FROM THE EDITOR

CATASTROPHE AND TECHNOLOGY

THE EARTHQUAKE THAT SHOOK San Francisco on 17 October 1989 thrust upon the American consciousness with inescapable immediacy not only the fragility of the earth, but also of the built environment. In light of the devastation by the tremor in Armenia in which tens of thousands were entombed in the ruins of cheap, prefabricated concrete structures, the virtues of careful, preventive engineering became mercifully evident. As the New York Times of 19 October declared, “The skyscrapers just swayed.” Newer buildings erected according to stringent standards weathered the shock with minimal damage, while older edifices were destroyed. Yet, at the same time, flaws in our knowledge of the behavior of structures under traumatic conditions have been underscored. Examination of the Nimitz Freeway now suggests that the reinforcing cables installed as part of a strengthening project, “may actually have helped pull down sections of the roadbed in the waving motion of the earthquake” (New York Times, 21 October 1989). As in the case of the collapse of the Tacoma Narrows Bridge in 1940, the wreckage of the highway and the Bay Bridge will teach new methods to increase the safety of public structures whether in California or western Massachusetts. Out of catastrophe, life-saving technological lessons are learned.

When as a result of the earthquake, the church [of Hagia Sophia] had lost the central part of the roof...the emperor repaired it in a more secure fashion and raised it to a greater height...As a result, the dome became more even and well-curved, conforming altogether to the [correct geometrical] figure. It was narrower and steeper, so that it did not strike spectators with as much amazement as before, but it was far more securely set up. (Cyril Mango, The Art of the Byzantine Empire, 312-1453, Englewood Cliffs, NJ, 1972, p.78)

What did the builders of the past learn from catastrophe? Did they hear in the crash of vaults and piers only the thunder of an incomprehensible divine judgment or did they pull from the shattered stones a greater understanding that led to structural advances? Robert Mark has shown repeatedly that architectural innovations often followed disasters and near-misses: surcharge rings were added to the

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cracked dome of the Pantheon, a solution derived from the Roman builder’s extensive experience with vaulting and concrete; pinnacles affixed to the Amiens salients to counteract tension became a standard element in the vocabulary of Gothic architecture; the master mason of Bourges re-designed his system of flying buttresses in the wake of problems that threatened Notre-Dame in Paris. Although it has often been pointed out that the particularities of Bourges found no direct copies, the flying buttresses of later edifices reflect aspects of its design in their steep pitch or double-volley configuration. Clermont cathedral was rocked by three earthquakes in the 1470s and 1480s, but suffered only minor damage while nearby towers and gates were toppled. Perhaps its survival was the accidental consequence of the resistant local volcanic stone from which it was constructed, but it seems equally plausible to see its stability as the fruit of the accumulated experience of reading cracks and deformations. Did the collapse of Beauvais cathedral in 1284 stimulate a more extensive use of iron as a reinforcing material and lead to the development of a more coherently integrated supporting armature? Large buildings that rose around 1300, including the cathedrals of Limoges, Narbonne, and Rodez, were composed of continuous spines of masonry and heavier mural slabs. As in the rebuilt Hagia Sophia, these buildings may not have struck their spectators with the same amazement as Beauvais, but they did stand more securely.

As Agathias’s account of the reconstruction of Hagia Sophia suggests, ancient and medieval builders, like their present-day counterparts, sought to remedy failure through inquiry, the correction of errors, and the application of new solutions. If, as Sergio Sanabria has hypothesized, the 16th-century Spanish architect, Rodrigo Gil, conducted structural experiments, it was surely to avoid the catastrophes of the past. His wedding of theoretical curiosity with pragmatic experience began to lay the groundwork for the modern study of mechanics in engineering. Catastrophe did not and does not cause builders to shy away from the new, the bold, the monumental. Rather, the insights gained in the rubble of failure have been used to push structural art to new limits, to create works whose length, breadth, or height become the measure of a society’s vision and achievement.
FREE BIBLIOGRAPHIC UPDATE

New members of AVISTA, when they join, and members, when they renew, will be given a bibliographic checklist of studies concerning the Portfolio of Villard de Honnecourt between 1982-1989. This checklist supplements Carl F. Barnes, Jr.'s sessions at Kalamazoo: Villard de Honnecourt: The Artist and his Drawings and is provided to AVISTA as a courtesy by Prof. Barnes.

CALL FOR PAPERS

AVISTA Sessions at Kalamazoo, 9-12 May 1991

Numbers, Proportions, Weights and Measures

26th International Congress on Medieval Studies
The Medieval Institute
Western Michigan University
Kalamazoo, Michigan

Ronald Edward Zupko, Chair/Organizer

Papers on the above topics that relate to the fields below:

1) Metrology
2) Horology
3) Numismatics
4) Architecture
5) Numerology
6) Mathematics
7) Geometry
8) Physics
9) Technology

Talks are limited to 20 minutes. Graduate students are encouraged to participate. Send one-page abstracts, indicating your audio-visual needs, by September 15, 1990, to Dr. Ronald E. Zupko, Dept. of History, Charles L. Coughlin Hall, Marquette Univ., Milwaukee, WI 53213 (USA). Tel. (414) 288-7217.

Program, AVISTA Sessions, Kalamazoo, 10-13 May 1990

Transportation in Art, Literature and Reality, 500–1500

25th International Congress on Medieval Studies
The Medieval Institute
Western Michigan University
Kalamazoo, Michigan

Barbara M. Kreutz, Chair

Session I
Michael Jones
(Bates College)
Mast and Sail in the Völkerwanderung

Elaine M. Beretz
(Haverford College)
Transported through Grace: the Theology of Elijah's Ascension in the Dover Bible

Carroll Gillmor
(University of Utah)
Practical Chivalry: the Training of Horses for Tournaments and Battle

John H. Pryor
(University of Sydney, Australia)
The Pisan bacini and the elusive Muslim Ship

Session II
Aleydis Van de Moortel
(Bryn Mawr College)
The Cog in Art and Recent Archaeology: Analysis of a Revolutionary Design

Barbara Shaeffer Bowers
(Ohio State University)
Ships and Boats in the Belles Heures

Christiane Villain-Gandossi
(European Coordination Centre for Research and Documentation in Social Science, Vienna, and Centre National de la Recherche Scientifique, Paris)
Changes in Ship Depictions, 500–1500

Comments
Albert C. Leighton
(San Antonio, Texas; Emeritus, SUNY-Oswego)
with Prof. Pryor and Dr. Villain-Gandossi
VILLARDIANA

Addendum to 1989 AVISTA sessions at the International Congress on Medieval Studies, Kalamazoo, MI

Villard de Honnecourt and Medieval Bronzes
(Abstract)
George Szabo
Place des Antiquaires, New York, NY

To link Villard de Honnecourt and Medieval bronzes is not a novel idea. Hans Hahnloser used bronzes from various periods of the Middle Ages to illustrate and illuminate objects depicted by Villard. He also suggested that some of the Picard's images might have been based on bronze objects crafted in various parts of Europe. Specialists of bronzes also referred to Villard's drawings occasionally. The eagle-lectern or the hand-warmer "apple," or the—now questioned—apostle figures are obvious examples. Other possible comparisons to bronzes, however, escaped his attention and that of others as well. The Crucifixion group, for instance, could have been copied from a cast-bronze prototype, the cantepleure might be a reduced version of a monumental cast-bronze fountain like the one in Goslar. The knight figure is quite similar to equestrian aquamanilia, and our friend LEO is closely related also to some aquamanilia of Villard's time.

However, this short paper would like to propose the identification of the dragon figure—alias initial—on folio 6v, which depicts the clock-house as a bronze object. In order to support this identification, first a new reconstruction for the clock-house will be advanced as a housing for a water-clock. After its discussion a few suggestions for the location and function of the dragon figure will be advanced. Finally, an attempt will be made to attribute it to a workshop of bronze casters or goldsmiths in Western Europe.

TERRENOIRE REVISITED

The following comment was received from Dr. Ervin Bonkalo of Sudbury, Ontario. Its conclusions complement the thesis of the paper presented by Roland Bechmann in May at Kalamazoo, "Interpretation des figures de 'li ars de iometrie' du manuscrit de Villard de Honnecourt." See AVISTA FORUM, 3.2 (Spring 1989): 15 for M. Bechmann's abstract.

MARIE-ODILE TERRENOIRE (Le carnet de Villard de Honnecourt: culture orale, culture savante; Artistes, artisans et production artistique au Moyen Age, Paris: Picard, 1986, 164-81; review by François Bucher in AVISTA FORUM, 1.2 [Spring 87]: 3) notes Villard's pedagogical intent in his drawings but finds his inscriptions often "inept and incomplete." In my opinion, Ms. Terrenoire must never have attended a school of education. Had she done so, she would know that teacher candidates are taught instructional devices which may look inept and which contain little or no description, but which work. For example, language teachers demonstrate the difference between active and passive voice of the verb "to carry" with a sketch of a figure carrying a suitcase ("I carry") and a sketch of a figure sitting on a simple cart ("I am being carried").

To anyone but the teacher and the student, the drawing would appear silly and its cryptic meaning would not be understood. It is my view that Villard's drawings were frequently of the same type and were intended to remind him or others who saw his drawings of specific meanings or techniques—provided they understood the symbolism of the drawings.

VILLARD DE HONNECOURT BIBLIOGRAPHY

Italian editions of two books of Villardiana interest have recently been published (—Ed):


BASEMENT BALLISTICS

A graduate student, W. Ted Szwejkowski, submitted this essay to the President of AVISTA following the May ‘89 sessions on Villard, at Kalamazoo. We thought it worthy of publication here. The text, however, has been edited and the full set of accompanying drawings could not be reproduced. See the AVISTA Bibliography in this issue for a full citation. —Ed.

The Amateur Artillerist, Basement Ballistics, and Curious Coincidences: on Tinkering with Siege Engines
by W. Ted Szwejkowski
St. Catharines, Ontario

Among the sessions at the 24th International Congress on Medieval Studies at Kalamazoo (1989) were Innovations in Land and Naval Warfare during the High Middle Ages and Villard de Honnecourt: The Artist and his Drawings. At each of these sessions, respectively, one paper was entitled Mechanized Siegecraft in the Realms of Aragon as depicted in the Catalan Grand Chronicles, 1208–1387: The Role of Heavy Artillery by Paul E. Chevedden, and Villard de Honnecourt’s Use of Templates in his Drawings by Rebecca Price-Wilkin. In the light of these sessions, it occurred to me after the Congress to reflect upon a balista I built last year, and, upon the drawings I produced in the process. This essay is the product of my reflections upon that project.

Neither the construction of the balista in this manner, nor, perhaps, even this comparison of my techniques to period ones actually constitutes scholarship per se. But my experience may be of interest to those doing actual directed research.

I do not presume to liken myself to Villard in any way which might imply a parity of our endeavours, but I, too, have produced a sketchbook. It occurred to me that looking at my own drawings using a method of analysis similar to the one adopted by Price-Wilkin might yield some insights not only into my own work, but also into the best way to re-construct medieval machines. The relative ease of building a functioning traction trebuchet, vis-a-vis the seemingly endless technical and mechanical problems I encountered with the balista, may corroborate Chevedden’s assessment of the underlying reasons for the trebuchet’s popularity in and around the eleventh century.

Here I propose to “deconstruct,” as it were, my own construction techniques, that is, to identify some of the tacit and implicit assumptions upon which my construction depended. I constructed my balista under certain limitations, and the techniques I adopted to overcome my lack of modern tools and facilities are similar to the ones Villard and others seemed to have used as a matter of course. If arriving at a similar solution to a similar problem concerning design, measure, and construction is more than a curious coincidence, then it may perhaps give some insight to the use of geometry, ratio, and templates in the design and construction of medieval artifacts.

To prepare the plan for the project, I implicitly assumed that I must use linear measure and scale, like any modern draftsman. This necessitated some kind of a scale drawing or complete blueprint, neither of which I had the facilities or expertise to produce, but which I attempted to render as best I could. There is, however, as Price-Wilkin pointed out in her paper, another way of going about the drawing of plans—to use ratio and geometry with the assistance of templates. The drawing and the finished product are then related more by corresponding internal congruences than by an actual “scale,” as shown by modern maps, plans, and drawings. It is my supposition that the actual use of this type of drawing must involve the production of one or more templates for parts of the finished product as part of the process of its manufacture, even as the drawings themselves are rendered with the assistance of templates. Thus, working out the fine details of the finished product is not done in advance: it is integral to the actual production of the product. The tradition in which the given craftsman is working may supply these details.

Repugnant though this may sound to a modern draftsman, I think that it is possible, therefore, to render a functionally accurate and complete plan which is not to scale, if the method of production is implicitly understood to involve the creation of the necessary templates along the way. At any rate, this is what I found myself constantly doing, even though (at the time) I thought of it as cheating. It would seem, however, that this technique was widely used by medieval architects, engineers, and designers such as Villard. If I had deliberately (rather than inadvertently) used ratio, geometry, and templates—like Villard seems to have done—my plans, though still not strictly “to scale,” would have been neater, easier to read, and perhaps even more useful. Speaking as a craftsman, I can now quite easily imagine the use of the dividers and non-linear rulers, which seem to have been standard equipment at medieval construction sites.

I began the balista project as nearly as possible in complete ignorance of any sources on the topic. I first saw
Payne-Gallwey’s **The Crossbow** long after the project was underway, but in time to glean from it the idea of curved and padded arm stops. When I began, I did not know that I would need any(!). Marsden’s wonderful works, *Greek and Roman Artillery: Technical Treatises and Historical Development*, were brought to my attention only a few days before the first full-power discharge, and I did not set eyes on them until after the fact.

I recall having the following information about balistae: they were mostly wood, so large as to require a stand of some kind, with two torsion skeins in front with lateral arms operating in the horizontal plane; the skeins were made of organic sinews, the exact composition of which, now lost, is critical to the device’s success; the bowstring was drawn back by means of a winch equipped with a ratchet of some sort; a sliding block or platform travelled along the top of the main beam, which served somehow to connect the winch, the bowstring, and the javelin; and this mysterious part also incorporated, or somehow involved, the discharging mechanism.

I did not know then that the crank was a medieval invention, or that the balista was an ancient rather than a medieval machine; but then I was not attempting to recreate any given historical artifact. I simply had a seemingly plausible idea for how one might construct “a balista” and decided to try it. I thought it would take a week, or at most two. When it took longer than expected, I doggedly kept at it until it (almost) worked.

I at first grossly underestimated the complexity of this project, because I did not grasp its essential nature. In the beginning I thought that the difficulty would be to actually generate the torsion power. I thought this could easily be achieved by substituting some modern material for the ancient sinews. I thought the use of automotive fan belts, or of nylon rope, would easily put me over this hurdle. I discovered, however, that power was very easy to generate, but extremely difficult to contain and use (i.e., more than once) without destroying the very mechanism which generates it. The composition of the skeins only becomes a factor after one has a machine which does not threaten to fly apart with each shot.

This problem is analogous to the problems associated with containing a (hot) fusion reaction. Making a device which produces a huge fusion reaction is relatively easy; but producing a device which can repeatedly harness the unleashed energy has proven fiendishly difficult. It turns out that making a torsion device capable of reducing something to splinters in a short time is likewise very easy; but making the thing reduce to splinters something other than the self-same torsion device puts a whole new twist on the problem, as it were. Unlike a hydrogen bomb, a self-destructing piece of torsion artillery is more amusing than threatening—except for the operator, as I learned on several dramatic occasions.

The machine was constructed entirely with hand tools, with the exception of a small power drill, and on one or two occasions, a hand-held power jigsaw. Because I did not have access to a workshop, all work was done on the floor of a student’s room, and all forged steel parts were worked in the heat of a small oxy-propane torch. (My landlady seemed to be simultaneously impressed, and not impressed.) I am fairly certain that no medieval craftsmen ever had to work on his knees, two feet away from his disk drives, constantly being careful of the carpet. But the effect of this lack of “proper” facilities (“medieval” in the Enlightenment sense?) was to limit my ability to resort to obvious modernisms such as huge bands of wrought steel, precision table-saw cut lumber, drill presses and routers, and other means of solving technical construction problems which might, arguably, have been even more anachronistic than the means I did employ. Despite my intention to use a modern material for the skeins themselves, I did try wherever possible to avoid the use of blatantly non-period materials. The major exception
is the winch: given my purposes, I decided it would be a waste of time to build one from scratch, although I did draw a few sketches of a winch with the intention of building it and the tripod, if and when the rest of the machine worked properly.

As a result of these constraints, voluntary and otherwise, I may have encountered many of the same problems which confronted medieval siege engineers. In a number of cases, the solutions I developed seemed to correspond to the solutions which artisans of the Middle Ages habitually used. This is where Price-Wilkins's suggestions on the use of ratio, geometry, and templates in Villard's drawings strike a familiar chord.

During production of my balista, I made drawings which constitute all of the written plans for the parts which were actually built. (Not reproduced here for lack of space.—Ed.) My experience would indicate that it is not only possible but desirable to design machines in this "sketchy" way if the manner in which they are to be produced is anything like that which I had to employ. The modern technician, expecting explicit blueprints and exact scale drawings, may not believe that such sketches can constitute a complete set of plans for a rather complex machine. But the non-standardized hand tool workshop is, after all, closer to medieval reality than a shop equipped with highly precise, standardized power tools in the context of a world of standardized, interchangeable parts, all of which are defined by universal linear measure. I think that it is difficult, if not impossible, to produce—let alone work from—modern style blueprints in the absence of precise and standardized modern tools. The absence of such tools, however, need not preclude precise craftsmanship.

I think a tension exists in my own drawings between the modern tendency to use linear measure and scale, on the one hand, and the more field-ready, and, for this purpose perhaps more suitable, use of ratio, geometry, and templates, on the other. Quite without realizing it at the time, I constantly resorted to the latter to make up for my inability to render and execute the former. At the time, I was oblivious to modern predispositions which made me think of such methods as cheating because they were unlike those I had been exposed to in high-school wood shop. I used this method anyway, not only because it worked, but also because it was the only way I could get anything done.

The first three pages of my drawings develop my basic idea for the machine, and by the third page, the trigger/release mechanism. What I had in mind was not some given size for the finished product, but a certain ratio between the various parts of the machine, the final dimensions of which were determined by the dimensions of the available lumber. But in order to know to what size to cut the rough lumber to produce the proportions I desired, I improvised a linear scale and drew a front view elevation "to scale." It is too crude a sketch to serve as an actual blueprint, which is what I thought I was drawing, but it does convey what I was really interested in: the relationship between the various pieces.

It is significant that whereas the lumber was not exactly 3"x4" in section, I neither know now nor cared then, exactly what the measure was. If I needed something cut to that width, I was better served by using that actual beam as a template, marking its width, and cutting to that dimension. My first three sketches are the only ones ever drawn of the whole machine.

In the next three pages, I develop the trigger/release mechanism. At this point, I already knew in principle how it would work. What I needed to know was exactly what size to make the various parts, what shape of cavity to chisel out for them, and where to drill the holes for the pins to make them turn properly in relation to each other. Even more problematic was the question of where to fit the springs which automate the mechanism. My experience building a variety of crossbows had led me to believe that
only a fully automated, that is, a self-resetting mechanism would provide an acceptable level of safety and ease of operation.

In two sketches I grapple with the problem of finding suitable proportions without producing a convincing solution. But by making the sketches, I gained a sense of the approximate sizes which would work. So, I went ahead and forged the two steel parts—the release-pin and the trigger—to about the right size. (I would have liked to use wrought iron instead of steel, but, as every blacksmith knows, it is all but impossible to find.) Then I traced these two parts onto a piece of paper in proper relation, and drew in the rest of the mechanism. This produced a template for the rest of the mechanism which enabled me to go back to the balista and chisel away the correct cavity, drill the holes in the right places, and file the faces of the two steel parts until they met flush.

Actually, it was not as easy as it sounds. When I began to ascertain how much force this machine would have to withstand, I decided to play it safe and retro-fit a stronger release pin than the original one. When I made the stronger pin, the relative position of the holes and the trigger acted as the template, even as the proportions of the first pin had determined the position of the holes.

The “blueprint,” therefore, was really no more than a conceptual sketch; it was not a preconceived, precise plan of the mechanism. The template, on the other hand, was an artifact of the creation of the finished product. Often, the template drawing acted as a two-dimensional model which enabled me to determine what was possible as I tried to solve a particular mechanical problem. At other times, the machine itself served as a template for one of its own parts. This technique allowed me to overcome both my inability to render precise drawings in advance, and my inability to execute them, even if I could draw them. If I may say so myself, this did not prevent me from producing an extremely finely-tuned mechanism, which locks itself automatically and securely with a loud “click” just as the sliding block comes within an eighth of an inch of the end of its guide rods.

None of the remaining drawings feature any dimensions, because none are needed (with two exceptions). One exception is the calculation of how much wood will be needed for the arm-stops, necessitated by the fact that one must buy wood in a world of standardized linear measurement. The other exception is the specification of 1/4" drill rod guide rods, but this dimension could almost be considered a qualitative rather than a quantitative description referring to a certain kind rather than size of rod, in the way that one refers to “two by four lumber” without thinking much about its size except in approximate terms.

The remaining drawings rely upon the implicit assumption of appropriate correspondence with the relevant part(s) of the machine. It was obvious to me how large to make any given part because I had the space into which it had to fit—at hand. The arm-stops had to be made so precisely that any attempt at naming a linear dimension for them during the planning stage would be useless; the only dimension accurate enough was: “this long,” in the context of the machine. The “sliding block” was similarly built not to measure, but to correspond in size to the parts with which it had to interact. Further evidence that I did not consider my own drawings as “plans” (in the modern sense) is that I often did not follow them. The drawings of the arm-stops show the bolt-heads clearly on the inside. Yet when I made them, I felt no compunction in exercising an aesthetic judgement and putting them on the outside.

A note is in order about the sliding block. It very cleverly integrates trigger catch, pulley for the winch rope, bowstring, and guide rods (which proved to be necessary when the first design of the sliding block bounced around too much). The sliding block solves a host of small mechanical design problems. It was among the hardest parts to build; it was also the single dumbest idea in the whole machine. In order to make it strong enough, it had to have a substantial mass. This mass, accelerated within the machine, saps energy from the discharge and then delivers that energy as a massive and destructive recoil. Various shock absorbers were tried, and the accompanying detail photograph shows two fairly stiff springs supported by yielding spring-steel brackets crumpled up by the force of nothing more severe than low-power trials, on the order of two hundred pounds of draw weight.

The photographs show only the thin low-power skeins, which were used for testing. The full-power skeins almost filled the available space. In the end, buffers of quilted human hair rolled tightly around each guide rod and supported by heavy forged steel brackets did the job for three full-power shots. But when the blunt force of the impact threatened to wrench parts of the frame out of place, I concluded it would be unwise to discharge the machine again until I remove the accelerated sliding block altogether.

So, after hundreds of hours and many more hundreds of dollars, I managed to produce a very powerful—but pathetically inefficient—balista with a draw weight between one and two thousand pounds. (This figure was arrived at by means of three different methods of calculation, none of them involving spring scales.) The balista...
was discharged only three times at full power, and never exceeded a range of 65 yards with a light javelin of 230g (90 oz). A heavier javelin may have carried farther, and perhaps even reduced the recoil, but my decision at the time, for safety reasons, was not to try it. I have many ideas on how to improve these performance characteristics, but these are the rather disappointing facts as they stand now.

Annoyance with torsion artillery in general, and my balista in particular, led me to construct a traction trebuchet. This construction was based on a few manuscript illustrations such as the ones in the Maciejowski Bible; but I was chiefly encouraged by Randall Rogers point (at Kalamazoo in 1988) that traction trebuchets are not only feasible, but were common in the eleventh century. Chevedden’s conclusion that traction trebuchets are easier to build, maintain, and operate than balistae, and that they are in the end more effective, is borne out by my experience.

My design for the trebuchet was easily worked out on one piece of paper, and the machine was built, the first time, in one afternoon at a cost of much less than one hundred dollars. After some hitches were ironed out, it was set up again, using the same parts in a slightly different configuration. The trebuchet could be carried by half a dozen men from the place of assembly, up a large hill, to the open field where it was deployed. This machine, with an inexperienced seven man crew (neither better nor worse, I imagine, than the kind of crew one could scrounge up in a typical eleventh-century crusader camp), could hurl fist-sized rocks (on the order of 700g or 1 lb, 9 oz.) to a maximum range of 130 yards at a rate of three shots per minute.

With further refinements, all in the direction of still greater authenticity, I am confident that this summer’s project, “Mark III” in my series, will attain a range upwards of 200 yards with a throw weight of at least a kilogram, if not two or three. I can foresee no reason why the rate of fire should drop below two shots per minute; but then, I have been wrong before.

The relative ease with which I was able to produce a functioning full-scale traction trebuchet might be viewed as corroboration for Chevedden’s scholarly arguments for why that device flourished while torsion artillery floundered in the Middle Ages. The manner in which I found myself building the machine with hand tools in the absence of a modern shop, might indicate (as Price-Wilkins did with reference to Villard) that the use of geometry, ratio, and templates, essentially without recourse to blueprints or linear measure, is sufficient to account for a great deal of medieval design and construction practice.

The two techniques are not mutually exclusive, but I think that they are distinct.

It is a corollary of the foregoing that one should be very careful when deciding what constitutes a “complete” set of plans for something. Is a given manuscript missing something, or are we just unable to read from it everything that is there, between the drawings, as it were? Is there some plausible set of assumptions which the architect or engineer could have had, which makes the historical drawings sufficient to constitute as complete a “blueprint” as any modern drawings? I would suggest what may be obvious, but is also easy to forget: no technical text can be interpreted correctly in isolation from the tradition in which it was written. On the other hand, by limiting oneself more or less to the circumstances of a given time and place, one may find oneself stumbling upon aspects of a tradition appropriate to those circumstances.

Even though my balista did not work very well in the end, it is worth emphasizing the distinction between the manner in which a design is executed and the merits (or lack thereof) inherent in the design itself. I think that my experience on this project has given me a good vantage point from which to appreciate certain medieval technical solutions to certain medieval technical problems, because I found myself doing a similar thing under analogous circumstances. This does not constitute conclusive scholarly evidence, as I have pointed out above, but it may provide some interesting corroboration to otherwise self-contained arguments drawn from more traditional sources. Or is it all just a curious coincidence?
NOTES AND QUERIES

This section is designed to encourage the exchange of information and ideas among readers of AVISTA FORUM. Each QUERY is assigned a number keyed to an issue of the FORUM. NOTES printed here are replies to specific QUERIES and are numbered accordingly. Of course, many QUERIES could be answered by more than one respondent; therefore, we welcome responses to QUERIES in any issue, as well as ongoing correspondence regarding issues raised in these pages. Please forward your NOTES and QUERIES to George Ovitt, Dept. of Humanities, Drexel University, Philadelphia, PA 19104.

QUERIES

Q-1 (4.1): John James writes, concerning work-in-progress on Saint-Denis. “I have to conclude that it was not physically possible for Suger to construct more than the crypt and ambulatory in the time available to him and that his text may be read either way. In part, I have based this hypothesis on guesswork and am eager for further information and confirmation that AVISTA readers might bring to this question. What was the length of the 12th-century, Ile-de-France working year? There were many religious festivals and special saints’ days that took building workers off the job. Would I be correct in stating that the working year was effectively 250 days, or 21 days per month? This presumes that men worked summer and winter, though the hours may have varied. Is there a more accurate basis for calculation that this?” Please contact John James at 273 The Mall, Leura 2780 Australia.

Editor’s note: Arnold Wolff, “Chronologie der ersten Bauzeit des Kölner Doms, 1248-1277,” Kölner Domblatt, XXVIII-XXIX (1968): 70, estimated that the cathedral workshop was active 180 days per year.

Q-2 (4.1): Jeroldean McClain of Iowa State University raises a question with regard to the review of Claude Lalbat, Gilbert Margueritte, and Jean Martin, De la stéréotomie médiévale: la coupe des pierres chez Villard de Honnecourt, which appeared in AVISTA FORUM 3.2 (Spring 1989): 13-14. In view of the author’s conclusions and the proposals of Lon Shelby, do “you think there is a possibility that French architects about 1200 did have theoretical knowledge of geometry. This is the direction in which I am working and hope that it can bear fruit.” Professor McClain seeks additional references on this topic. She may be reached at the Department of Art and Design, 158 College of Design, Iowa State University, Ames, IA 50011.

Q-3 (4.1): LOCATION UNKNOWN

Wanted: Measurements and photo of this 16th-century monumental fireplace (H ca. 3.50m x W ca. 2.50 m). The present owner of the château at Jouancy (in l’Yonne, Burgundy) seeks information on the whereabouts of this cheminée from the château’s Salle d’honneur. Owner requires only detailed measurements and a clean photograph in order to produce an exact copy as part of a total restoration effort.

Photo shown here, from a postcard, is the only visual record. The original cheminée was apparently sold in 1939, at the Marché aux Puces, Port St. Antoine (Paris) by a “Mr. Max,” apparently to a U.S. antiques dealer.

If you have any information or ideas, please contact Charles Stegeman (President, AVISTA), 2 College Circle, Haverford, PA 19041 (USA); Tel. (215) 642-8287.

Jouancy, Cheminée de la Salle d’honneur (XVIe siècle).
**REPLY TO**

**OF QUARKS AND CHISELS:**

*(AVISTA FORUM 3.2 [Spring 1989]: 1)*

The following letter was received in response to my musings on parallels between explorations in medieval technology, science, and art and recent developments in physics and cosmology. In the spirit of the forum, as well as the stoa, I pass along Professor Ervin Bonkalo’s cogent thoughts to our readers and encourage additional contributions to this debate. Despite the force and sincerity of Professor Bonkalo’s argumentation, I stick to my guns in the view that medieval master masons were not only consummate craftsmen but also acute thinkers. Certainly, they were not philosophers, yet they surely grasped the essential outlines of aesthetics and concepts of the divine. Is it by accident that Thomas Aquinas explicitly noted the close correspondence between the architect and the schoolman or that Pierre de Montreuil was called “doctor lathomorum?” (Editor-in-Chief)

Dear Colleague,

In your essay, Of Quarks and Chisels, you remark that: “The goal of an architect’s activity was not simply the production of the constituent pieces nor even their assemblage into a work of art. It also aimed at a perceptible manifestation of the truth which, to the Middle Ages, was nothing less than a manifestation of the divine.” Unfortunately, you as an architectural historian, along with other critics of medieval art, are far removed from the living reality of the period. As a cultural historian, I see the aims of the architect in a different light.

Until the end of the Gothic period, medieval artisans did not theorize. Despite general belief, rooted in the romanticism of the 19th century, the chief motivation of the medieval architect, stonemason, sculptor, painter, or glazier was not to serve God and to achieve beauty solely in his service, but to earn wages to feed the family. As Teresa Frisch in the introduction to her *Gothic Art, 1140-1450. Sources and Documents* (Toronto, 1987) observes: “Most documents of the Gothic period give evidence of a healthy, alert, objective weighting and appraisal of technical and aesthetic problems on the part of both client and artist.” The theorizing was done by theologians. The members of the Neo-Platonic Chartres school were not masons, plasterers, or carpenters, they were philosophers. It was Suger’s aim, when he summoned an architect, that his church should manifest the words of John (I: 4-9) “to bear witness of the Light that shineth in the dark.” The architect was not thinking anything divine: he spent sleepless nights to find a technical solution to the problem of cutting windows of unprecedented size into a wall which had to bear the tremendous weight of the ceiling and roof.

The product always expresses the thinking of the times in which it was created: the Roman arch, the ribbed vault, the steel suspension bridge manifest advancements in building theory. But it is we who try to see in it something symbolic. It reflects our thinking. Granted, in modern times, there are builders in Hollywood who create a superkitsch villa, a conglomerate of the Taj Mahal, the British Houses of Parliament, and the Sydney Opera, to express wealth, fame, and popularity for sale to a film star. Yet has anyone ever read of a medieval architect, who, after studying the Bible, built “a perceptible manifestation of the truth, which was nothing less than a manifestation of the divine,” which he then offered through village criers at market places to prospective buyers? (E.B., Sudbury, Ontario)

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**REVIEWS OF ARTICLES**

The purpose of this section is to encourage comment and create active dialogue on essays and articles. Hundreds of scholarly journals review books. Few, if any, review articles. These reviews will bring significant shorter studies from various disciplines to the attention of AVISTA FORUM readers. The editors urge readers to contribute reviews of articles, published in periodic literature and in collective works. Readers, including authors of reviewed works, are encouraged to comment on the reviews. Readers are also urged to bring relevant articles to the attention of the editors.

**ASTRONOMY AND MATHEMATICS**

**Late Medieval Astronomy**

by Pamela O. Long
St. Mary’s College of Maryland

Andalo di Negro was born into a noble Genoese family ca. 1260 and died ca. 1340. A prolific author, he wrote treatises on theoretical astronomy, the astrolabe, and astrology. He was Boccaccio’s teacher in astronomy in Naples and had a significant influence on his admiring pupil. This article is by the editor of the critical edition of Andalo’s *Theorica Planetarum* published in 1982.

Cesari explains in detail the ways in which the *Theorica Planetarum* recapitulates the principal themes of Ptolemaic and Arabic astronomy concerning the celestial spheres. In explicating this difficult text, she offers a comprehensive and clear summary of medieval spherical astronomy and its Greek and Arabic sources. Her chapter by chapter discussion of the motion of each of the planets through Andalo’s eyes renders the complex subject of the text accessible even to the non-specialist.

In Boccaccio’s *Filocolo*, Andalo’s chapter 4 on the motion of the moon miraculously reemerges in literary form as the shepherd Calmeta muses on the moon and its five circles. Cesari’s detailed comparison of the *Theorica Planetarum* with parts of both the *Filocolo* and *De genealogiis deorum* leaves no doubt that Andalo’s influence on Boccaccio was far from superficial. Indeed, that influence went to the heart of his poetic imagination.

We are more familiar perhaps with the late medieval influence of astronomy and cosmology on poetics through the work of Dante. Cesari’s article leads me to another point. We learn from it, on the one hand, how very dry, difficult, and seemingly inaccessible Andalo’s text is, and on the other hand, how enormously inspirational it was to Boccaccio who was neither an astronomer nor a twentieth-century historian of science. That a difficult work on planetary astronomy could speak so urgently to one of the greatest poets of the Italian vernacular is a fact of great cultural significance. It may be that Boccaccio’s praise of Andalo was “enthusiastic, incompetent, and uncritical,” as George Sarton thought. But Boccaccio’s enthrallement offers a clue about the audience for fourteenth-century planetary astronomy that deserves further scrutiny. One can perhaps infer a far wider audience of non-specialists than would be conceivable in a twentieth-century context. And as *Filocolo* gazes at a moon that moves in a highly specified way, one wonders how many of Boccaccio’s readers and hearers enjoyed the reference to planetary theory here and many similar references throughout his work. We have to assume, I think, that Boccaccio understood his audience better than we do, and that his careful interweaving of planetary theory with the stories did not fall on totally deaf ears.

Traditionally, historians of science have focused on the development of particular aspects of a science and have considered its influence on the wider culture to be a relatively trivial subject best left to others. This point of view has been radically modified in recent years. Cesari’s article is a brilliantly elaborated study that takes seriously a more interdisciplinary and contextual approach. Her work explicates both Andalo’s planetary theory and its influence on Boccaccio.

A more difficult question is how Boccaccio influenced Andalo. To put it more generally, if we agree that audience is an intrinsic part of the context of a work, then we might question the ways in which audience affects content. (Yes, I understand that many do not agree.) But Boccaccio was part of Andalo’s discursive circle, and I do believe that the Boccaccios influenced the Andalos as much as the Andalos influenced the Boccaccios. We are at the very beginning of exploring such questions. Considering the vitality and development of planetary theory from the fourteenth to the sixteenth centuries, audience had to have a central and perhaps specific kind of influence. Cesari’s article is a fine work of scholarship that gives us a start in asking such questions.

**Mathematics in Renaissance Italy**

by Pamela O. Long

St. Mary’s College of Maryland


At the outset Biagioli states his underlying presupposition: “that the epistemological legitimation of the mathematical method that characterized the scientific revolution involved and depended upon the social legitimation of mathematical practitioners.” He looks for evidence of the social status of mathematicians in Italy from 1450-1600 in eight areas: 1) the status of mathematics in the universities; 2) public teaching of practical mathematics and geometry; 3) professionalization of military engineering; 4) biographies of mathematical practitioners; 5) status of diffusion of astrological practices; 6) changes of classification and hierarchy in liberal disciplines; 7) “development of Italian courts as a reward system for mathematical practitioners”; and 8) the relationship between humanists and mathematicians.

Biagioli suggests that around 1400 in Italy there were two disciplinary or professional types of mathematical practitioners who were socially distinct. The first were the book-keepers, land-surveyors, and engineer-masons. They
were represented by the chairs “ad arithmetacam et geometram” and by the public teaching of the abacus. The second type were “astrologer-physicians” represented by chairs “ad astrologiam.” The abacus teachers were socially inferior to the physician-astrologers.

This binary scenario of 1400, he suggests, changed to a much more complex one by 1600. Most of the important changes occurred within the first group and those changes were due to external rather than internal developments. Biagioli argues that the most important reasons for the “specialization of ‘flower’ mathematics into higher roles” was the Italian recognition of the significance of cannon as a strategic weapon in 1494 and the subsequent development of an effective fortification in the form of the bastion about 1500. The bastion required more Euclid than previous fortification. Traditional engineers, he argues, needed to become more mathematically literate, whereas professional warriors needed to rely less on horses and more on Euclid. Biagioli goes on to argue that the transformation of the teaching of mathematics in the major universities was connected with these developments in military technology which he finds begin with Ignazio Danti. Danti had a background of practical mathematics but occupied a new chair at the university of Bologna.

Biagioli also elaborates that changes in the Italian courts gave status to certain kinds of mathematicians, but he insists that those professional elites were kept well separated from court social elites. He emphasizes the complex proliferation of different types of mathematicians in the sixteenth century. Finally he develops a set of signs that can be applied as measures of social status. He elaborates his model in a case study of the Urbino school of mathematicians. He suggests that this “school,” consisting of Commendino, Baldi, and Guidobaldo, focused on classical texts, philology, and Archimedian statics and was socially distinct (with higher social status) from the northern Italian “school” of Cardano, Benedetti, and Tartaglia. The latter school also emphasized different things. They had a “practical” perspective on mechanics, focused on the medieval Jordanus, and were interested more in dynamics than in statics. Biagioli argues that the relationships between the two schools and the interests of each were very much informed by those social distinctions. He convincingly demonstrates the social disdain of the Urbino court group for the practitioners of the north.

This article with its 570 bibliographic references will be essential reading for anyone interested in the mathematical subjects of the sixteenth-century. My own reservations concern methodology, on the one hand, and some of the conclusions, on the other. Biagioli is following a recent trend in focusing on social status as a factor in the development of science. However, given the methodology that he uses, he is attempting to do too much. I myself am not convinced by a statement followed by a series of numbers referring to entries in the bibliography, even though I happen to be familiar with many of the specific studies within that bibliography. This article is erudite and attempts to encompass an enormous amount of information. Yet while rejecting many of the tenets of traditional historiography upon which it nevertheless is grounded (the 570 studies), it fails to adopt a new methodology appropriate to its goal. The result is a complex series of impressionistic statements followed by numbers, each one of which could be made the basis of a sustained argument, but has not been so made.

The complexity of the subject demands the development of more sophisticated tools. I agree with Biagioli that social status has to do with more than wealth—that it concerns access to power. The discipline of sociology has developed measures of social status, and I would think that historians attempting broad studies matching social status with the nature of intellectual pursuits might profitably look to that discipline for methodology that could be adapted to historical concerns.

Moreover, I would think that a basic infrastructure of research such as this would involve a data-base of Italian mathematicians, including a typology of what mathematical things they did, and a judgment about their social status, based on objective criteria that are apparent to the reader. The elements needed to create such a data-base seem to exist in this research, but it does not appear to have been created. It is apparent that such a data-base would involve a series of approximations. And the generalizations that Biagioli uses might well be the starting point for them. Yet the creation of a data-base could lead to new knowledge about the problem. How many mathematical practitioners were there? Where were they located? Where did they travel to work? What were they paid? What was their specific background and training (an important factor in determining social status)? Which of them knew Latin? How many wrote treatises?

If we are going to use categories such as social status and apply them to very large numbers of a certain type of practitioner, then it seems to me that a methodology that can encompass the subject is an absolute necessity. Biagioli rejects “traditional intellectual history” for new kinds of questions. But he himself is using the methodology of traditional intellectual history and trying to stretch it beyond where it can go.

The result in my view is that despite the fundamental
erudition of this study, some of the conclusions are overly simplistic. For instance, the claim that there was no change in the status of mathematical practitioners until around 1500 and that the changes occurring at that time resulted from the needs of fortification against the newly effective cannon, seems to me to be not only an oversimplification but simply false. It is true that the construction of the bastion required more geometry than was previously needed for fortifications, but the mathematical sophistication needed was still not terribly great.

Rather, the development of late medieval commercial capitalism in the Italian city-states led to the increased status of practical mathematics. The development of perspective by artists and the subsequent elevation of the visual arts as a result of their association with mathematics in the fifteenth-century surely had implications for the status of practical mathematics and mathematical practitioners as well. Artists such as Paolo Uccello, Piero della Francesca, and Leonardo da Vinci can appropriately be considered mathematical practitioners. The status of these and other painters and architects was assisted by mathematics, but their work also served the greater glory of practical mathematics and well before the development of the bastion. The fifteenth-century influence of Platonism also affected the status of practical mathematics (and therefore, I believe, the status of its practitioners). The Idiota by Nicolas Cusanus is a key text. Biagioli's binary analysis of the situation in the fifteenth-century is an oversimplification which chooses to ignore well-known developments in Italian cultural history.

The analysis of the social status differences between the courtly mathematicians at Urbino and the more practical mathematicians in the north is perhaps the most interesting part of this work. Biagioli convinced me at least that the Urbino mathematicians had a more socially elevated status, that they disdained their social inferiors to the north, and concentrated on classical texts, statics, and Archimedes, rather than practical mechanics, the medieval Jordanus, and dynamics. But then it must also be said that the mathematics of the social inferiors was at least as important to the new science as was the mathematics of the court mathematicians. What does that do to the author's basic presupposition stated at the beginning of this review?

MEDIEVAL STONE-CUTTING AND VILLARD
Stereotomic Drawings in the Villard Manuscript—Part II
by Michael T. Davis
Mount Holyoke College


The stereotomic problems of the sketches on folio 20 of Ms.fr. 19093 in the Bibliothèque nationale, Paris are the focus of this study whose first installment appeared in the Bulletin monumental 145 (1987): 387-406 (see AVISTA FORUM, 3.2 [Spring 1989]: 13-14). Once again, the figure that illustrates the caption, “par chu tail om voustore beslodge,” is examined, but in this case, the authors concentrate their analysis on the left jamb of the image. By using the more developed drawings from Philibert de l'Orme's Traité d'architecture, the manuscript image is interpreted as a diagram of the variations of the angles of intrados surfaces (douelles) of an oblique barrel vault's voussoirs. But there is much more that can be gleaned from the simple strokes and lines of the sketch. Because of the similitude of their angles, the discovery of the angle of variation of an intrados surface will automatically yield that of the joints or bed of the voussoir block and vice versa. In other words, the drawing of folio 20 brings together both plane and three-dimensional information. “Villard” gives the reader only half of the facts, yet from this information the entire process of design and construction can be generated.

Such drawings as that of the “voustore beslodge” are, however, far from user-friendly instructions to guide the would-be builder. They are but one facet of a working body of arcanum magisterium, of technical lore of master craftsmen, that included not only written texts, but also verbal instruction, and visual signs. Thus the similitudes of the angles of variations implicit in the folio 20 sketch could be expressed by simple numerical algorithms which would serve as mnemo-technical reminders. In turn, the numbering systems were “written” onto the blocks to guide placement. The informational density, pragmatism, economy, and clarity of thought of these representations prove that their author had long practice in the stone-cutting profession.

The diagrams of passages through a conical opening and a curving wall (“par chu tail om voustore riuleie” and
"par chu tail om vosure destor de machonerie roonde," respectively) enrich the conclusions won from the lesson of the oblique vault and underscore the coherence of the themes illustrated on this page. As usual, the draftsman describes the most efficient procedures to realize the cutting of the complex joints and surfaces of vault voussoirs. This is done by endowing each visual referent with a distinct definition which is not self-explanatory, but presupposes detailed oral instruction to elucidate its full meaning. By combining planimetric views of both ground plan and frontal projection, the artist is able to render the position of an object in space. However, spatiality or three-dimensionality is only implicit in these drawings and exists, properly speaking, in the spirit of the draftsman, the living history of the building crafts make a compelling reading of these sketches and their location within the context of the technical and geometric underpinnings of thirteenth-century architecture.

Although one may object, as in the first part of the study, that the authors, by naming the entire manuscript after Villard, have stitched together a fictitious Frankenstein’s monster composed in reality of the work of several masters, their study is far more important for the light it sheds on the physical and mental procedures involved in the practice of construction. The remarkable reading of these sketches and their location within the context of the living history of the building crafts make a compelling argument that the author of folio 20, whether Villard himself or Master 2, whether a cleric or master mason, possessed a full and sure-handed knowledge of the technical and geometric underpinnings of thirteenth-century architecture.

RECENT AND FORTHCOMING PAPERS

This column will list papers read or to be read at professional meetings (whether or not meant for publication), papers complete but not yet published, and papers recently published. Its purpose is to inform readers of work being done in a variety of disciplines. The News Editor has selected papers of interest to AVISTA members and welcomes additions.

Perceptions of Technological Change: Medieval Artists View Building Construction, a SUNY-Binghamton Ph.D. dissertation in art history, was completed by AVISTA member Andrea Louise Matthies in 1984, and is available from University Microfilms.

Villard de Honnecourt: La pensée technique et sa communication au XIIIe siècle was published by AVISTA member Roland Bechmann, with preface by Jacques Le Goff, in June, 1989. For further information, write: Picard Librarie Internationale, 82, rue Bonaparte, 75006 Paris.

The 42nd annual meeting of the Society of Architectural Historians was held in Montréal in April. Papers included: Nezar Alsayyad, (U.-Cal., Berkeley), Caliphs, Westerners and the Building of an Early Arab Muslim City; and Donatella Calabi (Instituto Universitario di Architettura, Venice), The Rebuilding of the Rialto Market after the Great Fire of 1514.

At the Association of the History of Medicine Annual Meeting, Ynez Violé O’Neill, principal investigator of IMMI, discussed the curious drawings of the brain and eyes in Gonville & Caius MS. 190/223. (For more information, see News From Members, in this issue.)

An Evening of Medieval Archaeology, sponsored by the Medieval and Renaissance Studies Program, New York U., was held on April 26: S. Murray (Columbia U.), Looking for Robert de Luzarches, Master Mason of Amiens Cathedral; C. Maines (Wesleyan U.) and S. Bonde (Brown U.), The Archaeology of Monasticism; Six Seasons of Work at St.-Jean-des-Vignes; and D. Whitehouse (Corning Museum of Glass), The Use of Archaeology in Working out the Development of Towns.

Imagining New Worlds: Factual and Figural Discovery during the Middle Ages was held at Lehmann Coll.-CUNY on May 12-13. Papers included: L. Shepard (Boston Coll.), Historiography and Aristotelian Natural Philosophy; J. Muldoon (Rutgers U.-Camden), The Nature of the Infidel: The Anthropology of the Canon Lawyers; I. Higgins (U.-British Columbia), Imagining Christendom in Cultural and Religious Diversity: Asia in Mandeville’s “Travels”; J.A. Givens (U.-Connecticut), Nature’s Mirror: The Art of Description in Medieval Sculpture; J. Newell, (Coll. of Charleston), The Cosmology of William de Conches; D. Woodward (U.-Wisconsin), Cartography and the Abstraction of the World Picture; J.B. Friedman (U.-Illinois at Champaign-

*Myth and Reality in the Age of Columbus,* a symposium sponsored by the UCLA Quincentenary Programs, The Center for Medieval and Renaissance Studies and the Depts. of Geography and History, was held at UCLA on June 6. Papers included: David B. Quinn (U.-Liverpool), *Columbus and the North,* Luciano Formisano (U.-Salerno), *Writing and Experience in the Age of Columbus.*

*Rencontre des cultures dans la philosophie médiévale: traductions et traducteurs de l’antiquité tardive au XIVe siècle,* an international colloquium sponsored by the Société Internationale pour l’étude de la Philosophie Médiévale and the Università degli Studi di Cassino, met at Cassino on June 15-17. Papers included: D. Jacquet (Paris), *La transmission des textes de médecine pendant le moyen-âge.*


Buffalo), Literature, Literary Theory, and the History of Science; Pamela Gossin (U.-Wisconsin), John Donne and Johannes Kepler: Doubting That “The New Philosophy Calls All in Doubt”; Stephen A. McKnight (U.-Florida), The Origin and Nature of Modernity: A Concept History of the Relation of Science, Society and Modern Epochal Consciousness; Wilbur Applebaum (Illinois Inst. of Technology), The Scientific Revolution and the Concept of Modernity: The Epistemological and Political Implications of the Scientific Revolution; Charles Whitney (U.-Nevada), Science and Utopia in Francis Bacon’s Writing; Kenneth J. Howell (Reformed Theological Seminary), Galileo, Calvin, and Rhetoric on the Interpretation of Scripture; Howard Margolis (U.-Chicago), The Copernican Discovery; William A. Wallace (U.-Maryland), Science, Dialectics, and Rhetoric in Aristotle and Aquinas; Jean D. Moss (Catholic U.-America), Science, Dialectics and Rhetoric in Copernicus and Galileo.


Art et Littérature au Moyen Age; Style et Valeur was held on October 27-29 at Yale U., under the sponsorship of the Yale U. French Dept. and Beinecke Rare Book & Manuscript Library. Papers included: Walter Cahn (Yale U.), Medieval Landscapes and the Encyclopedic Tradition; Michael Camille (U.-Chicago), Style and the Social Body in Medieval France; Jacqueline Cerquiglini (U.-Geneva), Portrait of the Artist in the Fourteenth and Fifteenth Centuries; Beverly Evans (SUNY-Geneseo), Music, Text, and Social Context: Reexamining Thirteenth-Century Styles; Margot Fassler (Yale U.), Representation of Time in the “Ordo representationis ade”; Stephen G. Nichols (U.-Pennsylvania), Marie de France’s Common Places: Classical Rhetoric and Medieval Style; Linda Seidel (U.-Chicago), The Value of Versimilitude in the Art of Jan Van Eyck.

The Material Culture of Gender: The Gender of Material Culture, a Winterthur Conference, was held November 9-11. Papers included: Russell W. Belk (U.-Utah) and Melanie R. Wallendorf (U.-Arizona), Gender Identity in Collecting; Kali Tal (Yale U.), Military Socialization and the Art of Phallic Transfer; John Stimson (William Patterson Coll.) and Ardyth Stimson (Kean Coll.), Time Orientation, Technophobia, and the Transition of Gender Definitions; Gayle R. Davis (Wichita State U.), A Social History Lesson in Art Evaluation.

The Politics of Myth, the Eleventh Annual Barnard Medieval and Renaissance Conference, was held on November 11. Papers included: Anne Hedeman (U.-Illinois), The Clovis-Charlemagne Frontispiece to the “Grandes Chroniques de France” (MS Paris, B.N. fr. 2605); Nancy Freeman Regalado (New York U.) Parades and Power: The Tournament of Vices and Virtues in MS Paris B.N. fr. 146 of the “Roman de fauvel”; Cristelle Baskins (Coll. of the Holy Cross), The Mythological Repertory of Quattrocento Cassoni Painting; Anthony Grafton (Princeton U.), The Fall and Rise of Allegory in Renaissance Historiography; Myra Orth (Getty Center), Myth in Action: Shifting Allegiances at the Court of Francis I; Christopher Baswell (Barnard Coll.), Dido’s Purse; Ralph Hexter (Yale U.), The Myth of Ovid’s Exile; and Jeanette Beer (Purdue U.), Antiquity’s Heroes at the Court of Philip Augustus.

The Middle East Studies Association of North America met at the Sheraton Centre Hotel, Toronto on November 15-18. A panel on War, Technology, and Military Theory in Medieval Islam, chaired by the member Paul Chevedden, met on Friday, Nov. 17 at 3:30-5:30 P.M. Papers included: P. Chevedden (Cal. State U., Northridge), The Use of the Rotating-Beam Siege Machine in the Islamic Conquests; W.T. Szwajkowski (U.-Toronto, AIST member), Full Scale Dynamic Model of a Medieval
Traction Trebuchet (with display); A.Y. al-Hassan (U.-Aleppo), The Early Use of Gunpowder and Cannon in Medieval Islam; and W.J. Hamblin (U.-Southern Mississippi), Continuity and Change in Medieval Islamic Military Theory.


The Ninety-First Annual Meeting of the Archaeological Institute of America will be held in Boston on December 27-30. Papers will include: Mark B. Garrison (U.-Michigan), A Vandal Cemetery in Carthage; Brian E. McConnell (Museo Archeologico Regionale, Agrigento), Work in the Countryside of Late Antique and Medieval Sicily; James Higginbotham (U.-Michigan), Roman Fishtanks of the Late Republic and Early Empire in Italy: Aspects of Their Design and Function; Sandra Knudsen (Toledo Museum of Art), Spolia: The Pedestal Reliefs on the Arch of Constantine; E. Marianne Stern (Toledo Museum of Art), Regionalism in Roman and Byzantine Palestine; Michael Geselowitz (Harvard U.), Ethnicity and Diet in Early Europe: The Direct Historical Approach; Oliver Nicholson (U.-Minnesota), A Roman Lake Keeping "Barbarian" Out of the Mediterranean in Late Antiquity; David Whitehouse (Corning Museum of Glass), "Barbarians" in the Lake in the Fifth Century; and Sheila McNally (U.-Minnesota), Romans and Foreigners: Art Historical Perspectives on Change.

The Washington Collegium for the Humanities will hold its third series of lectures in the 1989-1990 season, on the theme, The World of the Child. The speaker for March will be John Contreni (Purdue U.), Educating Children and the Study of Chant in the Early Middle Ages.

The Boston Colloquium for the Philosophy of Science will hold its annual lecture series at Boston U. Speakers will include: Jiang Tianji (Wuhan U.), The Social Dimensions of Meaning and Truth (Sept. 12); Errol E. Harris (Boston U./Northwestern U.), The Anthropo-Cosmological Principle (Oct. 10); Fritz Rohrich (Syracuse U.), The Pluralist Ontology of Physical Theories (Oct. 17); William Wians (Boston U.), Dialectical Demonstration in Aristotle’s Biology (Nov. 28); Otto Marx (Brattleboro Retreat), Treating Madness: Historical Reflections on Psychology and Basic Science (Dec. 5); Burton Dreben (Harvard U.), Tautology (Dec. 12); Boris Uspensky (Moscow State U.), The Semiotics of History (Mar. 27); Svante Lindquist (Royal Institute of Technology, Stockholm), Changes in the Technological Landscape: The Temporal Dimension of Technological Systems (Apr. 17). For further information, contact: Robert S. Cohen or Deborah Wilkes, Center for the Philosophy and History of Science, Boston U.; (617) 353-2604.

Periodicals

Nike: Zeitschrift für Sport und Kultur im Altertum, edited by Wolfgang Decker, was first published in Fall, 1988. Contact: W. Decker, Deutsches Sporthochschule Köln, Institut für Sportgeschichte, Carl-Diem Weg 6, D-5000 Köln 41, West Germany.

Agricultural History Newsletter will be issued monthly by the Agricultural and Rural History Section of the U.S. Dept. of Agriculture. It is available without charge. Contact: V.B. Whitehead, Editor, Agricultural and Rural History Section, ARED-ERS-USDA, 1301 New York Ave. NW, Room 928, Washington, DC 20005.

The Boletin Informativo de la Sociedad Latinoamericana de Historia de las Ciencias y la Tecnologia (Newsletter of the Latin American Society for the History of Science and Technology) appears in March, July, and November. It is free to members of the society, annual subscription to others is US $5. Contact: A. Alcantara Fong, Editor, Boletin Informativo SLHCT, Apartado Postal 21-873, 04000, Mexico, DF, Mexico.

B.I.S.: the Boletin Informativo de la Sociedad Española de Historia de las Ciencias y de las Tecnicas (Newsletter of the Spanish Society for the History of Science and Technology) invites queries and submission of items for inclusion. Contact: C. Lopez Fernandez, Intendente L. Palacios, 15-2C, 30003-MURCIA, Spain; (969) 259181.

The Editorial Board of Medievalia et Humanistica is preparing a special volume, to commemorate the 500th anniversary of Christopher Columbus’s voyage of discovery, scheduled for publication in 1990. They seek original scholarship on topics including the expansion of
European civilization through the efforts of the Spanish and Portuguese crowns; the establishment of new societies and forms of cultural expression through transcultural encounters in the period of exploration; the political, religious, philosophical, aesthetic, scientific and technological ideas that shaped the processes of exploration, settlement, and cultural conflict and transformation set into motion by Columbus' voyage. Manuscripts (Chicago Manual of Style, 13th ed.) should be submitted by Jan. 15, 1990 to P. Clogan, P.O. Box 13827, Denton, TX 76203; M. Altschul, Dept of History, Case Western Reserve U., Cleveland, OH 44106; or J.-C. Margolin, 75 Blvd. Richard Lenoir, 75011 Paris.

Symbola et Emblemata, Studies in Renaissance and Baroque Symbolism, published by Brill (Leiden), will publish a special issue on Count Michael Maier's alchemical emblem book Atalanta Fugiens (Oppenheim 1617/18). Contributions may explore any aspect of that book of emblems, Maier's musical compositions, the alchemical background of Atalanta Fugiens, its didactic purpose, or related art-historical material. Contact: B.F. Scholz, Editor-in-Chief, Symbola et Emblemata, Vakgroep Letterkunde, Rijksuniversiteit Utrecht, Muntstraat 4, 3512 EV Utrecht, The Netherlands.

Nomina, a journal published by the Council for Name Studies in Great Britain and Ireland, seeks to further all aspects of onomastic research relevant to England, Ireland, Scotland and Wales, including philology, historical geography, genealogy, socio-economic history, source-criticism and archaeology. Published annually, it includes a critical bibliography and a news section. For submissions, contact the editors: Celtic names: O. Padel, Institute of Cornish Studies; English personal names: C. Clark, Cambridge; English place-names: A. Rumble, U.-Manchester; Reviews: V. Smart, U.-St. Andrews. For subscriptions, contact: G. Anderson, Subscriptions Secretary, 13 Church St., Chesterton, Cambridge CB4 1DT, England.

The Historical Group of the German Chemical Society has launched a newsletter, Mitteilungen, edited by Christoph Meinel, with the intention of publishing the most interesting papers from the group's bi-annual meetings and to provide information on events and projects in the history of chemistry. The newsletter is available for DM 16 from the Gesellschaft Deutscher Chemiker, Fachgruppe, Postfach 90 04 40, D-6000 Frankfurt 90, West Germany.

Friends of the Road to Santiago, a newsletter, is published twice a year to provide rapid dissemination of information about any aspect of the pilgrimage to Santiago de Compostela. Contact: M. Dunn-Wood, 517 So. Happy Hollow Blvd., Omaha, NE 68106.

Mediaevalia, the journal of the Center for Medieval and Renaissance Studies at SUNY-Binghamton, will receive proposals for special issues from the community of medievalists. One out of three future editions will feature guest editors who have assembled essays around a major topic or complex of topics. Letters of inquiry, with a prospectus for a proposed issue including table of contents, estimated page count, and rationale for the collection, should be addressed to: P. Szarmach, Director, CEMERS, SUNY-Binghamton, Binghamton, NY 13901.

The Journal of Unconventional History, a proposed new journal, welcomes the submission of historical essays that are so original in concept or treatment that they cannot find publication in mainstream journals. Send one-page abstracts, with cover letters explaining in what way your work is unusual, to the Editors, Journal of Unconventional History, 2442 Montgomery Ave., Cardiff, CA 92007.

NEWS FROM MEMBERS AND AFFILIATED ASSOCIATIONS

AVISTA members and affiliates, please send items for this column to the News Editor. News items should be of interest to AVISTA membership but need not be about members or affiliates.

Projects

The Index of Medieval Medical Images in North America (IMMI) can now be reached through electronic mail. IMMI's address in BITNET is IJA4MHI@UCLAMVS. Anyone wishing to receive the IMMI Newsletter should contact: Y.V. O'Neill, Medical History Division, Dept. of Anatomy and Cell Biology, UCLA School of Medicine, Los Angeles, CA 90024-1763.
The Institute for the History of Astronomy has announced two new projects: with Kluwer Academic Publishers it will publish a series of volumes on the history of astronomy; with Garland Publishing it will prepare a one-volume encyclopaedia of cosmology. Contributors and other interested scholars should contact: N.S. Hetherington, Institute for the History of Astronomy, 1742 Spruce St., Suite 201, Berkeley, CA 94709.

Women's Religious Life and Communities, 500–1500 continues to produce three coordinated research instruments: 1) a repertory of women's religious communities in the Latin West before 1500; 2) a bio-bibliography of noteworthy women associated with these communities; and 3) an international bibliography of modern studies of women’s religious communities before 1500. A computer data base has been developed for the production of the monastic repertory and the bio-bibliography, which are cross-linked in various ways. Contact: M.M. McLaughlin, R.D.3, Box 422, Valley Farm Rd., Millbrook, NY 12545.

History Day is an annual nationwide competition for middle and high school students to stimulate interest in history. The topic this year is the history of science and technology. The Society for the History of Technology (SHOT) is seeking to compile a list of SHOT members and others who would be willing to serve as information sources to help teachers direct student interests to appropriate readings and materials. Contact: R. Simon, Chair, Technology Studies Group, Dept. of History, Maginnes Hall #9, Lehigh U., Bethlehem, PA 18015; (215) 758-3368.

The Abbey of St. Gall, an exhibit, is scheduled for presentation in the United States in 1991–92. Produced by the Stiftsarchiv St. Gallen, the exhibit will present the history of St. Gall from the Middle Ages to the present: the political and social evolution of the abbey, manuscript illumination, the arts, literature and the sciences. There will be models of the entire complex as it existed in the 15th and 18th centuries. An illustrated guide in English will contain the texts and the main features of the exhibition. Most of the costs of creating and transporting the exhibition are being borne by the Canton of St. Gall, the Catholic Administration of St. Gall, and the Pro Helvetia Swiss Council for the Arts. Individuals interested in hosting this exhibition at their universities should contact: Dr. Emanuel Jenni, Cultural Counselor, Embassy of Switzerland, 2900 Cathedral Ave. NW, Washington, DC 20008; (202) 745-7900, by December 31.

Institutions and Societies

A new interdisciplinary Center for Technology and Culture has been established in Oslo for stimulating research and information activities on the relation between technology and values. The center is connected with a new research park, FOSFOR. Contact: F. Sejersted, Senter for Teknologiog Menneskelige Verdi, Sporveisgaten 35, 0354 Oslo 3, Norway.

The Society for the Study of Women in the Renaissance will meet monthly in 1989–90 at the CUNY Graduate Center. Contact: B. Travitsky, Chair, (718) 645-3950, or J. Hartman, Secretary-Treasurer (English Dept., Coll. of Staten Island-CUNY). Speakers in the fall include A.-M. Geoghegan (Oct.), A.R. Jones (Nov.), and J. Hartman (Nov.).

The Nautilus Foundation, a center for creative research and teaching, has recently been established in Lloyd, Florida. The Foundation seeks to support studies "in the widest interpretation of the liberal arts," including history, architecture, urban design, the impact of spatial organization, and ecology, and plans to offer residential fellowships to scholars by late 1991. Contact: F. Bucher, History of Art Dept., Florida State U., Tallahassee, FL 32306.

In January, 1990, St. Meinrad's Continuing Education and Renewal Center will inaugurate a new program of providing sabbatical space to administrators and professors who are looking for a time of personal study or relaxation. The Archabbey Library has over 150,000 volumes, including a large freestanding collection in church history and theology. Contact: Rev. Matthias Neuman, OSB, Continuing Education Center, St. Meinrad, IN 47577-1021.

The Urban History Association has been established to stimulate interest in the history of the city in all periods and geographical areas. The Association plans to publish a newsletter, sponsor sessions at the meetings of major historical organizations, offer prizes, and to undertake other activities to enhance the visibility and nurture the growth of urban history. Dues are $20. Contact: M.H. Ebner, Executive Secretary and Treasurer, Dept. of History, Lake Forest College, Lake Forest, IL 60045.
The Society for the Classical Tradition, cosponsored by the Institute for the Classical Tradition (Boston U.) and the ANRW Research Center for the Study of Rome and the Roman Heritage (U.-Tübingen), was planned in Spring, 1989. The purpose of the Society will be the sharing of research and knowledge and the encouragement of scholarship and teaching in the reception of the ancient world. The Society will publish a newsletter and a new international journal (The Classical Tradition, or The Journal of the Classical Tradition), and will sponsor annual conferences. Contact: M. Reinhold, J.R. Fears, and W. Haase, Dept. of Classical Studies, 745 Commonwealth Ave., Boston U., Boston, MA 02215; (617) 353-2427, 2428.

METEM; the International Society of Toronto for Hungarian Church History was incorporated as a research foundation at Regis College, U.-Toronto, in May, 1989. Its aim is to collect Hungarian church history into a 22-volume encyclopaedia, to publish a newsletter and a quarterly, Essays in Hungarian Church History. Membership is $20 Can. Contributors and subscribers should contact: E. Bonkalo, 257 Autumnwood Crescent, Sudbury, Ontario P3B 3Z5.

The Craftsmen Guild Foundation has been founded with the purpose of transmitting traditional knowledge from European craftsmen to American craftsmen, and of preserving and safeguarding endangered medieval craft traditions, such as stained glass and stone cutting. The Foundation will offer internships and courses in restoration techniques. Contact: Christiane Farry and Jacques Babando, 48, rue Raynouard, 75016 Paris.

The Medieval and Early Modern Data Bank (MEMDB) is a resource project established at Rutgers U. and cosponsored by The Research Libraries Group, Inc. (RLG). Its aim is to provide scholars with a continually expanding reference library of information concerning the medieval and early modern periods, ca. 800-1800. MEMDB is currently available in a pilot version that runs on personal computers, containing a master data set of 13,256 medieval currency exchange rate quotations compiled by Peter Spufford (Cambridge) for his Handbook of Medieval Exchange (Royal Historical Society, 1986). In 1989-90, MEMDB will become an on-line system, available to subscribers through RLG’s Research Libraries Information Network (RLIN). New material will include information on wages and prices, household size, mortality, property-holding, charity, and nutrition; glossaries of weights and measures, gazetteers of Latin and vernacular placenames, and calendars of dates. Contact: MEMDB, Dept. of History, CN 5059, Rutgers, The State U.-New Jersey, New Brunswick, NJ 08903.

Grants and Prizes

The National Endowment for the Humanities: Grants in the Humanities, Science and Technology are available for research that employs the theories and methods of humanities disciplines to study science, technology and medicine. Applicants may request support for full or part-time salaries, travel and other costs of conducting research for periods of from one to three years. This category of support is for projects that, because of their scope, duration or complexity, cannot be accomplished through individual one-year fellowships. Contact: D. Jones, Program Officer for Humanities, Science and Technology, Room 318, NEH, Washington, DC 20506; (202) 786-0210.

The Travel to Collections Program provides grants of $750 to assist Americans in meeting the costs of long-distance travel to the research collections of libraries, archives, museums and other repositories throughout the U.S. and the world. Awards are made to defray the costs of transportation, lodging, food and reproduction costs. Application deadlines are Jan. 15 and July 15 annually. Contact: Travel to Collections Program, Division of Fellowships and Seminars, Room 316, National Endowment for the Humanities, 1100 Pennsylvania Avenue NW, Washington, DC 20506; (202) 786-0463.

The Joan Cahalin Robinson Prize is awarded to young and new scholars in the history of technology by rewarding excellence in verbal communications skills. Eligibility is restricted to persons who have not reached the age of 30 by the date of the award, the last day of the annual (October) meeting of the Society for the History of Technology. Contact: M.T. Rose, Committee Chair, Program in STS, Michigan Tech, Houghton, MI 49931.

The Annual American Historical Association Book Prizes include: the Herbert Feis Award for non academically-affiliated historians, for the best book, article(s), or policy paper by a historian not affiliated with academe; the Joan Kelly Memorial Prize, for the best work in women’s history and/or feminist theory; and the Howard R. Marrano Prize, for the best work on any epoch of
Italian history, Italian cultural history or Italian-American relations. Contact: S.K. Tune, Executive Assistant, American Historical Association, 400 A St. SE, Washington, DC 20003.

ACTIVITIES...PAST, PRESENT, FUTURE

This column reports activities relevant to the interdisciplinary interests of AVISTA members. The list is selective, rather than comprehensive, and will not replace reports of activities published by professional societies of the various disciplines represented by AVISTA members. Neither will it always constitute due notice of an activity, because of AVISTA FORUM's semi-annual publication schedule. On the other hand, scholars may be informed of activities that their own professional groups do not report. The purpose of this column is to facilitate the exchange of information and ideas across the boundaries of various disciplines. Please send reports of activities to the News Editor. Items are not necessarily listed in chronological order. All dates are 1989-90 unless otherwise specified.

Mar. 3, 1989: Tools, Techniques, and Technology: An Interdisciplinary Conference, sponsored by the Medieval Club of New York and the Medieval Study, CUNY, was held at CUNY Grad Center, 33 W. 42nd St., New York City.

May 16-19, 1989: Main Subjects and Problems Within Nordic Ship Archaeology, was held at Oskarhamn, at the site of the current recording of a 13th-century cog. Contact: C.O. Cederlund, Dept. of Archaeology, U.-Stockholm, S-106 91 Stockholm.

Sep. 9-Oct. 22: Holy Image, Holy Space; Icons and Frescoes from Greece, an exhibition, was presented at the Cleveland Museum of Art. (See Recent and Forthcoming Papers.)

Sep. 17-18: The Cultural Legacy of Italian Jewry, an international conference in conjunction with the exhibition Gardens and Ghettos: The Art of Jewish Life in Italy (Sep. 15-Jan. 15, 1990), was held at the Jewish Museum, 1190 Fifth Ave., New York, NY 10128. Contact: Education Dept., The Jewish Museum, 1109 Fifth Ave., New York, NY 10128; (212) 860-1863.

Sep. 24: Art and Holy Powers in the Early Christian House, a scholarly colloquium, was held at the Krannert Art Museum, U.-Illinois at Urbana-Champaign, in conjunction with the exhibit of the same title (Aug. 25-Oct. 27). The colloquium explored the living environment of Mediterranean households between the 4th and the 7th centuries A.D. Contact: B. Oehlschlaeger-Garvey, Education Consultant, Krannert Art Museum, 500 East Peabody Dr., Champaign, IL 61820; (217) 333-1860.

Sep. 28-Apr. 30: Le Banquet du Damoiseau, an exhibit at the Musée du Petit Palais, will display glass and ceramics from the excavation in the garden of the Hôtel de Brion in Avignon, the most important collection of medieval ceramics and glass yet discovered in France, from the period of the residence of the popes at Avignon.

Sep. 29-30: Chivalry and Courtesy, the annual conference of the Medieval Association of the Midwest, met at the Newberry Library. Larry Benson was keynote speaker. Contact: R. Hamilton, The Newberry Library, 60 W. Walton St., Chicago, IL 60610. (See Recent and Forthcoming Papers.)

Oct. 9-10: The Joseph V. Columbus Tapestry Symposium, focusing on the meaning, preservation and ongoing study of tapestries, was held at the National Gallery of Art. Contact: M. Ashton, Joseph V. Columbus Tapestry Symposium, National Gallery of Art, Textile Conservation Dept., Washington, DC 20565; (202) 842-6451.


Oct. 13-15: The Canadian Science and Technology Historical Association hosted its biennial national congress at the Donald Gordon Centre, Queens U., Kingston, Ontario, with sessions on the history of biology, naval technology, industrial archaeology, medical history, public works, agricultural science and technology, and communications and information. For a program, contact: R. Jarrell, Dept. of Science Studies, Atkinson College, York U., North York, Ontario, M3J 1P3; (416) 736-5213; FAX (416) 736-5103.
Oct. 13-14: **Novus et Antiquus**, the twentieth annual interdisciplinary conference of the Committee for the Advancement of Early Studies, was held at Ball State U. Contact: B. W. Hozeski, Convenor, CAES Conference of 1989, Dept. of English, Ball State U., Muncie, IN 47306.


Oct. 17-21: **La stampa in Italia nel Cinquecento**, an international conference, was held at the Biblioteca Nazionale Centrale Vittorio Emanuele II, Rome. Contact: Scuola Speciale per Archivisti e Bibliotecari, via Vicenza, 23, 00185 Rome.

Oct. 20-22: **The Cult of the Saints in the Middle Ages and Early Renaissance: Formation and Transformation**, the 23rd Annual Conference of the Center for Medieval and Renaissance Studies, was held at SUNY-Binghamton. Contact: S. Sticca, CEMERS, SUNY-Binghamton, Binghamton, NY 13901; (607) 777-2730. (See Recent and Forthcoming Papers.)

Oct. 25: **The Carver's Art: Medieval Sculpture in Ivory, Bone, and Horn**, a symposium held at Rutgers U. in conjunction with the exhibit of the same name at the Jane Voorhees Zimmerli Art Museum (Sep. 10-Nov. 21). Contact: M. Ficcara, Zimmerli Art Museum, Rutgers U., George and Hamilton Sts., New Brunswick, NJ 08903; (201) 932-7096.

Oct. 26-29: **The Fifteenth Annual Byzantine Studies Conference** was held at the U.-Massachusetts, Amherst. Sessions included: Urban Continuity/Discontinuity from the Seventh to the Ninth Century and Neo-Platonism and Christianity. Contact: G. Dennis, Program Chair, Byzantine Studies Conference, History Dept., Catholic U., Washington, DC 20064.

Oct. 27: **The Medieval City and Its Image**, third biennial conference, was held at the CUNY Graduate Center, New York. Contact: Medieval Conference Committee, Room 40-12, City U. Graduate Center, 33 W. 42nd St., New York City. (See Recent and Forthcoming Papers.)


Oct. 27-29: **Art et Littérature au Moyen Age: Style et Valeur** was held at Yale U. Contact: R. Babcock, Beinecke Library, 1603A Yale Station, New Haven, CT 06520 or D. Poiron, Dept of French, 2054A Yale Station, New Haven, CT 06520. (See Recent and Forthcoming Papers.)


Nov. 3-4: **The Concept of “Figura” in the Middle Ages and the 17th Century**, a symposium, was sponsored by the Center for Medieval Studies at Cal. State U. Contact: N. van Deusen, Director, Center for Medieval Studies, Dept. of Music, Cal. State U., Northridge, CA 91330.

Nov. 9-11: **The Material Culture of Gender: The Gender of Material Culture**, a Winterthur Conference, was held in the Copeland Lecture Hall and Visitor Pavillion at Winterthur. Contact: Conference Registration, Winterthur Museum and Gardens, Winterthur, DE 19735. (See Recent and Forthcoming Papers.)

Nov. 11: **The Politics of Myth**, the Eleventh Annual Barnard Medieval and Renaissance Conference, was held at Barnard College. Contact: Jean McCurry, Coordinator, Medieval and Renaissance Conference, Barnard College, 3009 Broadway, New York, NY 10027-6598. (See Recent and Forthcoming Papers.)

Nov. 15-18: **The Middle East Studies Association of North America** met at the Sheraton Centre Hotel, Toronto. (See Recent and Forthcomming Papers.)

Nov. 17-18: **Eius Virtutis Studiosi: Classical and Post-Classical Studies in Memory of Frank Edward Brown

Nov. 17-18: Medieval Works and Their Fortunes: The Uses of Artistry, a symposium, was held at the U.-Virginia. Speakers included William Loerke and Winthrop Wetherbee. Contact: R. Cook, (804) 924-7157; or Julian Weiss, (804) 924-7159.


Dec. 27-30: The Ninety-First Annual Meeting of the Archaeological Institute of America will be in Boston. (See Recent and Forthcoming Papers.)

Feb. 9-19: The Medieval West Meets the Rest of the World, a colloquium in honor of Lynn White, Jr., will be sponsored by the Center for Medieval Studies at Cal. State U., Northridge. Contact: N. van Deusen, Center for Medieval Studies, Dept. of Music, Cal. State U., Northridge, CA 91330.

Feb. 17-Aug. 5: Textiles of Wonder and Delight; Selected from the Collection of The Textile Museum by Ed Rossbach, an exhibit to include pre-Columbian, Peruvian, Indonesian, Coptic and Tizaz textiles and Turkish, Turkmen and Caucasian carpets, will be held at the Textile Museum, 2320 S St. NW, Washington, DC 20008.

Feb. 22-24: A Teaching the Middle Ages Conference on Medieval Communities, the 21st annual conference of the Center for Medieval and Renaissance Studies at Ohio State U., will consider European culture of the Middle Ages in terms of the formal and informal groups that in various ways guided the energies of religious and secular life. Aspects to be considered will include: the three estates, courts (and their artists), noble households, crusading orders, towns, guilds, professions, cathedral workshops, plays and players, merchant adventurers, peasants, fraternal orders, monasteries and universities. Contact: C.K. Zacher, Program Chair, 1990 Teaching the Middle Ages Conference. Center for Medieval and Renaissance Studies, The Ohio State U., 322 Dulles Hall, 230 W. 17th Ave., Columbus, OH 43210-1311.

March: Lodovico Guicciardini (1521-1589): the Description of Countries and Societies during the Renaissance will be held at the Université Libre de Bruxelles. Contact: P. Jodogne, Institut Interuniversitaire Renaissance et Humanisme, Boulevard de la Plaine 2, CP 240, B-1050 Brussels.

Mar.-May: The House of Savoy in the Pays de Vaud (13th-16th Centuries), an exhibit at the Musée de l'ancien-Evêché, Lausanne, will include documents, manuscripts, weapons, seals, coins, goldsmith work, vestments, architecture, sculpture, objects of daily life, etc. A catalogue will be available from Librairie Payot, Place Pépinet 4, CH-1003 Lausanne.

Mar. 8-10: The Seventh Biennial New College Conference on Medieval-Renaissance Studies will meet at the New College of USF. Featured speakers will be E. Muir (Louisiana State U.), and R.A. Shoaf (U.-Florida). Call for abstracts: all aspects of Europe and the Mediterranean before 1630 A.D., any discipline; with special focus on: Italian Studies, Medieval/Renaissance Humanism, Courtly Culture, Ritual and Drama, Spanish Studies, Urban History, and the 12th Century Renaissance. Send abstracts by Dec. 1, 1989 to L.D. Snyder, Director of Medieval-Renaissance Studies, New College of USF, 5700 North Tamiami Trail, Sarasota, FL 34243-2197.
Mar. 9-10: Gender and Society II: Men in the Middle Ages will be held at the Center for Medieval Studies at Fordham U. One page abstracts for 20-minute presentations should be sent to T. Fenster, Medieval Studies Center, Keating 107, Fordham U., Bronx, NY 10458.

Mar. 23-24: Iconography at the Crossroads, a conference hosted by the Index of Christian Art at Princeton U., will review the ways in which scholars of the Middle Ages and the Renaissance interpret the subject matter of works of art. Contact: B. Cassidy, Index of Christian Art, Dept. of Art and Archaeology, Princeton U., Princeton, NJ 08544-1018.

Mar. 29-30: London 1590—A Cityscape, an interdisciplinary conference at the U.-North Carolina, Chapel Hill, will commemorate the 1590 publication of the first editions of Spenser's Faerie Queen and Sidney's Arcadia. Contact: J. Haar, Institute for the Arts and Humanities, U.-North Carolina, CB #3322, West House, Chapel Hill, NC 27599-3322.

Mar. 30-31: Reconfiguring the Renaissance: Leading Approaches and New Directions, a symposium, will be sponsored by the Depts. of English and Comparative Literature at the U.-Tulsa. Contact: J. Crewe, Dept. of English, U.-Tulsa, 600 South College Ave., Tulsa OK 74104-3189.

Apr. 1: Symposium of the Robert Branner Forum for Medieval Art will be held at Columbia U. The symposium will mark the 20th anniversary of the publication of Otto Demus' Byzantine Art and the West. 2-page paper proposals for 20-minute presentations on historical, economic, liturgical and art historical topics and vitae should be sent to The Robert Branner Forum, Dept. of Art History, Columbia U., New York, NY 10027.

Apr. 5-7: Love and Death in the Renaissance, the annual meeting of the Renaissance Society of America, will be held at Victoria College, U.-Toronto, in celebration of the 25th anniversary of the Centre for Reformation and Renaissance Studies. Contact: K.R. Bartlett, Renaissance Studies, Victoria College, U.-Toronto, Toronto, Ontario M5S 1K7.

Apr. 6-7: Man and Nature in the Middle Ages, the Seventeenth Annual Sewanee Medieval Colloquium, will be held at The U.-of the South, Sewanee. Send two copies of completed 10-page double-spaced papers on this theme and written specifically for this colloquium, and a brief curriculum vitae, by 10 January, to the Sewanee Medieval Colloquium. The U.-of the South, Sewanee, TE 37375.

Apr. 20-21: The Eleventh Medieval Forum at Plymouth State U. Call for papers by December 1 on any aspect of the Middle Ages. One theme will be highlighted: Images of Otherness: How Medieval People Viewed Each Other. Contact L.M. Marquez-Sterling, Director, Medieval Studies Council, Plymouth State College, USNH, Plymouth, NH 03264.


May 10-13: St. Bernard and the Arts, the International Center for Medieval Art sessions at Kalamazoo, will recognize 1990 as the nonacentenary of the birth of St. Bernard of Clairvaux. Sessions will address St. Bernard on art and St. Bernard in art, as well as the artistic environment at Clairvaux and other abbeys during the saint's lifetime and the importance of the saint and of bernardine spirituality as programmatic themes in the religious art of later centuries. Contact: M. Lillich, Dept. of Fine Arts, 441 Hall of Languages, Syracuse University, Syracuse, NY 13244-1170.

May 12: History of Agricultural Science and Education in Britain, a one-day meeting sponsored by the British Society for the History of Science, will meet at Rothamsted, near London, in conjunction with the historical group of the Institute of Biology. Contact: K. Vernon, Manchester Centre for the History of Science, Technology, and Medicine, Mathematics Tower, Manchester U., Manchester M13 9PL.

May 18-20: A Silver Saga: Viking Treasure from the North West, a conference on the Vikings of the Irish Sea Province, will be held at the Liverpool Museum and the Merseyside Maritime Museum, Liverpool, in conjunction with the opening of the Silver Saga exhibit (Liverpool Museum, May 12-Sep. 2). Contact: F.A. Philpott, Dept. of Antiquities, Liverpool Museum, William Brown St., Liverpool L3 8EN.

May 24-27: The International Society for the Comparative Study of Civilizations, 19th annual meeting. Contact:
M. Ryan, Program Chair 1990 ISCSC Meeting, Dept. of Sociology, U.-Scranton, Scranton, PA 18510.

May 31-Jun. 3: The Society for Industrial Archaeology will hold its 19th Annual Conference in Philadelphia, PA. 150-word abstracts for 30-minute formal papers or 15-minute work-in-progress reports on all aspects of the industrial heritage; field investigations, recording projects, archival research and information dissemination should be submitted by Dec. 31 to C. Litchfield, Olearius Editions, Drawer H, Kemblesville, PA 19347; (215) 255-4335. For further information contact: S. Elk or C. Weber, Philadelphia Historical Commission, 1313 City Hall Annex, Philadelphia, PA 19107; (215) 686-4543.

Jun. 17-30: The Second International Summer Institute in the History and Philosophy of Science will meet in Berlin and Dresden under the sponsorship of Humboldt U., Berlin. Participants are expected to attend for the entire period and to present papers on topics in the history, philosophy and sociology of science and technology, in the history of philosophy and on science policy. Applicants should submit one-page abstracts, vitae and visa information; registration is limited and admission will be granted on a continuing basis. Fees will be charged on a sliding scale and no travel subsidies are available. Send applications and requests for information to W.R. Woodward, Dept. of Psychology, U.-New Hampshire, Durham, NH 03824; (603) 862-3199 or (603) 868-5895.

Jun. 18-Aug. 10: Narrative and Synthesis in Medieval Book Illumination, an NEH Summer Seminar for College Teachers, will be given at Cornell U. by Robert Calkins. Application deadline is March 1. Contact: R. Calkins, Director, Dept. of History of Art, 35 Goldwin Smith, Cornell U., Ithaca, NY 14853.


Jun. 20-24: Margaret of York, Simon Marmion, and the Visions of Tondal, a symposium to take place at the J. Paul Getty Museum and the Huntington Library, organized by the Dept. of Manuscripts of the Getty Museum under the direction of Thomas Kren, in conjunction with an exhibit of manuscripts at both institutions (June, 1990). Contact: Dept. of Manuscripts, The J. Paul Getty Museum, Box 2112, Santa Monica, CA.

Jul. 9-Aug. 17: The 1990 Summer Institute in the English Archival Sciences, supported by a grant from the NEH, will be given by Diana Greenway and Jane Sayers at the Newberry Library, Center for Renaissance Studies. Deadline for applications is March 1. Contact: Center for Renaissance Studies, The Newberry Library, 60 W. Walton St., Chicago, IL 60610; (312) 943-9090.

Jul. 17-20: The Scientific Revolution: Science, Technology, and Medicine in the Early Modern Period, a major international conference at Keble College, Oxford, sponsored by the British Society for the History of Science, will include sessions on Scholars and Craftsmen; Medicine, Science and Religion; Patronage and Societies; Newton; and Boyle. A workshop on historiography is also planned. Offers of papers should be addressed to J. Hendry, 58 Canfield Gardens, London NW6 3EB. For further information, contact G. Bennett, Executive Secretary, British Society for the History of Science, 31 High St., Stanford-in-the-Vale, Faringdon, Oxon. SN7 8LH.

Aug. 2-9: The Sixth International Conference on the History of Science in China, sponsored by the Needham Research Institute, will be held at Robinson College, Cambridge. The first circular will be mailed in late 1989. Contact: Conference Organizer, 6th ICHSC, Jane Rowell Conferences, 43 Norwich St., Cambridge CB2 1ND.

Aug. 8-11: European Renaissance National Traditions, an interdisciplinary conference, will be held at the U.-Glasgow. Contact: J.R. Brink, Arizona Center for Medieval and Renaissance Studies, Arizona State U., Tempe, AZ 85287.


Sep. 22-23: Peregrinatio: Pilgrimages and Their Destinations, the 12th International Conference on Christian Archaeology, will be held at the U.-Bonn. The conference
topic is divided into four sections: 1) travel in the ancient world and non-Christian pilgrimages; 2) motives of Christian pilgrimages; 3) archaeology and architecture: centers of pilgrimage, cult buildings and their context; and 4) itineraries, maps, and souvenirs of pilgrimages. Send proposals for 15-minute papers by 30 June to: J. Engemann, Christlich-archeologisches Seminar im Kunsthistorischen Institut des Universitaets Bonn, Regina-Pacis-Weg 1, D-5300 Bonn 1. If the proposal is accepted by the Advisory Committee, a 300-word synopsis must be sent to the conference office no later than June 30, 1991.


Continual: The International Summer School in the History of Science met for the first time in Bologna, Aug. 29-Sep. 9, 1988, and will meet in future years in Uppsala, Berkeley and Bologna, in rotation. The purpose of the school is to bring together advanced students and faculty to discuss particularly interesting and timely topics in the history of science and technology. For further information, contact the founders: J. L. Heilbron (Berkeley), T. Frangsmyr (Uppsala), or G. Pancaldi (Bologna).

Events at the Folger Institute


ARTICLE REVIEWS WANTED

Readers are urged to bring relevant articles to the attention of the editors, to comment on published reviews, to write reviews. Remember, this is a unique opportunity to monitor the latest periodical literature across a broad spectrum of disciplines. Carl F. Barnes, Jr. suggests that graduate students should be encouraged to write informational reviews of significant or controversial recent articles, especially in the fields of art and architecture. Direct your material to the appropriate editor, listed on the last page of this issue.

NEW EUROPEAN BOOKS AND JOURNALS

Analecta Cartusiana (nouvelle srie). Informations et abonnements: Centre de recherches cartusiennes, Muse, F-30130 Pont-Saint-Esprit (France).


BIBLIOGRAPHY OF THE AVISTA LIBRARY

The AVISTA Library contains books, articles, and unpublished materials contributed by AVISTA members and others. Housed in Magill Library, Haverford College, Haverford, Pennsylvania, all published items and some unpublished material may be obtained through interlibrary loan. Remaining unpublished material may be consulted in Magill Library. For a complete listing of the collection, consult the previous issues of AVISTA FORUM. Members are encouraged to make use of the collection and to contribute their published works. Direct new material to the attention of Charles Stegeman, 2 College Circle, Haverford, PA 19041 (USA).

PERIODICALS

AVISTA FORUM: 3.2 (Spring 1989)

Medium Aevum Quotidianum: Gesellschaft zur Erforschung der materiellen Kultur des Mittelalters, Krems, Austria, Vol. 16 (1989). Contents include: On Some Geometrical Aspects of Land Surveying in the Middle Ages, Vera Casensky [Vienna] (7–17): a listing of members, with address (18–25); reviews, news, and reports (26–40).


ARTICLES AND ESSAYS


[Prof. Bonkalo notes that, outside of Canada, this work is used in East Germany for undergraduates. His method may be applied to any period.—Ed.]


BOOKS


PAMPHLETS

AVISTA presents Villard de Honnecourt: Artist of the XIIIth Century. An Exhibition of Photographs and Commentary based on Paris, Bibliothèque nationale, MS Fr 19093. Exhibition prepared by Association Villard de Honnecourt, Etang des Moines, Route d’Ossu, 59226 Honnecourt-sur-Éscaut, France. Held at the XXIVth International Congress on Medieval Studies, Western Michigan University. Kalamazoo, Michigan, USA, 4–7 May 1989. Exhibition at Kalamazoo was sponsored by the Ian Woodner Family Collection, Inc. (New York City) and the Oakland University Center for the Arts (Rochester, Michigan).
ANNUAL BUSINESS MEETING
OF AVISTA

Summary of Minutes
5 May 1989, Kalamazoo, Michigan

The Fourth Annual Meeting of the General Assembly and the fifth annual meeting of the Board of Directors were held consecutively on May 5, 1989, commencing at noon in Room 1040 of Fetzer Hall, during the 24th International Congress of the Medieval Institute of Western Michigan University, Kalamazoo, Michigan. Charles Stegeman, President, presided.

Nominations to the Board were left pending at the previous annual meeting, 6 May 1988. In the Fall 1988, by Written Consent, the Board of Directors appointed the following members for terms of three years in the positions indicated: Charles Stegeman, President; William W. Clark, Jr., Treasurer; Marie-Thérèse Zenner, Secretary; and Dale Kinney, Board Member. At the same time, the Board accepted the resignation of Carl F. Barnes, Jr. as Vice-President and the appointment of George Ovitt in his place. The Board also appointed Barnes as a Board Member for a term of three years to fill the vacancy created by the death of Lynn White, Jr. The General Assembly ratified these actions as the first order of business at the annual meeting on 5 May 1989.

Marie-Thérèse Zenner, Secretary, read a letter dated 18 April 1989 from the Chairman of the 1989 Nominating Committee, William W. Clark, Jr., who was unable to be present. Clark’s letter suggested that status quo continue with regard to those positions terminating in May 1989. The General Assembly, therefore, ratified the following reappointments: Holbrook M. Bunting, Jr., Counsel; Jean Gimpel, European Director; and the following as Board Members: Jean Bony, Marjorie N. Boyer, Yoshio Kusaba, Pamela O. Long, Charles M. Radding. All are for three-year terms.

The President called for a volunteer to serve as the 1990 Chair of the Nominating Committee. Harry B. Titus, Jr. volunteered to serve with Vivian Paul.

The President asked those attending to solicit new members. Titus suggested targeting graduate students. W. Ted Szwejkowski, a Canadian student, offered to distribute issues among his peers in Toronto.

Barbara M. Kreutz, Chair and Organizer of the 1990 AVISTA sessions at Kalamazoo, reported positive response to her call for papers, adequate to fill the two sessions. Kreutz would, however, like to solicit something from experts on equestrian related travel. Kreutz also solicited suggestions for funding sources to cover travel costs for two speakers, from Europe and Australia. The Kress Foundation, Getty Trust, and Sloan were named as possible options.

Roland Bechmann, a European member, asked that the Board investigate means of avoiding banking fees incurred when obtaining drafts in U.S. Dollars. Jean Gimpel and the President agreed to look into an arrangement with the French Association Villard de Honnecourt.

The President asked for topics for the 1991 AVISTA sessions at Kalamazoo. Gimpel suggested the windmill as a topic, noting the recent publication, Harvesting the Wind, which was reviewed by member Marjorie N. Boyer for Isis. Kreutz passed along a suggestion from Frederick Homann, citing “Numerology,” to which Szwejkowski added “Weights & Measures.” For the agreed upon topic, “Numbers, Weights, and Measures,” Kreutz nominated as Chair, Ronald E. Zupko, in absentia, and the Secretary agreed to solicit same.

The Secretary asked for suggestions how to best handle this position while she is conducting research abroad in 1990-91. Barnes cautions that the corporate address should not change. The President believes a secretarial assistant at Haverford College may be enlisted.

Barnes asked members to either review material on art and architecture or call new material to his attention. Barnes suggests that younger members, such as students, are capable of doing informational reviews. The Secretary agreed to advertise this request.

Gimpel inquired if other members were interested in exhibiting the panels on Villard de Honnecourt (see Bibliography of the AVISTA Library—Pamphlets) at their universities next year. Bechmann suggests creating a duplicate set to remain in the U.S. in order to avoid the cost of trans-Atlantic shipping. Szwejkowski suggested enlarged photos, drymounted and Bechmann named slides as efficient means of producing a duplicate travelling exhibition.

Serim Denel inquired as to ways to “share” international scholars during their stay in the U.S. Michael Davis suggested that AVISTA FORUM could carry notices of the availability of such scholars for the lecture circuit. There being no further business, the President adjourned the meeting at 1:15 P.M.
NOMINATION OF CANDIDATES FOR BOARD OF DIRECTORS

Any member of AVISTA may submit suggestions for candidates for the Board of Directors to be elected in 1990. Please send names and institutional affiliation to the chair of the Nominating Committee, Harry B. Titus, Jr., Art Department, P.O. Box 7232, Reynolda Station, Wake Forest Univ., Winston-Salem, NC 27109. Suggestions should be sent by 25 April 1990.
The deadline for the Spring 1990 issue is 1 March 1990.
Please send your contributions to the appropriate editors, or to the Editor-in-Chief.

Editor-in-Chief

**Michael T. Davis**, 233 Mosier Street, South Hadley, MA 01075

**Article Reviews**

(Science & Technology) **Pamela O. Long**, Department of History and Social Sciences, St. Mary’s College of Maryland, St. Mary’s City, MD 20686 (for Spring ’90)

(Art & Architecture) **Carl F. Barnes, Jr.**, Center for the Arts, 231 Varner Hall, Oakland University, Rochester, MI 48063

**Notes & Queries**

**George Ovitt**, Department of Humanities, Drexel University, Philadelphia, PA 19104

**News, Papers, Activities**

**Carol L. Neuman de Vegvar**, Fine Arts Department, Ohio Wesleyan University, Delaware, OH 43015

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