Research in medieval, Norwegian wooden churches, relevance of available sources

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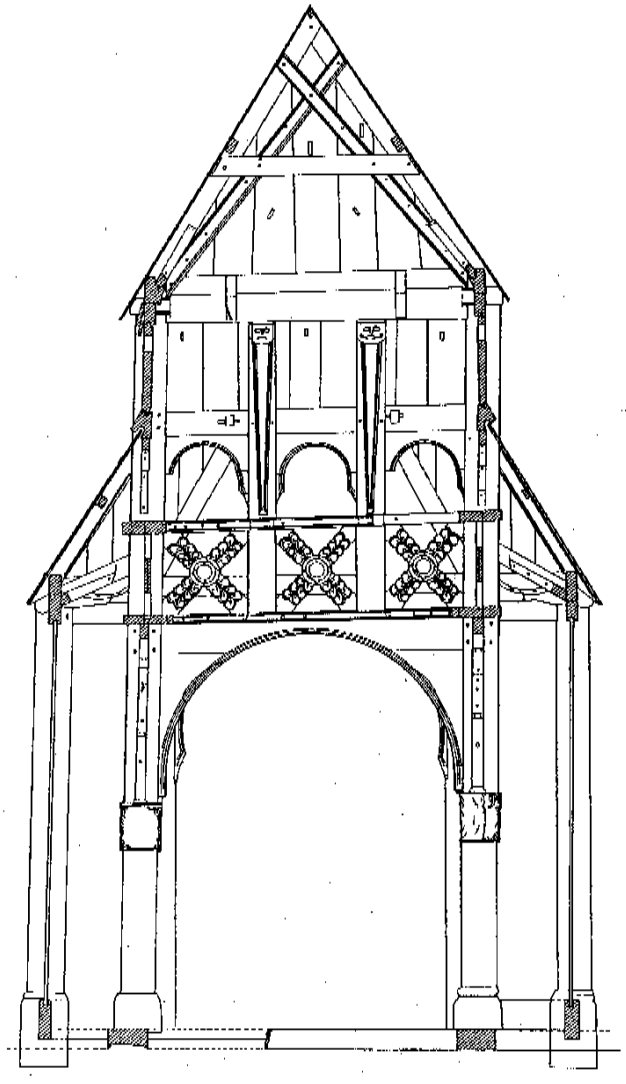
The author is a building historian working on a thesis which will present a model for the planning and design process, the logistics, of the wooden churches of Norway before ca. 1100 CE. The aim is to show that the transmission of form is inherent in planning and design. This paper examines the sources available for such a research.

In accordance with my background as an architect and building historian, my dissertation of the vanished Norwegian wooden churches before c.1100 CE will focus on the processes[1] of planning, design and logistics.[2] The building historian concentrating on medieval wooden churches has to identify, document and analyse the buildings in question. Analysing is to understand how buildings are put together in terms of craftsmanship and disposition of the elements.[3] The thesis can be read as an extended investigation of a historical context, the logistics, with special attention to the design scheme of the early Norwegian churches. In this paper I will examine some of the sources available for research of planning and design of medieval wooden churches.[4] Available sources are archaeological remains, building remnants, standing buildings, texts, drawings and models. The question asked is whether information collected from these different sources may be combined into a coherent description of planning and design of the actual building. I will suggest that if physical objects and texts are examined according to their innate characteristics, the various information gathered might be combined into one entity of knowledge of the logistics for the early wooden churches in Norway.

The question of the genesis of the Norwegian wooden churches has been debated for more than 160 years.[5] In research literature it is commonly agreed that the introduction of the Christian faith to Norway was accompanied by the introduction of new architectural form. The early wooden churches of Norway may have been built by the kings, the nobility, gentry and others encouraged by the kings and the missionaries.[6] In his important book from 1892, Lorentz Dietrichson, the first Norwegian professor in art history, recog-



nised the unique status of the Norwegian stave churches. Dietrichson suggested that the architectural forms of the stave churches for a major part were ingenious transformations from stone into wood.[7] Already in his time, other antiquarians disagreed with some of his conclusions. Since then, many attempts have been made to connect parts of buildings to their supposed origins.[8] Some authors have proposed that carpenters were brought from abroad to build in Norway, others have meant that vernacular building types were adjusted to suit the program of the Church.[9] The questions asked are whether foreign ecclesiastical buildings inspired the churches,[10] if they were copied from Norwegian vernacular or ecclesiastical architecture,[11] or something in between.[12] One may also ask if the Norwegian churches were copied accurately from specific, topographically identified churches, or if they were paraphrases of types of churches.[13] With all the uncertainties the discussion of the genesis of wooden churches is far from concluded, even if work has been going on as if the question had been settled.

Much of the research concentrated on the construction and the outer form of the buildings, on how surfaces were articulated and spaces formulated. In the available literature, hardly anything is said about the function, and the connection between the use of the churches and their form. In addition the process of planning and design in the Middle Ages is discussed as an empirical phenomenon more than a theoretical supported entity. Even if the process was oral and forever lost, even if the evidences may be insufficient and never adequate, planning and design should not be treated as if they did not exist. That would exclude almost all reasons for which the building was built, and why patrons and builders chose one kind of building rather than another.[14] In the investigation of churches the aim must be to find traces of the almost entirely oral and unwritten tradition of planning and design and connect that to the remaining objects. The dissertation work in preparation will not be an attempt to explain the process of planning and design, an attempt which would tend to be superficial and speculative.[15] The investigation will rather proceed by the way of suggestion more than with explicit argument, dealing with how form can be abstracted, quantified and theoretically explained and visualised today. The challenge which confronts the building historian then is first to assess the variety of sources on their own terms. Then she has to correlate the different kinds of evidence in an attempt to produce a composite whole. This is not a jigsaw puzzle with missing pieces, but pieces from different puzzles.

Objects as sources

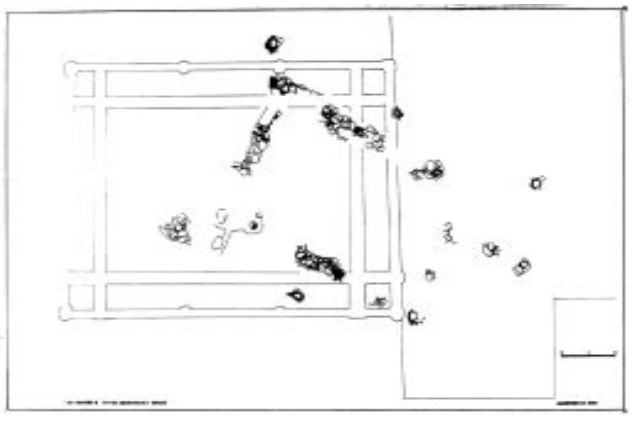
There are three important object sources for the study of planning and design of the churches of the past. They are the building proper, different types of building remnants and the archaeological remains, inside or close to the building.

Standing buildings

There are 28 stave churches left standing in Norway, dating from c.1130 and onwards, with elements of older origin.[16] What we see are the structural consequences of the builders' actions (Ill.1). To utilise the buildings in this way requires knowledge of building history besides experience and practice of surveying and documentation. The technique of building may also point back to an archaic situation, like the apparently original earth-bound corner posts in Røldal, supposedly constructed in the 14th century.[17] Analysis of surviving buildings requires caution since it is difficult to determine whether the building or building remnants constitute a reliable sample of the era or of the district. Few churches have been systematically investigated. The dating of buildings may be done in different ways, by historical records, inscriptions, by stylistic means, dendrochronology and carbon 14 traces.

The buildings are the main sources for information of their planning and design, where one can find the underlying principles for the buildings as they came to be, if one is able to interpret their elements. Some of the churches may have the same ratios and geometrical figures embedded in the plan, but there are reasons to believe that there were no general rules. We are used to think of "types", but a type of churches is not stipulated a priori, rather deduced from a series of churches. The individual stave church may have some characteristics in common with churches of the same type, but also of some belonging to another type. It is always possible then, to regroup churches to another type. We may find some of the same lengths, ratios or geometrical figures in all churches. Others are found in just a few of them, independently of which type they are said to belong to.

Procedures of planning and design cannot be deduced directly from the elements of the building in the



first hand. To approach the questions the scholar has to make a complete documentation, in the present author's case a survey of the church building, measuring all parts of the construction and produce detailed drawings, with the help of the 1-by-1 meter square, defined by the Cartesian grid of latitude, longitude and elevation. With this interpreted documentation it is possible to put equal elements in groups, to adjust the measurements found within acceptable limits. The measurements thus found are then used in a search for ratios in elements connected to each other. At the end this procedure can lead to a possible overall geometrical figure, or set of figures.[18] In the thesis this knowledge of practice will be developed to make a discourse on history of design, and tentative models for the logistics of the wooden churches.[19]

Building remnants

These are parts of buildings disassociated from the building proper, like posts, braces, wall plates and portals. They may have been reused in a building or have been stored as separate objects. Such parts may be documented in their present condition and be part of a graphic reconstruction.[20]

Archaeological remains

Archaeological remains of possible wooden churches are found in most Northern European countries,

but does not provide simple, straightforward data.[21] What were the criteria for a church, what constituted a church building? Firstly it must have been orientated, at least roughly. Then it should be a rectangular building, a nave, with an eastern chancel arrangement of some sort, preferably a separate smaller room. Traces of altar, fragments of baptismal fonts, lost coins in the surface of the floor, and finds of ecclesiastical utility articles may indicate the function of the building. Lack of findings of fireplaces, weights for looms or manure from animals, may also indicate former use of the buildings. Such observations done by the archaeologists in an excavation are indirect sources (Ill.2).

To utilise this source requires the knowledge of archaeological practice and theory, especially regarding excavation and documentation. There have been different methods of approaching the documentation of earthen remains of buildings. In the beginning the main method was more aesthetic than scientific. The wish was to find and assume the original form and function, and establish the date of the use of the building. This field practice aimed at exposing the significance of burials, artefacts and building remains by separating them from insignificant dirt. Next step was to restore and reconstruct churches that would substantiate a textually mediated view of the past. This method may be seen as an aesthetic interpretation, more than a scientific explanation. The last generations have developed the "Stratigraphical method", that is a shorthand term for the meticulous recording of the location and character of all material excavated. The surface to be read is that of the balks, the four vertical faces of earth left standing in emptied graves, postholes and foundation trenches, in addition to the excavated squares defined by the archaeologist. Sometimes the interpretation of soil layers is based on little more than intuition and experience: the post-hole filling looks and feels the same as the other one to the excavator.[22]

Understanding and thought processes of the medieval builder can not be deduced directly from archaeological traces. Observations are interpretations and must be given a form that can fit into the scientific discourse. The question of planning and design may consist of a reading of the underlying geometry hidden in the floor plan of the churches. Even if the buildings are but negative imprints, archaeological remains show the actual situation as it was after the buildings were demolished, without interpretations.

In 1956 the traces of one or two older wooden churches were found underneath Urnes stave church.[23] The remains are postholes, levelled ground inside the building, and maybe imprints of the walls. Similar traces of 12 other wooden buildings, supposedly of churches or chapels have now been unearthed. The dating of the remains are roughly from 1050 CE and forwards. The archaeologist who recovers post-hole buildings needs to be half building historian in order to interpret them, the excavator who unearths wooden buildings needs to be half soil scientist to understand fully the medium into which the buildings have been transformed. The architect-surveyor then needs to be able to communicate with all the different scientists, to get a full picture of the historical buildings.

Written sources, drawings, models

Planning and design may have been mainly a non-written subject with a specialised vocabulary defining practice, procedures and terms that sometimes can no longer be translated into modern language. All the same, it may be assumed that written documents give a better understanding of the original meanings than other sources.[24] For the architect/building historian the challenge also seems to lie in the handling of the written sources. In most cases it is possible to lean heavily on already published modern works, modern descriptions, interpretations, translations or collections of research results. A building historian with a limited linguistic capability may find herself unable to handle medieval sources.[25] The concepts, terminology and formulas may cause a formidable barrier to the reader. The contents of texts may be difficult to comprehend, the motives of the author are unknown, so are the truths of the descriptions.[26] Medieval authors used phrases which would at best be grasped by at least some of their contemporaries, but may be incomprehensible to us. We have little if any understanding of commonplaces that the writer of the text took for granted. Important dimensions in buildings are easily misco-

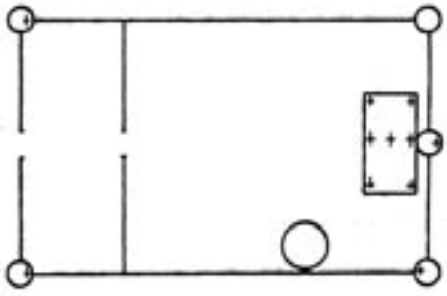
pied or misread when copied by different copyists. Regarding the greater building projects in the Middle Age, contemporary records show the structure of the commissioning, financing and the construction process in general.[27] Of the minor building projects, the churches built all over Northern Europe, as well as the earlier wooden churches of Norway, we know hardly anything today.

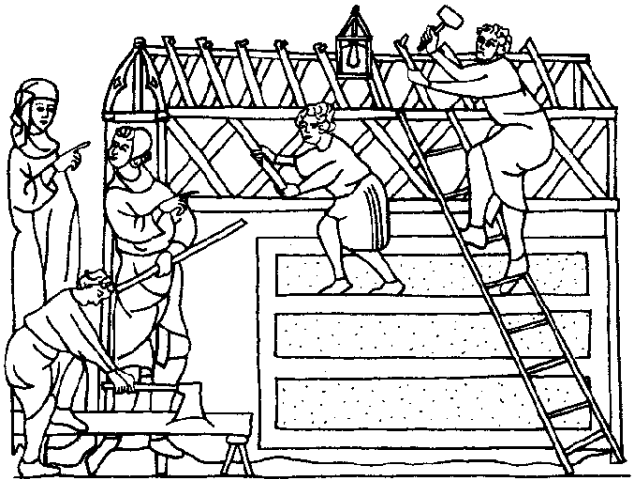
The building historian has to ask questions which are not already answered by other scholars in a satisfactory way.[28] The original texts available describing churches have to be used as sources. Below three main types of texts are observed. First, the texts which state how to do things, as well as to say things, the normative ones. Secondly the texts that are written to say things, here named descriptive ones. And thirdly the texts which are written to propose things, named attributive ones.

Normative design texts, drawings, models

All normative methods are paper descriptions of procedures that humans are meant to execute. Generally it seems that design methods are incomplete as descriptions of the real methods being employed. At its best they emphasise one side of the design method and should be valued for that partial truth.[29] Through history direct normative texts in handbooks generally propose what to expect from the building by form and function, and how to get to the result by a process. Roman architects, engineers and officers wrote texts on practical work. Procedures for measuring lengths and areas were passed on orally and in surveyors' handbooks.[30] Surveyors and builders may have found this practical geometry useful. Instructions for making simple instruments for levelling and measuring can also be found in some of the handbooks. The presence of material on surveying and instrument making does not imply that these texts were written for builders, maybe they were for the interested liberal educated man.[31] The engineer Vitruvius (c.50 BCE) wrote a compilation of the building technique and traditions. In his books he deals with the realities of building when he discusses the nature of the site, the size, weight and strength of material, and he provides theoretical descriptions of how temples were to be constructed.[32] From the Greeks was developed the abstract concept of theory and in his books Vitruvius claimed his ideas were based not just on practical experience, but on scientia, scientific theory.[33] Vitruvius has scarcely any admixture of magical procedures, superstitions find little hold, and he stresses reality and propriety. His view of building is an honest, constructive art where error will at once be apparent. He declares that an architect should be a skilled draftsman and he took architectural drawing for granted, even if the rules he advocates for temple design could be followed without the use of scale drawings.[34] Like his successors, Faventinus (c.300 CE) and Palladius (c.400 CE),[35] he believed in the correctness of structural and aesthetic systems founded on a theory of ratios and proportions.[36] These ways of using arithmetic and geometry may have been common in the time of Augustus. But they probably have had little influence on the building in wood, hundreds of years later in other countries, even if his books were copied and kept in monasteries.[37]

Some of the craftsman's skill is the theoretical part of the planning process.[38] This underlying discipline is what Vitruvius, Villard de Honnecourt,[39] and Alberti[40] put in words and schematic drawings in their collections. By their compilation of knowledge they did bridge the gap between "doing" and "explaining" in writing.[41] These

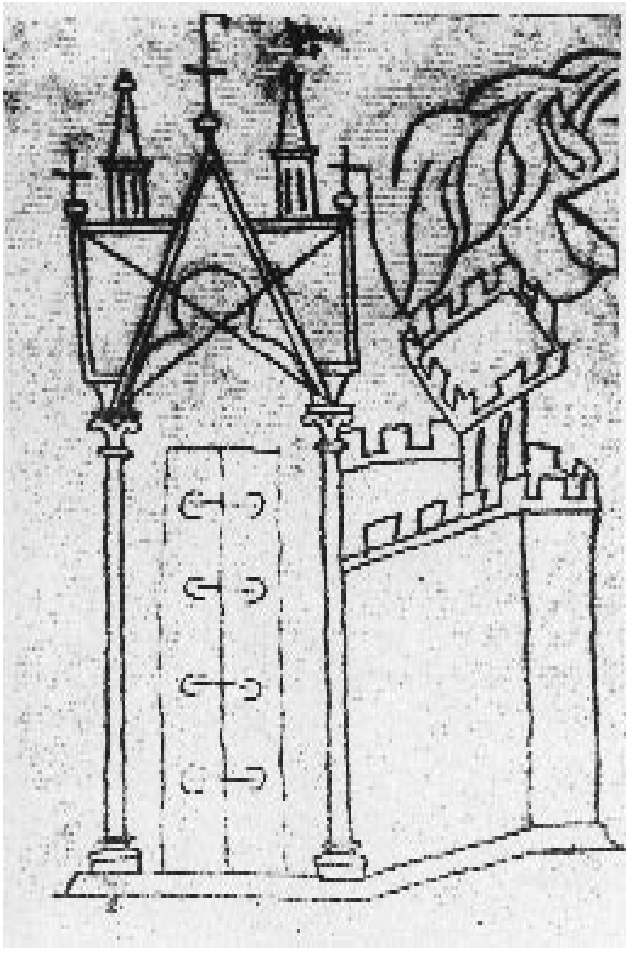


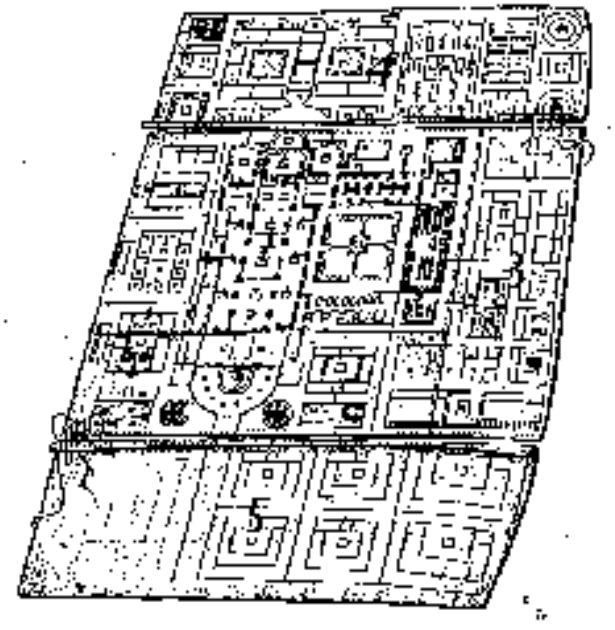


authors were followed by others who generated a body of written knowledge that could form the basis of more general theories, the theories of planning and design, as we know them today.[42] It is supposed that most technical and craft knowledge was transmitted orally through apprentice systems (Ill.3).

There were probably no norms for size, material or form of church buildings ever given by the ecclesiastical authorities.[43] In the ecclesiastical tradition the normative seems to have been lying in the copying of churches from abroad, certain prototypes were seen as norms. The prototypes may have been historical, fictive or contemporary.[44] Despite its apparently normative character, however, the synodal legislation of the Church was usually a response to particular problems and settled local disputes and occasionally issued directives on general religious observance and organisation. But even without written codes or norms, unspoken tradition may have been influential in planning and design of churches. The scholar has to find more indirect sources to stipulate how churches were thought to be.[45] In the New Testament there are no rules for how to make a Christian place of worship, and in the Middle East no normative type of church building seems to have been preferred in the early period of Christianity.[46] Description of various elements may be found normatively documented through records of patronage, the choreography of liturgies and the placement and programme of decoration.[47] The transformation of ideas of architecture may have been a minor part of the Christian mission to Norway, but it may have been a strong wish to enhance the idea of universality of the Church. Acceptance of Christianity by the Norwegians was not simply a matter of confessional change, of dogma, or of religious belief and observance. The diffusion of a Roman ethnocentricity brought Mediterranean customs and values, and habits of thought to Northern Europe. The means for this was literature, books and the Latin language in addition to Roman notions about liturgy, law, authority, property and government, even if it was brought via England or Germany.

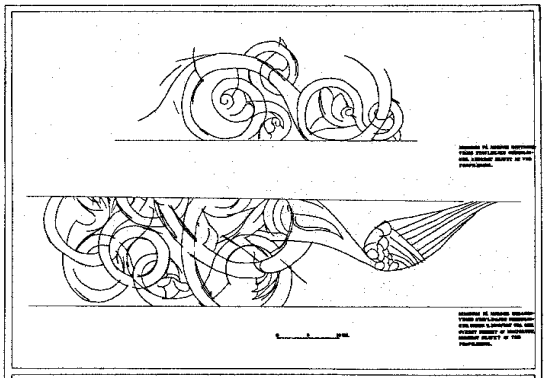
One indirect source for the requirements of architectural space may be found in the description of the rite of converting a building to a church, the ordo for dedication of churches, to be performed by a bishop. An ordo for dedication of a wooden church is preserved in the Irish collection of Leabhar Breac, a Gaelic transcription from the 14th century, translated into English twice.[48] The ordo is presumed to have been inspired by two origins in Latin and adapted into Irish tradition around 900 CE.[49] The ordo has been translated into Norwegian with commentaries and illustrations showing each step of the ritual by the present author.[50] The ordo is a functional document, reserved for the use of the clergy, describing the actions and choreography of the bishop, priests and deacon in the ceremony. These actions tell about the required space for the celebra-





tion of the liturgy, with hints to different architectural features and spatial references. There should be an altar in the chancel area, a baptismal font in the nave area. Wooden corner posts were to be marked by crosses both from inside and outside of the building. In the western part it is hinted at a semi-closed area, maybe a front porch (Ill. 4). The importance of this ordo consists of the pragmatic and practical way it describes the actions of the clergy through the rite. Such an ordo may have been normative in a period, in a certain bishopric. One can scarcely call it a building program, but it may be seen as a functional equivalent. It is incomplete for a reconstruction of a building, thus indicating that the connection between form and function, building and liturgy is limited indeed. In the different extant ordine, the numbers of participants and details of actions may be different, but the main steps in the rite are the same. The generality of the Irish text, however, makes it possible that an ordo of this kind would have suited a wooden church in Norway in the 10th or 11th centuries as well.

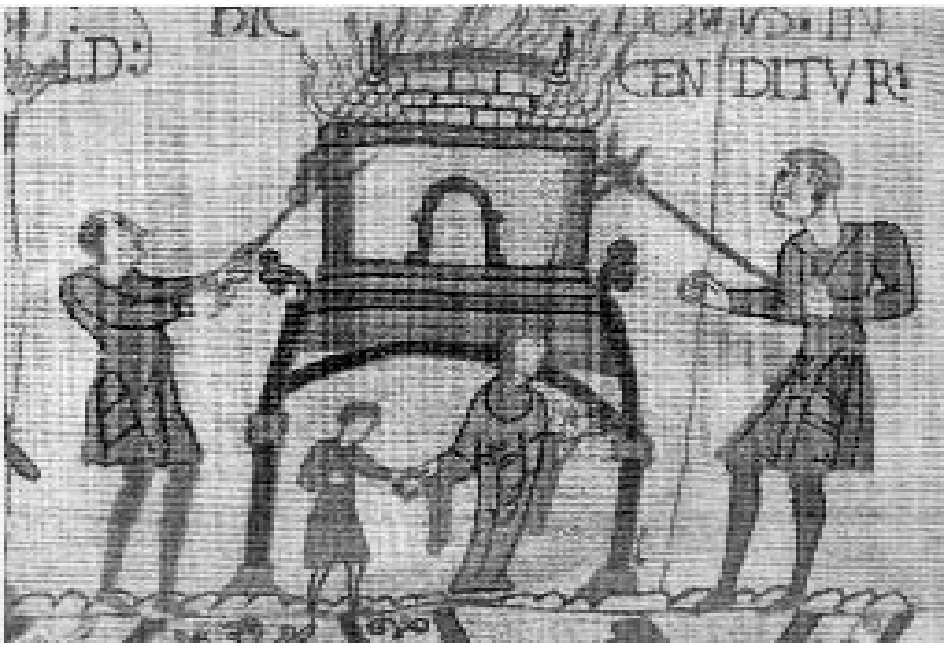
The craft lore of the carpenter was the mental and physical way of doing; this knowledge may have been obtained by long time of practical training, by the guidance of a master.[51] This perceptual knowledge may hardly be describable and cannot be learned from theory alone (Ill.5). Form and material are largely interdependent; by experience is found that some solutions are better than others. They may have been remembered by being formulated systematically into rules (what, how, when). Some of these rules may have been the organising of lengths, areas and volumes, and may have helped to solve problems of setting out, dimensioning, proportioning and measuring each element and the



whole, and help the builder answer the questions of how to articulate surfaces and formulate space.

Another source is the album of Villard de Honnecourt (c.1175–1240), a notebook with artistic and architectural details he wanted to remember.[52] Some of his notes are practices and theorems and reflections of an actual creative process. For one of his drawings, a castle with a portal whose gable is determined by a pentagram (Ill.6), he writes: "Here begins the art of lines of drawing as taught by the discipline of geometry, which facilitates work".[53] His texts are written in the vernacular, and in the vernacular of the building craftsmen, replete with the technical terminology and the colloquial phrasing of the carpenter or masons.[54] In the modern history of architecture these few surviving historical texts are given so much importance that one may forget how exceptional they may have been. They can be seen as collections of thematic description of actions, with no distinct method for combining these into a synthesis, a possible theory of design. Anyway, until proven otherwise, one may suppose that rules for planning and design of wooden architecture in Northern Europe were transmitted by word of mouth entirely, with simple means of memory.

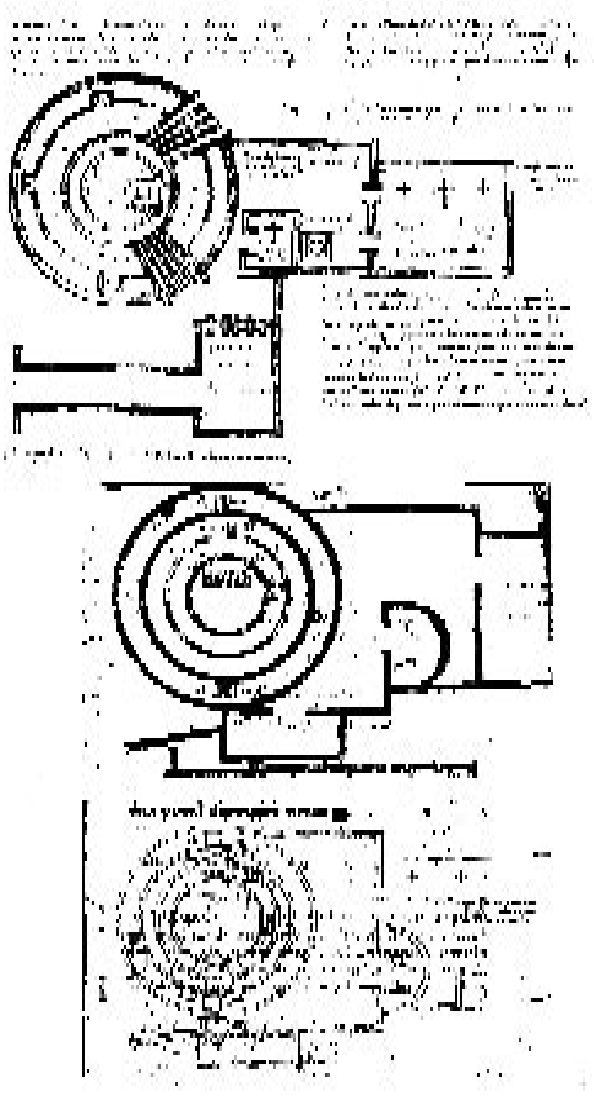
By the time Charlemagne was crowned Emperor in 800 CE, monasticism in his land had not yet developed a clearly defined or uniform system of observance. To achieve the desired unity, two synods were held in Aachen, in 816 and 817. For these, and the reform movement itself, it was produced a plan of a monastery, known today as the Plan of St. Gall. At 77 x 122 cm it is the largest surviving manuscript of the period, stitched together from five pieces of parchment (Ill.7).[55] This ideal scheme for a monastic settlement shows the monastic church, with all the necessary buildings grouped around it. Perhaps the most notorious problem



with the plan of the church is its dimensions.[56] It is written on the plan that the church is 200 feet, the width of the nave 40 feet, the aisles 20 feet and between the columns 12 feet. But these measurements contradict the drawing. The church plan must be based on earlier traditions of design, and there are certain parallels to churches in the area. Several theories have been proposed to reconcile the variances in numbers. One theory is that there were two versions of what was considered appropriate dimensions for such a church in the reform movement. The older vision is embodied in the linear plan of the church, while the newer is reflected in the dimensions given in the explanatory texts.[57] According to one scholar the plan is not an official one, but a sketch and that we do not know so much about it as some have proposed.[58]

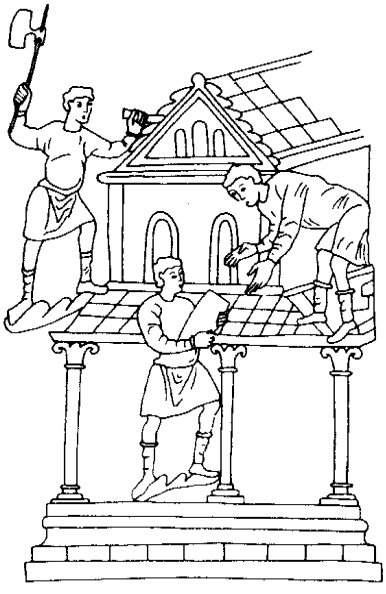
Sketches may have had a similar function as models, when they are used to explore or demonstrate structural or ornamental problems. In the upper part of the nave in Torpo stave church a scratched drawing related to the southern doorway carving can be seen (Ill.8)[59]. Similar scratches dealing with solving of structural problems are not yet found in Norwegian churches. The sketches in the floor or pavement of churches in other countries are normative geometrical based descriptions of how things ought to be done, how forms were to be executed.[60]

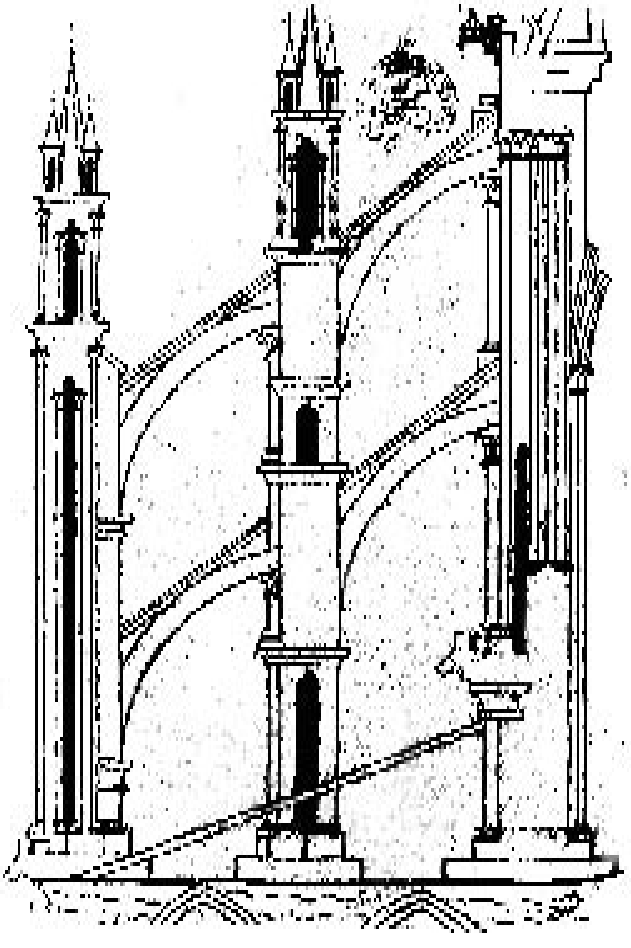
A design model is a small-scale three-dimensional structure used to test, clarify or illustrate part or all of an architectural design or building.[61] A model may be the resolution of special problems in the design development, for the consideration of the donator, as a definitive consent of the patron, or as a guide to successor architects. They are known from Egypt and Rome.[62] Models understood as conceptual models, such as formal composition or structural solutions to a problem are not known from medieval times in Norway. A transportable sketch or model is the template. No exactness in cutting stone at least was possible without. All templates were made full-size, so each profile could have been easily reproduced with complete accuracy.



Descriptive texts, drawings, models

To give a literal interpretation of a church building means to describe it. The history of architecture indicates that the same buildings have been considered differently at different times and by different people. This is not only because of difference in taste or judgement, but because of a selective perception of the mind, according to what is important or unimportant to the beholder. The same building may look tall or small depending on what it is compared with. A group of texts





from medieval times were written post factum as descriptions of church buildings. An example of this is a description by Bede, writing of King Edwin in 627:

> The kings baptism took place at York at Easter Day, the 12th of April, in the church of Saint Peter the Apostle which the king had hastily built of timber during the time of his instruction and preparation for Baptism… Soon after his Baptism… he gave orders to build on the site a larger and more noble basilica of stone, which was to enclose the little oratory he had built before. The foundations were laid, and the walls of a square church began to rise around the little oratory… [63]

Such a text may have several possible explanations. The form of the church may have been centralised, the type used for baptism. A longitudinal plan is equally possible, since the idea of a building "around" another does not preclude longitudinal extension.[64] Anyway is it difficult to reconstruct a church according to this sort of description. The texts may be a firsthand experience, or it may be a secondary one.[65] Documentation requires sometimes the use of arithmetic and geometry. If so it may be possible for us to reconstruct size, form and numbers of elements of the building described in our minds.

Many local chronicles seem to reproduce the tradition, popular or local (III.9). They often combine data based on monuments still in existence, without discussing whether the sources have been tainted with legends, and they do not examine the origin and value of their information. Sometimes they are nothing more than panegyrics. In the years 679–82 Arculf, a bishop from Gallia, travelled as a pilgrim to Jerusalem. He made a drawing on a wax tablet of the churches on the hilll with the Holy Sepulchre, the Round Church and the basilica of Constantine. The oral description of Arculf's was written down by Adamnan of Iona in

683–686 in his Locis Sanctis, and later the drawings were copied many times with small changes each time (Ill. 10).[66]

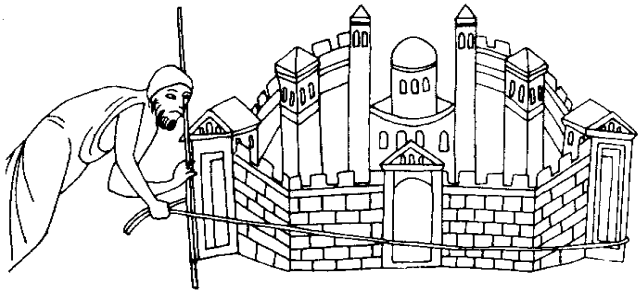
There are descriptive drawings, illustrations of churches being built, where one can see scenes of different building trades in action. Usually these illustrations only tell the obvious, showing the carpenter, his adze and a piece of wood (Ill.11). The information collected from this is rather limited. Another example can be seen in the booklet of Villard de Honnecourt, where he made some descriptive drawings, showing for example parts of churches that he visited (Ill.12).[67]

The earliest model representation from the apses of sixth-century Italian churches, repeats the former Imperial Roman schemes. Usually pictures of buildings given in paintings and drawings follow their own rules and have no connections with the practice of building whatsoever. Important parts of the churches are exaggerated in accordance with the symbolic and liturgical reasons.[68] In the 11th century the models often repeated the physical characteristics of the monuments, but a consistent system of proportions was of no concern to the artist.[69]

Attributive texts, drawings and models

As mentioned above there are left just a few practical working manuals from the Middle Ages. Maybe because of this lack of sources, the modern literature describing cathedral building concentrates on the abundant material of symbolic interpretations by philosophers and theologians.[70] Their background was in general theoretical and literary, their interest seems to have been more in the field of architecture, than in the building itself. From this literature one may get the impression that churches were conceived mainly by the bookish clerics and built under able and pious builders. This impression, however, may be a convention of modern architectural historians, more than a realistic picture of the past.

In many of the medieval texts one can find symbolic attributes for buildings.[71] One may get the impression that this literature is primarily concerned with moralising and teaching and thus is posterior with regard to planning and building and thus not reflecting ideas



concerning building practice.[72] Medieval aesthetics of the theological sources are eminently theological, but dissociated from the works of man, including the building of churches. Even if these attributive texts are not normative, the mentioning of them may have had an impact upon the planning and design of churches. The construction of The Heavenly Jerusalem is described in The Revelation:

> The angel that was speaking to me was carrying a gold measuring rod to measure the city and the gates and wall. The plan of the city is perfectly square, its length the same as its breadth. He measured the city with his rod and it was twelve thousand furlongs, equal in length and breadth, and equal in height. He measured its wall, and this was a hundred and forty-four cubits high – by human measurements.[73]

Such architectural descriptions show architectural elements connected to symbolic numbers (Ill.13). Measurements like this, with lengths, widths and heights, may be looked upon as purely speculative, with a meaning connected to number symbolism, more than a factual description of a building construction. This fantasy may have been beyond the capabilities of any builder.

The idea of symbolic explanation of architectural elements is to be found in the theological and philosophical works through the centuries.[74] In the homilies such symbols are abundant, due to the exegetical character of the homilies.[75] More often texts attributing to architectural ideas or symbolic explanations of known buil-

ding types may be a possible source. An example of this is the 12th century Icelandic/Norwegian homily on the day of dedication, known as "Stavkirkeprekenen".[76] This text gives a multilevel allegorical explanation of different parts and elements of a building, with designations signifying a wooden church of obscure construction.[77] It seems likely that the main interest of the author is to explain faith by explaining elements in the building symbolically, thus following an old tradition of architectural symbolic explanations in homilies.[78] The building is subject to an overdetermination, permitting the coexistence of divergent interpretations. The chancel, for instance, is said both to signify the angels in heaven and is also looked upon as an expression of prayers. The four corner-posts are interpreted as the four Gospels, and also as the four cardinal virtues. The entrance is the right faith, the nave signifies the Christians on earth, and so on. When the altar is said to signify Christ, it is both a sign and a symbol, Christ's presence may either be real or merely figured.

The church thus described cannot be placed topographically, it cannot be dated, nor can it be placed typologically. The impression is that the homily is not a documentation of a specific church. Rather the intention must have been to use a general idea of a local Icelandic/ Norwegian wooden church of the 12th century, known to the congregation, to inform about the Scripture. If we only had this text left we would hardly be able to reconstruct the church in question, but because there still are wooden churches from that period left standing, the homily seems acquainted with our locality.

It is questionable if theological and philosophical ideas determined the process of planning and design for the builders.[79] It is to be assumed that the churches were built mainly from practical considerations, as copies of older buildings. Symbolic explanations were added or deduced from the finished buildings for reasons of exegesis. When copying the next time, the building could be slightly changed due to the new symbolism.[80] There was a migration of the iconic image of the Holy Sepulchre in medieval building and pictorial representations showing this and other buildings are well known in the Middle Ages.[81] Such pictures include both real and imaginary concepts of Jerusalem and of well-known churches. They are descriptions with varying degree of accuracy, but at their best, they may provide valuable information about structural systems.[82]

Among medieval models are the ones held by the donors, patrons or saints. The form and construction of these models may be very general. A two-dimensional example may be found on a grave slab in Eidfjord church in Norway (Ill.14).

Conclusions

This paper has pointed out that there are several sources available to answer questions posed to a medieval building, and that the sources have different po-

tentials. The question is asked what sources may be of interest for the study of medieval church planning and design.

In the texts three main groups may be described. The Normative texts, drawings and models tell how the construction was supposed to be, but the authority of these rules are unknown. Important information may be found in these texts if they can be interpreted. Church rules govern only very specific components of church design and makes no stipulation concerning the building's general external appearance. Descriptive texts, drawings and models tell how buildings may have been, but we may not know which truth they reveal. The documentation may be subjective indeed. In the attributive texts, drawings and models reference to the symbolic content added to the church is given, but the same symbolic meaning can be given to different types of buildings and elements in the buildings. So, for the history of intentions and aesthetic interpretation, these texts will be the primary source in the study. For the history of planning, designing and building, however, the archaeological remnants and the building remains are direct, original sources in the absence of the building proper. Finally, the standing buildings represent the richest source for the architect/building historian. If physical objects and texts are examined according to their innate characteristics then, the combination may broaden the knowledge of planning and design of the early wooden churches of Norway.

Notes

1. By process is meant the rational effort that lies behind the design of even the most humble building.
2. Logistic (from Greek: skilled in calculating), in military the details of transport and supply (WNID, 1916, I:1270). Here is meant the physical acts of preparation before building.
3. Documentation of the past are merely traces, clues and aftertastes that tell us about events that took place; they tell us about somebody's planning, design and treatment of materials. The main events that took place are totally or partially unknown to us. The traces recorded speak of thoughts and acts that supposedly took place. The methods used in analysing are developed in order to discover, through them, facts proving something.
4. The questions asked from the different sources may be anachronistic. This is the case when we ask a question which the writer, or the carpenter, did not expect someone at that time to ask. Or when we want to have the answer to a question, which at that time was obvious and therefore not taken into consideration by the author or craftsperson.
5. Dahl 1837; Dietrichson 1892; Olsen 1966; Christie 1981
6. Fellows-Jensen 1987: 295; Andersen 1977: 124ff
7. Dietrichson 1892: 193
8. The different opinions expose part of the historiographical problem presented by the medieval churches, in this paper visualized by two contradictory types of sources, the normative and attributive texts. Either of them has been used in isolation to create a seemingly reasonable understanding of the planning of the church building.
9. In the Mediterranean countries many expensive stone temples were refurbished for new function as churches from the 5th century onwards (Hanson 1978: 263). Because of this practice it has been assumed that the same was done in all Christendom. A letter from pope Gregor I to abbot Mellitus dated 18 July 601 is often used as a proof for an ecclesiastical custom of cleansing heathen temples and dedicating the buildings for ecclesiastical use in Northern Europe (Bede 1998: I, 30). Now church historians agree that this letter was unique and different from all other known letters the pope sent to the missionaries, both before and after, and that heathen temples generally were destroyed (Herrin 1987: 171). Furthermore, there are disagreements to whether there actually were Norwegian pre-Christian religious hov-buildings. Today many building historians use the word to describe religious activities in the major hall building on a farm, a building meant for everyday living (Olsen 1966: 94; Hohler 1999 II: 29ff; Christie 1988: 72).
10. Nicolaysen 1887: 15
11. Schirmer 1906: 79ff
12. Dietrichson 1878: 1–2
13. The planning of churches may have been executed by direct and explicit metaphor. Similarities in form and construction may have referred to historical antecedents. Old St. Peter's, St.John Lateran and other Roman churches had significant influence on almost all church construction in western Europe (Krautheimer 1961: 300ff), but for the research of wooden churches in Norway one will have to concentrate on more immediate North European sources.
14. Fernie 1989: 20
15. The need to prove the presence of something apparently invisible appears fairly frequently in the study of building history, when we try to establish the initial ap-

pearance of an idea or device. Building history is thus submitted to an almost insurmountable difficulty, if following the code of natural sciences where an affirmation that can not be verified by the senses is meaningless. So much of what is proposed is due to being hypothetical.

16. Christie 1981: 139–203
17. Jensenius 1998 : 138ff
18. Jensenius 1988 (2)
19. Through my work with the stave churches I have come to the understanding that for all practical reasons the "meaning" of the churches must be the way they were used. The primary formative force in the creation of the buildings must have been the liturgical needs, in its widest sense.
20. Christie 1981: 228; Hohler 1981: 264
21. Ahrens 1981: 229ff
22. Some new forms of archaeology are consistently empiristical. The explanations are constructed exclusively in terms of material causality. The interpretation of the existence, form and location of a church will be given in terms of material supply, climate, demography, local power structure or economy. Social, mental and creative factors will then be reduced to those conditions. For an interpretation more in the line of this author's, see (Gem 1996: 2).

23 Bjerknes 1958

24 Quoting Derrida (1978), the English archaeologist Ian Hodder says there are no "original" or "true" meaning of a text outside specific historical contexts. The building historian has to accept that historical texts give different information from that provided by building remains. Texts may be used alongside the building proper so that the different interpretations may be compared (Hodder 2000: 704).

25. See for example the rather impenetrable collection of Mortet's, which conceals a wealth of important information for the building historian, only in reach for the linguist (Mortet 1911).
26. First one has to find out if the document is authentic or not, if the events described are true or invented. Then comes the problem of inducing as to how the events are to be interpreted. Interesting as this may be, this is may be beyond the capability of the building and design historian. The work described may luckily sometimes be checked towards the remains of the building.
27. Kraus 1979: XV
28. The churches most likely also have a different meaning for the building historian than for the medieval patron and builder. So the churches are being reinterpreted in a new context (Hodder 2000: 709).
29. The written methods and rules may have been only general hints of the actions and procedures required. They do not mention the important steps outside the special topics, but take it for granted that the practitioner will do the rest. For the building historian it is of considerable theoretical interest to find out what this "the rest" may have been. This rest is sometimes called tacit knowledge and is what one knows, but can not tell. It may be embedded, practical experience, manipulation of rules of representation or conscious analytical thought. For the building historian it is a challenge to make explicit this unarticulated knowledge. On the thoughts of the Hungarian philosopher Michael Polanyi see (Gill 2000: 143ff).
30. Chouquer et Favory 1992: 7–14
31. Chouquer et Favory 1992: 12
32. Vitruvius (ed) 1960 (25–23 BCE)
33. (Vitruvius (ed) 1960: I,1,1) The term "theory" differentiated intellectual from practical knowledge in architectural education. Vitruvius claimed that Doric pillar form was derived from the body of man (Vitruvius IV,1,6: 103), the Ionic from that of a woman (Vitruvius (ed) 1960: IV,1,7:104), and the Corinthian from that of a girl. The weakness of this interpretation is a consequence of its lack of architectural scientific basis. The classification got its scientific contents from human biology, without any possible connection. Such a theory can therefore only claim a metaphorical property.
34. Vitruvius (ed) 1960: 5.1.6
35. Plommer 1973: 1–38
36. The rule of thumbs persists because they are prescriptive rather than descriptive. They tell the builder what size to use and will survive unless proved inadequate or uneconomic (Yeomans 1987: 43)
37. Another source is the collections of known knowledge, the encyclopaedias. Isidore of Seville (c.570 – 636) in his Etymologies wrote about craft and arts, building and construction in Book XIX (Bischoff 1971: 269)
38. This may be called "theory for practice" (Kjørup 1993: 36).
39. Hahnloser 1972
40. Alberti 1989 (1450)
41. The works are practical handbooks. They do not dwell long on the complex mathematical aspects of geometry, but rather offer a constructive hands-on version of geometry explained in a fairly straight-forward language.
42. A stock of static knowledge, predominantly non-verbal, had been accumulated. This knowledge must have been readily portable across cultural, linguistic and temporal barriers because it was pictorial, requiring few words to explain (Krufft 1994: 30–31).
43. A wooden church was undoubtedly expected to have

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certain properties, characteristics or qualities different from vernacular buildings. Churches consist of elements adjusted to function and use, defined in a European ecclesiastical tradition. The Christian mystery is surely attached to the Eucharist, and not in the volume created around the place of worship. The function of a church is what the church is used for, and the main use of a church is the liturgical practice. This practice requires room for movement and action. The Divine Service was not centred on a cult object and did not need a special altar. We do not know to what degree the Church exercised micromanagement on the form and size of the churches. But it seems that the responsibility of bishops and people in the local church everywhere was emphasized: to build in the vernacular tradition, with inspiration of prototypes from elsewhere. The ecclesiastical prescriptions seem to admonish that a designer work from principles, not from paradigmatic forms. After the same string of thought the "essence" of this early, wooden architecture must be the detailed, technical knowledge of the way the building was planned, designed and put together. All buildings are the result of a planning and design process, however modest the construction may seem, and however unrecognized such a process was by the people it involved.

44. Krautheimer 1942
45. The sources give but a random, anecdotal information of a problem of the planning and design of churches. But even then, they give sufficient evidence to argue that the logistics were followed by the routine of the church with a series of actions performed by the clergy besides the civil planning going on.
46. White 1997: 10ff
47. Mortet 1911; Salzman 1967
48. Olden 1900; Stokes 1901
49. Information from Gearoid Mac Eoin, Dublin
50. Jensenius 1997: 83–98
51. This parallels the concept "knowing-in-action" proposed by (Schön 1982: 54)
52. Hahnloser 1972
53. Bucher 1979: 112–113
54. This is different from the treatise of Leon Alberti's (1450)(Alberti 1989). In reading the booklets of the near contemporaries Roriczer (Roriczer 1965), and Schmuttermayer (Pauken 1979), of German origin, one notices the same, a directness and lack of philosophical discourse in their style. Unlike the Italian "theorists", the German craftsmen did not explain any principles of planning and design. They just tell the reader how to do the work, using non-mathematical, construction geometry. This geometry was not explained, or defined, probably on the assumption that it was not necessary for the reader (Victor 1979: 42ff).
55. Horn and Born 1979 I: 15–20
56. Horn and Born 1979 I: 77
57. Horn and Born 1979 I: 27–30
58. Jacobsen 1992: 321ff
59. Blindheim 1985: plate LXIII
60. Hiscock 2000: 171–203
61. DA 1999, vol. 2, with bibliography
62. Benndorf 1902: 175–195
63. Bede (1998): ii,14
64. Fernie 1983: 47
65. Hodder 2000: 704
66. Meehan 1958: 11
67. Hahnloser 1972: 162–165
68. Lipsmeyer 1981: 188
69. Lipsmeyer 1981: 162
70. Panofsky 1976; von Simson 1974: 4; Sedlmayr 1950: 48
71. Sauer 1902
72. Sinding-Larsen 1992: 159
73. NT, Rv 21:15–17
74. Sauer 1902
75. Exegesis (from Greek to explain, to interpret), science of Scriptural interpretation (WNID 1916 I: 766)
76. Salvesen 1971: 100ff
77. Texts in the same tradtion may be found in contemporary European sermons (Salvesen 1971: 175).
78. Sauer 1902 gives an exhaustive list of the parts of the edifice and the allegorical meanings attached to them.
79. A parallel is that in the dedication rite, meant for the clergy, symbolic explanations are generally lacking.
80. Shelby 1964: 387ff
81. Krautheimer 1942: 1–33
82. Billig 1977

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