age of Saturn, i.e., the Golden Age). As Frances Yates put it “those are words which have never been forgotten in the history of the West”: the Virgin would become Christianised as Mary, whose son was to return humankind to its former, pre-Adamic glory.166 The Fourth Eclogue, in its dactylic hexameter, had become messianic prophecy. All of this is what Stabius chose to evoke in his account of Austria’s state, virtues and hopes. Stabius made no ‘geographic’ or ‘mathematical’ rendition of the land (in a nineteenth century senses of the terms) but wrote a plea for the return of the Golden Age. It should not come as a surprise that this sixteenth century mathematician had a sixteenth century mindset.

The three examples I have used give us an indication of Stabius’ knowledge and use of concepts of the heart or related themes in the sixteenth century. In the expository notes for the *Great Triumphal Arch*, Stabius made reference to Maximilian’s worthiness as a ruler, his worthiness being manifest in the virtues of his heart. The second example referenced divination and hope in association with the region of the heart/chest, an ancient notion with particular relevance in Germanic territories. The last example linked concordia with Astraea, invoking a network of imperial virtues and aspirations. In the sixteenth century, maps were not only about geography, but history.167 Based on mathematics, its purpose was to reveal the workings of God’s mind and perhaps divine his plan for humankind. Truth was not at that time a product

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164 The information about Astraea is derived from Frances Amelia Yates, *Astraea: The Imperial Theme in the Sixteenth Century* (London and Boston: Routledge & Kegan Paul, 1975). Yates focus was on Charles V and how the imperial themes were adapted across Europe, especially by Elizabeth I. Clearly, these belief systems were in operation from centuries before, Charles only bringing them into higher relief.
165 On Virgil’s Fourth Eclogue, see n. 30, above, in “Core Concerns of the Holy Roman Empire”.
166 Yates, op.cit., p. 33.
167 Ortelius famously said in 1579 that “geography was the eye of history”.
of mere ‘facts’, but a process of unfolding revelations, and the elucidation of 
correspondences and analogies were the proof of a given proposition. The heart’s 
entanglement with beliefs about the structure of the universe and the mathematician’s 
job in revealing it, reinforce the cordiform map idea as a potent and clear signifier of 
future imperial destiny, and, more importantly, God’s plan for humankind.

All of these uses of heart-related concepts reflected an ongoing heritage of meanings 
associated with the heart from classical and medieval times. They were perhaps 
reinvigorated and augmented by recent studies of the heart in anatomy, by the new 
imaging of the heart connected with Christ’s Passion, romance imagery, a fashion for 
decorative devices, classical literary allusions and more. We have no evidence at this 
time of Stabius’ invention outside Werner’s honourable reporting of it. But we do 
have here, via three long-forgotten poems, evidence of how Stabius used the heart to 
express a variety of concepts useful to his work for Maximilian. In this study I have 
proposed that the map used many such concepts to create a multi-layered emblem of 
profound import in its time and context. Also, that the invention of a heart-shaped 
world map by Stabius was not irrelevant to his other work, including the historiography 
for Maximilian. That a world in a heart offered multiple interconnecting, compatible 
meanings was surely irresistible to the mind of the constantly inventive Johannes 
Stabius.
Part IV: Last words
Cardinal virtues (and sins)

I began this dissertation with an examination of issues surrounding the naming and classification of heart-shaped maps. This has not been considered important before. With the qualified exception of Snyder’s book *Flattening the Earth*..., all studies of cordiform maps, including Mangani’s reevaluation of the meaning of the heart shape, have not closely examined the use or application of d’Avezac’s classificatory system, but simply used it without qualification. I found no evidence that d’Avezac ever considered the entire group as cordiform; on the contrary, he had deliberately coined his own name for the group. Yet his term ‘homeotheric’ never caught on, whereas other of his terminologies did. As many other equal area maps were developed, a term that implied this property in a map could not have remained linked to only the Bonne/Werner continuum. This was one reason I have suggested why the term cordiform replaced ‘homeotheric’ as the name for all the members of this map family.

D’Avezac’s authority, the fervour of his admirers, a dose of confusion over ‘un aspect cordiforme’ and the eventual inappropriacy of the term ‘homeotheric’ all contributed to the use of the term cordiform being applied to the entire group. That d’Avezac had died before important studies that drew upon his work were published did not help, as any clarifications he may have offered were not available. Amongst twentieth century scholars, the authoritative Keuning challenged the nomenclature while retaining it (‘pseudo-cordiform’) and Snyder, while not supporting it, would have had little motivation to have directly overturned it. It was understandable, therefore, that other contemporary scholars from Größing to Mangani proceeded upon the basis that the wider group of equal-area maps were considered cordiform, especially when important historical sources including Gallois and Günther had also done so. That the maps of the Bonne/Werner continuum may also be distinguished from each other not only on iconographic grounds but mathematical ones, on the basis of their standard parallel, is of extreme relevance to this study. Since so few people have been interested in the cordiform maps, this issue of nomenclature and classification had not been directly addressed until this study. If found to be correct, my examination of the issues surrounding naming and classification have important consequences for future studies of the cordiform maps. These are as follows.

The issue of naming, as it stood, had made the appreciation of these extraordinary maps a more complicated affair than was necessary. The first consequence therefore is
a redrawing of the early history of the projection: its invention by Stabius, the publication of the projection by Werner, and the first map by Fine in 1519, the outline I followed in this study. Interrelationships with the not very heart-shaped maps by Sylvanus, Waldseemüller or even Ortelius now no longer have to be considered as an important part of the cordiform story, as they once were. With attention redirected towards the importance of Stabius’ invention of the projection, that he may have been the first to invent an equal-area map may have to be reconsidered. It also follows that contemporaries of the maps, Severt or Schöner, no longer have to be considered mistaken in their appreciation of the first cordiform map by Fine. While all of these are serious consequences of my study, there is one more I consider most important. This is, without having to account for the not-very-heart-shaped maps, there is a new directive to focus on the heart shape itself, thereby making discussions about relationships with other heart imagery and thinking of the time most crucial. Work based on this premise formed the largest part of my study.

In my survey of the cordiform maps in the histories of cartography, I showed how later cultural imperatives resulted in either trivialising them or restricting their appreciation. By trivialising I am referring to their appearance being described as bizarre, unusual, or something that would have made people scratch their heads. I took these comments as an indication that the meaning of the heart shape was already lost by the time these histories were written, not that there was no meaning in the original context. A second consideration was their consignment to an overly limiting category: the model of mathematical developments of the Renaissance. While not incorrect, this model was not the whole story. Telling only part of the story as if it were the whole also contributed to confusion around the subject; if seen primarily as products of the Renaissance, the maps’ relationship to ongoing concerns from the Late Middle Ages could not be considered part of the story.

In Part II, I considered some of the contemporary contexts for Fine’s decision to make his first cordiform map in 1519. As I made clear, I do not have proof that Fine’s 1534-36 map used the same decorative elements as the original manuscript map of 1519. My argument about its use by François in his bid for imperial power, as part of an

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1 Steinhäuser, op.cit, made this claim, but the issue of the dating of the invention is also important here; see my n. 11 in Part III, above. The name ‘Stab-Werner’ for the projection, as used by Tobler in Part I, should perhaps become the norm.

2 All three phrases have been applied to cordiform maps; ‘bizarre’ by Steinhäuser, ibid., p. 21; ‘unusual’ by Brown, The Story of Maps..., op.cit, p. 159 and ‘head-scratch inducing’ by Crane, op.cit. p. 96.
imaging campaign, rested partially upon the decorative devices being from this earlier period. It could be possible to find more corroboration of this point and this could be the subject of further investigation. Nevertheless, if it were proven that the map as it stands was indeed entirely from the 1530s, imperial pretensions suggested by the use of columnar devices would still not go amiss. The rivalry between Charles V and François was intense, having escalated after 1521 and the battles over Italian territories. While the double columnar device and motto *Plus Ultra* were indeed Charles’ personal insignia, the pillars of Hercules (referenced by his use of the columns) did not belong to him alone. Other rulers of the sixteenth century and beyond were happy to appropriate them, from Charles IX and Henry IV of France, to Elizabeth I of England. So the use of the columns and the associated style of the map’s decorative features as we know it would still support my general interpretation of imperial associations for the map. Accumulated evidence that I presented makes it a reasonable proposition that Fine’s world map of 1519 was related to François’ imperial pretensions. This, too, was a way of linking cartography with the histories of *mentalités*, of putting the map in its cultural context, one of my stated objectives. It was also part of another stated intention of seeing cartography involved in exchanges between ideas and other images, not simply other maps. Future research may further refine the connections I have suggested and make this proposal clearer, or even more complex.

Part II began with astrological and medical considerations. Although Mangani wrote a short paragraph on Servetus and his discovery of the pulmonary circulation of blood and acknowledged astrological and microcosmic connections, he did not present the heart as having a central, important role in the way the universe was understood and described. My study positions this information as a basis from which many other connections can be made, for example the elaboration of the sun/heart relationship to rulers or the heart’s role in the cosmographical ‘exchange of glances’ between God and man. I proposed that anatomical study in the late fifteenth and early sixteenth century, the effects of Leonardo’s presence in France and the changing status of the heart created a *frisson* around the subject of the heart in that time. My purpose was to explain some of the *zeitgeist* – to present what was an ongoing norm in thinking about

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3 Interdisciplinarity has not yet made major inroads into musuem cultures. Despite contacting more than one of Europe’s most well-known institutions, I have found that decorative experts are not prepared to comment upon maps, and map departments have not wished to comment on decorations.

4 For illustrations of ‘imperial’ columns used by all three rulers named, see Roy Strong’s *Gloriana: the portraits of Queen Elizabeth I*, (London: Pimlico Press, 2003), pp. 103-107.
the body and the world and what was new and fresh amongst an intellectual elite, as part of a background against which the map could be understood. Further investigation in that direction could be relevant to the study of cordiform maps; Fine’s litany of cordiform phrases in the legends of his maps and Werner’s emphasising this aspect in his treatise could justify such research.

Another consequence of my reconsideration of the naming and classificatory issues is that the publication of Werner’s treatise, with its references to the shape of the projection, is now a more crucial part of the cordiform story than it had been when the wider group definition was in place. Werner’s treatise may, therefore, be another source of information about the meaning and use of the heart-shape. D’Avezac and others such as Günther did not report any major insight from the treatise on that score. Yet since they were labouring under the idea that Werner’s treatise was ‘after the fact’ – that the cordiform maps already existed in the form of Sylvanus’ work, for example – their readings of the text were coloured by this mindset. Nor were they interested in the subject of the shape for its own sake. That Werner described the projection as being made in the image of a heart is more interesting when we know that it was the first time the projection was being elaborated. Manuscript copies of other works by Werner remain unpublished and some of his non-mathematical works, such as those concerning astrology, might further our understanding of Werner’s relationship to his time.⁵

Returning to issues of the body, discussing François’ *vase du coeur* was at first simply an opportunity to consider concepts about the heart of long duration in Western culture. That Maximilian and Nicholas of Cusa also had separate burials for their hearts suggested that the strength of the tradition has been underestimated.⁶ Cusanus’ ascension to a high position in the clergy was probably a precondition for the possibility of separate burial for his heart, as this did not seem to be an option for the likes of Stabius or Fine. Still, the extent to which it was an option for the nobility

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⁵ Folkerts, op.cit., p. 276, gives multiple examples in his excellent bibliography. One such work of 1500 is *titled Judicio de cometa anni 1500 ad Sebaldum Clamosum alias Schreyer civem Nuremburgensem*; Vienna, Codex Vind. Lat. 4756, fols. 143r-146v. Comets were usually portentous so it would be interesting to see what he said about one in 1500.

⁶ Another example of a tradition often considered only as a medieval practice; see my notes in Part II regarding Louis XIV’s involvement with separate heart burial. And dare I mention an Australasian example – champion racehorse Phar Lap. His skeleton resides in the country of his birth, at the Museum of New Zealand Te Papa Tongarewa; his hide is in the Museum of Victoria, and his heart is in the collection of the National Museum of Australia, the country in which his career was largely played out. True, the heart is interesting, being large even for a racehorse, but symbolism is still in operation, otherwise his liver or stomach could equally have been chosen for display.
would be interesting to know. I am assuming here, based on the work of Giesey and Brown cited in Part II, for François there was no choice; the Kings of France followed the tradition without question. If, however, Maximilian and Cusanus chose their separate heart burials – i.e., that they could have chosen not to – the existence of their Herzurnen would be strongly suggestive that the notion of the heart was of particular significance to them as individuals. A comparative study of such objects⁷ might support or disprove this idea. For example, was François' urn out of the ordinary in terms of scale, ornament or material? How many other Cardinals went in for separate burial for the heart? Was it a norm for Habsburgs and if so, what do their urns look like, where are they, and so forth. This is an area in which more information or research could prove relevant, revealing relationships with concepts of the heart held by figures of importance to the cordiform story.

Part III continued my examination of important issues for my reinterpretation of the cordiform map idea. At the same time, it increased the speculative content of my study, being based on even more incomplete and partial records. In Part II, even if Fine's map of 1519 no longer exists, his later version of it still does. No similar material evidence for Stabius' invention exists; only Werner's words in his treatise that the idea was from Stabius attested to his invention. Yet even the usually accepted version of the dating of the invention is unclear.⁸ One way of reflecting what the heart may have meant to Stabius was to see its use in his poetry, of which I used three examples. The first appearance of the heart was in the exegetical poems written to accompany The Great Triumphant Arch..., reflecting ideas of wisdom, will, courage and piety, discussed in the context of Maximilian's worthiness as a ruler. Then the heart appeared as a teaser in Stabius' paen to Werner, hinting at physical and related prognosticative qualities, while at the same time related to the classical traditions of memory and memorialising. The last appearance I used was from his poem about Austria, in which the heart appeared in its form of concordia and, significantly, linked with Astraea, that goddess so connected to the return of the Golden Age. I believe there may be more value to be discovered in Stabius' poetry, at least in relation to this

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⁷ Another area that could benefit from further comparative study is that of printer's marks. Both Pelletier and Mangani noted their existence in their respective articles, but did not go deeply into that subject. Much work has been done on emblems and devices in the Renaissance so it is known how little the heart appeared in early collections. But a search for orb and cross variants in other arenas such as painting, sculpture, illustration – or even vitraux – might prove useful.

⁸ See n. 11, Part III, above.
subject at hand. But classically derived, imperially-oriented Renaissance poetry is so far outside my field I have been reluctant to comment upon it any more than I have. Nevertheless, as well as showing us how the man who invented the cordiform idea used ideas of the heart, it also served my purpose in proposing that Stabius’ ideas were not entirely separable from other aspects of his life and work, the historiographic research in particular. This was an avenue of research no other commentator has explored.

Another social aspect of this story is the basis for further speculation. Stabius, who was probably the son of a hunter or forester, became part of the inner circle of one of Europe’s most powerful rulers and was knighted by Maximilian in 1515. That was a remarkable social rise, in any century. Stabius worked for the emperor after 1503, around the same time as his lectureship in Vienna was established. As discussed above, scholars have usually dated the invention to just before this time, between 1500 and 1502. If the cordiform idea was one of the things that brought Stabius to Maximilian’s attention, then the dating of the invention becomes more important. If it was the case that the map-idea contributed to his social rise, it bears a strong resemblance to the initial professional trajectory of Oronce Fine who, as a fellow mathematician, was probably very aware of Stabius’ work, if only via Werner’s treatise. Using a heart-shaped world map to get the King’s attention seems to have been a major motivation for Fine’s first version of his map. Fine continued this model of directing notable works to François in aiding his professional development; a cordiform world map appeared in the early 1530s around the time of his push for a chair in mathematics. My speculation is that a similarity of means to professional ends of first Stabius, then Fine, may strengthen an aspect of my proposal regarding purposes of the map (or, in Stabius’ case, map-idea): a multi-layered device suitable to extol the aspirations of two rulers. Is the word flattery inappropriate in this context?

One can say, however, in the fifteenth and sixteenth centuries, carefully-expounded humanism was a tool for the social rise of intellectuals across Europe.

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9 Größing, op.cit., p. 263, writing in the 1960s, was particularly dismissive of Stabius’ poetry, saying that it was probably not inappropriate that he be forgotten on that score.
10 Größing, op.cit., p. 249, Aschbach, op.cit., p. 366. Stabius’ coat of arms can be seen in a woodcut by one of Dürer’s workshop; see Strauss, *Albrecht Dürer: Woodcuts and Wood Blocks*, p. 660-661. The text around the image has been translated “Behold, a flaming armbearer of Jove flies on a golden shield. There is an eagle on a helmet, as well as a cross, a diadem and a crown. The goodness of Caesar Augustus Maximilian has bestowed these sacred forms upon the Stabii as a perpetual gift”. Translation courtesy of Professor Graeme Clarke.
My use of works by Dürer, from *The Great Triumphal Chariot* to the print for Celtis’ book, balanced out what could have been an overemphasis on a religious, Passion-related version of the heart image. One of the few remaining uses of the heart image today is its relationship to devotion to the Sacred Heart, and the various saints with which it is associated. Once my reconsideration of the issues of classification and naming has been adopted and a focus on the overt heart shape of the maps can be examined, there is perhaps a strong temptation to interpret the shape solely on the basis of contemporary Passion imagery. Indeed, it is possible to discuss the cordiform maps in relation to Passion imagery and prophecies about the New World; but without those other, more secularised versions of the heart, this would be a far less rich account. The link to contemporary developments in physiology, the heart/sun/rulership relationship, connotations of classical and theological concordia, and the connection to imperial drives would be either lost or tangential. Again, the cordiform idea and the first maps came before traditions of devotion to the Sacred Heart were established in forms we know today. The heart as an image of the Passion was indeed in circulation, but it must be underlined: it is the Passion, but not as we know it. Today we do not associate prophetic and apocalyptic concepts with the image of the heart, ideas that were operational in everyday belief in the early sixteenth century.

Also, a focus on Passion imagery to the exclusion of these other themes would render the maps perhaps too much of the Middle Ages. It is not only the mathematics and the emphasis on the New World that accounted for their status as products of the Renaissance. The link with the specific, individual desires of Maximilian and François and even the possible intention to flatter by Stabius or Fine may actually contribute to the Renaissance content of these maps and their conception. If the map idea and the map itself aided the professional careers of two mathematicians and did so overtly, with publicly visible results such as lectureships, this calculated benefit for a known individual, associated directly with his work, is more familiar to us from a Renaissance rather than a medieval mindset. Even the decoration can be seen in this light, forming a major part of how the maps functioned in society at that time. This can be said of Fine’s single cordiform map and later manifestations such as the Cimerlino map of 1560. It was especially relevant to Fine’s double cordiform map, in which decoration played a major part. I have not tried to identify parts of the map as

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11 Biechler, op.cit. pp. 14-15. Biechler wrote “...humanistic studies could be a means to power, wealth and intellectual influence which could be matched by none other.”
from the Late Middle Ages and others from the Renaissance, but to attest to the deep entanglement of concepts that were common to both eras.

In my study I have demonstrated how the maps cannot be separated from important theological concerns of the late Middle Ages. I first discussed how the history of cartography emerged in a period in which study of the Renaissance was in ascendance. The notion that these post-Ptolemaic developments, as the maps became categorised – one of which had been made by a man singled out as the father of modern mapmaking, Gerardus Mercator – could still be immersed with belief systems from a medieval mindset, could not be contemplated in the nineteenth century, when the histories of cartography were being established. Then I used the work of several significant post-war era historians to contextualise the maps as part of ongoing traditions and beliefs, such as those about the apocalypse. The legacy of Heiko Oberman’s work, and that of others too, was to affirm that in Germany especially, many Reformation issues were a logical outcome of processes underway in the late Middle Ages and cannot be separated from those legacies. This became my proposal about the cordiform maps, too, that as much as they looked forward to the future, the New World, and even the end of the world, they certainly did not do so by rejecting that which had gone before. On the contrary, the cordiform device seemed to consciously reference a plethora of meanings, all mutually reinforcing, that resonated with concerns of the recent past and the ancient world, the everyday and the extraordinary, as much as the future and even a final end.

My reconsideration about naming and classification and the subsequent shift to focussing upon other iconographies of the heart will have an important outcome for one of these maps in particular. I am referring to the Map of Hajji Ahmed, the map that has attracted most of the scholarly attention. If it is the case that part of the map’s function was to signal the Second Coming of Christ, that map – clearly directed at, or made for, an Ottoman context – might be considered even more astonishing than it is already.12

12 Mangani’s connecting Postel with the map of Hajji Ahmed would become even more important, and his links with Fine could be examined more closely. Mangani, op.cit, pp. 66-68.
Heart of hearts

I have provided evidence that while Stabius’ map-idea and Fine’s maps were developed for an elite audience, their meanings were not overly hermetic, using visual languages and concepts of the heart that were common in their time. I gave many examples of how the heart-sign was, at that time, available for use in a variety of formats, used by many social groups for multifarious purposes, professional, intellectual and religious. I expanded Conley’s “cordiform iconography” as a context in which the maps arose into a wider, “cordiform mindset” that included linguistic structures, poetry and some ancient belief systems still operational in the sixteenth century. That these concepts were prevalent across Europe is not difficult to assert, even if regional relationships and variations were in operation.

To date no large, lavishly illustrated tome exists dedicated to the subject of the iconography of the Sacred Heart, or even the Passion. But if such a book were to exist, that subject alone would not account for the freshness, aliveness and resonance of the heart-sign in the early sixteenth century. And if a book on the expanded cordiform mindset – of which such devotions would be a strong part – were to exist, it should ask the question: what part did the maps themselves play? Throughout this study I considered these influences impacting upon the development of the cordiform map-idea and the maps themselves, as if cartography passively absorbed, but did not influence that which surrounded it. New ways of looking at the later maps – and perhaps even later uses of the heart – could be considered that include the effect of the maps themselves. The cordiform maps span pre-Reformation usages (the period I have mostly been concerned with in my study), possible humanist allegory (Mercator’s double cordiform map, not discussed) and also make a seventeenth century appearance as Jesuit apologia. The subject of imagery and religious reform is an important topic that could be the base for future study of these maps.

One of my stated intentions was to show how an image such as a world map may have meanings and implications for viewers, users or other audiences, beyond their ostensible geographic purposes. As an icon, a world map has multiple functions, and

13 I am referring to Stephen Eggestein’s Jesuit Emblem of 1664, showing a cordiform map – albeit with a distended, Bonne-like shape – as part of a wider image of Jesuit world reform. Reproduced in both Mangani, op.cit., Plate 2, and Cosgrove, Apollo’s Eye... op.cit., p. 164.
some of these were, and still are, symbolic. I did not set out to show that the heart-shaped world map was a finite, pure symbol, but had meanings that were speculative and subject to change. This still hold true today; if we think that the world maps we put on the walls of our bedrooms, classrooms, office spaces or digital screens do not reek or sing of scarred or sweet histories, then we are simply oblivious to how we go about constructing our worlds. That awareness is an area in which we might be less sophisticated than those alive in the early sixteenth century; on the eve of iconoclasm, the effect of images was a well-considered issue. Geography used to be a form of history; our contemporary division of disciplines may blind us to ongoing links between these ways of conceiving the world. I have shown how a heart-shaped world could have frightened some, signalled hope to others, or simply amused or amazed with its multiple references, so skillfully employed. But whatever the exact nature of that list of possible effects, I have also shown that it was most unlikely to have been considered bizarre, or just an unusual outcome of mathematics. The heart was a chosen sign, chosen in full consciousness of a powerful effect. At the outset of this study I thought these maps beautiful and extraordinary. I have now shown ways in which they can be considered not only as awe-inspiring, but as full and fitting emblems of their time.

14 Joseph Leo Koerner's *The Reformation of the Image*, op. cit., set out to reconsider the role of images in Germany in the sixteenth century and the impact of the rise of Protestantism upon image making and image reception; considering cartography amongst images affected would be interesting.
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