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THE VIKING-SHIP

DISCOVERED AT GOKSTAD IN NORWAY

DESCRIBED

BY

N. NICOLAYSEN

WITH 1 MAP, 10 WOOD-CUTS, AND 13 PLATES

CHRISTIANIA

PUBLISHED BY ALB. CAMMERMEYER

1882

LANGSKIBET

FRA GOKSTAD VED SANDEFJORD

BESKREVET

AF

N. NICOLAYSEN

MED 1 KORT, 10 TRÆSNIT OG 13 PLANCHER

KRISTIANIA

FORLAGT AF ALB. CAMMERMEYER

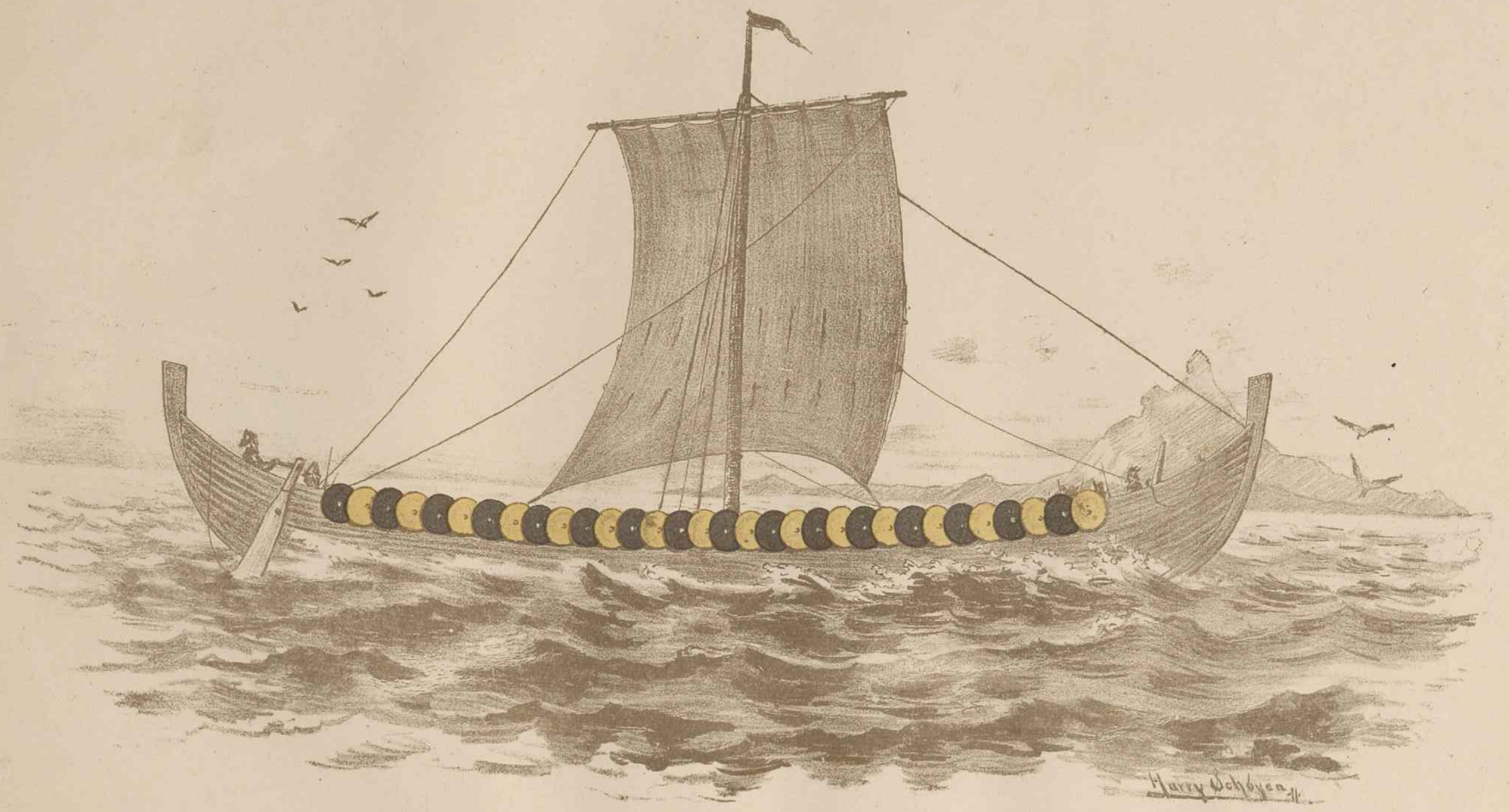
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DET MALLINGSKE BOGTRYKKERI.

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M. Lyngs lith. Anst. Christiania.

LANGSKIBET FRA GOKSTAD

THE VIKING-SHIP FROM GOKSTAD

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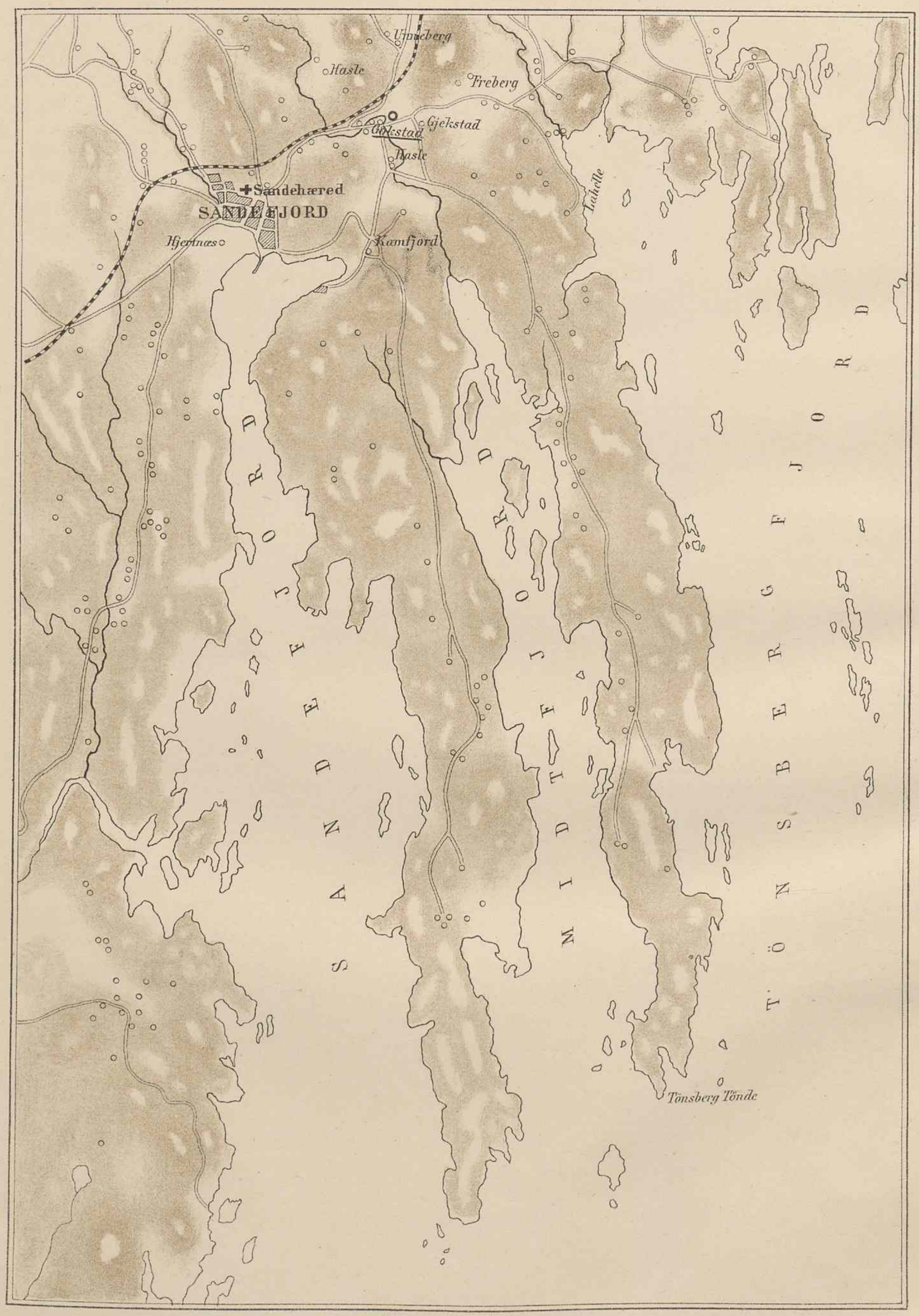
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Maalestok: $\frac{1}{50,000}$.

M. Lyng's lith. Anst.

FORORD.

Da det her omhandlede fund fremkom, havde jeg tid efter anden forlængst søgt at danne mig en forestilling om vort ældre skibsvæsen, og det nødvendige forarbeide dertil var dengang paa det nærmeste sluttet. Senere har jeg udfyldt, hvad der endnu manglede, og samlet undersøgelsens resultater i den fremstilling, der nu danner afdeling II i nærværende skrift. Dette vil derved, som jeg haaber, have modtaget en for læseren ikke uvelkommen tilgift, da den nævnte gren af vort folks fortidsliv hidtil ej har været gjenstand for en sammenhængende, udførlig behandling, som tillige tog hensyn baade til udenverdenen og den skik, der endnu træffes inden landet som en arv fra fortiden. Hertil kommer, at beskrivelsen af det fundne skib vil, som jeg tør haabe, vise sig mindre uredig, naar den kan støttes til en almindelig fremstilling, istedetfor at det ellers vilde have været nødvendigt paa mange punkter at gjøre afstikkere. Dog kan det, for at undgaa misforstaaelse, her gjentages, skjønt det mulig er overflødigt, at skriftets 2den afdeling intet hensyn tager til Gokstadskibet, men alene indeholder, hvad der kunde vides, før dette kom frem i dagen.

Et andet tillæg skyldes hr. professsor dr. Jac. Heiberg, som i anhanget har havt den godhed at beskrive de fundne menneskeben og derved paavist den begravne mands alder,

PREFACE.

At the time when the discovery treated of in this work occurred, I had, at intervals during a long period, sought, to form an idea of our ancient shipping; and the requisite preliminary researches were then very nearly completed. Subsequently, that which still remained incomplete has been carried out, and the collective results of the investigation appear now, embodied in the Part II of the present treatise. Thus placed, I hope, that this will form, for the reader, no unwelcome addition; inasmuch as that special branch of the active life of our forefathers has not, hitherto, been the object of any amplified and connected investigation, one that both extended its range to the outer world, and to those customs which, as a heritage from the past, exist in our country. To this be it added, that our description of the discovered ship will, as I hope, be found less intricate when reference can be had directly to a general description, while otherwise at many points digressions would have been necessary. Nevertheless, and to preclude misconception, let me here repeat, although such repetition may be superfluous, that Part II of this work is without any reference to the Gokstad ship, and does but present what might have been known before that vessel was brought to light.

Another addition is due to the kindness of Doctor and Professor of Medicine, Jac. Heiberg, who, in an Appendix has described the disinterred human bones and from them drawn conclusions touching the buried person's age and stature, as well as the disease from which he had suffered;

størrelse og den sygdom, hvoraf han har lidt, hvilket sidste endog i rent medicinsk henseende ej er uden interesse.

De nysnævnte ben gjengives paa pl. XII efter fotografi. De øvrige planchers tegninger ere, som signaturen viser, udførte dels af hr. landskabsmaler H. Schøyen og dels af hr. H. Hansen ved marinens tegnekontor.

Den engelske oversættelse er besørget af hr. Thomas Krag.

25. marts 1882.

which last point, even from a purely medical point of view, can scarcely be considered in itself uninteresting.

The bones in question are represented Pl. XII, from a photograph; while the other plates are, as shown by the signature to each, in part from drawings by Mr. H. Schøyen, landscape painter, and the rest by Mr. H. Hansen, of the Royal navy's Drawing-Office.

The English translation has been under the charge of Mr. Thomas Krag.

March 25 1882.

I.

Det hører som bekjendt med til Norges ejendommelighed, at dets kyst ved bugter og lange fjorde er udtunget i en mængde halvøer, og disse have igjen sine forposter ud mod havet i en utallighed af større eller mindre øer. Dette gjelder ikke mindst det gamle Vestfold eller den landsdel, som væsentligst bestod af det nuværende Jarlsbergs og Larviks amt. I den sydligere del af amtet og navnlig i Sandehereds prestegjeld viser det sig saaledes af vedføjede kort, at der mellem Lahellebugten samt Tønsbergfjord paa den ene side, og Sandefjorden paa den anden, omtrent fra nord til syd stikker frem to smale landstrimler, som adskilles ved den mellemliggende Midtfjord. Den vestre af disse halvøer kaldes nu paa stedet Vesteröya (det gamle *Velley)*, den anden Østeröya (forhen *Yxney)*. Allerede navnene hentyde følgelig til, at begge halvøer engang i den historiske tid vare omflydte. Dette vinder i styrke ved terrænets beskaffenhed; thi me dens begge halvøer i sine landfaste ender bestaa af tildels skovbevoxede klippehøjder, skraane disse med engang temmelig stærkt ned mod den underliggende træløse og lave slette. Endnu i 1873 kunde ogsaa en gammel mand paa stedet tydelig mindes, at man gjennem den fordybning mellem Vesterøen og den nærmeste højde mod vest, hvor der nu er hængedynd, i hans ungdom kunde med en pram til nød komme op imod Midtfjorden. Ja endnu den dag idag, naar der paa grund af søndenvinds storm i søen er mere end almindelig høj vandstand, f. ex. 28 december 1879, stiger vandet op over fladen nordenfor halvøerne. Det er ogsaa kun faa aar siden, at man ved pløjning i en ager under skraaningen omtrent i sydvest for husene paa Freberg traf forenden af en pram og dens fangeline.

It is as we all know a peculiarity of Norway that her coast is by long Fiords and Bays formed into a great number of peninsulas, which again have almost innumerable greater or smaller isles as a breastwork against the sea. This peculiarity does not least belong to the old Vestfold, or that part of the country which principally consisted of the present counties of Jarlsberg and Larvik. The more southerly parts of the latter and more particularly the parish of Sandeherred show as the map adhibited will render more evident that, between the bay of Lahelle and the Tonsbergfiord, on one side, and Sandefiord, on the other, two small stripes of land separated by the interjacent Midtfjord, extend nearly from north to south. The more westerly of these peninsulas is now called Vesterøya (in ancient times *Velley*) the more easterly Østerøya (formerly *Yxney*). The names seem consequently to imply, that both the peninsulas even in historical times have been surrounded by water. This supposition is also strengthened by the nature of the ground, for while both the peninsulas, on the contiguous side, consist of mountain rocks overgrown with wood, the latter at once slope down rather precipitously towards the low and woodless plain lying beneath. An old man on the spot could, even as late as i 1873, distinctly remember, that in the intervening space between the Vesterey and the nearest elevated ground further west, where there now is but a quagmire, people in his youth could pass with a pram up towards the Midtfiord. And, even now in the present day, when there is unusually high water caused by violent southerly storms, for instance on the 28th of December 1879, the water rose over the plain on the northern side of the peninsulas. But a few years since, when labourers were ploughing a field under the slope nearly south west of the houses of Freberg they found the fore-part of a pram and its painter.

Den omtalte slette strækker sig opad mod nord med næsten umerkelig stigning, vider sig lidt efter lidt ud til en anselig brede, og begrænses af de højder, som tilhøre dels det nysnævnte Freberg og dels en flerhed af gaarde med navnet Gokstad. Ordet udtales paa stedet med aabent *o* eller som Gaakstad og hed oprindelig *Gaukstaðir*, der, som det vil sees, er sammensat af *gaukr* (en gjøg) og *staðr* plur. *staðir* (et bosted eller en gaard). Allerede henimod slutningen af det 14de hundredeaar viser det sig*), at der var flere gaarde med dette navn, og for tiden knytter navnet sig til 12 forskjellige gaardparter med en samlet matrikelskyld af næsten 25 skylddaler. Men fra først af var det hele udentvil kun én gaard, og denne maatte i henhold til den nævnte skyld have været temmelig betydelig og meget større end nogen anden gaard i prestegjeldet. Rigtignok er den nuværende prestegaard (Sande) skyldsat for nær 31 daler, men dette er kun fremkommet derved, at mange forskjellige jordstykker lidt efter lidt ere forbundne med den oprindelige gaard.

Omtrent midt paa den omtalte træløse flade findes nu kun en eneste jordhaug (paa kortet merket med en sort cirkel), og det er denne, som her nærmest kommer til at beskjæftige os. Den ligger omtrent 1 kilom. i n. n. v. for bunden af Midttjorden og ca. 38 m. nordenfor den vej, der gaar tvers over Sletten omtrent fra v.—ø. Haugen tilhører nu to forskjellige parter af nedre Gokstad, men for en menneskealder siden havde den endnu en tredje ejer.

I alle fald i de seneste hundrede aar har haugen gaaet under navnet Kongshaugen, fordi, som det hed, en konge med alle sine skatte skulde deri være begraven. Paa deslige fortællinger kan der dog, som bekjendt, ikke lægges nogen vegt, da de vistnok overalt kun hidrøre fra senere tider og ere fremkomne ved enkelte personers løse formodninger, uden at støtte sig til en gammel tradition. Der er ogsaa mange hauger omkring i landet med lignende navn, som have vist, at de skylde naturen alene sin tilblivelse.

Imidlertid var det de omtalte fortællinger, som lokkede sønnerne paa den gaardpart, hvorunder størstedelen af haugen henhører, til at paabegynde dens udgravning strax efter nytaar 1880 og saaledes endnu mens jorden var frosen. Heldigvis blev dog dette ikke ubekjendt for direktionen i det antikvariske selskab, hvis formand jeg

*) H. J. Huitfeldt, Biskop Eysteins Jordebog p. 56, 71, 195.

The plain mentioned extends, almost imperceptibly rising, towards the north and gradually widens into a considerable breadth, bounded by the rocks belonging partly to the farm mentioned (Freberg), and partly to several other farms called Gokstad. This word is on the spot pronounced with the open *o*, consequently as Gawkstad, and was originally called *Gaukstaðir*, which name clearly originates from *gaukr* (a cuckoo) and *staðr* plur. *staðir* (a dwelling or a farm). Already towards the end of the 14th century*) we see that there were several farms bearing this name, and at present there are no fewer than 12 different smaller farms that all joined together are assessed, in the rent roll of the country, for a ground tax of 25 Species Dollars. But from the beginning it was no doubt but one farm which, when we consider the land-tax named, must have been a very considerable property, much larger in fact than any other farm in the whole parish. Certainly a land-tax of 31 Species Dollars is assessed on the present parsonage (Sande), but that is only so, because many different pieces of ground have by degrees been added to the original farm.

About in the middle of the woodless plain mentioned, there is now but one mound (marked on the map with a black circle), that will first engage our attention. It is situated about 1 kilom. N. N. W. of the inner end of the Midtfiord, and about 38 m. north of the road that crosses the plain almost from west to east. The mound now belongs to two different parts of Lower Gokstad, but a generation ago there was also a third proprietor.

At any rate during the last centuries this mound has always been named the King's mound, because, as people say, a King had been buried there with all his treasures. It is however also a thing that is well known, that no weight can be attached to tales of this description, as they cer ainly everywhere have been invented in later times and are but the product of loose suppositions that have no foundation in old traditions Similar names have alo throughout the country been given to many other mounds that clearly only owe their existence to nature.

It was however the old stories mentioned above, that made the sons on the farm, to whom the greater part of the hillock belonged, begin to dig into it shortly after new-year 1880, and consequently when the ground was still frozen. Most fortunately the Directors of the Antiquarian Society whose president I am, learned this,

er, da hr. kjøbmand F. Høst i Sandefjord af interesse for sagen havde underrettet derom, og ved hans velvillige bistand fik man ogsaa gravningen foreløbig indstillet. Men da graverne ikke kunde styre sin lyst længer, blev arbeidet, efter kort tids stans, atter sat i gang, og jeg reiste derfor 6 februar til stedet for at foretage, hvad der maatte være ønskeligt. Det viste sig da, at gravningen var udført paa den maade, at man fra et punkt noget vestenfor midten af haugen havde gjort en smal gang skraat nedad mod dens bund. Under dette arbeide var der fundet nogle tynde rørformede gjenstande af stenhaardt, sandblandet ler, og længere nede, sammen med blaaler, en hel del flis og større tilhuggede træstykker samt mose og fragmenter af hasselgrene. Derimod maatte det paa grund af gravernes vaklende forklaringer ansees meget tvilsomt, om der havde vist sig kul. Af graverne selv bleve de omtalte rør tillagte størst betydning, men uden grund, da disse dannes ved myrernes arbeide paa deres gang under jorden. Der var saaledes ikke fremkommet noget, hvoraf kunde sluttes, at man her havde en gravhaug for sig. Men da træstykkerne viste tydelige merker paa menneskelig bearbeidelse, fortjente haugen en nærmere undersøgelse. Efter nogle forhandlinger fik jeg ogsaa bestemt løfte om, at al gravning skulde henstaa, indtil telen var gaaet af jorden, hvorimod den da skulde fortsættes uden udgift for haugens ejere under min ledning. Dette blev ogsaa vedtaget af mine kolleger i selskabets direktion.

I den omtalte hensigt kom jeg 27 april igjen til stedet, og dagen efter tog gravningen sin begyndelse, efterat jeg forinden havde lagt den plan, jeg vilde følge, og nærmere undersøgt haugens ydre.

Ved gjentagne pløjninger baade rundt om og opad var haugen bleven meget forandret, saa at hverken dens oprindelige form eller størrelse nøjagtig kunde bestemmes. Rimeligvis maatte den have været adskillig højere og havt rund form, men nu var den noget oval, idet dens længde fra n. ø.—s. v. ved maaling befandtes at være ca. 50 m., medens den fra n. v.—s. ø. kun var ca. 43 m. lang. Højden fra marken til dens top antoges for henimod 5 m. Paa den østre halvdel af haugen viste der sig i midten fra foden til henimod toppen en svag fordybning, som efter hvad der blev sagt skulde hidrøre fra en gravning for omtrent 50 aar siden, men syntes at maatte være meget ældre.

Med hensyn dernæst til den plan, jeg vilde følge ved

as Mr. F. Høst, at Sandefjord, had — from interest in the matter — informed us; and through his kind assistance we also got the excavations stopped for a time. But as the diggers could no longer control their curiosity, they again began their work, that had been suspended for a little while. On the 6th of February I therefore went down to the place to do what might be considered desirable. It then appeared, that the digging had been executed in such a manner, that from a point a little westward of the middle of the mound, a small passage had been formed aslant down toward the bottom. While digging thus they had found some thin tubular things of sandy clay hard as stone, and further down also mixed with blue clay, a great quantity of chips, and larger pieces of wood, that had been cut, and of moss together with fragments of hazel branches. On the other hand it must on account of the vacillating explanation of the diggers, be held very doubtful whether any coal had been found. The tubes mentioned seemed to the diggers of the greatest importance, but without any reason, for they had clearly been formed by ants forming their passage under the ground. Nothing had consequently appeared, that might lead to the supposition, that we here had a barrow before us. But as the pieces of wood evidently showed marks of having been worked by the hand of men, the mound deserved more closely to be examined. After some negotiations it was settled, that the digging should be put off, until the frost had gone out of the ground and then continued under my guidance without any expense to the owners, to which the other directors of the society also agreed.

With this intention I again on the 27th of April came to the place, and, when I had closely examined the outside of the mound, we on the following day began the digging, as I had previously settled how I would proceed.

The mound had through repeated ploughings both round about it and upwards, been so much changed, that it was impossible in any way to judge as to either its original form or its exact size. Most likely it must have been somewhat higher and round, but now it was somewhat oblong. When measured, its length from N. E. to S. W. was found to be about 50 m., whilst from N. W. to S. E. it was but 43 m. long. The height from the field level to its top was supposed to be about 5 m. On the eastern part of the mound there appeared in the middle, from the basis to the top, a slight recess which according to what was stated, had originated from an excavation some fifty years ago, but which seemed to be much older.

As to the plan I wished to follow under the exca-

udgravningen, har det som bekjendt engang været den sedvanligste fremgangsmaade og er det endnu, naar arbeidet foretages uden sagkyndig ledning, at man, ligesom senest ved denne haug, begynder fra toppen. Men dette er dobbelt forkasteligt. Ikke alene kommer man derved i strid med de praktiske hensyn, som fremstille sig ved en saadan jordgravning, idet navnlig bortskaffelsen af den fremkomne fyld vanskeliggjøres, men det risikeres ogsaa, at man aldeles ikke træffer de i haugen nedlagte sager, eller, om det sker, at de blive ødelagte. Det eneste rette er derfor at begynde ved foden og under hele gravningen følge haugens bund, forsaavidt omstændighederne ej maatte kræve, at der gaaes dybere ned. Det er herved ligegyldigt, fra hvilken side af haugen man begynder, da de regler, som engang opstilledes om, at man skulde gaa fra nord til syd eller fra vest til øst, have vist sig aldeles vilkaarlige. Fuld vished for, at alt, hvad der har arkæologisk betydning, bringes for dagen, opnaaes selvfølgelig kun ved at haugen gjennemgraves i sin helhed. Naar jeg desuagtet ved nærværende leilighed besluttede mig til foreløbig kun at gjøre en skjæring gjennem haugens midte, var dette, dels fordi det, hvis skjæringen ikke blev altfor smal, maatte vise sig, om haugen indeholdt nogen begravelse, dels fordi en fuldstændig gjennemgravning paa grund af haugens størrelse vilde overstige selskabets indskrænkede midler og til slutning maaske være spildt arbeide, da det oftere har vist sig, at netop de største hauger enten intet frembyde med arkæologisk interesse eller i alle fald forholdsvis højst ubetydeligt. Naar jeg derhos vilde begynde haugens udgravning fra sydsiden, havde jeg alene for øje, dels at adgangen til haugen derved blev lettest, da denne side, som før bemerket, ligger nærmest vejen, dels at det vilde gjøre den mindst mulige skade paa de omliggende jorder. Hertil kom, at hvis det maatte blive nødvendigt i midten af haugen at udvide skjæringen, vilde en god hjelp dertil faaes i den senest oparbeidede aabning paa vestsiden. Af alle disse hensyn lod jeg derfor ved haugens fod og gjennem midten paabegynde en skjæring fra syd til nord med en brede af 2.50 m.

Allerede før den anden arbeidsdag var til ende, saaes det til alles overraskelse ikke alene, at spidsen af en skibsstavn dukkede op af jorden, men ogsaa, at stavnen, der senere viste sig at være fartøjets forstavn, nøjagtig indtog midten af skjæringen og stod i samme retning som denne.

Dette var et merkeligt lykketræf, som baade sparede meget arbeide og gav en sikker vejledning for den følgende fremgangsmaade. Først maatte da skjæringen til

vation, it is a thing well known, that in earlier times and even now, when excavations are not conducted in a scientific way, the most common practice has been to begin from the top. But this is wrong for two reasons. In this way, a practical difficulty is met, as the getting away of the soil dug up, is made more difficult. But on the other hand you then also risk, that you do not at all find things laid down in the mound, or if you do find them, that they are ruined. The only right way is therefore to begin at the foot and, during the whole time of the excavation, to follow the base of the mound, if circumstances do not compel you to dig deeper down, but, whether you begin from one side of the mound or from the other is of no importance. The rules once established, that you must begin from the north and proceed towards south, or from the west towards east, have shown themselves to be quite arbitrary. A full certainty that every thing of archeological importance will be brought out, can therefore only be obtained by digging out the whole of the mound. When I however on the present occasion resolved only to form a passage right through the middle of the mound, I did so, partly because if this passage were not made too small, we should see whether the mound was really a barrow, and partly because, on account of the size of the mound, the limited means of our society would not allow us to dig out the whole mound, and lastly because such an entire digging out, perhaps might be labour lost, as most frequently just the largest mounds have always been found hitherto to contain nothing or next to nothiug of archeological interest. Besides when I resolved to begin the digging of the mound from the southern side, I had but the object partly to make the access to the mound easier, that side, as I have before stated, lying nearer the road, and partly, as in this way it would do least damage to the surrounding fields. Add to this that, if it should be found necessary to widen the passage cut, we should for this have purpose good help from the opening last made on the western side. For all these reasons, I began the cutting from South towards North, at the base of the mound and through its middle, making the passage 2.50 m. wide.

Already before the second working day was over we were greatly surprised to find not only the point of a stem rise out of the soil, but also, that this stem which later appeared to be the stem of the ship, stood exactly in the middle of the passage cut, and that it was lying in the same direction as the latter.

This was indeed a very lucky hit, that saved a great deal of work and showed to a certainty in what way we were proceed. We were then first obliged to widen

begge sider betydelig udvides, saaledes at den overalt fik en større brede, end fartøjet antoges at have. Dernæst maatte baade skibet og det dertil, som det senere viste sig, hørende gravkammer afdækkes, endvidere begge befries for sit indhold og gravkammerets tømmer borttages, og endelig al jordfyld mellem fartøjets sider og skjæringens vægge fjernes, saa at skibet kunde staa frit. Derved tiltrængtes foreløbig ikke nogen afstøtning, da saadan forefandtes i tykke runde stokke, som med visse mellemrum paa begge sider vare lagte horisontalt mod skibets øverste kant. Hele arbeidet blev begunstiget af ualmindelig tørt vejr, saa at der ikke faldt en draabe regn før langt ud i juni maaned. Da derhos fylden i skjæringens vægge var meget haard, lod det sig gjøre kun at borttage madjorden og give væggene en ubetydelig skraaning, uden at der behøvedes stiver for at hindre nedrasning. En undtagelse herfra fandt kun sted paa et kort, skarpt begrænset strøg lidt nordenfor midten af østre væg, hvor der et par gange foregik mindre betydelige nedrasninger, fordi jordmassen her var løsere end andre steder. Heraf i forbindelse med den oven omtalte fordybning paa haugens overflade maatte det saaledes kunne sluttes, at der engang, men langt op i tiden, omtrent mod midten af skibets bagbordside og østenfra var foretaget en gravning, hvis øjemed ogsaa blev klart nok af den gjennemhugning paa det anførte sted og den forstyrrelse af gravkammeret, som senere kom for dagen.

Paa disse undtagelser nær havde fartøjet holdt sig ualmindelig godt, og dette skyldtes alene den dybde, hvori det var sat. Haugen havde en højde af 5 m. og bestod under madjorden af sandblandet ler ligetil bunden, som ved et af en ingeniør foretaget nivellement viste sig at ligge kun 30 fod (9.40 m.) over havfladen. Under bunden fandtes blaaler, og heri var skibet nedgravet 4 fod (1.26 m.) og tillige indvendig fyldt dermed, hvorhos der over blaaleret var lagt mose og faskiner af hasselgrene. Saa langt op, som dette lag gik, var derfor alt træverk vel bevaret, medens skibets højeste del, der saaledes strakte sig op i det sandblandede lerlag, og navnlig det øverste af for- og agterstavnen med de dertil stødende planker og tilhørende ræling var bortraadnet. Det samme vilde uden tvil ogsaa have fundet sted med hele den øvrige overkant af skibet langs begge sider og navnlig med stykket ovenfor spanternes top, hvis dette havde bibeholdt

the passage very considerably on both sides so that it had everywhere a breadth somewhat larger than the vessel was supposed to have. Then the soil covering the vessel, and what afterwards appeared as the sepulchral chamber, had to be taken away; the contents besides to be taken out of both, the timber of the sepulchral chamber also carried away, and all the soil, between the sides of the vessel and the walls of the passage, removed, so that the ship could stand quite free. For this purpose no supporting pillars were needed, as such were found in round thick logs that at certain intervals were laid on both sides horizontally against the upper part of the vessel. We were during the whole work favoured by uncommonly dry weather, so that not a drop of rain fell before the month of June was far advanced. As also the clay, in the walls of the passage cut, was very hard, it was possible to take away only the cultivable ground and to make the walls very little slanting, without it being necessary to put up stays in order to prevent the falling down of the clay. There was only one exception to this in a short space, abruptly beginning and ending a little more north than the middle of the eastern wall, where there, a couple of times, were some lesser falls of earth, because the soil was here looser than in other places. From this and also from the recess on the surface of the mound, above mentioned, it was possible to come to the conclusion, that once, but far back in ancient times, towards the middle of the larboard side of the vessel and from the east, a digging had been tried, the object of which was made clear enough by the cutting through, at the place stated, and by the disturbance of the sepulchral chamber, afterwards discovered.

These places only excepted, the vessel appeared uncommonly well preserved, which was to be ascribed to the depth, at which it had been placed. The mound had a height of 5 m. and consisted, under the cultivable ground, of clay mixed with sand, all the way to the bottom, that, through a levelling made by an engineer, was found to lie but 30 feet (9.40 m.) over the surface of the sea. Under the bottom, blue clay was found, in which the vessel had been put 4 feet (1.26 m.) down and with which it also had been filled on the inside, whilst moss and fascines of hazel-branches had been laid over the blue clay. As high up, as this layer, all the woodwork was well preserved, whilst the higher part of the vessel lying in the clay mixed with sand, and more particularly the upper part of the stem and of the stern with the adjoined planks and the gunwale appurtenant were rotted away. This would also no

sin oprindelige stilling, istedenfor at det ved jordtrykket var bøjet indover i næsten en ret vinkel og saaledes undgik at komme op i det fortærende jordlag. Hvad der endelig maa have bidraget til nogenlunde at bevare gravkammerets træverk trods dets højde over skibets kanter, var, at største delen bestod af svære runde stokker, dækkede med flere lag næver.

En ulempe ved det tørre vejr var det dog, især da solens skin blev stærkere, at alt træverk derved udsattes for at beskadiges. For at undgaa dette, maatte skibet selv og de løse træsager en eller to gange om dagen oversprøites med vand og desuden dækkes med granbar. Desuagtet undergik de gjenstande, som ikke vare af ek, nogen forandring ved indsvinden, hvilket dog ikke saameget viste sig ved gjenstande af fure- eller grantræ, skjønt det sidste, da det kom frem af jorden, var ganske svampagtigt, næsten som sæbe, derimod mest med nogle mindre sager af løvtræ, som dog heldigvis vare aftegnede, før forandringen fandt sted.

Efterat skibet indvendig havde faaet den nødvendige forstærkning og udvendig var forsynet med krabber og slæde, blev det hele hævet op i højde med jordsmønnet udenfor gravens aabning. Kun én hindring viste sig endnu for skibets uddragning i et lidet skjær, som stak op ved underkanten af 5te spant fra agterenden. Men dette blev ved et par skud mineret bort.

Det stod nu igjen at afgjøre, hvad der videre skulde foretages med skibet. Her fremstillede sig to alternativer: enten at indkjøbe haugen, lade skibet staa, hvor det var, og foretage en hel del nødvendige gravninger og bygningsarbeider, eller at flytte skibet til universitetets tomt og, ligesom i sin tid med Tuneskibet, opføre et skur derover. Interessen for det første alternativ viste sig, som rimeligt var, meget stor i Sandefjordsegnen, hvor der ogsaa tidligere af flere privatmænd velvillig var gjort et ikke ubetydeligt sammenskud som bidrag til at dække udgifterne ved gravningsarbeidet. Men hvis dette alternativ valgtes, kunde det hverken opnaaes, at skibet blev saa let tilgjængeligt for den store almenhed, heller ikke tilvejebringes saa stor sikkerhed for skibets fremtidige bevarelse og en saadan vejledning for de besøgende, som naar det hele fund blev sat i forbindelse med universi-

doubt have taken place with the rest of the upper part of the vessel, along both sides, and more particularly the part above the top of the frames if it had kept its original position, but it had, through the pressure of the soil, been bent more inward at almost a right angle, in consequence of which it did not come into the destructive layer of earth. What had also contributed to the wood part of the sepulchral chamber being tolerably preserved, in spite of its height over the edge of the vessel, was partly that the greater portion of it consisted of large round logs and partly that it had been covered with several layers of birch-bark.

The dry weather had however one draw-back which was, that when the sun-shine became stronger, all the wood-work was more liable to damage. To avoid this, the vessel itself and the loose wooden things contained in it, were sprinkled with water, once or twice a day, and also covered over with leaves of the spruce. Objects not of oak, were also a little changed through shrinking, which however did not appear so much in objects of fir and spruce, though the latter when coming out of the ground, were quite spongy and looked almost like soap; those most changed were some smaller objects of foliferous tree but most fortunately a drawing had been made of these things before the change took place.

When the vessel had been inwardly strengthened and on the outside provided with stocks and a sledge, the whole was lifted up to the height of the ground outside the opening of the excavation. Now nothing prevented the vessel from being dragged out but a rocky projection at the underline of the 5th frame from the stern. We however soon mined away this hindrance.

It remained yet to be settled, what was to be done with the vessel. Here there were two alternatives; either to buy the mound, let the ship stand where it was, and then, to a great extent, undertake some necessary digging and building, — or to remove the vessel to the ground of the university and build a shed over it, as also had been done with the vessel from Tune. It was reasonable enough, that people in the neighbouring parishes of Sandefjord, felt a great interest in the first of these alternatives. Some private gentlemen had also here earlier very kindly subscribed to no inconsiderable extent on purpose to assist in covering the expenses of the work. But had this alternative been chosen, the vessel would not be accessible to the public at large, and so great a security would not be obtained for the future preservation of the vessel, nor could visitors be so well infor-

tetets oldsagsamling. Vel vilde flytningen have sine vanskeligheder, og den lod sig, hvad undersøgelsen havde vist, kun udføre saaledes, at fartøjet blev taget i to dele. Men det sidste kunde med lethed og uden synderlig ulempe opnaaes blot ved at overskjære den allerede brækkede kjøl og de faa planker paa styrbordside, som efter den tidligere forstyrrelse endnu holdt det hele sammen. Efter mit forslag, som tiltraadtes af mine kolleger i direktionen, blev det derfor bestemt, at skibet skulde overskjæres paa det nævnte sted og med alt tilbehør flyttes til Kristiania.

Ved nærmere undersøgelse havde det vist sig, at skibets største stykke efter overskjæringen vilde faa en længde af omtrent 14 m. og paa det bredeste blive vel 5 m., og naar alle omstændigheder toges i betragtning, kunde det neppe ansees muligt at faa dette stykke bragt til søen ad anden vej end den, som gaar forbi haugen til Lahelle. Men selv her vilde flytningen blive forbunden med nogen vanskelighed. Vel er vejen kun omtrent 1 kilometer lang og, paa et par mindre bakker nær, temmelig flad og jevn og uden stærke bøjninger, men for at slippe frem med den omhandlede del af skibet maatte der efter anstillet maaling midlertidig borttages flere stakiter og et stengjerde, ja endog bislaget paa et hus. Dette var dog overkommeligt. En større og den mest betydende hindring mødte derimod helt nede ved Lahelle, hvor tre omstændigheder syntes at have sammensvoret sig for at stænge skibet adgangen til søen. For det første er selve vejen her meget smalere end noget andet sted og gjør desuden en bøjning. Endvidere gaar der fra vejens venstre side en temmelig brat bakke ned mod stranden. Og endelig reiser der sig til højre en fjeldvæg, som, hvad der ved nærværende leilighed maatte ansees værst, ikke har synderlig skraaning, men stiger næsten lodret i vejret. Efter gjentagne maalinger antoges det dog, at vi med forsigtighed kunde komme forbi dette punkt, uden at blive nødte til at foretage en bekostelig og tidsspildende udvidelse af vejen.

For den videre flytning fra Lahelle var det ønskeligt at have saa stor pram, at den kunde optage begge skibets dele. Men efter hvad der blev mig sagt, skulde der i hele Kristianiafjorden kun findes én saadan pram, som ejedes af hr. kammerherre F. Treschow ved Larvik. For

med of all its particulars, as when all the articles found were added to the antiquarian collection of the university. The removal would certainly be rather difficult, and could not be managed, unless the vessel were divided into two parts, as I found out while fully investigating the matter. This division might be done with great ease and without any material inconvenience by simply cutting the already broken keel and these few planks on the starboard-side, that after the earlier disturbance of the sepulchral chamber still kept the vessel together. On my proposal to which my colleges in the directory of our society also agreed, it was therefore settled, that the vessel should be divided into two parts, by cutting over the planks mentioned, and be with all its appurtenances brought to Christiania.

When I had more closely examined the two pieces into which the vessel was to be cut, I found that the greater part would be about 14 m. long, and, where it was widest, a little more than 5 m. wide. When all circumstances were taken into consideration, it seemed hardly possible to get this piece down to the sea in any way but by the road to Lahelle, that passes the mound. But even there the moving would prove rather difficult. For though the road is certainly but about 1 kilometer long and, a couple of smaller acclivities excepted, rather flat and level and without any great curves, I found, on nearer in vestigation, that in order to get along with the part mentioned, it would be necessary beforehand to pull down several railings, one stone-fence and even a penthouse. This might however easily be done. But we had a greater and more significant impediment to get over close to Lahelle, where three circumstances seemed to have conspired to prevent us from bringing the vessel down to the sea. In the first place the road itself is here a good deal narrower than at any other place, and besides, here it makes a curve. Moreover a rather precipitous hill goes at this place from the left side of the road down to the shore. But here the worst difficulty appeared. That consisted in a rock rising on the right side of the road almost perpendicularly, without any slope to speak of. Having however repeatedly measured the ground, we at last began to hope, that with proper caution we might perhaps be able to pass this point without being obliged to lose much time and money by widening the road.

In order to move the vessel from Lahelle up to Christiania, it was desirable to get so large a pram, that it might hold both parts of the vessel. But, according to what I was told, there was in the whole Christianiafiord but one such pram, and that was one belonging to

at faa denne pram lejet, henvendte jeg mig derfor til hans kontor, og blev her meget behagelig overrasket ved at mødes med det tilbud, at ikke alene prammen men ogsaa et af kammerherrens bugserdampskibe uden godtgjørelse skulde besørge transporten, naar og hvorhen det maatte ønskes. Dette højst liberale tilbud blev selvfølgelig modtaget med taknemmelighed, og derved var en ikke ubetydelig lettelse tilvejebragt.

Da ogsaa de andre nødvendige forberedelser vare trufne, blev skibet ved hjelp af vindespil med temmelig lethed trukket ud af haugen og dernæst overskaaret paa det omtalte sted, hvorefter den største eller forreste del yderligere blev forstærket og sat paa hjul. Forspændt med 8, senere 9, heste bevægede dog slæden sig kun smaat fremad, idet der oftere maatte stanses paa grund af den bløde vej, hjulenes svaghed og de forholdsregler, som i den ene eller anden henseende viste sig nødvendige. Da vi endelig naaede det ovennævnte vanskeligste sted, saa det, trods de forrige undersøgelser, noget tvilsomt ud, om det vilde lykkes at slippe frem. Hestene maatte spændes fra, da det, som ogsaa ellers ofte, havde vist sig, at de kun meget ujevnt trak sammen, og de pludselige rykninger, som derved opstode, lettelig kunde blive farlige, hvorfor slæden haledes fremover alene ved hjelp af vindespil. Heldigvis gik det hele godt, skjønt skibet, hvor det var bredest, engang skurede mod fjeldvæggen. Dernæst blev det bagerste stykke af fartøjet hentet, hvilket kun medtog en times tid, medens flytningen af forenden paa grund af de mange stansninger varede næsten 1½ døgn. Begge stykker overførtes derpaa til prammen, efterat der i denne tilforn var indladet alle de løse sager, og den 15 juli kunde jeg endelig have den glæde at se bugserfartøjet dampe afsted med den fundne skat, der havde kostet 2½ maaneds arbeide og været gjenstand for saa mange tusend besøgeres opmerksomhed.

Ved ankomsten til Kristiania blev skibet kjørt op til universitetets tomt og, efterat et skur derover var bygget, underkastet en højst fornøden istandsættelse, dog saaledes, at der istedenfor de manglende dele og navnlig dem, som vare borthuggede ved gravkammerets forstyrrelse, ikke blev indsat noget nyt.

Den samlede udgift ved det hele foretagende udgjorde

Mr. Chamberlain F. Treschow at Larvik. I therefore applied to him to hire his pram, but I was indeed very agreeably surprised and pleased here to be received with the offer of that gentleman, without any remuneration, to let me have not only his pram but also one of his steam tugs to transport the vessel whenever I liked and to whatever place I might desire. This exceedingly liberal offer I of course gratefully accepted, and in this way a great difficulty was removed.

When all the other necessary preparatory measures were taken, the vessel was by winches, with tolerable ease, pulled out of the mound an then divided in two, in the place indicated. The larger or foremost part of it was then further strengthenened and put on a large sledge provided with wheels. Eight and later nine horses were then put before it, but we proceeded but very slowly and were obliged very frequently to stop on account of the soft condition of the road, the weakness of the wheels and the measures I on this account and for other reasons had found it necessary to adopt. When we at last reached the most difficult place, above stated, it began to look somewhat doubtful, whether we should be able to advance any further. We were then obliged to unhorse, as the horses had often shown themselves incapable of pulling together, and as the sudden pulls that in this way were made, easily might have become dangerous, and later, we hauled the vessel along by the help of winches only. We were however fortunate enough to succeed in making the vessel pass, though she once came into close contact with the rock and was scoured at her widest part. We then fetched the hinder part of the vessel, which however did not take us more than about an hour, whilst the moving of the forepart, on account of the many stoppages, had taken almost 36 hours. Both parts were then placed on the pram, where we had beforehand put all the loose things, and on the 15th of july I had at last the great joy to see the tug steaming along with the discovered treasure, that had cost us the labour of two months and a half, and that all the time had been the object of the utmost attention to many thousands of visitors.

When come to Christiania, the vessel was brought up to the ground of the university and when a shed had there been erected over her, she was made all right again, a thing indeed very necessary; but instead of the parts wanting, and more particularly those taken away, through the destruction of the sepulchral chamber, we never put in anything new.

The whole expense of all the work done, came to

8700 kroner. Heraf dækkedes 400 kroner ved den ovennævnte privatsubskription, og resten blev efter regjeringens forslag enstemmig bevilget af storthinget.

8700 Crowns out of which 400 Crowns had come in through the private subscription above named, and the remaining part was according to the proposal of Government unanimously voted by the Storthing.

II.

Efter denne udsigt i det store over udgravningen, og hvad dermed stod i forbindelse, vilde det ligge nærmest at gaa ind i fundets enkeltheder, beskrive de fundne sager og fastsætte deres alder. Inden jeg gaar over dertil, vil dog et klarere lys kunne spredes over det hele, naar der først gives en fremstilling af, hvad man vidste eller kunde vide om vort ældre skibsvæsen, førend Gokstadskibet kom frem af jorden. Deraf vil det ogsaa vise sig, om og hvorledes vor kundskab i denne retning er bleven forøget ved det omhandlede fund. Men for dette øjemed maa der ikke alene gaaes tilbage til de ældste tider, men ogsaa meget længer ned end den yngre jernalder, i flere tilfælde endog ligetil henimod vore dage. Thi det gjelder her, som ogsaa ellers ofte hos os paa grund af den langsommere gang i vor kulturudvikling, at der med større sikkerhed end i de fleste andre europæiske lande kan sluttes fra nutiden til, hvad der fandt sted i fortiden.

Den ældste forestilling, vi kunne danne os om farkosternes beskaffenhed her i landet, fremgaar af de saakaldte helleristninger. Disse maa med størst rimelighed antages mestendels at tilhøre bronsealderen eller det tidsrum, som ligger mellem Kristi fødsel og omkring tusend aar før den tid. Ristningerne ere som oftest udførte i fast fjeld, sjeldnere paa større løstliggende stene. Hidtil ere de kun trufne søndenfor det inderste af Throndhjemsfjorden, i det hele med store mellemrum, sjeldnest paa vestlandet, men i overvejende grad i Smaalenene, navnlig i den sydøstre del paa et forholdsvis lidet strøg, hvor tallet af de forskjellige grupper endog naar op til henimod et par hundrede. Beliggenheden af hver gruppe er næsten altid nær kysterne, kun fem findes længere inde

After this general review of the excavation and the incidents connected therewith, it might seem most appropriate to enter upon all particulars of the discovery, describe the objects discovered and determine their age. Before however I proceed to do this, a clearer light will be spread over the whole, by an account of what was known or could be known concerning the ancient conditions of our shipping, before the Gokstad-ship was dug out of the earth. It will then be more readily understood, whether and how far knowledge in regard to this, is increased by the discoveries in question. But in order to do this, we must not only go back to the most ancient times, but also much further down than to the later iron-age, in many instances even down to our own time. For, on account of the slower development of our civilization, it happens here as in other instances, that we can, with greater certainty than in most other European countries, from the present determine what took place in former times.

The earliest conception we can form of the character of vessels in our country, proceed from the rude gravings in stone called «Helleristninger». Such may for the most part be presumed to have been executed during the bronze age, or within the period lying between the birth of our Lord and about a thousand years previously. These gravings have, as is well known, been ordinarily made in rocks, and but rarely on detached stones. Hitherto they have not been found higher up than on the southern side of the innermost portion of the Trondhjems-fiord, and generally at some distance from each other: in the westerly part of the country, more rarely, but in the greatest number in Smaalenene, and more specially, in the southern tract of the latter, on a relatively small area, where the number of the different groups amounts to very nearly two hundred. Each group is almost always situated close to the coast; but

i landet, men ogsaa disse nær elv eller indsø. De fremstillede gjenstande gives altid kun i kontur og med svagt fordybede streger; deriblandt træffes som oftest skibsfigurer, seede fra siden og indtil 2 m. lange. Skibene maa vel antages at have været spidse kun i den ene ende, stavnene ere noget krumme, forholdsvis høje, og langs efter skibet sees en række med lodrette streger, som formodentlig skulle vise mandskabet. Forøvrigt kunne vi selvfølgelig ej danne os nogen nærmere forestilling af disse rids om farkosternes beskaffenhed og navnlig hverken om deres størrelse, materiale eller sammensætning. Dog synes det rimeligt, at kjølen maa have udgjort et helt stykke træ, medens ribberne mulig kun bestode af vidjer, overdragne med skind, ligesom Eskimoernes baade eller de af vore forfædre saakaldte hudkeiper (*húðkeipr*)*). Var klædningen derimod af bord, saa bleve disse vistnok, ligesom endnu hos Skoltelapperne i russisk Finmarken, »syede« eller bundne sammen med vidjer eller reb. Noget lignende træffes ifølge sagaerne[1]) i de »skuder«, som Sigurd Slembe lod gjøre i 1138 hos Lapper inde i fjordene i Nordland; paa disse var der, som det heder, vidjer istedenfor knæer, og bordene forbandtes med sener (*sina*). I saadanne farkoster lod det sig nok gjøre at fare omkring paa søerne og, naar det var stille, langs kysten, men neppe kunde der være tale om at gaa ud paa havet med dem.

I den følgende kulturperiode eller den ældre jernalder, omtrent fra Kristi fødsel indtil omkring 700 aar derefter, kjendes ingen billedlige fremstillinger af fartøjer hos os, og neppe heller ere virkelige levninger deraf fundne; i alle fald maa det ansees meget tvilsomt, om dertil kan henregnes de bordstumper med smaa huller i kanten, hvori var sener eller bastetaug, og som fandtes i den bekjendte gravhaug paa Vallerø[2]). Og selv om disse levninger virkelig hidrørte fra en mindre baad, saa give de kun liden oplysning. En ganske anden klar forestilling om den ældre jernalders farkoster fremkom ved de baade, antagelig fra det 4de hundredaar efter

*) For at undgaa en hel del citater, kan der ved de oldnorske ord i almindelighed henvises til J. FRITZNER's »Ordbog over det gamle norske Sprog«, hvori bevisstederne for vedkommende ords betydning ville findes anførte.

[1]) Heimskringla, ed. R. Unger p. 730.

five are found further inland, but also they have been placed near to a river or a lake. The objects represented are always given in simple outline, the lines being of very little depth, and amongst them, the figures of ships are most frequently to be found, shown sidewise, and up to 2 m. long. We must suppose the ships to have been sharp only in one end, the posts are somewhat curved, relatively high, and, lengthwise on the ship, is to be seen a series of vertical strokes, probably intended to represent the crew. As a matter of course, from these cuts, no idea can be formed of the nature of the vessels themselves, and particularly, none of either their size, the material used in them, or the mode of their construction. It seems however probable, that the keel must have formed one entire piece of timber, while the ribs consisted but of withes covered with skin, such as the boats of the Esquimaux, or the socalled *huðkeipr* used by our ancestors*). Were nevertheless the covering of boards, the latter must certainly, — as is yet the case among the Skolt-laps in Russian Lapmark, — have been «sewn» or knitted together with withes or cords. According to the Sagas[1]) something similar is to be found in the vessels which Sigurd Slembe had built in A. D. 1138 by the Laplanders in the Fjords (firths) of Nordland, on which, as it is stated, withes were used in stead of knees and the planking was bound together with sinew-cords (*sina*). It might be quite possible to move about the inland lakes and in calm weather even round the sea coast in such a craft, but a venture out to sea in them was not to be thought of.

In the next ensuing or elder ironperiod, — ranging from the birth of Christ until about 700 years afterwards, no pictorial representations of vessels are known to exist among us, and scarcely either have any genuine remains of such vessels been discovered; it must at all events be considered extremely doubtful, whether the fragments of boards pierced near the edges with small holes wherein were sinew cords or bast cords and which were found in the well known barrow on Vallerø[2]), can really be reckoned among such remains. And even were it granted, that the relics really came from a small boat, but little information could be derived from them. A much clearer idea of the vessels of the elder ironperiod, was obtained from the boats probably belonging to the

*) To avoid a great number of citations, we may, as to the old Norwegian words, refer mainly to the «Ordbog over det gamle norske Sprog af J. Fritzner», in which the different passages in other books that show the true signification of all such words, may be found.

[2]) Urda I, 29, cfr. A. LORANGE, Saml. af Norske Oldsag. i Bergens Museum p. 106.

Kristus, som fandtes 1863 i Nydam mose i Slesvig og ere beskrevne af professor C. Engelhardt i hans bekjendte verk[1]), dog kan det ikke deraf ligetil sluttes, at de samtidige farkoster i vort land væsentlig have været ligedanne. Kun den ene af de omtalte baade lod sig fuldstændig restaurere. Den har ikke nogen egentlig kjøl, men kun en lav bundplanke af omtrent 45 fods (14.20 m.) længde; spanterne have tversover ikke havt anden forbindelse end løse tofter; bordene ere gjennem de i visse afstande i træet udsparede klamper bundne med bastetaug til spanterne, men ere indbyrdes fæstede med klinknagler af jern. Breden er midtskibs 10½ fod (3.30 m.) og længden mellem stavnene henved 75 fod (23.55 m.). Da der ikke fandtes spor af mast, har baaden kun været et rofartøj. Aarerne have hvilet i keiper, hvoraf der er 14 paa hver side, men heller ikke disse ere fæstede paa anden maade til rælingen end ved surring af bastetaug. Paa grund af baadens brede kan hver rorskarl ikke have roet med to aarer, i det mindste ej i midten, skjønt nok paa de forreste og agterste tofter, og saaledes maa der rimelig i det hele have været 20—30 mand. Skjønt det oftere er sagt, at denne baad har megen lighed med vor Nordlandsbaad, kan dette dog kun gjelde klinkbygningen og keiperne, medens den navnlig ved sine sterkt liggende stavne i begge ender har større lighed med flere baade i Bergens stift men især paa grund af stavnspidsernes form med Nordfjordbaaden.

Først i den yngste forhistoriske periode eller den yngre ernalder, fra ca. 700 til noget over 1000 aar efter Kristus, var det oftere tilfældet, at levningerne af den døde bleve nedlagt i en farkost, en skik, der stemmede saa vel med, at denne periode netop omfattede vikingetiden. Det er ogsaa denne skik, vi kunne takke for, at levninger af skibe eller baade have bevaret sig lige til vore dage. Dog var man engang altfor tilbøjelig til den mening, at overalt, hvor flere klinknagler fandtes sammen i en gravhaug, hidrørte de fra en farkost. Man var endnu ikke bleven opmerksom paa, at saadanne nagler ogsaa kom til anvendelse paa mange andre gjenstande af træ f. ex. kister og skrin, ja paa landet undertiden endog ligetil for et par hundrede aar siden. Alligevel er der tid efter anden paa

fourth century of the Christian era, and discovered in 1863 in the bog of Nydam in Slesvig They are described by Professor C. Engelhardt in his well known work[1]). It may however still be doubtful whether the contemporary vessels of our land were in all respects like those. It was found possible fully to restore but one of the boats mentioned. It has no proper keel but merely a low bottom plank of 45 feet (14.20 m.) length. The frames have no other bond crosswise than loose thwarts; the planking is fastened to the frames by bast cords through projections distributed at fixed distances throughout the woodwork; the boards of the planking are joined to eachother by iron rivets. The breadth amidships is 10.5 feet (3.30 m.) and the length between stem and stern about 75 feet (23.55 m.) Since no traces of a mast were to be detected, the vessel can only have been intended for a rowing boat. The oars rested in angular row-locks of which on each side there are 14, but neither are these attached to the gunwale otherwise than by lashings of bast cord. In consequence of the breadth of the vessel, each rower cannot have used two oars, at least not midships, though he may have done so on the furthest fore- and aft-thwarts, and thus the crew may possibly have consisted of 20—30 men. Although it has been frequently asserted, that this boat is very much like the Nordland boat of our time, such an assertion can only have weight in respect to its riveted construction and its tholes, while — and especially as to its horizontal stem and sternpost — it has a stronger affinity with many boats in the diocese of Bergen, but specifically, because of the pointed form of its ends, with the Nordfiord boat.

In the latest prehistoric period or, as otherwise named, the later iron period, from about 700 to a little after 1000 of the Christian era, it frequently occurred, that the remains of the dead were placed in a vessel, a custom exceedingly appropriate to an age including the Viking period. To this custom we owe also that the relics of ships or boats could remain in preservation until our own days. There existed however once too strong a tendency towards the opinion, that whereever iron rivets were found together in barrows, their presence was due to a vessel. Attention had not at that time been directed to the fact that such rivets were also used in the fabrication of many other articles in wood, for instance chests and caskets, and this use was indeed continued in rural districts, until about two centuries ago. Nevertheless at

[1]) Nydam Mosefund 1865 p. 7—11.

forskjellige kanter af landet, men altid nær søen, fremkommet ikke faa begravelser med sikre vidner om, at den eller de døde, og det af begge kjøn, have været nedlagt i større eller mindre farkoster. Næsten overalt [1]) var dog træverket enten brændt sammen med den døde, eller for største delen bortsmuldret ved sin lange henliggen i jorden, saaledes at vi ej kunde faa nogen forestilling hverken om gravskibets størrelse og form, eller om, hvordan dets retning var i forhold til søen. Kun i et eneste tilfælde blev dette tildels opnaaet, da den farkost, som nu henstaar i det ene skur paa universitetets tomt, i 1867 blev trukket frem af en gravhaug paa gaarden Haugen i Tune, ikke langt fra Sarpsborg. Men ogsaa her var meget af træverket bortraadnet, og desuden hele begravelsen tidligere forstyrret, inden dens undersøgelse kom under professor O. Rygh's sagkyndige ledning [2]). Det viste sig her for første gang, som i flere af vore gamle skrifter, at skibet stod med forenden mod søen eller Glommen, ligesom færdigt til under den begravnes ledning at føres ud paa det element, hvor det egentlig hørte hjemme. Ligesom Nydamsbaaden er det af ek, paa enkelte mindre undtagelser nær; ligeledes ere bordene sammenføjede med klinknagler og gjennem de i træet udsparede klamper bundne til spanterne, dog ikke helt op som i Nydamsbaaden, da de øverste bord ved trænagler fæstes til knæerne. Dertil kommer, at spanterne tvers over ere forbundne med flere sammenlagte plankestykker, og at skibet har en virkelig kjøl. Skjønt kjølen kun er 13.65 m. lang eller omtrent 1.70 m. kortere end i den slesvigske baad, er dog skibet baade højere end denne og bredere paa midten (4.3 m.). Ved siden af sin større styrke og en større fuldkommenhed i udførelsen af det hele arbeide, hvad der ogsaa kunde ventes af de 400—500 aar, som ligge mellem begge farkoster, har Tunebaaden paa grund af sin mast ogsaa været sejlskib, men var vel forliden til at vove sig tversover Nordsøen, hvorimod vistnok til Danmark og Østersøen. At skibet tillige kunde drives frem med aarer, maa ansees sikkert. Derimod var der intet levnet, hvoraf man kunde se den indretning, der tjente som støtte for aarerne; dog kan det vel neppe antages, at skibet i

various times and in different parts of the country, — always however near the sea, — not a few tombs have been brought to light with certain proofs that the deceased person or persons and that of both sexes, were laid for sepulture in larger or smaller vessels. Almost everywhere [1]), the woodwork had either been burned with the corpse, or had for the greatest part decayed through its long rest in the earth, so that no sure idea could be obtained either of the form or the dimensions of the sepulchre-ship or of the position relatively to the sea in which it had been placed. Only in a solitary instance was this point partially attained, when the vessel now deposited in one of the sheds on the University ground in 1867 was taken out of a barrow on the farm named Haugen in the parish of Tune, not far from Sarpsborg. But also in this instance much of the wood was found altogether rotted, and in addition to this mishap, the place of sepulture had previously been much disturbed, before the research was committed to Professor O. Rygh's skilful control [2]). Now for the first time, it was clearly shown, as recorded in many of our ancient writings, that the vessel had been placed with her prow, sea - or Glommen - ward, ready, as it were, under the command of her sepultured inhabitant, to put forth on the element that was her virtual home. This vessel, like the Nydam's boat, is all but entirely of oak. The planking is put together with iron rivets and attached to the frames by projections, but not as in the Nydam's boat, through out the whole length, the topmost plank being fastened to the knees with trenails. To this may be added, that the frames are united by cross-beams, and that the vessel has a true keel. Although the keel is only 13.65 m. long and consequently 1.70 m. shorter than in the Slesvig boat, the vessel is both higher and broader (by 4.3 m.) amidships. In addition to greater strength and a much greater completeness in the execution of all the workmanship, a fact which might have been anticipated in consequence of the lapse of between four or five centuries that lie between the making of both vessels, the later of the vessels had the advantage of a mast, and must therefore have been a sailing craft, though doubtless too small to have ventured across the Northsea, but might however have voyaged to Denmark and the Baltic. It must also be assumed as indubitable, that this vessel might be propelled by oars, though nothing remained of any contrivance to serve as rest for the oars.

[1]) N. Fornlevn. p. 20, 179, 245, 551; Aarsber. f. Foren. t. norske Fortidsmindesm. Bevar. 1869, 94; 1879, 292; 1880, 45; K. Rygh, faste fornlevn. og oldsag. i nordre og søndre Throndhjems amt p. 241. [2]) Cfr. Skilling-Magazin 1867 p. 717—719, 724, 738—739, Polytekn. Tidsskr. for 1867.

denne henseende har lignet Nydamsbaaden, men snarere, at der, ligesom paa Bayeuxbroderiets skibe, har været huller i siderne for derigjennem at stikke aarerne, hvad der nedenfor vil blive nærmere omtalt.

Skjønt vi saaledes ved Tunebaaden for første gang fik virkelige levninger af en farkost, som gjennem umiddelbart øjesyn kunde give en forestilling om beskaffenheden af vikingetidens skibe, vil dog denne forestilling kun blive meget indskrænket, naar vi ej tillige tage hensyn til, hvad der kan sees af de gamle skrifter eller tegninger, ihvorvel begge for største delen tilhøre en meget senere tid. Ved hjelp af disse oplysninger gaar jeg derfor over til at vise vort skibsvæsens beskaffenhed gjennem middelalderen og i den orden, som synes at ligge nærmest.

Hvad der var det oftest anvendte materiale ved skibsbygningen, lader sig naturligvis ikke afgjøre. Dog kan det dels af Tuneskibet og dels ellers sees, at man ogsaa brugte eketræ dertil, hvad der ogsaa viser sig af saadanne benævnelser som *eikja* og *eikjukarfi*.

Som verktøj, der maa have været brugt ogsaa ved saadanne arbeider, havde man i den yngre jernalder, efter hvad gravfundene vise, forskjellige slags øxe, kniv, hammer, tang, ambolt, fil, bor, meisel, sag og høvl, skjønt den sidste vistnok kun blev meget lidet anvendt, hvilket ogsaa gjelder sagen, da denne kun var liden og desuden blot tjente til at overskjære træet, idet man med gjennemsagningen paa langs hos os neppe begyndte før ned i det 16de hundredaar. Øxebruget var derfor det, som i overvejende grad blev anvendt, og til finere arbeide kniven.

I den ældre Gulathingslov fra midten af det 10de hundredaar nævnes som arbeidsfolk, der vare virksomme ved bygningen af de ledingsskibe (*leiðangrsskip*), skibrederne pligtede at skaffe til kongens søtoge, to slags: tømmermænd (*stafnsmiðr*) og bordarbeidsmænd (*filungr* af *fjöl*, fjæl), og det samme var vel tilfældet ogsaa ellers. De første dannede skelettet, de andre tæljede bordene og satte dem sammen. Ugelønnen for hver af tømmermændene var 2 sex alens ører (*sex alna eyrir*), det vil sige af 6 alen vadmels værdi, medens bordarbeidsmanden kun fik halvdelen. At udregne, hvormeget en saadan øre vilde beløbe sig til i vore penge, kan neppe gjøres med nogen sikkerhed.

In this respect it can still scarcely be presumed, that the vessel resembled the Nydam's boat, but rather then, as exhibited on ships in the Bayeux-tapestry, holes have been made in the sides, in which to place the oars, an arrangement to be dwelt on hereafter.

Although the Tune boat was the first to furnish us with the actual relics of a vessel that by direct view could show the character of vessels belonging to the Viking period, this representation would be very scanty, were not also that which is to be ascertained from perusal of ancient authors and from drawings, taken into consideration, though both for the greater part belong to a much less remote period. With the aid therefore of these illustrations I proceed to set forth the character of our ships throughout the middle ages, employing the order that seems most natural.

It is of course impossible definitively to state what material was most frequently applied to shipbuilding. But it is obvious partly from the Tune-ship, partly from other instances, that oak-timber was also used for the purpose, and this is further shown by such designations as *eikja* and *eikjukarfi*, in both of which *eik* is the synonym of oak.

The discoveries made in barrows indicate that as tools used for such work, they in the later iron period had axes of various kinds, knives, hammers, tongues, anvil, file, anger, chisel, saw, and plane, although the last named was assuredly but little used, and the like remark is applicable to the saw, for it was of very small size and only used to crosscut the timbers, in as much as lengthwise sawing had hardly begun with us before somewhat late in the 16th century. The axe was therefore the tool most used, while to the finer part of work, the knife was applied.

The ancient Gula-law from the middle of the 10th century, specifies two classes of workmen as engaged in the construction of vessels of war (*leiðangrsskip*) which shipdistricts were bound to supply for the king's naval campaigns: carpenters (*stafnsmiðr*), and workers on thin boards (*filungr* of *fjöl*, a thin board), and we may suppose the same classes to have existed in other instances. The class first named prepared and framed the skeleton, the other workers whittled the boards and put them together. The weekly wages of the first class of workmen were set at 2 six ells örer (*sex alna eyrir*), that is to say twice the value of six ells frieze, while the workers on thin boards received but one half of that amount. We are hardly able with any tolerable assurance of correctness to compute the value of such a coin «öre» in terms of our present currency.

Som det synes, foregik skibsbygningen oftere under et skur (*hróf* eller *ráf*). Ved ledingsskibene, ligesom vel ogsaa ved andre farkoster, blev først kjølen (*kjölr*) sat paa bakkestokkene (*bakkastokkar*), dernæst tilføjedes stavnene og indholterne (*innviðir* eller *innviðartré*), som bestode af spanter, knæer (*kné*) og de tversover gaaende baand (*biti*), hvoriblandt tvende havde særegne navne: *siglubiti* ved masten og *austrbiti* ved det bagerste øserum. Udenpaa spanterne blev dernæst klædt med bord (*bera borði*). Dette skede da paa samme maade som ved Tuneskibet og endnu ved vore baade og jægter, saaledes at hvert højere bord lagdes lidt over kanten (*skör*) af det nedenfor liggende. Det 2det lag fra kjølen kaldtes *aurborð*, det 5te *hrefni*, svarende til »remmen»[1]) paa den nordlandske baad eller der, hvor siden antog en mere lodret stilling, hvorfor forbindingen mellem bordene paa dette sted fik navnet *hrefnis skör*. Hvert lag af bordene kaldtes i det mindste senere, som endnu, et omfar (*umfar*), men tallet af disse var selvfølgelig forskjelligt efter sidernes højde. Desuden omtales paa et par steder to dele langs siden, der, som det synes, ved sin større tykkelse eller ved paalagte lister hævede sig frem fra de øvrige og derfor havde egne navne: *roðrarhúfr*, formodentlig nærmest under aareraekken, og *meginhúfr*, maaske rælingen. Tætningen mellem bordene skede ligesom paa Tuneskibet og allerede i Nydamsbaaden ved et tyndt lag af drev (*síþráðr* af *síð*[2]), dog vel ikke af hamp, men som paa de nysnævnte farkoster af fæhaar. Hvorledes spanterne fæstedes til klædningen, omtales ikke, men kan sees af hvad ovenfor (s. 12) er sagt om Tunebaaden. Bordene bleve, ligesom endnu nordenfor Ekersund, indbyrdes forbundne med gjennemgaaende nagler af jern (*hnóðsaumr*), udvendig med rundt hoved og indvendig med firkantede plader (*ró*), som klinkedes fast. Med andre ord, der anvendtes paa alle slags farkoster udelukkende klinkbygning. Vel har nuværende kommandør H. Müller i sin bog[3]), der var gjennemseet og saaledes godkjendt af P. A. Munch, udtalt, «at de egentlige Langskibe maa have været i Almindelighed klinkertbyggede. Derimod synes det som om Drageskibene i Regelen have været kravelbyggede; at saaledes Ormen hin lange har

It would seem, that ship building was generally carried on under a shed (*hróf* or *ráf*). In the case of warships as well as other craft, the keel (*kjölr*) was first laid upon the stocks (*bakkastokkar*), next the posts at each extremity were set up together with the intervenient frame-timbers (*innviðir* or *innviðartré*) which consisted of floors and knees and the cross beams (*biti*) two of which bear distinctive names, that by the mast *siglubiti* and that by the well furthest aft *austrbiti*. On the outside of the frames they then laid planking (*bera borði*). This was done in the manner shown by the Tune ship and indeed now in our boats and yachts, by placing each upper plank a little over the edge (*skör*) of that next below it. The second tier of planking from the keel was named *aurborð*, the 5th in succesion *hrefni*, answering to the «rem»[1]), of our Nordland boats or where the side of the vessel was more vertically formed. For this reason the junction of the planking at that tier, was named *hrefnis skör*. Each tier of the planking was, at least somewhat later, as now, termed an «omfar» (*umfar*), the number of such tiers being of course different in the different vessels, according to the height of the vessels themselves. Further in a couple of places there is mention made, alongside the side, of two portions of the planking that, either in consequence of a greater thickness of plank or by means of a fillet attached, projected beyond the rest, and therefore had distinctive names: *roðrarhúfr*, probably next under the rank of oars, and *meginhúfr*, possibly the gunwale. Tightening of the joints was effected, as in the Tuneboat and already in the Nydam's-boat, by a thin layer of oakum (*síþráðr* of *síð*)[2]) probably not of hemp but, as in the recently named craft, of catle-hair. It is not stated how the ribs were fixed to the planking; but, as may be seen from what earlier (pag. 12) has been said of the Tuneboat. In the same way as still North of Ekersund, the planks themselves were fastened to eachother by through bolts of iron (*hnóðsaumr*), that outward have a round head and inwards square plates (*ró*), riveted together, in other words, vessels of every class were exclusively clinker-built. It is true, that Commodore H. Müller of the Norwegian navy, in his book that had been revised and consequently approved by Professor P. A. Munch, the historian, has stated[3]), «that the long-ships, in the peculiar sense of the word, must have been ordinarily clinker-built, but on the other hand, the war-vessels called Dragon-ships, would seem as a rule to have been carvel-built. That the ancient war-vessel «The long serpent»

[1]) Cfr. Eil. Sundt, Nordlandsbaaden p. 25.
[2]) Cfr. Iv. Aasen, Ordb. over det norske Folkesprog, og Histor. Tidsskr. 2den række III, 124.
[3]) Søkrigshistoriens vigtigste Begivenheder p. 4.

været det, fremgaar utvivlsomt af Sagaernes Udtryk». Men foruden at der, som nedenfor nærmere skal paavises, overhovedet ej kan gjøres saadan forskjel mellem de nævnte slags skibe, eftersom alle drager vare langskibe, skjønt ikke hvert langskib var en drage, saa giver sagaens fortælling om Ormen lange neppe nogen støtte for den anførte mening. Tvertimod maa klinkbygning antages at have fundet sted endog paa de største skibe hos os gjennem hele middelalderen. Saaledes heder det f. ex. om Mariesuden, som kong Sverre lod bygge 1182 i Nidaros, og hvis aaretal næsten kunde sættes ved siden af Ormen langes[1]), at den gav sig (*bilaði*) i nogle sammenføjninger (*skör*), da den gik af bakkestokkene, hvorfor Sverre ved afreisen lod medtage flere kister med skibssøm til istandsættelse undervejs. Endog selve skibets navn med sin sammensætning af *súð* viser, ligesom ved andre baade samtidige og meget yngre skibe med lignende benævnelse, f. ex. Olafs-, Katrinar-,Sunnifu-, Postula-, Reimars-súðin, at de alle sammen vare klinkbyggede. Dette sees ogsaa ellers flere steder, saaledes paa en dørstolpe fra Neslands stavkirke (1242)[2]), paa en initialtegning fra 13de eller 14de hundredaar og lithograferet for 4de bind af Norges gamle love, endvidere paa Eilif lagmands segl (1301)[3]), Bergens (1299)[4]) og Gunnar raasveins (1329)[5]). Det samme kan ogsaa sluttes af et testament af 1430[6]), hvori der omtales et skib, som skulde bygges paa Revnestranden i Strandvik sogn i Søndhordland med 25 alens kjøl og 15 omfar. Ligeledes sees det, at den jægt, Jørgen Hanssøn i 1516 lod bygge paa Bergenhus, var klinkert[7]). Vel omtales, at erkebiskopen i 1529 sendte to kraveler fra Throndhjem til Bergen[8]), men dermed er det ikke sagt, at disse vare byggede her i landet. Derimod har det i sit slags eneste skib, som træffes hos os, eller den berømte galei, der blev bygget i Bergen 1566[9]), ikke usandsynlig været et af de første kravelbyggede skibe i Norge. Hvad der støtter denne antagelse om den sene tid for kravelbygningens indkomst her i landet, er ogsaa, at denne sammensætning vistnok heller ikke førend langt

(Ormen hin lange) was thus constructed, is clear from the statement of the Sagas». But, besides that, as shall hereafter be pointed out, there can not, on the whole, be admitted any such specific difference between the classes of ships in question, — since all Dragon-ships were longships, though not every longship was a Dragon-ship, — the Saga narrative of «the long Serpent» gives scarcely any support to the opinion stated. On the contrary, clinker building must be presumed to have been applied to even the largest vessels in our country throughout the entire period of the middle ages. Thus for instance as to the Mariasude, a ship built at Nidaros A, D. 1182 by order of King Sverre, and whose number of oars very nearly equalled that of «the Serpent»[1]), we are told that some of the joints (*skör*) gave way (*bilaði*), when she ran off the stocks, and that therefore Sverre, to provide for the possibly requisite reparation during the voyage, ordered several chests of ship-spikes to be taken on board. Even the very name of the ship, composed, as it is, of *súð*, as well as vessels both of contemporary and of much later date with similar name, for instance «Olaf's, Kathrinar-, Sunnifu-, Postula-, Reimars suðin», show that all were clinker-built. This is besides also obvious in many places, as for instance on a door-pillar from the wooden church of Nesland (A. D, 1242)[2]), on an initial autograph of the 13th or 14th century and lithographed for the 4th vol. of the ancient laws of Norway, and further on the respective seals of Elif the lawyer (A. D. 1301)[3]), of the municipality of Bergen (A. D. 1299)[4]), and of Gunnar Raasvein (A. D. 1329)[5]). A similar inference may likewise be drawn from a testament of 1430[6]) wherein is named a ship to be built on the Revnestrand in the parish of Strandvik, in Söndhordland, with length of keel 25 ells and 15 tiers of planking (omfar). In like manner it is seen, that the yacht which Jörgen Hanssön in 1516 had built in the castle of Bergenhus, was clinker-built[7]). It is indeed stated, that in 1529 the Archbishop sent two carvels from Trondhiem to Bergen[8]), but this statement does not tell us that they were constructed in this country. On the other hand, it is not improbable, that the ship — the only one of its type found among us — that renowned galley built in Bergen 1566[9]), was one of the first carvel-built vessels constructed in Norway. This theory, as to the late period, at which the carvel-building was introduced into this country, derives further support from the fact, that that mode of construc-

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[1]) Konungasøg. ed. Unger, p. 83, 85, cfr. 166. [2]) Norske bygn. fra fortiden, 3dje række, pl. V. [3]) D. Norv. III. no. 47.
[4]) Ib. II no. 46. [5]) Ib. II no. 172. [6]) Ib. V, 419. [7]) Hist. Tidsskr. 2den række III, 122. [8]) D. Norv. V no. 1061.
[9]) Norske Magas. I. 331, II. 70.

ned i middelalderen viste sig i det øvrige nordlige Europa. Vel har F. R. Fowke i sit verk[1]) udtalt den mening, at de skibe, hvori Vilhelm erobreren satte over kanalen til England, «vise sig at være kravelbyggede», men dette kan neppe sluttes af de fotografier, som medfølge hans verk, tvertimod snarest det modsatte. Dette maa ligeledes antages om det skib, der sees paa en antependiumstavle i Londons nationalgalleri, som er malet af Margeritone af Arezzo († 1313), endvidere om det skib, som træffes paa en altertavle fra Slagns kirke (i vort universitets samling), rimeligvis af kølnsk arbeide men fra slutningen af det 14de hundredaar, i alle fald yngre end 1376, da den der fremstillede pave har tiara med 3 kroner, hvilket først vides anvendt efter det nævnte aar. Endelig maa skibene paa de segl mellem 1308 og 1529, som Demay gjengiver i sit verk[2]), være klinkbyggede.

Hvad formen angaar, vare alle farkoster spidse i begge ender, kun med undtagelse af enkelte mindre baade af et eget slags, som havde ret afskaaren agterende og nedenfor skulle nærmere omtales. Der var saaledes skot (*skutr*) i hver ende med tilsvarende fremstavn (*framstafn*) og bagstavn (*skutstafn*). Den øverste eller fritstaaende del (*brandr*) af stavnene var temmelig høj og ret afskaaren, saaledes som vi kunne se det paa broderiet i Bayeux, paa de ovennævnte dørstolper, segl[3]) og tegninger, samt endnu paa jægterne nordenfor Bergen. Den afrundede side noget agtenfor forenden kaldtes *kinnungr* eller *kinnvangi*, medens den egentlige boug gik under navnet *hlýr*, et ord, som endnu er bevaret i »ljørodden» eller den lille trekantede knægt, som i Nordlandsbaaden er fæstet paa hver side af stavnen og mod overkanten af øverste bord[4]). Lidt agtenfor stavnen var der ogsaa, ligesom paa den nysnævnte baad og paa jægterne nordenfor Bergen, ved hver side en pullert eller «koller» (*kýlfa*) for at slaa ankertauget om. Ikke usandsynligt har forstavnen tvers over bagsiden, ligesom paa Nordlandsbaaden, ogsaa havt en «krydsstok» med nogle nedskjæringer, hvori landtauget kunde hvile, skjønt ordet ej nævnes i de gamle skrifter.

Alle farkoster vare, ligesom endnu jægterne nordenfor Bergen, uden dæk, kun visse slags af dem

tion was assuredly not known in any other part of northern Europe, until far on in the period of the middle ages. True it is, that W. F. R. Fowke, in his work[1]) on this topic, has expressed the opinion, that the vessels in which William the Conqueror crossed the Channel to England, «appear to be carvel-built». So much however can scarcely be inferred from the photographs given in his book, but rather the direct opposite. The like may also be assumed of the ship which appears on an antependium, painted by Margeritone of Arezzo (died 1313), now in the National Gallery in London, and further of the ship on an altar piece, in our University's collection, from the Church of Slagn, presumably the work of a Cologne artist, but belonging to the later part of the 14th century, and certainly of later date than 1376, for the Pope there represented is shown therein with a tiara of triple crown, which is not known to have been employed before that year. Finally the ships graven on the seals of date 1305—1529 given by Demay[2]) in his work, must all be clinker-built.

As to form, all vessels were sharp at both extremities with a solitary exception of a few crafts hereafter to be noticed more accurately, of a peculiar construction and which are square at the stern. There was thus at each end a partition (*skutr*), together with correspondent stem (*framstafn*), and stern (*skutstafn*). The uppermost, or free part (*brandr*) of the posts stood pretty high, and was crosscut square, as may be seen in the Bayeux tapestry, on the already named door pillars, seals[3]) and drawings, as well as even to this day, in the yachts North of Bergen. The rounded side somewhat abaft the stem, was called *kinnungr* or *kinnvangi*, while the true bow was called *hlýr*, a word which survives in the «ljörod», or the small triangular brackets which, in the boats from the Nordland, are fixed to each side of the upright timbers[4]) and against the upper surface of the highest plank. Like also as on the boat just named, and on the yachts North of Bergen are found aft the stem at each side a timberhead or «koller» (*kýlfa*) around which the anchorcable is cast. The forepost has, as in the instance of the northern boats as well as those other just named, not improbably had a «krydsstok» (cross piece) with grooves in which the cable landward might rest, although that word is not found in the old writings.

All the vessels like the yachts north of Bergen were without deck, only certain kinds were boarded in

[1]) The Bayeux tapestry p. 57. [2]) Le costume au moyen age d'aprés les sceaux p. 253 seqv. [3]) Cfr. Jal, Archeol. navale I, 153; A. Schultz, das höfische Leben zur Zeit der Minnesinger II, 287, 294. [4]) Folkevennen, XII, 349.

havde tiljer, men forskjellig anbragte, hvorom mere nedenfor.

Det er neppe sandsynligt, at man i den hedenske tid gav skibene navne, naar de gik paa vandet. Dette kan maaske sluttes deraf, at der i et af de faa tilfælde, hvori saadant kunde ventes nævnt, nemlig da Olaf Trygvessøn kaldte den drage, han tog fra Raud den ramme, Ormen, ikke omtales, at skibet tilforn havde noget navn[1]). Men fra kristendommens indførelse blev det mere og mere skik ved større skibe, endog som det synes ved handelsskibe, at give dem et eget navn i forbindelse med, at der foregik en indvielse, hvorved de stilledes under kirkens eller en eller anden helgens beskyttelse[2]). Paa Mariasuden lod kong Sverre endog indlægge relikvier i stavnplankerne (*ennispænir*) baade forud og agter[3]).

Af nyere landslov sees, at ledingsskibe, efterat de havde forladt bakkestokkene, bleve paa lunner trukne op i et skur eller nøst (*naust*), hvor de siden stod, naar de ikke brugtes. Dette var vistnok tilfældet ogsaa for alle andre skibes vedkommende og over det hele land, ligesom endnu ved baade og jægter paa vestlandet og nordover. I Olaf den helliges tid omtales saaledes et nøst ved Mjøsen paa Ringnes[4]) i Stange, og om det samme vidner navnet Nøste (*Naustar*) paa en gaard i Lier. Saadanne nøst vare, ligesom endnu paa Vestlandet, ikke byggede af laft, men, som den ældre Gulathingslov viser, af stolper (*stafr*), der forbandtes med sviller (*staflægja*) og tvertræer (*fleyðri*); de bleve tækkede med bord (*tróð*), hvorpaa lagdes næver og torv, som igjen støttedes af torvstok (*torfvølr*) og vindskier (*vindskeið*).

Her maa dernæst omtales den maade, hvorpaa man ombord befriede fartøjet for det indtrængende vand. I baadene skede dette ved hjelp af øsekar (*austker*). Paa større skibe havde man to øserum, det ene i forenden, det andet i agterenden[5]), hvoraf ogsaa det der anbragte, ovenfor omtalte, baand (*austrbiti*) havde sit navn. Øsningen foregik oprindelig ved bøtter (*byttuaustr*) eller stampe (*stampaustr*). I et par sagaer[6]) finde vi endog nærmere beskrevet, hvorledes det hele gik for sig, skjønt det ogsaa uden denne fortælling lettelig kunde tænkes.

the hold, but the boards were placed after a different fashion of which more hereafter.

It is hardly probable, that in the days of heathenism, names were given to the vessels when they were launched. So much may, possibly, be inferred from the circumstance, that in one instance of the few in which such a naming might be expected, when Olaf Trygvason called the vessel which he took from Roud the Strong «the Serpent», nothing is said of the ship having previously had any name[1]). From the time of the introduction of Christianity, it became more and more the custom in the case of large vessels and even it would seem of merchant vessels, to give a name to the vessel, and at the same time, a consecration took place by which the vessel was placed under the special guardianship of the Church or some Saint[2]). On the Mariasude King Sverre even deposited relics in the planking (*ennispænir*) of the stem and stern[3]).

It is ascertained from the more recent national laws, that vessels of war, after having been launched, were hauled up on logs, into a boat-house (*naust*) where they were kept when not in use. Such was certainly, throughout the land, the case with all other vessels. Such even now is the practice on the western coast and more northward, as far as yachts and boats are concerned. Thus in the times of Saint Olaf, a boathouse by the lake Miøsen at Ringnes[4]) in Stange is mentioned, and of such a fact the name Nöste (*Naustar*) of a land estate in Lier, bears testimony. Such boathouses were then as now on the western coasts, not constructed with board but, as the old Gula-law shows, of upright posts (*stafr*) which were tied with platetimbers (*staflægja*) and transoms (*fleyðri*). They were then roofed with board (*tróð*) on which birch-bark and turf were laid, and these again were supported by slender beams ((*torfvölr*) and verge-boards (*vindskeið*).

The method by which sailors kept their vessel free from water, has next to be mentioned. It was done in boats by the use of scoops (*austker*) but in the larger ships there were two wells in the hold, one fore, the other aft[5]), and the beam there (*austrbiti*) previously referred to, thence obtained its name. Originally the baling was done either with buckets (*byttuaustr*) or tubs (*stampaustr*). In two of the sagas[6]), we find accurately described, how the whole business was managed, although this might be readily understood

[1]) Heimskr. ed. Unger p. 192 [2]) Cfr. Flateyarb. I, 434, Grettis sag. kap. 38. [3]) Konungasög. ed. Unger p. 84. [4]) Heimskr. p. 255.
[5]) Heimskr. p. 223, Biskup. sög. I, 422. [6]) Fostbrœdra sag. (Flateyarb. II, 205); Grettis sag. kap. 17.

I den førstnævnte saga berettes, at den ene af de to øsende mænd, og som ingen anden var end den berømte Thormod Kolbrunarskald († 1030), stod nede i bunden og, naar bøtten var fyldt, langede den op til den anden, som stod paa tiljerne, modtog bøtten og tømte den udover skibssiden. Dertil føjes i begge sagaer, at dengang kjendte man endnu ikke den senere øsningsmaade med navnet *dæluaustr*, hvilken dog ikke nærmere beskrives. Men da ordet er sammensat af *dæla*, der kommer af *dalr* og betyder en rende, maa det vistnok forstaaes om en pumpe, og det saameget mere som det engelske *pumpdale* betyder pumpens hule cylinder. Det interessanteste ved de nævnte sagaers beretning er, hvad der saa yderst sjeldent forekommer, at man her nogengenlunde kan beregne, naar denne forbedring var indført. Antages det nemlig med professor G. Storm [1]), at den ældste af de to sagaer eller Fostbrœðra saga ikke er forfattet efter 1210, saa maatte man hos os først have lært at indrette en pumpe i løbet af de 200 aar, som ligge mellem 1030 og 1210. Dog har man vel dengang neppe havt nogen vegtstang til at hæve pumpestokken med, hvorimod denne, som endnu paa vore mindre jægter, rimeligvis kun havde en liden tverstang til haandgreb.

Hos os har man ikke kjendt flere end ét ror (*stýri*). Det havde fra gammel tid sin faste plads noget forenfor bagstavnen paa højre side, hvorfor denne fik navn af styrbord (*stjórnborði*), medens den modsatte side, eller til venstre af rormanden, kaldtes bagbord (*bakborði*). Som støtte for den styrende var der bag ham, ligesom endnu paa mange af vore baade, en opretstaaende tverfjæl (*höfðafjöl*). Selve roret bestod af en planke med form som en bred aare, hvis nedre del (*stjórnarblað*), som det kan sees paa Tunebaadens ror (pl. II fig. 3), i midten havde et rundt hul for derigjennem ved hjelp af en taugstrop at fæste det til skibssiden, medens den øverste korte runde hals (*stýrisknappr*) blev omfattet af et hamlebaand (*stýrihamla*). Øverst paa halsen var i modsat retning af bladet en firkantet aabning for rorpinden (*stýrisdrengr, stýrisstöngr, hjalmunvölr*). Desuden havde roret noget

[1]) Snorrre Sturlassons Historieskrivn. p. 53.

without the help of this description. In the first of those Sagas it is stated, that the first of the balers, a man no less than the famous Thormod Kolbrunarskald (died 1030), stood on the bottom of the well and when the bucket was filled, hoisted it to the other, who stood above on the flooring, received the bucket and discharged its contents over the vessel's side. It is added in both the Sagas, that in those days, the other method of baling employed later and termed *dæluaustr*, was unknown; but in the Sagas mentioned, that method is not described. Since however the word applied, is compounded of *dæla*, derived from *dalr*, and meaning a conduit, it must here be understood to intend a pump, and this the rather, in as much as the English word «pumpdale» means the hollow cylinder of the pump. What is most interesting in the account given by the two Sagas, is that we with tolerable accuracy can settle the date, when the improvement in question was introduced, a thing that very rarely can be done. If it be assumed, — as by Professor G. Storm [1]) it is, — that the elder of these two Sagas, the Fostbrœðra Saga, was not composed later than A. D. 1210, we might conclude that among us the art of pumpmaking was acquired within the range of those 200 years which lie between the last named year and 1030. At that time, however the use of a lever to raise the pumprod was most likely not known, whilst the latter, as still on board our smaller yachts, must be supposed to have had a small cross piece for its handle.

Among us but one rudder (*stýri*) was known. This had, from old times, its fixed position somewhat before the stern-post, on the right side of the vessel, and thence the name of starboard (*stjórnborði*) was derived, whilst the opposite side or on the left of the helmsman, was termed *bakborði*. The helmsman had behind him as a stay then as at present on some of our smaller boats, an upright wooden bulkhead standing across (*höfðafjöl*). The helm consisted of a plank in the shape of a broad oar, the lower portion of which (*stjórnarblað*) as may be seen in the Tune boat's rudder (pl. II fig. 3), in the middle was provided with a round hole to enable it by means of a rope to be fastened to the side of the vessel, whilst its short round upper neck (*stýrisknappr*) was caught by a grummet (*stýrihamla*). A square aperture in the opposite direction of the blade was made for the tiller (*stýrisdrengr*), *stýrisstöngr*, *hjalmunvölr*), in the upper part of the neck. The rudder

jernbeslag[1]), hvortil hørte, som den nysnævnte tegning viser, en eller flere kramper nedad mod rorets hæl, men som forresten ikke nærmere omtales. Naar roret blev sat i den stilling, det maatte have for at opfylde sin hensigt, eller op og ned, lidt paa skraa og saaledes, at dets flade var omtrent parallel med rælingen, sagdes man at *leggja styri i lag*, medens det modsatte betegnes med at *leggja styri or lagi*, hvorved roret følgelig haledes op. Dette skede, naar farvandet var grundt og man frygtede for, at roret vilde støde i bunden, hvilket bedst sees af beretningen[2]) om Olaf den helliges, forresten vistnok uhistoriske, fart gjennem det udgravede Agnafit ved Mælaren, hvor han byder sine folk at heise sejl, lægge roret udaf lag og styre med aarerne. Forøvrigt varede det længe baade hos os og i udlandet, inden man som nu fik hængeror i agterenden. Vi træffe saaledes endnu 1242 sideror paa den ovennævnte dørstolpe fra Neslands kirke, hvilket ogsaa forudsættes paa det nysanførte sted i Bergens bylov (1276), og ligeledes sees paa Gunnar Raasveins segl (1329)[3]); derimod har drageskibet i Bergens segl (1299) hængeror i agterenden[4]). Til sammenligning med udlandet kan hidsættes, at Lübeck's segl (1249)[5]), et gravmonument (omtr. 1250) i St. Denis ved Paris[6]), samt de segl, som træffes for Dover (1281)[7]), Calais (1308) og St. Sebastian (1335)[8]) alle vise sideror, medens skibet paa det ovennævnte alterskab fra Slagens kirke har, som det maa antages, ror i agterenden, og i alle fald det skib, som sees paa et engelsk segl fra 1395. Det samme er tilfældet paa et relikvieskrin i Brügge, malet omkring 1480 af Hans Memling[9]), og paa et maleri fra slutningen af samme hundredaar i Floda Kirke i Sverige[10]).

Som vi kunne se i Tuneskibet, havde man fra først af kun én mast (*sigla, viðr, trê*). Dette var fremdeles tilfældet langt ned i middelalderen og ved de indenlandske baade og jægter ligetil vor tid, alene med undtagelse af nogle store fiskebaade paa Søndmøre[11]). Heller ikke i udlandet, og navnlig i England, havde man tidligere mere end én mast, dog viser den ældste skibsmodel, som jeg saa i 1867 i marinegalleriet i South Kensington museum i London af krigsskibet Harry, bygget 1514, 4 master,

was, besides, slightly mounted with iron[1]) to which, as the just named drawing shows, one or more cramps were added down towards the heel of the rudder, but of this no closer description is given. When the rudder was set in the position required for answering its purpose, or up and down, a little aslant and so that its blade was almost parallel with the gunwale, it was called to *leggja styri i lag*, to steady the helm, while the opposite thing was termed to *leggja styri or lag*, by which of course was meant to put up the helm. This took place in shoal water, and when it was feared that the rudder might strike the bottom, as is seen from the report, — doubtless unhistoric[2]), — of St. Olaf's passage through the excavated Agnafit by the Mælar, where he bids his crew to hoist sail, lay off the helm and to steer with the oars. It was long both with us and abroad, before the rudder suspended astern, came into use. Thus it is, that A. D. 1242 we find the side-helm on the already named door-pillar from the Church in Nesland, and the same thing is also assumed in the just cited passage in the Law of the town of Bergen (1276) and is likewise seen on Gunnar Rosvein's seal[3]) (1329), but on the other hand, the dragon-vessel on Bergen's seal (1299) shows the rudder suspended astern[4]). In order to institute a comparison with foreign countries, it may be stated, that Lübeck's seal (1249[5])), a tomb (about 1250) in St. Denis near Paris[6]), also the seals for Dover (1281)[7]), for Calais (1308) and St. Sebastian (1335)[8]) all have side-helm; meanwhile the above named altar piece from Slagen Church shows, as it may be assumed, a rudder astern, and, at any rate, the ship seen on an English seal from 1395, shows the rudder so placed. The same is also the case on a casket of relics in Bruges, painted by Hans Memling[9]) about 1480, and on a painting from the close of the same century in Floda Church in Sweden[10]).

As we also can see from the Tune vessel, only one mast (*sigla, viðr, trê*) was in use. This was, thenceforward the case far into the middle ages, and is still, as regards the home boats and yachts, with the solitary exception of some large fishing boats at Söndmöre[11]), the fact even down to our own time. Neither abroad nor, notably, in England, was more than a single mast in use at an earlier date, although 4 masts are shown by the oldest ship model of the ship of war «Harry», built in 1514, seen by myself in the South Kensington

[1]) Bergens Bylov IX, 18. [2]) Heimskr. ed. Unger p. 221. [3]) D. Norv. II no. 169, 172. [4]) Ibid. no. 46. [5]) Urkundenb. d. Stadt Lübeck I, 759. [6]) VIOLLET LE DUC, diction. d. mobil. franç. IX, 34. [7]) ALW. SCHULTZ, das höf. Leben zur Zeit der Minnesing. II, 290. [8]) DEMAY l. cit. p. 253 seqv. [9]) LÜBKE, Vorschule z. Stud. d. kirchl. Kunst 1866 p. 136. [10]) B. HILDEBRAND, Floda kyrka i Södermanland pl. 3. [11]) Folkevennen XII, 243.

men katalogen gav tillige den oplysning, at der ikke skulde kjendes noget ældre engelsk skib med mere end én mast. Masten blev, som ligeledes sees af Tuneskibet[1]), sat ned i en aabning i en svær ekeblok, der havde sin plads over de mellemste spanter. Udentvil har blokkens form i begge ender af en fiskehale givet anledning til navnet mastefisken paa den forhøjelse af dækket, som findes i nutidens skibe omkring masten. Den aabning i blokken, hvori masten stod, strakte sig med samme brede et godt stykke agterover for at lette mastens reisning og nedlægning. Vi have ogsaa en fortælling om, hvorledes det gik til ved mastens reisning. Det heder saaledes i 1225[2]), at da man reiste masten paa kongeskibet, begyndte den at falde fremover mod forstavnen efter stokkene (*? eptir stokkunum*), saa at kong Haakon, der stod under masten, vilde være bleven dræbt, hvis ikke en mand havde faaet fat i hans belte og rykket ham ud imod skibssiden. Grunden til mastens glidning var, at der havde været is i mastesporet (*stallr*). Naar masten var reist, blev den støttet ved tauge paa samme maade som endnu i jægterne, nemlig ved et stag (*stag*) til forstavnen og to eller tre vant (*höfuðbenda*) til hver side. Disse tauge fæstedes omkring mastens top (*húnn*), og tæt under det sted, hvor de stødte sammen, var der et hul (*húnnbora*), hvorigjennem heisetauget eller faldet (*dragreip*) for raaen (*rá*) gik. For at holde raaen til masten eller hindre den fra at svinges udad, blev dertil, som endnu paa jægterne, fæstet et krumtræ (*rakki*), der omsluttede masten. Ligeledes var der i hver ende eller nok af raaen, for at give den saadan stilling, som vinden krævede, anbragt et brasetaug (*aktaumr*), der fæstedes paa sine steder bagenfor masten, men som under visse omstændigheder rormanden selv tog i sin haand eller slog om sine skuldre[3]). Foruden raaen havde man ogsaa nogle mindre rundholter (*ásdrengr, beitiáss*), for dermed at udspile sejlet, naar det skulde »øges».

Sejlet var, som vi kunne se blandt andet paa broderiet i Bayeux og skibet i Bergens ovennævnte segl, et firkantet raasejl som paa jægterne nordenfor Bergen. Det var ikke sjelden af vadmel (*váð*), ligesom endnu i enkelte fjorde nordenfor Bergen, men paa de bedst udstyrede skibe vistnok af almindelig sejldug; naar det skulde være rigtig fint, blev det undertiden, endog paa handelsskibe[4]), stribet (*stafaðr*) med røde, blaa og røde, eller tillige grønne striber, ja paa det af kong Haa-

Museum in London 1867. But, in this instance, the catalogue stated, that no elder English vessel was known to have had more than one mast.

The mast was, — as may also be seen[1]) in the Tuneship, — set in an opening made in a large oak block fixed above the midframes of the vessel. The fish-tail form of that block, at both its ends, has no doubt caused that rise of the deck found about the mast in all modern ships, to be named the mast fish. The aperture in the block in which the mast stood, extended, at the same breadth, a considerable distance sternward in order to facilitate raising and lowering, and we have also a story about what happened once at such a raising. It is related thus, that in A. D. 1225[2]) when the mast had been raised on the royal ship, it began to droop towards the fore post after the stocks (*? eptir stokkunum*) so that King Haakon who stood thereunder, would have been killed, if a man had not seized him by the belt and dragged him towards the ship's side. The cause of the accident, was ice in the mast-step (*stallr*). When the mast had been raised, it was steadied by ropes, in the manner at present in use, on the yachts, with a stay (*stag*) lashed to the forepost and two or three shrouds (*höfuðbenda*) on each side. These ropes were fixed round the top (*húnn*) of the mast, and close under the place, where they met, a hole (*húnnbora*) was made, through which the hoisting rope or fall (*dragreip*) for the yard (*rá*) passed. To hold the yard to the mast, or prevent it being swung outward, a wooden parral (*rakki*) which clipped the mast, was used, as still on our yachts. At each end or arm of the yard, a brace rope (*aktaumr*) was put to give the yard a position as the wind required. This brace rope was fastened in its place behind the mast, but under some circumstances the helmsman himself took the rope in his hand or slung it over his shoulder[3]). Besides the yard, there were also several small spars (*ásdrengr, beitiáss*), to keep the sail strained, when it was intended to increase speed.

The form of sail was as shown by the Bayeux tapestry and the Bergen seal, a square sail like that of the yachts north of Bergen. The use of frieze (*váð*) was not uncommon, as even now, in some of the firths north of Bergen, but on the vessels best fitted up certainly of common canvass, and when they desired to show uncommon splendour, they sometimes and even on merchant vessels[4]) ornamented the sails with stripes (*stafr*) of red, blue and green. The sails of the Dragon-vessel,

[1]) Skilling-Magazin 1867 p. 717. [2]) Konungasög. ed. Unger p. 317. [3]) Laxdœl. sag. kap. 18. [4]) Heimskr. ed. Unger p. 367.

kon i Bergen 1257 byggede drageskib var sejlet endog udsyet (*sett*) med fagre billeder (*skript*)[1]), hvortil sidestykker omtales i de tyske minnesangeres digte[2]), der nævne sejl med forskjellig farvet tøj og billeder. — Som det sees allerede af den ældre Gulathings lov, blev sejlet syet med traad (*þráðr*) og styrket i kanten med lig (*liksima*), hvori paa siderne var fæstet løkker (*kló*) og ringe (*hanki*) for derigjennem at stikke skjødet (*skautreip*), naar man skulde minke sejl. I hvert hjørne nederst var ligeledes en løkke for skjødet under sedvanlige omstændigheder. De saakaldte bonetter, som træffes paa Nordfarjægterne, eller et par tverstykker i sejlets nedre kant, hvilke borttages, naar sejlet minkes, kjendte man neppe førend sent ned i middelalderen, da de vel første gang omtales i visen om Haakon Haakonssøn[3]). Derimod var der, som det ogsaa kan sees i Bergens ovennævnte segl, fæstet forskjellige smaatauge eller revseisinger til sejlet for at anvendes, naar man skulde minke sejl, hvilket skede enten ved at reve (*hefla*) eller syfte (*svipta*), da man, som det synes, i første tilfælde formindskede sejlet i højden, medens den sidste maade foregik ved at drage sejlet sammen.

Med saadant sejl kunde der gjøres god fart, naar vindens retning var gunstig. Derimod maatte det være til liden nytte at indlade sig paa at krydse (*beita*) undtagen i rumt farvand. Var dette knapt, vilde der i hver vending tabes ligesaameget eller mere, end man havde vundet i bauten, da sejlets form gjorde det vanskeligt at gaa over stag med bakning til luvard (*á veðr*), og man derfor blev nødt til at dreje om i læ (*á hlé*) eller, som vi nu sige, at kovende. Man gik derfor neppe under sejl langs kysten eller til havs, naar det vilde være nødvendigt at baute, men ventede, til man fik god bør (*byrr*). Forresten tog man havn, hvis reisen gik langs land, naar det blev mørkt. Ude paa havet maa man, før magnetnaalen blev kjendt hos os — hvad der vel først skede i det 14de hundredaar, skjønt den af minnesangerne[4]) nævnes allerede i det 13de — om dagen have sejlet efter solen, og naar det blev mørkt, men i klart vejr, efter polarstjernen (*leiðarstjarna*). Var vejret derimod tykt, maatte alt gaa paa en rus.

I forbindelse med udsmykningen af skibenes sejl kan tilføjes, at der oftere[5]) nævnes som prydelse for alle slags

built by King Haakon's order in the town of Bergen (1257), were embroidered (*sett*) with beautiful designs (*skript*)[1]) a luxury a counter part of which is mentioned in the lays of German minstrels[2]), wherein sails of many coloured cloths and designs are mentioned. — As it may be seen already from the more ancient Gula-Law, sails were sewn together with thread (*þráðr*) and strengthened at their edges with leech (*liksima*) whereto loops (*kló*) were attached and rings (*hanki*) so placed as to receive the sheets (*skautreip*) used when the vessel would shorten sail, together with at each angle, at the lower points, likewise a loop to be under ordinary circumstances used for the sheet. The so called «bonnets» yet to be seen in the yachts of the Nordland or a pair of cross pieces added to the lower edge of the sail, (when greater speed is required) and removed when sail is slackened, were hardly known before late in the middle ages, for the first mention of them occurs in a lay on Haakon Haakonson[3]). They had however different small ropes or reefing points, as also may be seen in the seal mentioned above of the town of Bergen, fastened to the sail, when it was needed to shorten, which was compassed in two ways, either by reefing (*hefla*) or trussing (*svipta*). For, as it seems, by the former method the sail was lessened in its height, whereas by the latter mode it was drawn together.

By aid of such sails a good speed could be attained, when the wind was favorable. But on the other hand, it was of small use to attempt cruising (*beita*) unless in large waters. In the narrows as much time was lost in turning, as, or even more than was gained by putting the ship about. For the form of sail used rendered tacking difficult, with sail aback to weather (*á veðr*) and the seaman was thus compelled to turn leeward (*á hlé*) or, as it is now termed, to veer leeward. He therefore hardly chose to get under way along the shore or out to sea, when tacking would be unavoidable, but awaited a fair wind (*byrr*). For the rest if the voyage was along shore, when night came on, a haven was sought. Before the magnet was known to us, — and that was not until the 14th century though it is mentioned by minstrels[4]) already in the 13th — during daytime, the seaman must have navigated by the sun's course; when night fell, but in clear weather, the polar star (*leiðarstjarna*) was his guide. Were it cloudy weather, it was happy-go lucky for the ship.

In connexion with the ornamentation of ships' sail, it may be added, that it is frequently[5]) named and may

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[1]) Flateyarb. III, 197. [2]) A. Schultz l. cit. II, 290. [3]) S. Grundtvig, Danmarks gamle Folkeviser III, 309, 312.
[4]) A. Schultz l. cit. II, 296. [5]) Egils s. kap. 17, Heimskr. ed. Unger p. 417, 635, Grettis s. kap. 19, Flateyarb. II, 193.

farkoster, undtagen baadene, at de vare malede (*steind*) ovenfor vandgangen (*fyrir ofan sjó*), hvad der ogsaa sees paa broderiet i Bayeux. Dog omtales, saavidt bekjendt, kun ved ét skib[1]) den farve, man havde brugt, idet der siges om Aasbjørn Selsbanes byrding eller handelsskib, at det var malet ovenfor vandgangen med hvid og rød farve. Som bindemiddel i malingen kan man ikke have kjendt nogetslags vegetabilsk olje eller særlig linolje, og i dens sted blev derfor vistnok brugt tran, maaske navnlig af haakjærring ligesom paa Island, hvor dette slags tran særlig for maling endnu var almindelig anvendt i begyndelsen af vort hundredaar[2]).

Ethvert egentligt skib havde sin baad (*eptirbátr, skipsbátr*). Denne blev, naar man gik til havs, taget ind og i alle fald paa handelsskibe sat bag masten ovenpaa ladningsstabelen (*bulki, bunki, farmr*)[3]). Ellers slæbedes baaden efter skibet, og i Bergens bylov haves endog bestemmelse om, at dens fangeline (*bátfestr*) da skulde være saa lang, at den naaede til bagerste kant af bunken, naar baaden var halet tæt til skibet.

Til hvert skib hørte der ogsaa baadshage (*bátshaki, forkr*) og landtaug (*festr*), der vistnok som oftest var af bast (*basttaug*) men undertiden, som endnu paa jægter nordenfor Bergen, af fæhaar (*hártaug*), endvidere bundfæste og landgang (*bryggja*). Bundfæstet bestod paa mindre farkoster eller baade af *stjóri*, formodentlig en dræg eller, som flere steder endnu, en sten surret til et krumræ (i almuesproget: krabbe eller krakje). Egentlige skibe havde derimod ankere (*akkeri*) af jern med tilhørende stok, ring og taug, hvortil kom ifølge yngre landslov, og saaledes vel først i senere tid, en boje (*hnakkmiði*). I forbindelse med ankeret stod inde i skibet i alle fald i senere tid et spil (*vindáss*) med tilhørende støtter (*vindásdokka*) og haandspager (*vindásspika*). Det fortælles saaledes[4]), at da Haakon den unge i 1253 med Krossuden kom ind paa havnen i Ekerøerne i Baahuslen og lod kaste anker, svajede skibet saa stærkt, at der gik ild i spildokken, da tauget løb ud, saa man frygtede for, at det vilde brænde, hvorfor junker Magnus slog en bøtte med øl derover. Paa store skibe havde man ogsaa flere ankere, som kan sees af fortællingen om kong Haakon

indeed be perceived from the Bayeux tapestry, that as an embellishment, all kinds of vessels except mere boats, were painted (*steind*) above their water line (*fyrir ofan sjó*). Only in respect of one vessel[1]) however is it stated what colour was used, in as much at is it recorded that Aasbjörn Selsbane's «byrding» or merchant ship was painted above the water-line in red and white colours. No kind of vegetable oil or specifically linseed oil could then have been known as an ingredient in the paint, and therefore in its stead doubtless train-oil was employed, perhaps that from the Greenland shark, as in Iceland where specially that sort of train-oil remained in general use for the purpose, even at the commencement of our century[2]).

Each particular ship had its boat (*eptirbátr, skipsbátr*) which, when the vessel put to sea, was taken on board, and at all events in merchant ships set behind the mast above the piled up cargo (*bulki, bunki, farmr*)[3]). When this was not the case, the boat was towed after the ship, and there is even found in the Municipal law of Bergen, a regulation, that the painter (*bátfestr*) should be long enough to reach that end of the pile furthest aft, when the boat was hauled close to the ship.

Further each ship was furnished with boat hooks (*bátshaki, forkr*) and shore rope (*festr*) which doubtless were most commonly made of bast (*basttaug*), though sometimes as even now on yachts North of Bergen of cattle hair (*hártaug*), and still further with ground fastenings and gangway (*bryggja*). The bottom fastening of the coasters and small boats consisted of *stjóri* probably a kind of grapnel, or as in some parts yet, of a stone lashed to a timber crook, (called in the vernacular Krabbe or Krakje). Ships properly speaking had however anchors (*akkeri*) of iron with stock, ring and cable attached, to which, in compliance with later legislation and therefore first at a subsequent period, a buoy (*hnakkmiði*) was added. It was certainly at a more recent date, that the windlass (*vindáss*) with proper supports (*vindásdokka*) and handspikes (*vindásspika*) was placed in the vessel. The relation given[4]) is that when Haakon the Younger in 1253 came with the «Krossuden» into the harbour in the Eker islands in Bohuslen and cast anchor, the ship swung so heavily that the supports of the windlass became so heated, when the cable was run out, so that all feared it would take fire, wherefore «younker» Magnus cast a bucket of beer upon it. Several anchors also were taken on board large ships as may be seen from the narrative concerning King Haakon

[1]) Heimskr. ed. Unger p. 367. [2]) F. Magnusen, Bidr. til nord. Archeologi p. 89. [3]) Egils s. kap. 60, Eyrbyggja s. ed. Vigfússon p. 49, Gret. s. kap. 17, Flateyarb. III, 63, Biskup. s. I, 422. [4]) Konungasög. ed. Unger p. 426.

Haakonssøns sidste reise i 1263 [1]). Det heder der, at i den storm, som rasede, da han laa ved Kumrøerne i Skotland, gik kongeskibet i drift og vel stoppede noget, da storankeret (*aðalakkeri*) faldt, men først sang op for ankerne (*hrífa við*), da 7—8 vare kastede, indbefattet det ene, som tilhørte et andet skib. — Landgangen bestod af en planke, hvorpaa man gik fra og til skibet, naar det laa ved land. Ved enden deraf blev om natten sat vagt [2]).

Ligesom de throndhjemske og nordlandske jægters mandskab endnu bestaar af en «høvsmann», en «styremann» og «haasettere», saaledes havde ogsaa hvert af skibredernes ledingsskibe ifølge den ældre Gulathingslov sin høvding (*höfðingi*), sin styremand (*stýrimaðr*) og sine rorskarle (*hásetar* eller *hömlumenn*). Styremanden valgtes af kongen og haaseterne igjen af styremanden. De af skibredets bønder, som havde trælle, skulde skaffe kok (*matsveinn, matgerðarmaðr, matbúðarmaðr*) og derom kaste lod. Høvdingen og styremanden fik sin løn og kost af kongen. Alle de øvrige maatte skibredets bønder underholde med kost i de to maaneder af aaret, som ledingspligten omfattede, og ligeledes med hyre, der for en haaseter eller kok udgjorde 1 øre om maaneden i den tids penge. Paa handelsskibe var det derimod, som der siges i en saga [3]), endnu ikke ved slutningen af det 10de hundredaar blevet skik at have fast kok, hvorimod mandskabet kastede lod om, hvem af dem, der hver dag skulde overtage madstellet; da havde, som det tilføjes, mandskabet fælles drikke (öl eller »mungaat«); det kar, som indeholdt drikken, skulde staa ved masten med laag over, og naar karret var tømt, blev det igjen fyldt af de tønder (*verplar*), hvori drikken opbevaredes [4]). Forøvrigt kan det gjennem hele middelalderen paa grund af de daværende ufuldkomne ildsteder ikke have været muligt at koge ombord, hvorfor mandskabet i længere eller kortere tid maatte leve af kold mad, brød, smør [5]), vel og grød, speget sild eller kjød. Naar et søtog bestod af mange skibe, havde man ogsaa egne farkoster (*vistabyrðingr*), som førte provianten. Kogningen kunde alene foretages i land. Dette forudsættes ogsaa ligefrem i Bergens bylov af 1276, hvori det heder [6]), at styremanden skal, naar skibet ligger

Haakonson' last voyage in 1263 [1]). Therein is said, that in the storm which then raged, when Haakon lay by the Cumbrays in Scotland, the royal ship got adrift, and, though somewhat checked when the main anchor (*aðalakkeri*) was dropped, did not take firm hold (*hrífa við*) until 7 or 8 anchors had been cast out, including one which belonged to another ship. — The gangway consisted of a plank on which one passed to and from the vessel, when she was lying in port, and at the end of which during the night a watch was set [2]).

Just as nowadays the crew of the Trondhjem-, and Nordlands-yachts is yet composed of a «høvsmann» (a master), a «styremann» (a mate), and «haasettere» (oarsmenn), so conformably to the older Gula-Law each of the ship-district's war vessels had its master (*höfðingi*), its mate (*styrimaðr*) and its oarsmen (*hásetar* or *hömlumenn*). The selection of the mate rested with the sovereign, that of the oarsmen with the mate. Such among the freeholders of the district as had thralls, were bound to procure a cook for the vessel (*matsveinn, matgerðarmaðr, matbúðarmaðr*), and the decision was by lot. The Master and mate received their pay and board from the King. The freeholders of the district were compelled to maintain the rest during the two months' period of the levy's continuance, and also to provide their pay, — that being for an oarsman or cook 1 Öre monthly, of the then existing currency. On the other hand for trading ships it was as reported in a Saga [3]), not customary at the end of the 10th century, to have a permanent cook, but the crew settled daily by lot who of their number should on that day undertake the dressing of their food. Then the crew had, as is narrated, drink in common (ale or «mungaat»); the vessel which contained the drink was to stand by the mast with its cover on, and when it was empty to be refilled from the barrels (*verplar*) in which the liquor was kept [4]). Due to the then imperfect means of maintaining fires, it was impossible, throughout the middle ages, to cook onboard ship, for which reason the crew, during occasional shorter or longer terms, were obliged to be content with cold provisions such as bread, butter [5]), and perhaps porridge, salted herrings and dried meat. When an expedition comprised many vessels, special craft (*vistabyrðingr*) were used to carry provisions. The cooking could only be done on land, which also is presupposed in the municipal law of Bergen (1276), whereby it is enacted [6]) that the mate shall, whensoever the ship lies at anchor in harbour, cause

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[1]) Konungasög. ed. Unger p. 472. [2]) Egils s. kap. 27. [3]) Eyrbyggja s. ed. Vigfússon p. 69. [4]) Cfr. Heimskr. ed. Unger p. 400—401. [5]) Cfr. Fornm. sög. II, 164. [6]) IX, 16.

i havn for anker, lade sætte mandskabet i land engang om dagen og tilbage igjen, men kokken skal sættes tre gange i land, én gang for at hente vand og to gange for at lave maden til, og den, tilføjes der, som gaar sidst af baaden, skal belægge den. Vi have endog en lidt udførligere og meget oplysende beskrivelse af madens tilberedelse [1]). Der kom et norsk kjøbskib fra Island og tog land ved en holme paa Hordaland. Hele mandskabet var norsk, undtagen to Islændinger, som havde faaet lov at følge med hjemmefra og hvoraf den ene den dag gjorde tjeneste som kok. Strax skibet kom til lands, gik den anden Islænding fra borde og tog madkjedelen (*búðarketill*) med for at koge grød til sig selv; men da kokken skulde koge for mandskabet, gik han paa land for at faa kjedelen hos den anden, og da havde denne ikke endnu stampet (*þafðan*) sin grød, men rørte fremdeles i kjedelen. Ærgerlig over hans sendrægtighed og da Nordmændene ombord raabte, at de vilde have mad, tog kokken kjedelen og heldte grøden ud, hvorfor den anden slog ham paa halsen med tvaren (*þvara*).

Medens det hidtil er omtalt, hvad der med visse undtagelser gjaldt for alle farkoster, gaar jeg dernæst over til at omhandle de forskjellige slags og hvad der var eget for hvert af dem.

De mindste vare baadene (*bátr*). Af disse er *kæna* vistnok kun et poetisk navn, og pramen (*prámr*) og eken (*eikja*) dannede undtagelser fra alle vore gamle farkoster derved, at de udentvil ligesom endnu vare uden kjøl og ret afskaarne i agterenden. Blandt de andre egentlige baade var den saakaldte *nökkvi* udentvil mindst og formodentlig kun med to aarer (*ári*). Efter disses mængde fik baaden navn men altid med jevnt tal, saaledes fireaaret (nu færing), sexaaret (*sexæringr*) o. s. v. indtil tolvaaret (*tolfæringr*). Dette er det største aaretal, som træffes i en baad. Aarerne bevægedes ikke mellem tollepinde, men som paa Nydamsbaaden og endnu vesten- og nordenfjelds mellem et krumtræ eller en keip (*keipr*) og et dertil fæstet baand af vidje eller taug, hamlebaand (*hamla, hömluband*). Breden af baaden var neppe større, end at én mand til nød kunde ro med to aarer. Roningen foregik siddende [2]), og for hvert par aarer var der en gjennemgaaende tofte

the crew to be put on shore and backward once a day, but the cook thrice, once to take in water, and twice to prepare food; and it is added, that he who goes last from the boat, shall lay her to. We have even a somewhat fuller and very elucidating description of the method of cooking [1]). A Norwegian ship from Iceland put ashore by a holm on Hordaland. The whole of her crew was Norwegian except two Icelanders who had obtained permission to follow them from home, and one of whom on that day served as a cook. As soon as the ship reached the land, the other Icelander went ashore taking the cooking caldron (*búðarketill*) along to make porridge for himself, but as the cook had to dress food for the crew, he went ashore to get the caldron from the other, and found that the latter had not yet beaten up (*þafðan*) but was still stirring the porridge in the caldron. Vexed at his countryman's dilatoriness, and when the Norwegians onboard cried to him, that he should get them their meal, the cook took hold of the caldron and poured away the porridge, for which act the other struck him across the neck with his stirring stick (*þvara*).

While hitherto we have dealt solely in matters which, with certain exceptions, may be held applicable to vessels of all descriptions, I pass next to deal with vessels of different kinds and the peculiarities of each of them.

Those of the smallest description were called boats (*bátr*). Of boats we find some to which the word *kæna* only poetically is applied; the socalled «pram» (*prámr*) and the «eke» (*eikja*) were exceptions from all our old vessels by being then, as they remain to this day, no doubt keelless and cut straight across at the stern. Smallest no doubt among other boats properly speaking, was the so called *nökkvi*, supposed to have had but two oars (*ári*). Such craft were designated by the respective number of their oars and always by even numbers. Thus four oared (now called Færing) sixoared (*sexæringr*) &c. up to twelve (*tolfæringr*) beyond which number no boat rose. The oars were not worked between tholepins, but as in the instance of the Nydamsboat and as even yet in our west and north, between a crooked small wooden block or a «keip», as it yet is called, (*keipr*) and a loop of withe or rope attached thereto, termed «hamlebaand» (*hamla, hömluband*). The boat's breadth was scarcely greater than would just allow a man to row with a pair of oars. The rowing was done in a sitting position [2]), and for each pair of oars a thwart, was placed

[1]) Eyrbyggja s. kap. 39

[2]) Flateyarb. I, 396, Heimskr. p. 784.

(*þopta*). De fleste baade havde vistnok mast og sejl, og for at det ikke skulde risikeres, at man skadede bordene i bunden ved at gaa paa dem, var der ligesom endnu mellem spanterne anbragt tiljer (*þiljur*) eller paa tvers gaaende tynde bordstykker, som nedenunder forbandtes med en list.

Ordet skib (*skip*) omfattede i almindelighed alle slags farkoster, endog de mindste, men i streng forstand henregnedes dertil kun handelsfartøjer og saadanne, hvis størrelse ikke som ved baadene betegnedes efter aaremængden, men efter tallet af deres rorbænke (*sess*). Disse bænke gik maaske neppe, som tofterne i baadene, tversover fartøjets hele brede, men vare sandsynligere, ligesom i de romerske skibe, kortere sæder paa hver side, efter skibets størrelse i det højeste med plads for fire rorskarle[1]). Der vilde isaafald mellem begge siders rorbænke langs efter midten af skibet levnes en gjennemgang[2]). Gulvets tiljer laa ikke, som i baadene, mellem to og to spant, men hvilede, som det kan sluttes af Tuneskibet, med sine ender i en fals paa tverbaandene eller biterne (jfr. s. 34). I uadskillelig forbindelse med rorbænkene stod rimeligvis og, at der ikke var keiper for aarerne, men, som det sees paa broderiet i Bayeux og flere af de ovennævnte segl, vistnok efter romersk skik, huller (*hábora*) i skibets sider (jfr. s. 34). Ifølge den ældre Gulathingslov havde det mindste skib med rorbænke tretten saadanne, altsaa 26 aarer, og det kaldtes derfor en *þrettánsessa*. Af sesseskibe var der forresten to slags: karver og langskibe.

Karven (*karfi*, udentvil af det latinske carabus) var, som det synes, mestendels kun et rofartøj[3]); i alle fald træffes, saavidt bekjendt, blot et par[4]) karver med mast. Den største, som nævnes, havde 15 rorbænke (*fimtánsessa*) eller 16. I nyere landslov og en retterbod af 1315[5]) omtales karver som landeværnsskibe (*landvarnarskip*), men til at gaa over havet med kunne de ikke have været brugte, hvis de, som nys antaget, blot undtagelsesvis havde sejl. Desuden kan det mulig sluttes, at karven, maaske paa grund af en egen bygningsmaade, var meget rank eller let

(*þopta*). The boats no doubt were generally fitted with mast and sail, and lest the boarding of their bottom should be injured by being trampled upon, a movable flooring (*þiljur*), was, as now, fitted between the frames, consisting of thin boards going right across and held together by a cross fillet over the undersurface.

The word ship (*skip*) embraced generally vessels of all descriptions, — even the least —, though strictly speaking it was only applied to trading vessels and such craft, whose magnitude was not computed by the number of oars as in the instance of boats, but by the number of oarsmen's benches (*sess*). Possibly such benches did not entirely stretch across the vessel like thwarts in the boats, but were more likely as in the Roman ships, short seats placed on each side, with, according to the size of the vessel, a place for four oarsmen[1]), at the utmost. Thus between the benches on each side would be left a gangway[2]) lengthwise throughout the ship. The boards of the flooring lay not as in the boats between consecutive pairs of frames, but as may be inferred from the Tuneship with their ends resting in a ledge, on the beams (*biti*) (cfr. p. 34). It is probable, that in inseparable conjunction with the oarsmen's benches, the above named «keiper» were not placed for the oars, but assuredly, as shown in the Bayeux tapestry and in several of the before named seals, in accordance with the Roman custom, holes (*hábora*) in the ship's sides served that purpose (cfr. p. 34). Conformably to the elder Gulathing's-law, the smallest ship using oarsmen's benches had thirteen such, therefore 26 oars, and therefore it was termed a *þrettánsessa* (thirteen-seated). For the rest these ships with oarsmen's benches embraced two varieties: viz. the «karves» and the longships.

The «karve» (*karfi*, doubtless a derivative of the latin carabus) was, it would seem, in most instances only an oar-propelled vessel[3]). At all events mention is, as far as we know, but made of a couple[4]) of masted carvels. The largest named had 15 (*fimtánsessa*) or 16 oarsmen's benches. In the more modern law and in an ordinance of 1315[5]), the «karves» are mentioned as vessels of defence (*landvarnarskip*), but such as were specially adapted to cross the sea, they never could have been, if, as just now assumed, they but exceptionally carried sail. And moreover, it may possibly be inferred, that, perhaps from some peculiar construction, the «Karve»

[1]) Cfr. Flateyarb. 1, 396. Urger p. 190; D. Norv. II, 366

[2]) Cfr. Heimskr. p. 400.

[3]) Cfr. JAL, Archéol. navale I, 411, 464.

[4]) Konungasög. ed. Nicolaysen. Langskibet

[5]) Norg. gamle Love, 112.

til at slingre, siden vort gamle sprog har et dermed sammensat ord, *karfafótr*, som betegnelse for den ustøhed paa fødderne, der medfølger berusning[1]). Man ser forresten, at biskop Haakon i Bergen endnu 1340 lod bygge en karve der til sit eget brug[2]), men sidste gang dette slags farkoster nævnes er 1381 i Nidaros[3]).

Ethvert andet skib, som beregnedes efter rorbænke, var krigsskib, eller, som man dengang kaldte det, langskib (*langskip*), der udentvil er en ligefrem oversættelse af det latinske navis longa, som havde samme betydning. Foruden hvad der, som oven anført, var fælles for alle farkoster med rorbænke, gjaldt for langskibet, at det i modsætning til karven altid havde sejl og mast. Denne var dog, som det kan sees paa broderiet i Bayeux, forholdsvis meget lav og blev nedlagt, naar man fik modvind, beredede sig til kamp eller tog havn[4]). Hvad der forøvrigt var eget for langskibet, skal nedenfor nærmere omtales. Langskibene omfattede dels de ledingsskibe, som hvert skibrede var pligtigt at holde, og dels dem, som kongen selv eller landets høvdinger for egen regning anskaffede. De første vare vistnok simplere, medens kongernes og høvdingernes langskibe hørte til de bedst udstyrede og fuldkomneste, som tiden kjendte. Af saadanne nævnes for det første snekke (*snekkja*) og skude (*skúta*), begge udentvil af mindre og simplere slags, endvidere drage (*dreki*, et ord, der i alle fald som betegning for fabeldyret er overført fra det latinske draco), skeid (*skeið*, græsk σκεδία) og busse (*buza*, lat. bussa). Derimod træffes ikke hos os i virkeligheden de to slags skibe, der spillede saa stor rolle i sydlandene, skjønt ord derfor havdes, nemlig den saakaldte *drómundr* (δρομων) og galeien (*galeið*, i middelalderens latin galeida), ihvorvel de vistnok gjennem flere mellemled have været de oprindelige forbilleder for vore langskibe. Af galeier kjendes, men i langt senere tid, kun den ene, der, som ovennævnt, blev bygget i Bergen 1566. Om der forresten mellem dragen, skeiden og bussen var nogen synderlig forskjel,

was wanting in stability and had a tendency to roll. For our old Norse has a word formed from this vessel's name, *karfafótr*, to designate that kind of unsteadiness on the feet which follows inebriation[1]). It can also be seen, that Bishop Haakon in Bergen had a «karve» built there so late as 1340 for his own use[2]), but the last time such vessels are mentioned, is 1381 in Nidaros[3]).

Every other ship which was computed by number of oarsmen's benches, was a ship of war, or as then termed a long-ship (*langskip*) without doubt a literal rendering of the Latin navis longa which has the same meaning. Additionally to what, as before noted, was common to all sea going vessels with oarmen's benches, it was a characteristic of the long-ships, that, in opposition to the «karve», they always carried sail and mast. The latter was however, as the Bayeux tapestry serves to show, proportionally very low, and was lowered when contrary winds prevailed, when preparation for battle had to be made or harbour of refuge[4]) was to be sought. Other peculiarities of the long-ship shall be more accurately discussed hereafter. The long ships included partly such leviable war-ships as every ship-district lay under obligation to maintain, and partly such as the King himself or the Chieftains in the land provided at their own cost. Those belonging to the former class were assuredly of a less pretentious character, while those provided by kings or chieftains were of the very best outfit and the most perfect known in those days. Among the latter are to be named first the snekke (*snekkja*) and the skude (*skúta*) both doubtless of inferior order, further the dragon (*dreki*) — a word which at least as a designation of that fabulous monster has been transferred from the Latin draco —, the «skeid» (*skeið*, græce σκεδία) and the «busse» (*buza*, Lat. buza). On the other hand the two classes of ships that have played so great a part in southern lands, the δρομων and the galley, in the Latin of the middle ages galeida, — although their respective names survive in *drómundr* and *galeið*, — have practically no existing representatives, notwithstanding they have been, admittedly, with many an intervening link, the prototypes of our «long ships». Of galleys but a solitary one is known, which however belongs to a much later period, the one previously referred to and built, in the town of Bergen A. D. 1566. It can scarcely now be known, whether

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[1]) Cfr. Heimskr. ed. Unger p. 307. ed. Unger p. 165, 230, Flateyarb. III, 41.
[2]) D. Norv. VIII no. 131.
[3]) D. Norv. II, 366.
[4]) Konungasög.

tør være uvist; rimeligst er det, at de i alt væsentligt vare lig hverandre. Saaledes kaldes det skib, som kong Harald haardraade byggede i Nidaros i 1060[1]) og nedenfor nærmere skal omtales, snart en skeid og snart en busse, og i et sagabrudstykke[2]) tilføjes ved beretretningen om, at Harald lod sætte dragehoveder paa skibet, at da kunde man kalde det, hvad man vilde, skeid eller drage. Der omtales ogsaa i 1244 et islandsk skib med navnet *höfðabussan*[3]), altsaa prydet med hoveder paa stavnene. Forresten nævnes i en retterbod af 1330 »kongens skibe og busser«, og i en senere bestemmelse af 1445 omtales »kongens egne skibe og store søskibe, fra gammel tid kaldte busser«[4]).

Hvad der gjaldt for kongernes og høvdingernes langskibe med hensyn til deres navne, størrelse, indretning, udsmykning og mandskabets talrighed m. m., vil bedst vise sig, naar de merkeligste skibe af dette slags, som nævnes, her anføres i kronologisk orden.

Høvdingen Thorolf Kveldulfssøn paa Sandnes i Nordland lod i 872—873 gjøre et stort langskib med dragehoved paa[5]).

Kong Olaf Tryggvessøn lod omkring 997 bygge et langskib, som var snekke, paa Ørene ved Nidelven[6]); det havde høje stavne, 30 rum, og fik navnet Tranen, men stod i skjønhed langt tilbage for den drage, han kort tid efter tog fra høvdingen Raud den ramme i Salten og som da »var det smukkeste skib i hele Norge«. Denne kaldte han Ormen, »fordi sejlet, naar det var i luften, skulde være som dragens vinger«. Ogsaa dette skib havde 30 rum, men var stort i forhold dertil (*mikit at því*). Forstavnen havde dragehoved, og agterstavnen var bøjet fremover i en krog (*krókr*), som en hale (*sporðr*); baade hovedet, stavnen og begge krumninger (*svírir*) vare forgyldte[7]). Omtrent ved samme tid eller i 999 lod kongen indenfor Ladehammeren ved Nidaros bygge den berømte drage, som han kaldte Ormen lange i modsætning til den ovennævnte, der nu fik navnet korte. Den var meget større end noget andet skib, som da fandtes i

between the «Dragon», the «Skeid» and the «Busse», there existed any real difference, but it is most probable that, in all essential points, they resembled each other. Thus, the ship built by King Harald Haardraade in Nidaros 1060[1]) which further on shall be more closely described, is now called «skeid» and again »bussi», and in a fragment of another Saga[2]), as pendent to the story, how Harald had the dragon-heads set on the same ship, it is even added, that it might then be called by whichsoever name one chose, a «skeid», or a «dragon». In 1244 there is also mention of an Icelandic ship under the designation *höfðabussan*[3]), consequently adorned with heads at the prow and the stern. Besides, in a rescript of 1330 «the King's own Ship and busser» are named, and in a later resolution of 1445 «the King's own vessels and large sea going ships in old times called busser» are named[4]).

Touching kings' and Chieftains' warships, with reference to their names, sizes, equipment, decoration and the number of their crews &c. &c., these are matters best dealt with, when the most remarkable ships of the kind named, shall be set forth in chronological order.

Thorolf Kveldulfsson, the chieftain who lived at Sandnes in Nordland, caused in 872—873 a large longship to be built and the dragon's head set thereon[5]).

King Olaf Trygvason about 997 had a long-ship built on the sands by the Nidelv[6]). It was of the «snekke» class, high-stemmed with 30 divisions (*rúm*) and was named the «Trane» (the crane), but was in beauty much inferior to that Dragon which he a short time afterwards captured from the Chief Raud the Strong in Salten, and which was at that period «the most beautiful ship in in all Norway». This ship he named the serpent, «because the sails when filled by the wind, would represent the dragon's wings.» This vessel also had 30 divisions (*rúm*), but was large in proportion thereto (*mikit at því*). The prow bore the dragon's head and the stern was curved outward in a crook (*krókr*) like a tail (*sporðr*); the figure-head, stern and both curves (*svírir*) were gilt[7]). At about the same period or in 999 the King had built inside the Ladehammer by Nidaros the far famed Dragon, that he named «the long Serpent» in contradistinction from the afore named serpent which now obtained the name ot «the short.» This was much larger than any other vessel then to be found in the

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[1]) Heimskr. ed. Unger p. 591—592. Vigfússon II, 65. [2]) G. Storm, Snorre Sturlassons Historieskrivn. p. 252. [3]) Sturlung. s. ed. [4]) Norske Magasin I, 566, 571. [5]) Egils s. kap. 9. [6]) Heimskr. p. 185. [7]) Ib. 192.

landet, og var efter nuværende maal 34.82 m. lang i kjølen samt meget bred og høj; den havde stort tømmer, dragehoved foran og bøjning (*krókr*) bag, begge helt forgyldte. Forresten ere beretningerne noget forskjellige[1]), dog synes det rimeligst, at rummenes tal var 34, og da maa der, efter hvad ellers fandt sted, have været 68 halvrum eller aarer, og, hvis der regnes 3 mand paa hver aare[2]), mindst 204 rorskarle; var der, som det siges, 8 mand i hvert halvrum, vilde hele mandskabet have udgjort 524 foruden dem, som holdt til i løftingen og stavnen.

I kong Olaf den helliges tid (1016—1030) omtales flere skibe, som tilhørte enten ham eller samtidige høvdinger. Hans eget skib *Karlhöfði* fik dette navn, fordi der paa dets forstavn var et kongehoved, som han selv havde skaaret[3]); besætningen udgjorde 150 mand. Han lod i 1026 gjøre et andet skib paa mere end 30 rum, som fik navnet Visund, fordi det foruden med spord i bagstavnen var smykket i forstavnen med hovedet af en bisonoxe (*visúndr*), som tilligemed sporden og begge halse var forgyldt[4]). — Aasbjørn Selsbane († 1024) paa Øm i Trondenes ejede et langskib, som var en snekke med 20 rum og 99 mand[5]). — Det skib, hvormed Haarek af Thjøtø deltog i slaget ved Helgeaa (1027), var ligeledes en snekke med 20 rum, forgyldt vindfløj (*veðrviti*) og hvidt sejl, prydet med blaa og røde striber[6]). — Erling Skjalgssøn paa Sole havde en skeid paa 32 rum, men dog stor i forhold dertil; med den for han i viking, og var da derpaa 240 mand eller flere[7]). Det var med denne han drog til England i 1027 sammen med sine sønner, som førte 3 tyvesesser eller skibe med 20 rum. — Samme aar lod Thore Hund paa Bjarkø sætte et langskib paa vandet, en stor busse, hvorpaa der var nær 80 mand. Rummet under tiljerne havde en saadan højde, at det gav plads for nogle tønder, som vakte forundring ved sin størrelse; disse tønder havde dobbelte bunde, og i begge ender var der øl[8]).

Kong Harald haardraade lod under sit vinterophold i Nidaros 1060—1061 ude paa Ørene bygge en busse eller skeid af størrelse som Ormen lange med dragehoved foran og krog agter, hvilke tilligemed nakkerne (*svírirnir*) paa stavnen vare forgyldte. Den havde 35

country and computed by the present mode of admeasurement, was 34.82 metres long in the keel and very broad and high; it had large timbers, a dragon's head at the prow and aft a curved stem (*krókr*), both covered with gilding. In other respects the reports are somewhat various[1]), but it seems most likely that its number of divisions (*rúm*) was 34, and therefore, after the ordinary rule of calculation, should have had 68 halfdivisions or oars, and if there be reckoned 3 men to each oar[2]), at least 204 oarsmen; and were there, as is said, 8 men in each halfdivision, the whole crew would amount to 524, exclusive of those in the prow and in the stern.

In the time of Saint Olaf the King (1016—1030), many ships are spoken of which belonged to either him or contemporary chiefs. His own ship *Karlhöfði* obtained that name, because its prow carried a King's head which he himself had sculptured[3]); its crew amounted to 150 men. In 1026 he had another ship of more than 30 divisions (*rúm*) built to which the name Visund was given because as well as with a tail at the stern, its prow was embellished with a head of a bison (*visúndr*) which as well as the tail and both neck pieces were gilt[4]). — Aasbjørn Selsbane (died 1024) of Øm in Throndeness owned a warship which was a «Snekke» with 20 divisions (*rúm*), and 99 men[5]). — The vessel in which Haarek of Thjøtø was present in the battle of Helgeaa (1027), was also a «Snekke» with 20 divisions (*rúm*), gilded pennants (*veðrviti*) and white sails ornamented with blue and red stripes[6]). — Erik Skjalgsson of Sole had a Skeid of 32 divisions (*rúm*) proportionally large however in relation to the number; in this he made viking expeditions and then took 240 or more men therein[7]). With this it was, that he went to England together with his sons who commanded 3 «twentysesses» or ships with 20 divisions (*rúm*). The same year Thore Hund of Bjarkø launched a war ship, a large «busse» on which there were nearly 80 men. Such was the height of the space under the flooring, that it gave room for several barrels of astonishing size; these barrels had double bottoms, and there was ale at both ends[8]).

King Harald Haardraade during his winter residence in Nidaros (1060—1061) had a «busse» or a «Skeid» built on the «Sands» of the same size as «the long Serpent» with a dragon's head to the fore and a crook aft which as well as the neck pieces at the extremi-

[1]) Cfr. P. A. Munch, det norske Folks Hist. I, 2det Bind p. 371. [2]) Cfr. Flateyarb. I, 396. [3]) Heimskr. ed. Unger p. 251.
[4]) Ib. pag. 414, 529. [5]) Ib. p. 355. [6]) Ib. p. 402, 428. [7]) Ib. p. 231, 414. [8]) Ib. p. 380, 400.

rum, men var stor i forhold dertil, og førte 70 aarer[1]). Efterat skibet var lagt ud i elven, opsatte han dragehovederne derpaa, hvortil, som ovenanført (s. 27), et sagabrudstykke føjer, at man da kunde kalde skibet, hvad man vilde, skeid eller drage.

Kong Eystein (1103—1122) lod i Nidaros bygge et skib af størrelse og udseende som Ormen lange; det havde dragehoved foran og krog bag, begge forgyldte[2]).

Eindrid unge, søn af jarl Erling skakke, havde i slaget ved Sekken (1162) en stor langskibsbusse, kaldet Draglaun[3]), og jarlen selv lod i 1165 udruste en snekke paa 20 rum og en skude med femten[4]).

Kong Sverre havde i slaget ved Nordnes (1181) Ragekniven (*Hárknífrin*) paa 23 rum samt Olafssuden, hvorpaa der var 3 mænd i hvert halvrum. I 1182 lod han i Nidaros bygge Mariesuden, som var større end da noget andet fartøj i Norge; den havde 32 rum, men var stor i forhold dertil. Endelig lod han i 1199 paa kongsgaarden i Nidaros reise et skib paa 30 rum, kaldet Ognarbranden, som tilligemed alle de andre skibe var højbordet i forhold til rummenes tal[5]).

Høvdingen Vidkunn Erlingssøn paa Bjarkø ejede skibet Gullbringen, som før havde tilhørt erkebiskop Eystein; det var paa 20 rum, men stort i forhold dertil, og paa det tog, Vidkunn gjorde omkring i fjordene 1183, da han blev dræbt, hang mandskabets skjolde ved stavnene, og alle brynjer laa i kister under tiljerne[6]).

I 1206 byggede Erling Steinvæg, Reidar sendemand og jarlen Filippus ved Tønsberg 3 skibe, »som vare meget større end noget, som før var gjort i Norge«. Disse skibe havde, som hverken før eller senere her, to rader aarehuller (*hábora*) mellem begge øserum; de øverste aarer vare 20 (nu 15) alen (9.41 m.) lange, og «naar en mand stod nede paa spanterne (*innviðir*), maatte han være en af de højeste for at kunne naa med en bredøx op til underkanten af tiljerne (*þilfar*)». Teltet krævede tversover 25 (nu 18¾) alen (11.77 m.) tøj. Hvert halvrum var beregnet til 8 mand[7]).

Biskop Nikolaus i Aaslo ejede skibet Skeggen, som han i 1221 laante[8]) hertug Skule med dets hoveder og

ties were gilded. It had 35 divisions (*rúm*) but was proportionally large and carried 70 oars[1]). After the vessel was launched into the river, he set up the dragon-heads, and it is in relation to this incident, that the already cited (p. 27) fragment of a saga says, that the ship could now be called a «skeid» or a «dragon» at will.

King Eystein (1103—1122) had a ship built at Nidaros of size and construction like «the long Serpent»; it too had a dragon-head to the fore, and a crook aft, and both gilded[2]).

Eindrid the Young, son of the Earl Erling Skakke, at the battle of Sekken (1162) had a large warship of «busse»-build, called the «Draglaun[3]), and the Earl himself (in 1165) caused a «snekke», of 20 divisions (*rúm*) and a «Skude» with fifteen to be equipped[4]).

In the battle of Nordnes (1181), King Sverre had a vessel called the «Razor» (*Hárknífrin*) of 23 divisions (*rúm*) and also the Olafssude, wherein 3 men were placed in each half division. In 1182 he caused the «Mariasude» to be built at Nidaros; it was larger than any other vessel at that time in Norway, had 32 divisions and was proportionally large. Finally in 1199 he had built at Nidaros a ship of 30 divisions, called the «Ognarbrand», which like all the rest had a high free board in proportion to its number of divisions[5]).

The chief Vidkunn Erlingsson of Bjarkø owned the ship «Gullbringen» which had formerly belonged to Archbishop Eystein; it was of 20 divisions but large in proportion, and during the cruise about in the fiords 1183, when he was killed, the shields of his followers were suspended at the posts, and all the coats of mail lay in chests under the flooring[6]).

In 1206 Erling Steinvæg, Reidar the messenger and Earl Philippus at Tunsberg built 3 ships «which were much larger than any previously constructed in Norway.» The ships had, — what neither before nor since has been known here, — two tiers of holes (*hábora*) for the oars between both the wells; the oars of the upper rank were 20 (now 15) ells long (9.41 m.) and «a man must be one of the tallest who, standing on the frames (*innviðir*), could, with his broad axe, touch the underside of the flooring (*þilfar*)». The tent required in breadth 25 (now 18.75) ells (11.77 m.) of cloth. Each half division was reckoned to accommodate 8 men[7]).

Bishop Nicholas of Aaslo owned the ship «Skeggen», and this ship, with its figure heads and all its furniture[8]),

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[1]) Heimskr. ed. Unger p. 591—592. [2]) Ib. p. 684. [3]) Ib. p. 784. [4]) Ib. p. 799. [5]) Konungasög. ed. Unger p. 66, 77, 165. [6]) Flateyarb. II. 600. [7]) Konungasög. p. 223. [8]) Flateyarb. III, 41.

alt tilbehør, og Skule selv havde i 1239 et stort skib ved navn Langfredag paa 36 rum[1]).

I 1247 drog Kong Haakon i Bergen kardinal Villjam af Sabina imøde paa sit skib Dragen, der havde forgyldte hoveder og 25 rum, medens kardinalen kom paa en engelsk snekke[2]). — I 1253 byggede Gunnar kongsfrænde paa kongens bud ved Ravnsholt i Baahuslen »et af de største skibe, som nogensinde har været gjort i Norge«; før det gik af stabelen, holdt kongen en smuk tale og gav det navnet Korssuden. Det var saa højt, at dets ræling gik i linje med teltaasene paa Olafssuden eller 9 (nu 6¾) alen (4.23 m.) over vandet[3]). — I 1257 lod kongen sætte ud den drage, han havde ladet bygge i Bergen, og gav den navnet Mariesuden. Den var det smukkeste skib, som var gjort i Norge, havde 30 rum, forgyldte hoveder og stavnhalse (*svírir*) og et med billeder udsyet sejl. Han havde ogsaa mange andre ypperlig udstyrede skibe, og naar solen skinnede, saa det ud, som om hovederne, fløjene og de forgyldte skjolde, der hang ved stavnene, stod i brand[4]). Det skib, hvorpaa han samme aar sendte sin datter Kristine med et stort følge til Spanien, for at formæles der, var en stor snekke. Ved den ene side var indrettet en hytte (*herbergi*) for jomfruen og ved den modsatte side en lignende for de spanske gesanters formand sira Ferdinand, der paa grund af søsyge (*sjóverk*) ej kunde være sammen med andre[5]). — Endelig havde kongen paa sit tog til Skotland i 1263 det store skib, han lod bygge i Bergen; det var helt af ek og havde 27 rum, forgyldte dragehoveder og stavne[6]).

Det skib, biskop Haakon i Bergen omtaler i 1339[7]) som sit eget, skulde have 45 rum og være 4 (nu 3) alen (1.88 m.) højt i siderne (*kinn*).

Af alle disse beretninger vil nu for det første sees, at der kun er ganske faa tilfælde, hvori vi kunne danne os en sikrere forestilling om hvert enkelt skibs størrelse, undtagen om længden af Ormen lange (s. 28) og højden af de i 1206 (s. 29), 1253 og 1339 byggede skibe, hvorimod breden kun meget ufuldstændigt viser sig af angivelsen om telttøjets længde (s. 29). Meget mere oplysende i sidstnævnte henseende er det, naar der siges[8]), at den raak, som kong Sverre i 1200 lod hugge gjen-

he lent to Duke Skule, in 1221, and Skule himself in 1239, owned a big ship with 36 divisions named «Good Friday»[1]).

To meet Cardinal William of Sabina, King Haakon, in 1247 set out from Bergen in his snip «Dragen», which had gilded heads and 25 divisions, while the Cardinal met him in an English snekke[2]). By this King's order, his Kinsman, Gunnar, i 1253, built, on Ravnsholt in Bohuslen, «one of the biggest ships that had ever been constructed in Norway». Before it was launched, the King delivered an elegant speech, and named it «Korssuden». So high was this ship that its gunwale was in line with the ridgepole of «Olafssuden's» tent, or 9 (now 6.75) ells (4.23 m.) above the waterline[3]). In 1257 the King had the «dragon» launched that he had ordered to be built in Bergen, and gave it the name, «Mariesuden». It was the most beautiful ship thitherto built in Norway, had 30 divisions, gilded figure heads and necks (*svírir*), as well as sail embroidered with pictorial designs. The King had also many other excellently equipped ships, and when the sun shone, it looked as if both the beaks, the pennants and the gilded shields, which hung at both ends were actually on fire[4]). The vessel by which he, in the same year, sent his daughter Christina with a grand retinue, to Spain to be married there, was a large «snekke». On the one side a state room (*herbergi*) was fitted up for the princess, and a similar one on the opposite side for the Chief Spanish ambassador Sira Ferdinand, who because of sea-sickness (*sjóverk*), could not be with the others[5]). Finally, on his expedition to Scotland, in 1263, the King used that large ship which he had built in Bergen entirely of oak, with 27 divisions and the dragon-heads, prow and stern, all gilded[6]).

The ship that Haakon, Bishop of Bergen, speaks of in 1339[7]) as his own, was stated to have 45 divisions and to be 4 (now 3) ells (1.88 m.) high on its sides (*kinn*).

From all these reports it will now be seen first, that in but very few instances we are able to obtain more correct conception of each individal ship's dimensions, except as to the length of «The long Serpent» (p. 28), and the height of the ships built in 1206 (p. 29), 1253 and in 1339; whereas their breadth is but very imperfectly shown by statements of the lengths of cloth used for the tent (p. 29). Much better information in this matter is to be gained from what is said[8]) of that

[1]) Flateyarb. III, 121. [2]) Ib. 166. [3]) Konungasög. ed. Unger p. 425, 426. [4]) Flateyarb. III, 196, 197. [5]) Konungasög p. 438. [6]) Ib. 464. [7]) D. Norv. VIII no. 119. [8]) Konungasög. p. 186.

nem isen for at faa langskibene ud fra Aaslo, efter hans bud skulde være 4 favne (7.53 m.) bred. Thi da raaken under de daværende omstændigheder selvfølgelig ej blev gjort bredere end højst nødvendigt og navnlig ej saa bred, at to skibe kunde komme forbi hinanden, men dog rummelig nok for det største af skibene, saa kan dette paa det bredeste ej have været mere end omtrent 20 fod (6.27 m.). Til sammenligning hidsættes, at Tuneskibet paa midten har en brede af over 13 fod (4.08 m.).

Det er ogsaa kun paa en meget ufuldkommen maade vi kunne bestemme et skibs størrelse og navnlig dets længde efter tallet af rummene (*rúm*) eller rorbænkene (*sess*), skjønt forskjellen mellem skibene indbyrdes selvfølgelig deraf kan sees. Efter den ældre Gulathingslov maatte de ledingsskibe, som skibrederne skulde holde, mindst have 20 rum (*tvitugsessa*); de største vare paa 30 rum (*þritugsessa*), og, som det vil sees foran, oversteg de øvrige langskibes rum kun sjelden det sidste tal, dog træffes ét med 45 rum (s. 30), hvad der er det største, som nævnes hos os, medens rummene i Knut den mægtiges drage siges at have gaaet op til 60[1]). Hvert rum var delt i to halvrum, saaledes at følgelig aarernes tal paa hver side svarede til rummenes, og deres hele tal paa begge sider til halvrummenes. Da det af hensyn til konstruktionen selvfølgelig ej kan tænkes, at en rorbænk hvilede paa skibets klædning, men kun paa tverbaandet (*biti*) mellem spanterne, falde disses tal forsaavidt sammen med bænkenes eller rummenes. Det kan ogsaa nogenlunde beregnes, hvor stor afstanden var mellem bænkene, da den ej lod sig indskrænke mere, end at hver mand frit kunde foretage roningen uden at støde imod den nærmest siddende rorskarl, og kan denne afstand sættes til 3 fod (0.93 m.). Men alligevel lader det sig ikke af det opgivne rumtal endog nogenlunde bestemme, hvor stor længde hvert enkelt skib havde. Som det nemlig vil sees ovenfor, angives nok tallet af vedkommende skibes rum eller rorbænke, men oftere med saadant tillæg, at skibet var stort i forhold dertil, hvoraf fremgaar, at afstanden mellem bænkene ikke var bestemt given, og

cutting in the ice in 1200, made by order of King Sverre to clear his war-ships out from Aaslo, and which he directed to be 4 fathoms (7.53 m.) wide. For since under then existing circumstances the channel was as a matter of course not cut broader than absolutely necessary, and especially, not so broad that two ships could pass each other, yet nevertheless so roomy as to afford place for the biggest ships, the utmost width can scarcely have exceeded about 20 feet (6.27 m.). Here, to afford means for comparison, be it subjoined, that the Tune vessel's breadth amidships is over 13 feet (4.08 m.).

In like manner it is only with extreme incompleteness that we can determine the size of a ship, and specifically, its length, by the number of divisions (*rúm*) or oarsman's benches (*sess*) although, of course, the reciprocal difference between the ships may be thereby ascertained. Conformably to the old Gula-thing's law, the districts were not allowed to give war-ships of less dimension than 20 divisions (*tvitugsessa*), and the largest war-ships had 30 divisions (*þritugsessa*); and as will already have been seen from the above, the divisions in the other war-ships, rarely were in excess of the latter number, though one (p. 30) is to be found with 45 divisions, and that the largest named among us; whereas the divisions of Canute the Great's war-galley («Drage») are said to have reached 60[1]). Each division was separated into two semi-divisions, consequently the number of oars on each side is one with the number of divisions, and their sum total for both sides, is equal to that of the semi-divisions. Since, having due regard to the mode of construction, as a matter of course, it cannot be presumed that the oarsman's bench rested on the vessel's external planking, but only on the beam (*biti*) between the frames, the number of beams must have been identical with that of the divisions. Approximatively also the distance between the benches may be computed, as it could not have been restricted to less than a suitable space enabling each man to row, without thrusting himself against his next oarsman, and that space may be put at 3 feet (0.93 m.). Notwithstanding this, from the given number of divisions the entire length of each particular vessel can not be ascertained with even tolerable correctness. The number of divisions of the ships in question, may indeed be given, - as may be seen from the above, - but often with this addition, that the vessel itself was large in proportion thereto; — whence is to be fairly inferred, that the interspace of the benches, was not a constant, and probably

[1]) Heimskr. ed. Unger p. 117.

formedontlig var da det samme tilfældet med længden af de dele, hvori der ikke fandtes rorbænke, eller i frem- og bagskottet, følgelig aldeles paa samme maade som vi nu tale om en liden eller stor færing, en liden eller stor sexring o. s. v. Vi kunne saaledes af det i hvert tilfælde opgivne rumtal alene bestemme den mindste længde, skibet maatte have for den dels vedkommende, som indtoges af rorbænkene. Forresten var der neppe, som paa karven, kun én mand for hver aare, men almindelig vistnok 2[1]) eller højst 3, og naar det gjaldt at komme hurtig frem, roede endog 4 mand med én aare[2]). Det var ogsaa forskjelligt, hvor mange mand der hørte til hvert halvrum, undertiden, som vi ovenfor have seet, kun 3, men for det meste 4[3]) og paa Ormen lange endog 8. I hvert halvrum havde det dertil hørende mandskab sine kister og køjer (*húðfat*)[4]), der, som det gamle ord viser, maa have bestaaet af en skindsæk.

Ellers delte man skibet i fem afdelinger med hver sit navn. Det ophøjede rum i agterenden kaldtes løftingen (*lypting*), et ord, som ogsaa forekommer ved den paa Bergenhus i 1518 byggede jægt[5]) og maaske endnu, lige som i forrige hundredaar, ved større baade i enkelte fjorde nordenfor Bergen; i denne afdeling havde skibets høvding sin seng (*hvíla*)[6]). Umiddelbart foran løftingen var forrummet (*fyrirrúm*), hvori de fornemste næst høvdingen opholdt sig og hvor ogsaa højsædeskisten med vaabnene havde sin plads[7]). Den tredje afdeling kaldtes kraprummet (*krapparúm*), et udtryk, som endnu bruges paa baade i Romsdal, men der betegner det smale tverrum foran masten, hvori sejlet faar sin plads, naar det nedtages. Den følgende afdeling gik under navn af *sax* eller plur. *söx* og havde, som det synes, sin bagerste grænse der, hvor skibet begyndte at blive smalere; i dette rum var der ogsaa et sted, kaldet *á rausn*, som laa mellem forstavnen og det forreste øserum. Endelig var den femte afdeling i stavnen, ogsaa kaldet *hals*, *stafnlok* eller blot *lokit*; her havde stavnboerne sin plads med kongens eller høvdingens merke[8]).

Tæt agtenfor masten imellem denne og nærmeste teltstøtte (*tjaldstoð, tjaldstuðill*) blev der, naar man beredede sig til kamp, opreist en liden forhøjning (*viða*) af bjelker

the like was the fact as to the length of those parts, wherein no benches were to be found, to wit in both ends of the vessel; consequently, just as when we now speak of a small or a large four- or sixoared boat &c. &c. From the number of divisions stated in each case, we can thus ascertain only the least length a ship must have had, as far as that portion of it was concerned which was taken up by oarsman's benches. It could scarcely, however have been with the vessels in question as with the «*karfi*», only one man to each oar, but usually certainly as many as 2[1]), or at the highest 3 may be assumed; nay it might even be, that when extraordinary speed was requisite, four men[2]) might have plied the same oar. The number of men allotted to one semidivison was likewise fluctuating; sometimes, as we have already seen, but 3, most frequently 4[3]), and on «The long Serpent» even 8 were so placed. Each of the men, in his appointed space, had a chest and bedding (*húðfat*)[4]) which, as the old name shows, consisted of a skin bag.

For the rest, the vessel had 5 compartments, each compartment having its peculiar name. The elevated space aft was called the «lofting» (*lypting*), a word also applied to the yacht[5]) built in 1518 at Bergenhus and perhaps even now, just as in the last century, to the larger kind of boats on some of the fjords north of Bergen. In this «lofting» the commander had his bed (*hvíla*)[6]). Just before the lofting was the «foreroom» (*fyrirrúm*), where those next in rank to the chief were located and where also the great armour-chest was kept[7]). The third compartment was called the «kraproom» (*krapparúm*), a name still used on boats in Romsdal but relatively to the narrow bulkhead before the mast, where the sails after having been taken down are stored. The next (fourth) compartment was named *sax*, in the plural *söx*, and had, it would seem, its aft boundary at that point where the vessel began to narrow. Within this area there was likewise a place called *á rausn*, which lay between the stern and the foremost well. Finally, the fifth compartment was in the stem, also termed *hals*, *stafnlok* or simply *lokit*; and here were the stem-folk quartered, who bore the King's or the commander's standard[8]).

Close aft the mast between it and the nearest tent-pillar (*tjaldstoð, tjaldstuðill*), when preparation for battle had to be made, a small timber-built stage (*viða*) was

[1]) Flateyarb. I, 396, III, 41, Egils s. kap. 58. [2]) Konungas. ed. Unger p. 171. [3]) Ib. p. 60, 465. [4]) Heimskr. ed. Unger p. 557, Konungasög. p. 37, Flateyarb I, 539. [5]) Histr. Tidsskr. 2den Række III, 120. [6]) Heimskr. p. 562, Konungasög. p. 199, Flateyarb. I, 466, II, 699. [7]) Heimskr. p. 709, Konungasøg. p. 199, Flateyarb. II, 699. [8]) Heimskr. p. 53, Egils s. kap. 37.

hvorpaa høvdingen steg op for at have bedre udsigt over skibet og dets omgivelser[1]).

Naar skibet laa i havn, blev det mod natten overdækket med telt (*tjald*). Dertil hørte de nysnævnte støtter og en horisontal aas (*tjaldáss, tjaldstöng*), hvorover tøjet blev strammet fra begge sider af skibet. Tøjet var undertiden til prydelse stribet (*stafaðr*) med forskjellige farver. Naar det forresten heder i Egilssaga[2]) om Kveldulf, at han bød sine folk gaa langs skibets sider og hugge teltet af kloverne (*klofi*), eller der paa et andet sted[3]) tales om at rive løst (*spretta*) teltet, forekommer det mig rimeligere, at tøjets nederste kanter (*tjaldskör*) ved snore vare fæstede til rælingen, end, som Fritzner i sin ordbog (under *klofi*) mener, at der ogsaa paa dette sted anvendtes smaa teltstolper. Derimod kan det neppe med nogen sikkerhed afgjøres, om teltet uden afbrydelse strakte sig fra agterenden til henimod skibets forende, eller om ikke snarere løftingen, saaledes som ordet *lyptingartjald* paa det sidstnævnte sted i sagaerne kunde vise, havde sit eget telt, saa at der følgelig mellem dets forende og det større telts bagside var en aabning. Forøvrigt omtales det engang i 1094[4]), at man, naar det var mørkt, havde lys (*ljós*) under teltet.

De hoveder af forskjelligt slags, der til prydelse anbragtes paa skibenes stavne, udgjorde neppe nogen fast del af disse, men vare løse, saa at de, ligesom nu ved gallionsfigurer, kunde tages af og sættes paa efter behag. I alle fald nævnes dette nogle gange[5]), og om det hoved, Olaf den hellige selv havde skaaret, siges[6]), at det senere længe blev brugt i Norge paa skibe, som høvdinger styrede.

Blandt de vaaben, enhver af mandskabet maatte have paa ledingsskibene, var ifølge den ældre Gulathings- og Frostathingslov et skjold. Dette var af træ og skulde have 3 jernspanger (*jarnspöng*) tversover og et haandtag (*mundriði*), som fæstedes indentil med jernsøm. Efter nyere landslov skulde skjoldet være rødt og med dobbelt bordlag (*tvibyrðr*). Ellers nævnes røde eller hvide skjolde[7]), og Olaf den helliges mænd havde hvide med forgyldt, rødt eller blaat kors[8]). Nogle gange omtales, at skjoldet var kantet med jernbaand (*jarnrendr*), og undertiden, at pladen var af lindetræ, hvorfor selve skjoldet kaldtes *lind*

raised. On this the chieftain mounted in order to have a better view of the ship and its surroundings [1]).

When the ship lay in harbour, it was, at night time covered with a tilt (*tjald*) to which the recently named pillars and a ridge-pole belonged (*tjaldáss, tjaldstøng*). Over this latter the cloth was stretched from both sides of the ship. Sometimes for ornament's sake the cloth was striped in various colors. When it is recorded in Egil's saga[2]) concerning Kveldulf, that he bade his people go along the ship's sides and cut the tilt from its fastenings (*klofi*) or when in another passage[3]) the ripping up (*spretta*) of the tent is spoken of, to me it would seem more probable that the lowest edges of the cloth (*tjaldskör*) were fastened to the gunwale with ropes than, as Fritzner states under the word *klofi* in his dictionary, that here small tent-pillars were likewise used. On the other hand it can hardly with certainty be decided whether the tent extended from the vessel's stern to nearly its stem continuously, or whether not, rather the lofting, as indeed the word (*lyptingartjald*), applied to it in the last named saga, would seem to imply, had its own peculiar tilt, so that an opening way was consequently found between its fore- and the larger tent's aft-end. Further it is once stated, 1094[4]), that, when it was dark, lights (*ljós*) were used under the tent.

The heads of different kinds, that, for the purpose of embellishment, were set up on the prow of the vessels, were most probably, not fixed there permanently, but were left movable, so that, like the figure-heads of our own day, they could be removed and replaced at pleasure. At all events this is several times[5]) mentioned; and of the head St. Olaf had himself carved, it is recorded[6]) that it was afterwards for a long period used in Norway on ships commanded by Chieftains.

Among the weapons with which each of the crew had to be provided on the ships of war, the old Gula- and Frostathings-law specify a shield. This was made of wood, and should have placed, crosswise on its (outer) surface, three iron bands (*jarnspöng*) and a handle (*mundriði*) fastened by iron nails to the inner surface. Under the more recent law, the shield was to be red and with a double layer of boards (*tvibyrðr*). Red or white shields are also elsewhere [7]) mentioned, and St. Olaf's men had white shields, decorated with gilded, red or blue crosses[8]). In some places it is stated that the edge of the shield was bound with pieces of iron (*jarnrendr*), also that sometimes its plate was of linden wood, wherefore the shield itself was called linden (*lind*) or lindenshield

[1]) Konungasög. ed. Unger p. 60, 173, 186, Flateyarb. II, 678. [2]) Kap. 27. [3]) Heimskr. ed. Unger p. 562. [4]) Ib. p. 637. [5]) Ib. p. 208, 591, Landnámab. 258, Flateyarb. III. 41. [6]) Heimskr. 251. [7]) Ib. 115, 482, 517, 572, Konungasög. p. 517. [8]) Heimskr. p. 251.

eller *lindiskjöldr*. Det samme er tilfældet med et brudstykke af et skjold fra ca. 1100, som fandtes 1880 paa Korsødegaarden i Stange paa Hedemarken; det har været rundt, ca. 43 cm. i tvermaal, med halvkugleformet bule midt paa; brættet er 1 cm. tykt og har havt noget jernbeslag[1]). Den eneste gjenstand hos os, som viser haandtagets form efter den ældre jernalder, er, saavidt bekjendt, stolen (ca. 1300) fra Tyldals kirke[2]), hvor haandtaget paa det her ogsaa runde skjold er af træ og gaar tvers over hele bagsiden af brættet. Ombord bleve skjoldene, hvis der ikke var udsigt til kamp, men vel kun, naar man forlod hjemmet eller kom ind i havn, som det synes i almindelighed ophængte paa skibets stavne eller dets sider[3]), saaledes at hvert skjold lagdes (*skara* af *skör*) over det nærmestes kant[4]), hvad der ogsaa kan sees af en brakteat[5]) og af broderiet i Bayeux, dog have skjoldene paa begge disse steder sin plads indenfor skibets ræling. Mulig var det en efterligning af den her omhandlede skik, naar der paa den oven (s. 26) nævnte galei, som byggedes i Bergen 1566, blev gjort 20 skjolde, der maledes.

Det staar nu kun igjen at omtale det sidste slags af de egentlige skibe eller handelsfartøjet (*kaupskip*), der træffes med forskjellige navne: *byrðingr*, *knörr*, *kuggi*. Hvad der hos os i middelalderen egentlig udgjorde forskjellen mellem et handelsskib og et langskib, har hidtil neppe nogensteds været paavist, skjønt det meget vel lader sig gjøre. Af hvad der ovenfor er anført om de egentlige skibe følger, at handelsskibet ikke adskilte sig fra langskibet ved konstruktion, hovedform, mast, sejl eller ror, skjønt tømmeret i det første vel var sværere og masten højere, men længden mindre; ligeledes var hint som dette, om end sjeldnere, udsmykket med maling og tillagt et eget navn. Derimod havde handelsskibet ingen hoveder paa stavnene, heller ikke, i alle fald nogen fremtrædende vindfløj, som det synes, og selvfølgelig ingen skjolde. Mandskabet var neppe heller større end højst nødvendigt for skibets bestemmelse, skjønt nogen opgave over folketallet kun kjendes i ét tilfælde, da besætningen udgjorde 8—10 mand. I modsætning til langskibet var ogsaa hele længden mellem begge øserum optaget af ladningen (*bulki*, *bunki*, *farmr*), der ofte højnede sig langt over rælingen, ligesom endnu paa Nordfarjægterne, men naar den fik

(*lindiskjöldr*). This is also the case with the fragment of a shield of date about 1100, discovered 1880, at the Korsödegaard in Stange, Hedemark. The shield has been circular about 43 cm. in diameter, with a semiglobular boss in the centre; the disc 1 cm. thick and, originally, iron-mounted[1]). The only relic we, so far as is known, possess, to show the form of the handle, later than the older iron age, is a chair[2]) (of date about 1300) from Tyldal's church, where the handle of this, also round shield is of wood, and crosses the whole back surface of its disc. Onboardship when there was no immediate prospect of battle, but no doubt only when leaving homeport or when coming to harbour, the ordinary custom seems to have been to suspend the shields at prow and stern, or along the ship's sides[3]), and so that each shield lay somewhat over the edge[4]) (*skara* of *skör*) of its neighbour, as seen in a bracteat[5]), and in the Bayeux tapestry, but, in both of these instances, within the gunwale. It was possibly in imitation of this custom, that the aforementioned galley (p. 26), built in Bergen 1566, had 20 shields which were painted.

One class only of ships properly speaking now remains for notice, the merchant ship (*kaupskip*) that we find under various names: *byrðingr*, *knörr*, *kuggi*. The specific difference among us, during the middle ages, between a trading ship and a long- or warship, has hitherto scarcely anywhere been shown, although this might easily be done. From what has already been stated respecting ships properly speaking, it follows that the trading ship was not distinguished from the war-ship by any peculiarity of construction, general form, mast, sail or rudder; although, in the first named the timbers were probably stouter, its mast of greater height, but the length less; likewise the one as well as the other, though more rarely, was ornamented by painting and assigned a proper name. On the other hand the merchant-ship carried no figure head at the prow or stern, neither as it would seem any, or if any, not any prominent pennant, nor, as a matter of course, any shields. The crew, too, was not more numerous than just requisite for the ship itself; though in one instance only, an enumeration is found wherein 8—10 men are shown to have been the whole number on board. Further, in contradistinction from the war-ship, its entire length between the wells was taken up by the cargo (*bulki*, *bunki*, *farmr*), which was frequently piled high above the gunwale, as still practised on the Nordland-yachts; but the cargo stowed in the hold,

[1]) Aarsber. f. 1880 fra Foren. t. n. Fortidsm. Bev. p. 184. [2]) Aarsb. f. 1879 p. 20 fig. 1 *e*. [3]) Flateyarb. II, 602, III, 63, 198. [4]) Grettis sag. kap. 19, Njáls s. kap. 85, Sturlung. sag. ed. Vigfússon II, 53. [5]) Atlas f. nord. Oldkynd. fig. 155.

plads i rummet, maaske ligesom paa disse, overdækkedes af skraaliggende flaker, skjønt saadanne ikke nævnes. Der kunde saaledes ej blive anvendelse for noget beskyttende telt om natten, undtagen i forenden og agterenden. Hvad der dog væsentligst dannede forskjellen mellem begge slags skibe, vil klarest vise sig af tre beretninger i sagaerne. Det fortælles saaledes for det første[1]), at da kong Sverre i 1199 i Nidaros havde taget nogle byrdinger for at bruges som langskibe, lod han dem »hugge i stykker», hvilket vel vil sige, at de bleve skaarne over paa midten; dernæst øgede han dem i kjølen og indrettede dem til »at roes langs hele skibssiden». I 1207[2]) se vi ligeledes, hvorledes omdannelsen af et handelsskib til langskib foregik, idet Baglerne, efterat de, for at kunne staa sig imod Birkebenernes bordhøje skibe, i Tønsberg havde taget to kogger og syv østersøfarere, sloge skanseklædningen (? *vigi*) fra, gjorde aarehuller (*hábora*) i siderne og lagde tiljer paa tverbaandene (*biti*). Og endelig da kong Haakon i 1221[3]) beredede sig til en kamp med Ribbungerne, blev det besluttet, at smaaskibene skulde fare først og storskibene strax efter med staaende master, for at Ribbungerne skulde tro, at skibene kun bestode af smaaskibe eller byrdinger. Dette lykkedes og. Men da Ribbungerne kom nær ind paa smaaskibene, og saa de forgyldte vindfløje (*veðrviti*) paa storskibene glitre i solskinnet, fik de den rette mening om disse. Det fremgaar følgelig af disse fortællinger, at handelsskibe ej vare rofartøjer, hvorfor de maatte ligge vejrfaste, naar det var stille eller vinden ugunstig; endvidere, at de ikke havde tiljer, undtagen sandsynligvis foran og agtenfor ladningen, da de ellers maatte være i vejen for denne; og endelig, at masten under hele farten altid stod opreist, og først blev nedlagt, naar skibet imod vinteren fik sin plads i nøstet. Den mest levende forestilling om middelalderens handelsskibe vil udentvil fremkomme, naar vi tænke os de nuværende Nordfarjægter med sideror og spids agterende og forresten saaledes, som de vare for 40—50 aar siden, eller før man paa disse jægter havde begyndt med at bruge bougspridt, agtermast og topsejl.

Efter alt dette kan den væsentligste forskjel mellem farkosterne baade i den yngre jernalder og meget senere

(again, as on those yachts), it may be was covered with flakes laid slantwise, although of the latter no mention is made. No tilt could therefore be used for shelter at night, unless it were placed fore or aft. What however constituted the essential distinction between the two classes of vessels, is most obviously shown by three narratives in the sagas. Thus, in the first of these, it is said[1]), that when, at Nidaros in 1199, King Sverre had pressed some trading craft, for use as vessels of war, he directed them «to be hewed in pieces», meaning, as is supposed, that they were cut through transversely amidships, and he then lengthened their keels and fitted their sides so that they might be used as rowing ships». We also see[2]) how, in 1207, the conversion of a tradingship into a war ship was effected, inasmuch as the Baglers, in order more effectivily to defend themselves against the Birkebeiners high boarded vessels, after having at Tunsberg taken possession of two «cogs» and seven Baltic trading ships, cut away their bulwarks (? *vigi*), pierced oar holes (*hábora*) in their sides, and laid flooring (tiljer) on the beams (*biti*). And to conclude, when in 1221, King Haakon prepared himself for hostilities against the Ribbungs[3]), it was decided that the small ships should sail in the van, and the big ships immediately in their rear with the masts standing, in order that the Ribbungs might be beguiled into believing that his fleet was entirely made up of small vessels or trading craft. This stratagem was successful. But when the Ribbungs came close upon the small-ships and saw the gilded pennants (*veðrviti*) of the big ships glittering in the sunlight, they came speedily to a right understanding of what they actually were. These stories, consequently, show that trading vessels were not propelled by oars, and must therefore lie weather-bound during a calm or with a foul wind; further, that they had no flooring except probably fore and abaft the cargo, since such would else have been an impediment to the cargo; and lastly, that, throughout a voyage, their mast was up, and was not taken down until the vessel, when winter came, was placed in the boat house. The most strikings representation of the trading vessels of the middle ages would doubtless be obtained, did we imagine the present Nordland yachts with a rudder at the side, sharp at their stern, and, in all other respects, such as they were 40—50 years ago, that is to say, before they had been fitted with jigger mast, bowsprit and topsail.

Hence few words will suffice definitively to set forth the most essential points of difference

[1]) Konungasøg. ed. Unger p. 165. [2]) Ib. 230. [3]) Ib. 186, Flateyarb. III, 41.

tid med faa ord fastsættes saaledes. Baadene havde løse tofter, tiljer i bunden, aarer med tilhørende keiper, desuden mast og sejl. Karven var mestendels, som det synes, kun et rofartøj med sesser eller bænke og huller for aarerne samt tiljer, men paa tverbaandene eller biterne. Langskibet var et krigsskib med bænke, aarehuller og tiljer ligesom karven men med sejl og mast, som dog lagdes ned, naar man ikke havde brug derfor. Handelsskibet endelig var udelukkende et sejlfartøj med altid staaende mast, men uden tiljer undtagen forud og agter.

Denne udsigt over vort ældre skibsvæsen kan sluttes med en bemerkning eller et ønske. Ovenfor (s. 25, 26) blev anført, at navnene paa flere slags af vore gamle skibe ere laante fra sydligere lande. Dette var vel tilfældet ogsaa med endel andre ord, som knytte sig til samme kreds. Men udentvil havde flere benævnelser eller sømandsudtryk, der fra gammel tid af bleve fælles for hele det nordlige Europa, sit egentlige hjem her i Norden. Det vilde derfor være en interessant opgave for en filolog, fortrolig med de gamle germanske og romanske sproglevninger, at udrede, hvad der af det nævnte fællesgods var indkommet til os fra sydlandene og hvad disse derimod havde laant fra Norden. Dette vil da staa som et klart minde om den store betydning, sølivet i de nordiske lande fik gjennem vikingetiden.

Jeg gaar dernæst over til at omtale, hvad der fandtes i gravhaugen paa Gokstad.

between the vessels both of the later iron age and those of a much more recent period. The boats had loose thwarts, a flooring at their bottom, oars with angular rowlocks («keiper») appurtenant, and besides, mast and sail. The «carve» was almost exclusively as it seems a rowing craft with benches, ports formed to admit the oars, together with a flooring in the hold, but laid on the beams. The longship was a war-ship with benches, oars and flooring like the «carve», but equipped with sail and mast, which however were lowered, when not in use. The merchant-ship, finally, was exclusively a sailing ship, with a fast standing mast, but without flooring, except aft and fore.

This review of our ancient shipping may be closed with one remark, or rather wish. It has been before (pp. 25, 26) noted that the names of many kinds of our vessels have been borrowed from more southern countries. This, too, was possibly the case with some other words belonging to the same sphere. Yet, without doubt, many designations, or nautical phrases, which from the olden time had become common to the whole of northern Europe, had their origin in and from our North. For a philologist, therefore, familiar with the remains of the old German and Roman languages, it would be an interesting task to determine which portion of such common property had come to us from more southern lands, and which, on the other hand, had been borrowed from the North. The latter would then stand forth as a living memorial of the great importance of sea life during the viking-period in northern lands.

I shall now proceed to relate the discoveries in the Gokstad tumulus.

III.

Ovenfor (s. 4) have vi seet, at det fundne skib vendte forstavnen mod vejen, og deraf følger igjen, at det stod mod søen, ligesom Tunebaaden (s. 12), og nærmest i retning med Midtfjorden. Selve skibet er fremstillet paa pl. I, II og dets gravkammer paa pl. III,

We have already (pag. 4) seen that the discovered ship had its stem turned towards the highway, and thence it follows, that, like the Tune-boat (pag. 12), it lay towards the Sea, and very nearly in line with the Midtfjord. The vessel itself is delineated in Pl. I. II. and

begge saaledes, som de nu staa i skuret, efterat deres faste dele ved istandsættelsen have faaet sin rette plads. Saavel skibet som baadene og gravkammerets overbygning skulle senere beskrives, naar der først er gjort rede for de løse ting, som fandtes i eller udenfor skibet.

For det første blev højt oppe i haugen over gravkammeret truffet en skjødesløst tildannet, cylinderformet graa sandsten, 2.3 cm. høj og 4.5 cm. i tvermaal, paa hvis ene grundflade er indridset en figur, der har en svag lighed med et hagekors med 6 bøjede arme. Noget dybere laa en tofte til en baad (pl. VII fig. 5), et stykke af en anden saadan (pl. VII fig. 4) og en skuffel, alle af ek. Af sidste slags redskab fandtes der andre steder flere, saa at der i det hele fremkom ti med noget forskjellig størrelse men væsentlig kun to former, enten uden trin for foden (pl. VII fig. 11, 19) eller med saadant (pl. VII fig. 6, 7). Arbeidet er simpelt, og de sidstnævnte have nogen lighed med dem, som sees paa broderiet i Bayeux[1]), dog med den forskjel, at disse have haandtag og deres blad en skoning rimeligvis af jern.

I skibets **forende** eller mellem gravkammeret og forstavnen fandtes:

a. omtrent i højde med nysnævnte sager, midtskibs, ca. 7 m. fra stavnen og i retning med denne en jernklump, som fortsatte sig agterover i en smalere, jevnt 8 cm. bred stang, der dog var saa fortæret af rust, at det hele smuldrede op, saa at kun nysnævnte klump holdt sammen; rimeligvis levning af et anker og dets ring;

b. længer ned to svære spirer af fure (pl. IV fig, 13, 14) hvilende i »krykkernes« eller opstandernes tverstykke (jfr. pl I fig. 1, 4, II fig. 7 øverst) men med uvis bestemmelse, maaske varespirer, for deraf at gjøre ny mast eller andre rundholter i tilfælde af brækning, skjønt de paa den plads maatte være i vejen, naar sejlet var oppe; langs underkanten af den til bagbord liggende spire fandtes paa et godt stykke et tykt kullag, hvis mening ikke skjønnes, og deri

c. en klump uldtøj af gulagtig farve, men oprindelig vistnok hvidt, med paasyede striber af rødt tøj (jfr. s. 33), det hele vel til teltet, hvilket styr-

[1]) Fowke, l. cit. pl. LII, LIII.

its sepulchral chamber (Pl. III), both as, after having had their solid parts rightly put together, they now stand in the shed. The ship as well as the boats and the roofing of the sepulchral chamber, will subsequently be described, but first the movables that were found either within or outside the vessel, shall be dealt with.

Firstly: — there was found in the tumulus a rudely wrought block of grey sandstone of cylindrical form 2.3 cm. in height, and 4.5 cm. in diameter, on the one base of which is engraved a figure having a faint resemblance to a cross cramponné (fylfot) with six curved arms. Somewhat deeper lay the thwart of a boat (pl. VII fig. 5), the fragment of another (pl. VII fig. 4) and a shovel, all made of oak. Of the last named implement several were also found elsewhere, so that all in all ten were brought to light, of different sizes, but essentially, of only two shapes, either without a step for the foot (pl. VII fig. 11, 19), or furnished therewith (pl. VII fig. 6, 7). The workmanship is rude, and the latter somewhat resemble those represented in the Bayeux tapestry[1]), but with this difference, that those which may be seen on the tapestry have a handle, and that their blade was shod, probably with iron.

At the **forend** of the ship, or between the sepulchral chamber and the stem, were found:

a. at about the same height as the articles just named and amidships about 7 m. from the stem and in right line therewith, an iron clump which extended stemwards in a narrower 8 cm. broad bar which however was so eroded by rust, that it smouldered altogether and only the just named clump cohered. These are probably the remains of an anchor and its ring;

b. at a greater depth two large firwood rough-spars (pl. IV fig. 13, 14) resting on the crossarms of the «crutches» or stanchions (conf. pl. I fig. 1. 4, pl. II fig. 7 uppermost), but the purpose of which is not known; possibly they might have been reserve-spars to make a new mast or other round spar in the event of breakage, although in the place where they were found, they must have been in the way when the sail was up. Along the under surface of the spar that lay to port, was for a good distance found a thick layer of charcoal, the use of which can not be accounted for, and therein:

c. a bundle of woollen cloth of yellowish color, though doubtless originally white, with stripes of red cloth sewn thereon (cfr. p. 33) the whole of which, pre-

kes derved, at der inde i klumpen fandtes stykker af tyndt hampetaug, som rimeligvis har været teltbaand;

d. en hel del stykker af bastetaug af forskjellig tykkelse, nogle klædte med tynde strenge af bast, og navnlig et langt sammenhængende kabeltaug, rimeligvis til ankeret;

e. 4 ligedannede og omtrent ligestore træstykker af ek, det bedst bevarede afbildet paa pl. VI fig. 7, og nogle sneldelignende redskaber (pl. VI fig. 8, 10), de sidste maaske bestemte til at stikkes ind i aabningerne paa rælingens underkant (pl. I fig. 4, 5) som fæste for teltbaandene;

f. lidt dybere en skraaliggende rundholt af gran (pl. IV fig. 11), ved den ene ende forsynet med gjennembrudt klamp, maaske en baadmast.

Fra det 8de spant agtenfor forenden og indtil henimod denne laa ovenpaa skibets tiljer:

g. ved skibets begge sider under dets indadbøjede overkanter (jfr. s. 6) en hel del aarer af gran, hvilke dog paa grund af deres leje mod de haarde ekespanter og ved presningen af den overliggende jordmasse mestendels vare brækkede, saa at kun 5 af skibets aarer ere nogenlunde hele og deraf kun én fuldstændig, 5.30 m. lang, skjønt de øvriges længde ved gisning af de manglende stykker kan suppleres til 5.55, 5.60, 5.65 eller 5.85 m.; formen kun rent undtagelsesvis som pl. IV fig. 18, ellers som pl. V fig. 1; én har udskjæring tæt nedenfor haandtaget (pl. VII fig. 13); alle baadaarerne have form som pl. V fig. 1, men kun 7 ere nogenlunde hele, og enkeltes skafter vise et indsnit for klamper paa det sted, hvor de hvilede under roningen;

h. imellem begge aarerækker stykker af 3 baade af ek (pl, V fig. 5—9, 11—13, 15, 18) med tilbehør af 3 ror (pl. V fig. 2—4), 2 mastespor (pl. IV fig. 7), en tofte, 6 trekantede plankestykker, hørende dels til forenden (pl. V fig. 17), dels til agterenden (pl. V fig. 16), et rygbræt (pl. V fig. 10), tiljer og 2 klamper med spuns til stopning af kvisthuller i bordene (pl. V fig. 14), alt lagt som dække over følgende gjenstande:

sumably, had been intended for the tent, an opinion corroborated by the fact that within the bundle there were found pieces of thin hemp-rope, in all probability, the fastenings of the tilt;

d. a large number of bast-cord fragments, of various thickness, some of them bound round with thin fibres of bast, and in particular, a long continuous cable rope, most likely intended for the anchor;

e. 4 fragments of pieces of oak of like form and nearly like size, that in best preservation represented pl. VI fig. 7, and some reel-like implements pl. VI fig. 8, 10; these last perhaps intended to be put through the openings made at the lower edge of the gunwale (pl. I fig. 4, 5) as fixing points for the tilt-cords;

f. somewhat deeper down, a round timber stock of pine wood (pl. IV fig. 11) in a slanting position, having at one of its ends a perforated clamp. It had perhaps been a boat's mast.

From the eighth frame abaft the fore-end, and nearly to the latter, lay over the vessel's flooring (tiljer):

g. on both the sides of the ship, under the inward tending curve of the vessel's side (cfr. pag. 6) a great number of oars of pine wood that however in consequence of having lain against the harder oaken frames as well as by the pressure of the superincumbent mass of earth, were found for the most part broken, so that now only five of the ship oars are tolerably well preserved, and of those five but one 5.30 m. long fully entire, while the conjectural length of the rest grounded on the fragments may be taken at 5.55 m., 5.60 m., 5.65 m. or 5.85 m. Their form is quite exceptionally as pl. IV fig. 18, but else as in pl. V fig. 1. One oar has some graving just under the hand hold (pl. VII fig. 13); all the boat-oars have the form shown pl. V fig. 1, but 7 only are somewhat more like whole, and the shafts of some show a groove cut for the clamps at the spot where they rested, during the rowing;

h. between both ranges of oars were found fragments of 3 oak built boats (pl. V fig. 5—9. 11. 13. 15. 18) with their appurtenances of three rudders (pl. V fig. 2—4), two mast steps (pl. IV fig. 7), one thwart, 6 triangular pieces of board some belonging to the forepart (pl. V fig. 17), some to the aftend (pl. V fig. 16), a back screen (pl. V fig. 10), bottom boards and 2 clamps with plugs to stop knot-holes in the boarding (pl. V fig. 14), — all this forming a cover for the following things:

i. 6 tynde runde spirer af naaletræ, den længste 7.2 m. lang; den anden 5.30 lang, maaske ej fuldstændig i nogen kant, lidt fortyndet mod den ene ende men stærkt mod den anden; den tredje 4.27 m. lang med lignende fortyndelse og i den tykkeste ende tilhugget firkantet, udentvil en baadmast; den fjerde (pl. IV fig. 12) med rundt hul i hver ende, en raa; den femte, 3.74 m. lang, ufuldstændig i den ene ende, hvor den er skraat afhugget, og med et rundt hul i den anden ende, ligeledes raa (?); endelig den sjette 3.20 m. lang, hel i den ene ende og nær denne forsynet med et hul, der i kanten mod spirens ende er rundt, i den indre kant derimod retlinjet begrænset, formodentlig ogsaa en raa;

k. 2 slædemeier af ek med udskjæringer, den ene noget istykker, den anden hel (pl. VII fig. 3), hvoraf kan sees, at slæden maa have havt lignende størrelse og sammensætning som de arbeidsslæder, der bruges i de fleste af vore landsbygder; til en saadan slæde hører f. ex. paa Hedemarken og i Østerdalen 2 meier med underlagt skoning («stang») af træ eller jern, 3 tverstykker («hynner») og 2 langstykker («rafter»); tverstykkerne bæres i visse mellemrum af 6 støtter («fjetre», oldn. *fjötur*), paa ældre slæder med skraaning indover og som gaa halvt ned i meierne og op igjennem tverstykkerne, men kun til overkanten af disse; til yderligere støtte tjene 12 runde nagler med hoveder («stabbendsnagler»), hvoraf 2 og 2 paa hver sin side af «fjetrene» drives ned gjennem et hul i rafterne og helt igjennem meien; desuden er der mellem meiernes forender et tverstykke («vegar»), hvortil man fæster draget. Noget saadant drag synes der dog ikke at have været paa den her fundne slæde, men vel en tverstok, hvis ender i saa fald have gaaet gjennem meiernes huller og hvortil skjækerne sluttede sig; heller ikke fandtes andre tverstykker (hynner) eller nogen af rafterne, men disse maa slæden selvfølgelig have havt; derimod blev truffet 4 støtter (fjetre), saaledes at kun 2 mangle, alle etter sin form og sporet i meierne skraastillede, som ovennævnt, og 2 med forsiringer (pl. VII fig. 12),

i. six thin round spars of fir or pine wood, the longest 7.2 m., the other 5.30 m. in length, most likely not entire in any part, slightly thinned towards one end but strongly at the opposite end; the third spar 4.27 m. long with a like thinning and at the other end hewn square; undoubtedly a boat's mast; the fourth (pl. IV fig. 12) having a round hole at each end and certainly a yard; the fifth 3.74 m. long imperfect at one end, where it is hewn aslant, and having at the other end a hole, this likewise (?) a yard; and finally the sixth 3.20 m. long, its thickness entire at one end and near that provided with a hole, round on the side towards the spar's upper end, but in the side towards the opposite end right lined; this also probably a yard;

k. two runners of an oakbuilt sledge with carvings; one of them somewhat damaged, the other entire (pl. VII fig. 3), from which may be seen, that this sledge must have been of similar size and construction to the working sledges now in use in most of our country districts. To such a sledge, for instance in the Hedemark and in the Østerdal, there are two runners shod underneath with flat iron («stang») or with wood alone, the cross pieces («hynner») and two bearers length wise («rafter»); the cross pieces (or transoms) are supported at certain points some distance from each other by 6 props (fjetre, oldnorsk *fjötur*) which, in the old fashioned sledges have an inclination inwards, and in the lower part go half way down into the runners while their upper parts pass through the cross pieces, but only to the upper edge of these; as a further stay 12 round trenails with heads («stabbendsnagler») are used by pairs on each side of the props («fjetre») to be driven through a hole in the bearers («rafter») and right through the runner. In addition to this, there is fixed between the forends of the runner a cross piece («vegar») to which the drag that carries the shafts, is attached. Such a drag seems however not to have been used on the discovered sledge, but no doubt in its stead a cross bar, whose ends, in such case, have been passed through holes in the runners and to which the shafts were attached. Neither in these sledges were other cross pieces found, or either of the bearers (rafter); such however, as a matter of course, the sledge must have had, but we found 4 props («fjetre»), so that only two are lacking, and the trace in the runners placed aslant, as above named, and two of them with embellishments (pl. VII fig. 12).

hvoraf dog vil sees, at fjetrene paa grund af sine to afsatser, øverst, her ikke alene maa have gaaet gjennem vedkommende hynner men ogsaa op i de overliggende rafter; dertil kommer 10 «stabbendsnagler» (pl. VII fig. 8, 9), som fandtes i skibets agterende. Tversnit af meien er givet paa pl. VII fig. 3 *C*; af *A* og *B a, b, c* vil det sees, hvor fjetrene og stabbendsnaglerne havde sin plads, og af *A a, b, c* viser det sig, at de afbrækkede stabbendsnagler have gaaet helt igjennem meien. Der fandtes ogsaa en, noget over 1.40 m. lang, rund stang, jevnt fortyndet mod den ene ende, og i den anden, hvor den var omtrent 8 cm. i tvermaal, dannet som gaffelen for et gaffelsejl, dog viste den sig allerede ved optagelsen skrøbelig og er efter indsendelsen gaaet i mange stykker, saa den ikke har kunnet sammensættes igjen; at ogsaa denne maa have hørt til slæden, er højst rimeligt, da den ligeledes er af ek og forsiret med samme slags udskjæringer, som ellers ej ere trufne paa nogen anden af de fundne sager, men hvorledes denne stang har været anvendt, kan ikke bestemmes;

l. skibets ankerstok (pl. IV fig. 17, *a, b, c*) af ek, som nutidens, paa midten (*a* og *c*) med indsnit for ankerlæggen og ved hver side deraf et grundere indsnit for paanaglede stykker, som have fastholdt ankeret;

m. 2 firkantede stokke af naaletræ (pl. VIII fig. 6), indskaarne paa den ene side langsefter, saa at der i hver ende levnes et udspring, og da der paa disse sees furer efter baand, maa det antages, at stokkenes ender have været sammensurrede, hvorved det hele kom til at danne en langagtig firkantet aabning;

n. 2 redskaber af ek, det ene med krog eller hage i enden (pl. IX fig. 11), det andet med hoved og rundt hul gjennem spidsen (pl. IX fig. 12 *a, b*);

o. 3 stykker af naaletræ, formede som haandtag med rundt tversnit, tildels ufuldstændige, det største 26 cm. langt, et andet (pl. VI fig. 5) med indskjæring rundt om i den hele ende, hvori ligger en bastesnor;

p. 2 runde spager af ek, tvert afskaarne i øvre ende og skraat tilhugne fra begge sider i nedre ende, den ene 1.57 m. lang, den anden lidt kortere.

Hence however it may be seen from the two upper most offsets, that they must not only have passed through the cross pieces of the sledge («hynne»), but also up into the overlying bearers («rafter»); and these are to be added 10 trenails, «stabbendsnagler» (pl. VII fig. 8. 9) found in the hind-part of the ship. A section of the runners is given pl. VII fig. 3 *C*; from *A.* and *B. a. b. c* it will be seen where the «fjetre» and «stabbendsnagler» had their place, and by *A. a. b. c.* it is shown, that the broken «stabbendsnagler» had gone right out through the runners. There was further found a rather over 1.40 m. long round pole regularly tapered towards one end, and at the other about 8 cm. in section, formed like a gaff, but at the time it was unearthed, this piece showed itself to be very weak and since its transport hither has fallen into so many pieces, that it has been found impossible to put them together. That this also has belonged to the sledge, is rendered highly probable by its being, like the sledge, of oak, as well as decorated with the same kind of carvings, which otherwise is not found to be the case in any of the discovered objects, but to what purpose this pole was applied, can not be determined;

l. the anchor stock of the ship (pl. IV. fig. 17. a. b. c.) of oak, and as customary to this day having in the middle (*a* and *c*) a groove cut for the shank and a slighter channeling for cleats nailed on to hold fast the anchor;

m. two square hewn stocks of fir or pinewood (pl. pl. VIII. fig. 6) hewn on one side lengthwise, so that at each end a projection is left, and as, on each of these, furrows caused by a band are perceivable, it may fairly be inferred, that the ends of these stocks have been lashed together so as, when complete, to form a rectangular oblong aperture;

n. two implements of oak; — the one with a hook, or crook (pl. IX fig. 11) at its end; the other with a rounded head, and a round hole pierced through at the point (pl. IX fig. 12 *a. b*);

o. three pieces of fir or pinewood formed as handles, having a round section, partially imperfect, the largest 26 cm. long, another (pl. VI. fig. 5) with a groove cut round about the perfect end in which a bast-cord is lying;

p. two round handspikes of oak cross cut at the upper end and at the lower taper-dressed on both sides, where of the one is 1.57 m. long, the other a little shorter.

Endvidere fandtes dels over dels under tiljerne en mængde flis eller større stykker af ek samt:

q. 2 par ligestore, ensdannede planker af ek (pl. XI fig. 6), i den ene ende med udskaarne, næsten lige, dyrehoveder, som ere beregnede paa at skulle sees fra begge sider (fig. 2 og 3, 4 og 5); om deres bestemmelse havde jeg længe tvil, indtil det blev mig klart, at de have været anvendte ved hver ende af skibets telt, en slutning, hvortil jeg lededes ved at betragte de vindskier med hestehoveder, som efter Otte[1]) træffes paa nedersaksiske bondehuse og hvis hoveder i nogle egne vende udad for at forebygge ulykke, i andre derimod indad for at bringe lykke over huset; det er klart nok, at hvert par af plankerne maa have krydset hinanden, som fremstillet paa pl. XI fig. 6, saa at følgelig de horisontale teltaaser med sine endetapper gik igjennem hullerne øverst oppe; det forekommer mig ogsaa rimeligst, at hver enkelt planke har været vendt saaledes som paa nysnævnte figur, dels fordi denne stilling af hovederne synes naturligere end den modsatte, og dels især fordi selve planken paa grund af, at dens vegt maatte være størst i nederdelen, her af sig selv vilde synke nedad, hvorfor den trængte til at stoppes; dette opnaaedes ved den halvrunde indskjæring, som følgelig har hvilet paa en støttende nagel, hvorfra der til end yderligere fæste formodentlig har gaaet et baand over planken ind i det tæt ved udskjæringens bund anbragte hul, hvis ikke dette heller har været bestemt for en pind;

r. 2 brede planker af ek (pl. VI fig. 1, 2) med noget lignende dyrehoveder som de foregaaende, udentvil sidestykker af en højsædesbænk; den ene planke (fig. 1) sammensat af de fundne dele, men dog endnu mangelfuld, den anden (fig. 2) derimod hel og med et paa indsiden fæstet bræt (seet udvendigfra paa fig. 2 *a*, indvendigfra paa *b* og bagfra paa *c*), som har baaret sædet; dertil maa føjes, at dyrehovedet paa den ene planke er beregnet paa at skulle sees fra begge sider (fig. 1 *a* og *b*), medens det tilsvarende hoved paa den anden planke kun udvendig (fig. 2 *a*) viser sig fuldstændig skaaret, saa det kunde ventes,

Further partly above, partly below the flooring, a large quantity of chips and some large pieces of oak were found and also:

q. four long oaken boards of similar size and formed in the same manner (pl. XI. fig. 6), having at the one end animal heads carved and nearly alike one another, and intended to be viewed from both sides (pl. XI. fig. 2 and 3, 4 and 5), of whose purpose I was for a long time in doubt, until at last it became obvious to me that they had been placed at each end of the tilt, a conclusion to which I was led by observing the barge boards with horse heads which, according to Otte[1]), are found in houses of peasants in Lower Saxony, and whose heads in some districts are turned outwards to prevent misfortune, while in others they are directed inwards to bring good luck to the house. It is sufficiently clear that each of the boards must have crossed the other, as represented (pl XI. fig. 6), and that the ridgepole of the tilt with its ends was pivoted through the holes highest up. To me it also seems most likely, that each single plank has been turned in the manner shown by the figure to which reference just has been had, partly because this position of the heads seems more natural than its opposite, and partly and more especially because, as the weight-strain of the plank itself would be greatest at the nether point, it would, of itself, go downwards and therefore needed a check obtained by means of the semicircular incision that consequently had rested on a supporting nail whence, for the sake of further security, a band has probably been brought over the plank and passed into the hole pierced close to the lowest part of the incision, should this not rather have been designed for a pin;

r. two broad oaken planks (pl. VI. fig. 1. 2) with heads of animals somewhat like the foregoing, and forming unquestionably the side-pieces of a high seat; the one plank (fig. 1) put together from the discovered fragments, but still not quite perfect; the other (fig. 2) however entire, with a disc fastened on the inside (shown from without fig. 2 *a*, from within fig. 2 *b* and from behind fig, 2 *c*), which has borne the seat. Add to this that the head on the one plank is designed to be seen from both sides (fig. 1 *a* and *b*) while the corresponding head on the other, only on the outer side (fig. 2 *a*), appears perfectly carved, and thus it might be

[1]) Archæol. Wörterbuch 1877, p. 181.

at den anden side stod mod en væg, hvilket dog ej lader sig forene med, at sædet, som det vil sees, har været anbragt netop paa den sidstnævnte side af planken;

s. stykker af antagelig 5 senge af ek med simpelt arbeide, hvoraf to have kunnet fuldstændig sammensættes; paa den ene (pl. VII fig. 2) ere hjørnestolperne 70 cm. høje, ende- og sidefjælene henholdsvis 1.09 m. og 2.27 m. lange, hvorhos de sidste i nederkanten have aflange aabninger for bundstykkerne; den anden har 75 cm. høje hjørnestolper, endefjælene ere 1.10 m. og sidefjælene 1.43 m. lange, de første 28—30 cm. brede, de sidste noget smalere og med runde huller i nederkanten; alle, som tegningen viser, til at tages fra hinanden, naar de ikke brugtes; have rimeligvis kun været benyttede af de fornemste (jfr. s. 32) af skibets besætning;

t. et lidet haandtag af ek (pl. IX fig. 10) med rige udskjæringer, men afbrækket i enden;

u. 12 pinde af ek, alle omtrent lige store og væsentlig med samme form som den afbildede (pl. VIII fig. 12), formodentlig anvendte til at binde fiskegarn med;

v. 4 redskaber af løvtræ med ukjendt bestemmelse, indbyrdes lidt forskjellige, alle afbrudte i den ene ende; tvende afbildede paa pl. VI fig. 3, 4, 15; de to sidste have en klinknagle gjennem hovedet til forstærkning, og den sidste viser derhos ualmindelig net arbeide med fine udskjæringer paa alle fire sider (fig. 15 *c*); gjennem dennes aabning var der levning af bastesnor, da den fandtes;

x. nogle stykker af drejede fade af løvtræ;

y. 2 redskaber af lighed med drejehaandtag og af helt træ med selvvoxen krumning, det ene af ek, det andet af naaletræ, begge i form af en horisontal midtdel, henholdsvis 12 og 34 cm. bred, med to fra enderne skraat opadgaaende hornlignende opstandere, henholdsvis 25 og 18 cm. høje; midtstykket har i vertikal retning et hul, som paa det ene exemplar er rundt, paa det andet aflangt.

Endvidere fandtes i fartøjets forende:

z. paa skraaningen af mastefiskens styrbordside en pilespids af jern med sedvanlig yngre jernalders form, tveegget blad, og stift med afsats til at stikkes

supposed that the opposite surface had been placed just against a wall. This however does not harmonize with the fact that the seat, as will be seen, was just placed on the last named side of the plank;

s. fragments of presumably 5 oaken bedsteads of rude workmanship, out of which it has been found possible fully to restore two. On one of these (pl. VII. fig. 2) the corner pillars are 70 cm. high, the end- and side-boards respectively 1.09 m. and 2.27 m. long, and the latter have, at their lower edge, oblong openings cut to receive the bottom pieces; the other has corner pillars 75 cm. high and its endboards are 1.10 m, its side pieces 1.43 m. long, the first named 28—30 cm. broad, the latter a trifle narrower having round holes at the lower edge, - all, as shown by the drawing, made to allow of their being taken to pieces, when not in use. Such bedsteads were in all probability reserved for use by only the superior members of the crew of the vessel (cfr. p. 32);

t. a small oaken handle (pl. IX. fig. 10) richly engraven but broken at the end;

u. twelve oaken pins all of about like size and essentially of the same shape as the one shown (pl. VIII. fig. 12) and probably used to bind fishing-nets;

v. four implements formed from the wood of foliferous trees; their application is not known. Taken one with another they somewhat differ; are broken at one end; three of them are represented pl. VI. fig. 3. 4. 15; the last two have a riveted nail through the head, to strengthen them, and the very last displays some singularly neat workmanship in fine gravings on all its four sides (fig. 15 *c*). Fragments of bast-cord were in its opening, when exhumed;

x. some fragments of turned dishes of the wood of some foliferous tree;

y. two implements, similar to swing-handles, made of a whole piece of wood with its natural crook, one of oak and the other of fir or pine, both in the shape of a horizontal central division and respectively 12 cm. and 34 cm. broad with two horn-like projections rising aslant from the ends, respectively 25 cm. and 18 cm. high. The piece in the middle has in a vertical direction an aperture which in one of them is circular, in the other oblong.

Still further in the forepart of the vessel were found:

z. on the inclined part of the starboard side of the mast partner, an arrow-head of iron having the usual form of the latter iron age, its blade two edged,

ind i træskaftet, hvoraf endel var levnet tilligemed surringen;

æ. og paa bagbordside af mastefisken, i hjørnet mellem denne og 9de spant forenfra, laa med bunden opad en kobberkjedel (pl. X fig. 1), udbanket af 2 plader, som forenes i den halve højde; i kanten forstærket med et ombøjet og tilnaglet bredt stykke kobberblik og forsynet med 2 massive ringe af kobber; utvilsomt skibets madkjedel (jfr. s. 24).

ø. Endelig fandtes i bagbordside mellem denne og kjedelen et stort sammentrykket kar, bestaaende af staver af naaletræ, 0.73 m. høje, og forsynet med et rundt laag af ekebord, der fæstes ved tverlister, medens laagets anden side er forsiret med koncentriske cirkler, det hele 1.15 m. i tvermaal. I karret, aabenbart skibets drikkekar (jfr. s. 23), fandtes nedlagt om hverandre flis og større træstykker samt følgende gjenstande: 3 bunde af ek og en af naaletræ, 42—55 cm. i tvermaal, samt staver af naaletræ, 44—67 cm. lange, alt hørende til forskjellige kar; 4 fjæle af ek med hul øverst til ophængning og mange spor af skjæring (pl. VII fig. 10), enten spikkefjæle eller brætter til at spise paa; et træstykke af ek med uvis bestemmelse (pl. VII fig. 14); en stok af naaletræ, skraat afskaaren i den ene ende og i den anden formet som en krog eller et næb (pl. VII fig. 15); et stykke af et øsekar (?), paa kanten forsiret med et meanderlignende udskjæring (pl. VII fig. 16); en tynd parabolisk formet ekeplade, 24 cm. lang og 10 cm. bred paa midten; et stykke af et trug (pl VII fig. 18); 2 runde plader af ek, forsirede med koncentriske cirkler (pl. VIII fig. 3, 4), den ene paa begge sider, utvilsomt tallerkener (*diskr*); et ovalt stykke af naaletræ med hul øverst (pl. VIII fig. 9); endvidere følgende smaasager af naaletræ, der næsten se ud som legetøj: et afbrækket aareblad (pl. VIII fig. 10); et ligeledes afbrækket haandgreb (pl. VIII fig. 11); 2 snurrige tingester (pl. VIII fig, 13, 14), den sidste afbrækket, den anden restaureret som den var, da den fandtes, nederst i form af et haandtag, hvorfra der udgaar 4 tynde spaan, som forenes i toppen ved en gjennemgaaende klinknagle; endelig en liden udmerket skaaren øx af ek (pl. IX fig. 9) med ud-

and the head having a sunk shank for fixing in the weapon's wooden shaft, a portion whereof was left as well as of the ties;

æ. and on the portside of the mast partner in the angle between it and the 9th rib from the fore, lay with its bottom upwards a coppercaldron (pl. X. fig. 1) beaten out of two plates united at half their height and at its side strengthened by a bent and firmly nailed broad piece of plate-copper fitted with two massive copper rings. This was unquestionably the vessel's cooking caldron (cfr. pag. 24).

ø. Finally there was found on the portside, between it and the caldron, a large tub bent together, made of staves of fir- or pine-wood 0.73 m. in height and fitted with a round cover of oaken boards held together on one side by crosspieces and on the other decorated with concentric circles, the whole 1.15 m. in diameter. In the tub, that obviously had been the drinking vessel of the crew (cf. pag. 23), were laid without order chips and large pieces of wood as well as the following things: 3 bottompieces of oak and one of fir 42—55 cm. in diameter, together with some staves made of the latter sort of wood, 44—67 cm. long, all belonging to various tubs; 4 pieces of thin oak-boards with holes at the top, to hang them up by, and having many traces of being cut (pl. VII. fig. 10); these had been used either as cutting boards or trays to eat from; a piece of oak wood — its purpose not known (pl, VII. fig. 14); a stock of fir crosscut slantwise at one end, at the other being formed into a crook or beak (pl. VII. fig. 15); a fragment of a baling scoop (?) ornamented at its edge with a meandrian graving (pl. VII. fig. 16); a thin oaken disc of parabolic shape 24 cm. long, 10 cm. in the middle; a piece of a trough (pl. VII. fig. 18); two round oak discs ornamented, one of them on both sides, with concentric circles (pl. VIII. fig. 3. 4), undoubtedly plates (*diskr*); an oval piece of fir- or pine-wood with a hole at its uppermost end (pl. VIII. fig. 9) and, further, the following small articles that look almost like playthings: a broken oar blade (pl. VIII. fig. 10); a handle also broken (pl. VIII. fig. 11); two droll looking little things (pl. VIII. fig, 13. 14) the latter broken, the former restored to its condition when found, lowest down, in form of a handle, whence four thin flat pieces project joined at the top by a through going rivet, all of fir- or pine-wood; and lastly an axe, of oak extremely well made (pl. IX. fig. 9) of strongly

præget yngre jernalders typ, men skaftet afbrækket i nederdelen.

I skibets **bagerste del** eller mellem gravkammeret og agterstavnen fandtes:

a. langs efter skibets midte og omtrent 30 cm. over dets kanter en rundholt af naaletræ (pl. IV fig. 16), afbrækket i den tykkeste, tæt med gravkammerets væg liggende ende, jevnt fortyndet mod den anden ende, rimeligvis fra først af hvilende i tverarmen paa den bagerste opstander (jfr. pl. I fig. 1, 4) og senere tilligemed denne af det overliggende jordlag trykket ned, saa den brækkedes; udentvil har rundholten været det øverste stykke af skibets mast, skjønt der i dens top ikke findes noget hul for raaens heisetaug (jfr. s. 20), og desuden maa den, naar hensees til tykkelsen af mastefodens top (pl. IV fig. 15, jfr. pl. I fig. 1), have været noget længer; den havde et tæt og tyndt belæg af tøj, enten af sejlet eller maaske snarere af teltet, med vedheftede stykker af bastetaug af forskjellig tykkelse samt nogle af de foran (s. 38) omtalte sneldelignende træstykker;

b. 2 smækre stænger af grantræ, staaende ved siden af hinanden paa gravkammerets agterste tverstok mod dets væg; den ene (pl. VI fig. 16) ret afskaaren i den ene ende, som er forsynet med en jernpig og jevnt fortyndet mod den spidse ende; den anden (pl. VIII fig. 15) fra midten jevnt fortyndet mod begge ender, hvoraf den ene er ganske spids, den modsatte derimod udvidet til en knop (fig. 15 *b*); begge ved fremkomsten vel bevarede og, som tegningen viser, rette, men nu bøjede, tildels brækkede og meget indsvundne; bestemmelse ubekjendt;

c. en udmerket vel arbeidet stok af løvtræ, som det synes ask (pl. XI fig. 1), forsiret med udskjæringer og tre slags farve; var aldeles bevaret, da den fandtes, og blev dengang aftegnet, men er senere meget indsvunden; stod i bagskottet i skraa stilling med hovedet op og støttet mod stavnen; udentvil skibets rorpind[1]), da dens tap ved fremkomsten nøjagtig passede i rorets derfor bestemte aabning (jfr. pl. II fig. 4);

d. tæt i styrbordsside mellem gravkammerets agterste

marked later iron age type. The lower part of its helve is broken.

In the part of the vessel **furthest aft** between the sepulchral chamber and the sternpost, were found:

a. lengthwise, following the middle of the ship, and about 30 cm. above its sides a spar of fir (pl. IV. fig. 16), broken towards its thickest end that was lying close to the wall of the sepulchral chamber, and regularly tapered towards its other end. It probably at first rested in the cross beam of the stanchion furthest aft (cfr. Pl. I fig. 1) and at a later time it had been crushed downwards together with the stanchion, and broken by the pressure of the overlying earth. This mast has no doubt been the topmost part of the ship's mast, although at its upper end there is not found any hole to receive the hoisting rope of the yard, (conf. pag. 20) and besides regard being had to the thickness of the top of the lower part of the mast (pl. IV. fig. 15, conf. pl. I. fig. 1), it must have been somewhat longer; it had a close and thin cover of cloth belonging to either the sail, or, perhaps, to the tilt with fragments of bast cord of varions thickness fastened thereto, and some of the previously (p. 38) named spindlelike pieces of wood;

b. two slender poles of pine wood standing beside each other, on the aft cross piece of the sepulchral chamber, against its wall; one of the spars (pl. IV. fig. 16) cut straight at one end, fitted with an iron spike and evenly tapered towards its sharp end; the other (pl. VIII. fig. 15) from the middle regularly tapered toward both ends, one of which is sharply pointed, whereas the other is broadened to a knob (fig. 15 *b*); both of them were at the time of the exhumation well preserved, and, as the drawings indicate, straight, but now crooked, partly broken and shrunk together. Their use is unknown;

c. a singularly well wrought pole of foliferous wood, apparently ash (pl. XI. fig. 1) ornamented with gravings and three sorts of colour, well preserved at the time found and then drawn; since that time it has shrunk much; stood in the bulkhead in a slant position, the head upwards leaning up to the stern post and is surely the tiller[1]), for at the time of the exhumation it exactly fitted the orifice in the rudder (cfr. pl. II. fig. 4);

d. close in to starboard side between the cross piece

[1]) Cfr. Fowke l. cit. pl. IV, XLIII.

tverstok og det nærmeste spant stykker af en sammenklinket jernkjedel med dens hank (pl. X fig. 7); en lang lænke af jern (pl. X fig. 4, 5), som tildels gik i stykker ved fremhalingen, udentvil hørende til den ovenfor s. 43 omtalte kobberkjedel, som deri blev hængt over ilden, og af udmerket arbeide; nogle vredne stænger af jern, men spædere end nysnævnte, formodentlig hørende til jernkjedelen; endvidere følgende træsager: 10 halvrunde pinde, hvoraf 9 af ek og med udskjæringer (pl. VII fig. 8, 9), én derimod af naaletræ og glat, alle afbrækkede i nederste ende og flere nu noget krummede, utvilsomt stabbendsnagler til den foran (s. 40) omtalte slæde, i hvis meier naglernes nederste dele endnu findes paa sit sted (jfr. pl. VII fig. 3, *A a, b, c*); staver af naaletræ af et lidet kar eller en bøtte med hank (pl. VIII fig. 2 *a, b, c*), udvendig med spor af baand og indvendig ligesom nu med indskaaret «kryss» eller en fals for bunden; 4 tynde ekeplader, alle med rundt hul i midten, den tyndeste 5 mm. tyk, to af dem runde, 15 cm. i tvermaal, den tredje 17 cm. i kvadrat, med hjørnerne afskaarne i en indadgaaende halvcirkel, den største (pl. VIII fig. 5) noget aflang, forsiret med udskjæringer og dens midthul udvidet ved forkulling, hvoraf ogsaa spor ellers; udentvil have disse plader tjent som lyseplader (jfr. s. 33), hvad der styrkes ved den nævnte forkulling, der antagelig maa være fremkommet ved at lyset er faldt overende og brændt nedi; 6 runde kopper af løvtræ og nu meget indsvundne, lidt forskjellige i størrelse, men alle med samme hovedform, undtagen at to (pl. IX fig. 7) have haandtag; endelig et lidet kar eller en dyb tallerken af ek (pl. IX fig. 8).

e. I forreste halvdel af agterrummet fandtes 4 spredtliggende redskaber af ek med indbyrdes lidt forskjellig størrelse men samme hovedform, alle til forstærkning af træet forsynede med en bolt gjennem hovedet og en tyk trænagle gjennem midten, 3 med listhøvlede kanter, deraf det største (pl. IV fig. 1) og et af de mindre (pl. IV fig. 2), rimeligvis brugte til at vikle tauge om, alle med spor af slid.

f. Endelig laa under tiljerne mellem 2det og 3dje spant

furthest aft of the sepulchral chamber and the nearest frame, were found fragments of a riveted iron caldron with its hank (pl. X. fig. 7), a long iron chain (pl. X. fig. 4. 5) part of which fell to pieces under the attempt to bring it out. Its workmanship is singularly good and it doubtless belonged to the above (pag. 43) mentioned cooking caldron which was by its means hung over the fire. Further were found some twisted rods of iron, but more slender than those just named and which possibly belonged to the iron caldron: — and also the wooden articles following: 10 half-round sticks, 9 whereof were of oak and engraved (pl. VII. fig. 8. 9), the remaining stick of fir or pine and smooth. All are broken at the lower end and some are now crooked. Beyond question they are the «Stabbendsnagler» to the sledge already (pag. 40) spoken of, in whose runners the lowermost parts of the nails are still to be found in their place (cfr. pl. VII. fig. 3 *A. a. b. c.*). Next the fir- or pine-staves of a small vat or bucket with a handle (pl. VIII. fig. 2. *a. b. c.*) bearing traces of hoops and on the inside, as, at present, with a channel or groove for the bottom; 4 thin discs of oak all with round holes in the middle, the thinnest being 5 mm. thick, and the two round ones 15 cm. in diameter, the third 17 cm. square, its angles cut in a semicircle curving inwards, the largest (pl. VIII fig. 5), rather oblong, and ornamented with carvings, the hole in its middle enlarged by charring traces of which were also visible elsewhere. These plates have unquestionably served as candlesticks (conf. pag. 33), a fact corroborated by the just mentioned charring which may have been caused by the candle having fallen down and burned into the plate: — 6 round cups of foliferous tree, now much shrunk, somewhat different in size, but all essentially identical in form, except two (pl. IX, fig. 7) which are provided with handles; and finally: — a small basin, or deep plate of oakwood (pl. IX. fig. 8).

e. Scattered over the foremost half of the aft-room were found four oaken implements somewhat different in size one from the other, but of a like general form, and all for the strengthening of the wood provided with a bolt through the head and a stout trenail through their middle, three of them and among them the largest (pl. IV. fig. 1) and one of the (pl. IV. fig. 2) smaller, having a beaded edge; these were probably used, that cords might be wound round them; all bear traces of wear.

f. And to close, there lay under the flooring between

agtenfra ben og hud med glinsende fjædre, som efter velvillig undersøgelse af hr. professor L. Esmark have tilhørt en paafugl.

Vi komme dernæst til den del af skibet, som indeholdt **gravkammeret**. Hvorledes dette i sin helhed var indrettet eller overbygget, skal senere omtales. Her maa til større forstaaelse af det følgende nævnes den tilstand, som viste sig ved fremkomsten (jfr. pl. III fig. 2). Skibets kjøl var bøjet opad og derved brækket, en stor del af bagbordside og bunden gjennemhugget, den ene snip af mastefisken afskaaret, flere af tagsperrerne paa bagbordside borttagne, mønsaasen brækket i den ene ende og nedfalden, saa den hvilede paa mastefisken, en delig som følge deraf de øvrige sperrer sprængte fra hverandre, saa at det overliggende jordlag var trykket ned og havde fyldt kammeret i højde med skibets overkant, hvor det mødtes af blaaleret, som havde skudt sig op fra bunden. I jordlaget fandtes intet, derimod i blaaleret for det første paa bagbordside af mastefisken følgende:

a. 7 spredtliggende ben af en mand, hvorom kan henvises til anhanget;

b. en klump sammenfiltret uldtøj med graasort farve, formodentlig af mandens dragt;

c. 2 afbrækkede træstykker af ek (pl. VI fig. 6, VII fig. 17) og 3 pinde af naaletræ med hoved, omtrent lige store og væsentlig med samme form, dog har den ene (pl. VIII fig. 8), som det vil sees, et indskaaret hak lidt ovenfor spidsen;

d. et stykke af et bræt af ek (pl. VI fig. 11), udskaaret, som det synes, i form af et dyrehoved, noget ligt pl. VI fig. 2 *a*;

e. et stykke af en seng af ek (pl. VII fig. 1) med samme slags arbeide og hovedform som de ovennævnte (s. 42, jfr. pl. VII fig. 2), men forskjellig fra disse derved, at sidefjælen foruden aflang firkantede aabninger i nederdelen længer oppe har en rad runde huller;

f. et tyndt bræt af ek (pl. VIII fig. 1) med fine naglehuller i enderne og forskjellige udskjæringer paa hver side, udentvil en del af et brætspil, som var indfattet i en ophøjet ramme og har kunnet bruges til to slags spil, eftersom den ene (*a*) eller den anden side (*b*) vendtes op;

g. en drejet spillebrikke af sort horn (pl. IX fig. 6),

the second and third frame from the stern a quantity of bones and skin with shining feathers, declared, by Mr. L. Esmark, our professor of zoology, to have belonged to a peacock.

We come next to that part of the ship which contained the **sepulchral chamber**. The fashion after which this, upon the whole, was arranged or roofed, will hereafter be mentioned; here, to enable a fuller understanding of what will follow, its condition at the time of discovery, shall be dealt with (conf. pl. III. fig. 2). The vessel's keel was bent upwards and had by that means been broken, a large portion of the ship's larboard-side and its bottom had been cut through, one tip of the mast-partner cut away, several of the rafters on the portside removed, the ridgepole broken at one end, had fallen down so as to rest on the mastpartner, and lastly as a consequence of all this, the rest of the rafters had sprung from each other, so that the superincumbant layer of earth had sunk downwards, and filled the chamber up to the level of the upper edges of the vessel, where it was met by the blue clay thrust up from the substratum. In the earth-layer there was not anything found, but in the blue clay, in the first place, on the portside of the mastpartner the following articles: —

a. interspersed bones of a male person respecting which reference may be had to the appendix;

b. a bundle of entangled woollen cloth of a dark grey colour, probably part of the man's dress;

c. two broken pieces of oak wood (pl. VI. fig. 6, pl. VII fig. 17) and three pins of fir or pine, each with a head, of about like size and essentially identical form, but one whereof as shown (pl. VIII. fig. 8) with a notch cut in, a little higher up than the point;

d. a fragment of a tray of oak (pl. VI. fig. 11) cut, as it would seem, into the shape of an animal's head, somewhat like pl. VI. fig. 2 *a*;

e. a fragment of an oaken bedstead (pl. VII. fig. 1) of similar form and workmanship to those previously described (pag. 42, cfr. pl. VII, fig. 2) but different inasmuch as the sideboard has, in addition to the oblong square holes in the lower parts, a series of round holes higher up;

f. a thin disc of oak (pl. VIII. fig. 1) having fine nailholes at its ends and different engravings on each side, without doubt part of a board inclosed within a raised frame and intended for draugths. It might indeed have been used for two kinds of game, as the one face (*a*) or the other (*b*) was placed uppermost;

g. a turned playing piece (pl. IX. fig. 6) made of

som derved, at den kun har ét taphul paa underside, ligner de øvrige fra yngre jernalder, men ved sit materiale viser sig enestaaende hos os, da saadanne brikker ellers altid ere af ben;

h. et stykke træ med ejendommelige udskjæringer, som det synes sværtede, (pl. IX fig. 1 *a*, *b*, *c*), afbrudt paa den ene side (levning af en sadel?);

i. et stykke af en 1 cm tyk ekefjæl, 31 cm. langt, 4.3 cm. bredt, afbrudt i den ene ende og skraat afskaaret i den anden; paa tre forskjellige steder af den ene side og i regelmæssige afstande oprindelig forsynet med tversover gaaende, ca. 5 cm. brede beslag af tyndt jernblik, fæstet med tætsiddende, rundhovede nagler, medens den modsatte side langs den skraat afskaarne kant har en afsats, hvori der sandsynligvis var indlagt et randbeslag; kan ikke antages for levning af et skjold, da et saadant af det slags træverk vilde have været for tungt;

k. et stykke af et fad (?) af ek med udskjæringer (pl. IX fig. 2);

l. 3 tynde ovale plader af ek med fine naglehuller i kanten, 47—49 cm. lange, 19 cm. brede paa midten, to af dem næsten halvcirkelformede i enderne, den tredje mere tilspidset, maaske til tiner;

m. flere læderstykker med fine stikninger (pl. IX fig. 3, 4, 5), udentvil af en pung, som indvendig var foret med farvet tøj, der har vist sig mellem de udskaarne aabninger (fig. 3) i læderet;

n. en jernspids med fal, hvori levning af træskaft (pl. X fig. 2), i sin form og navnlig ved sin knop mindende noget om de uforklarlige redskaber med krog eller ringe (jfr. aarsb. f. foren. til norske fortidsmindesm. bev. for 1867 fig. 37, 39), men uden disses hul øverst; muligens toppen af en merkestang *(merkisstöng)*;

o. en hasp af jern, udentvil til et skrin og bestaaende af en dobbelt sammenbøjet stang, i hvis bøjning sidder en krampe;

p. en flad jernstang, 32 cm. lang, 6 mm. tyk, afbrudt i den ene ende og her 3 cm bred, men aftagende i brede mod den anden ende, hvor den kun er 1.3 cm. bred;

q. et firkantet jernstykke, 12 cm. langt, 5 mm. tykt, fra 0.8—1.3 cm. bredt, afbrudt i den brede ende, medens der i den anden ende, hvor det er smalest,

dark horn which, in as much as it has but one taphole on the bottom, resembles others from the later iron period, but is, on account of its material, unique, with us, other such pieces always being of bone;

h. a fragment of wood with peculiar carvings and which seems to have been blackened (pl. IX. fig. 1. *a*. *b*. *c*), broken on one side (probably the remains of a saddle?);

i. a fragment of oak board, 1 cm. thick, 31 cm. long, 4.3 broad, broken off at the one end, and cut slantwise at the other end, in 3 different places of the one side and at regular distances in its original state fitted with a cross mounting, 5 cm. broad, of thin iron plate, fastened with closely set roundheaded nails, while the opposite side, along the slant cut edge, is provided with a groove, wherein an edge mounting must have been fitted; it can not be part of a shield, for one of such a kind of woodwork would have been found too heavy for use;

k. a fragment of an oaken dish (?) with carvings (pl. IX. fig. 2);

l. 3 thin oval trays of oak with fine nail holes at the edge, 47—49 cm. long, 19 cm. broad at the middle, two whereof are nearly semicircular at both ends, the third is more sharply curved; these are perhaps remnants of the light wooden boxes now called Tiner;

m. divers fragments of leather with fine punctures (pl. IX. fig. 3. 4. 5) doubtless parts of a purse which had been lined inside with coloured cloth, that has shown itself between the openings cut in the leather (pl. IX. fig. 3);

n. an iron bar with socket, wherein remains of the wooden shaft (pl. X. fig. 2) are found, in its shape and particularly its knob reminding somewhat of those inexplicable tools with a crook or rings (conf. the Annual Report of the Society for Norske Fortidsmindesmerkers Bevaring for 1867, fig. 37. 39) but without the hole of these tools uppermost; possibly the top of a staff of a standard (*merkisstöng*);

o. an iron hasp, belonging, undoubtedly, to a casket and consisting of a double bar, bent together, in the curve of which a cramp is placed;

p. a flat iron bar, 32 cm. long, 6 m.m. thick, broken at one end where it is 3 cm. broad, but narrowing gradually towards the other end which is 1.3 cm. broad;

q. a four sided piece of iron, 12 cm. long, 5 m.m. thick and varying in breadth from 0.8 cm. to 1.3 cm., broken at the broader end, while at the other, where

springer to hager frem til siderne, saa at stykket her er 3.2 cm. bredt;

r. et jernstykke, 16 cm. langt, af form som en stor spændetorn, da det er spids i den ene ende, men ombøjet til en løkke i den anden;

Da den ovennævnte mønsaas af ek skulde borttages, delte den sig paa langs i to lige store dele, som vare hule, og i denne hulhed laa foruden blaaler:

s. et langagtigt stykke tyndt tøj (silke?), indvævet med fin guldtraad.

Endelig fandtes i kammerets forende nærmest styrbordsside dels paa den levnede bund af skibet, dels udenfor denne og i det her vællingagtige blaaler følgende ting:

t. 3 fiskekroge af jern, ingen fuldstændig, den største (pl. X fig. 6), hvorpaa kun mangler læggens øvre del, af lighed med tidligere fundne fra den yngre jernalder (jfr. aarsberetn. fra forening. til n. fortidsmindesm. bevar. for 1878 fig. 25, 1880 fig. 23);

u. 2 sidestænger af forgyldt bronse (pl. X fig. 10) til et bidselmundbid, den ene afbrudt; paa den ene side af midtklumperne findes levning af en jernstang, paa den anden side stumper af 2 løkker, ligeledes af jern, men beklædte med forgyldt bronse;

v. et jernbeslag, bestaaende af en ring med sammentrykt oval form, 5.5 cm. lang, hvori hænger en cirkelrund ring, 4.4 cm. i tvermaal, og 2 rembeslag, 6.6 cm. lange;

x. remspænde af jernblik (pl. X fig. 14), hvis torn mangler;

y. 3 remspænder af forgyldt bronse, alle ens (pl. X fig. 13), med beslag af bronseblik, formodentlig hørende til hestetøj, baade i størrelse, form og ornamentering lig dem, som haves i Borrefundet;

z. 2 remløbere eller smøigstole af forgyldt bronse, udentvil ogsaa til hestetøjet, forresten af samme størrelse som lignende i Borrefundet, men forskjellige derfra ved overpladens form og ornamenter;



æ. remendebeslag af forgyldt bronse (pl. X fig. 22), rimeligvis ogsaa til hestetøjet, med samme størrelse og form som flere i nysnævnte fund og med meget lignende ornamenter;

ø. beslag af forgyldt bronse (pl. X fig. 8), midtdelen

it is narrowest, two crooks protrude on the sides, so that there the piece is 3.2 cm. broad;

r. a piece of iron, 10 cm. long, resembling in form the tongue of a large buckle, being sharp at the one end, but bent as to form a loop, at the other.

When the before named oaken ridge-pole was about to be removed, it parted lengthwise into two pieces of like dimensions that were found to be hollow, and, within that hollow, there lay besides blue clay:

s. a long piece of textile stuff (silk?) interwoven with fine gold-thread.

Lastly: at the fore end of the chamber nearest to the starboard side, partly on a fragment left of the vessel's bottom, partly outside in the blue clay slush, the following things were found:

t. 3 iron fish-hooks, all imperfect: the largest of these (pl. X. fig. 6) which only lacks the upper portion of the shank, being like those previously found and belonging to the later iron period (cfr. ff. 25 and 23 respectively in the Annual Report for 1878 and 1880 of the Society for Norske Fortidsmindesmerkers Bevaring);

u. 2 side-pieces of gilt bronze used for a bit (pl. X. fig. 6), one of them broken; on one side of the middle bosses are remains of an iron bar, on the other remnants of 2 hitches, also of iron, but plated with gilt bronze;

v. an iron mounting, consisting of a ring in form of a narrow oval, 5.5 cm. long, and within this a circular ring, 4.4 cm. in diameter, is suspended, and two mountings of a strap, 6.6 cm. long;

x. a strap-buckle of plate iron (pl. X. fig. 14), wanting the tongue;

y. 3 strap-buckles of gilt bronze, all alike (pl. X. fig. 13), with mounting of bronze plate, probably belonging to horse-gear and resembling in size and style of ornamentation those discovered at Borre;



z. 2 gilt bronze strap slides or loops, doubtless also a part of horsegear, and for the rest of like size with those found at Borre, but differing in the form and ornaments of the surface-plates;

æ. a bronze gilt strapend mounting (pl. X. fig. 22) also probably a fragment of horse gear of like size and shape as several from the Borre-discovery recently named and having similar ornaments;

ø. a bronze gilt mounting (pl. X. fig. 8) the central

paa bagsiden hul, under hver korsarm en klinknagle af bronse;

aa. 5 knapper af forgyldt bronse med 4 forskjellige former (pl. X fig. 16—19) og klinkstifter af samme metal;

bb. 4 rembeslag af bronse (pl. X fig. 23), forgyldt paa den ene side, med 3 nagler, ligeledes af bronse, for remmen;

cc. ornamentstykke af jern (pl. X fig. 20) med ukjendt bestemmelse, paa forsiden overlagt med tyndt, forgyldt og figureret bronseblik, der fastholdes ved ombøjning omkring kanterne; ellers fladt, men i den afbrudte smale ende stærkt rundt opbøjet med huling paa bagsiden;

dd. endedop af forgyldt sølv (pl. X fig. 21), nu noget bøjet; har været fæstet med to nagler, den ene af sølv, den anden af jern; formodentlig hørende til en kjede;

ee. 2 remspænder af forgyldt bronse, begge ens (pl. X fig. 12) og med jerntorn, i form og ornamentering meget lige en fra Hedrum (aarsber. 1875 fig. 35), udentvil til et belte;

ff. remløber eller smøigstol (pl. X. fig. 11), ligeledes af forgyldt bronse og hørende til et belte;

part of the reverse hollow, having under each cross-arm a rivet of bronze;

aa. 5 bronze gilt buttons of 4 different shapes (pl. X. fig. 16—19) with rivet-pins of the same metal;

bb. 4 strap mountings of bronze (pl. X. fig. 23) gilt on one side with 3 bronze-pins for the strap;

cc. an ornamental piece of iron (pl. X. fig. 20), its intended purpose unknown; on the obverse covered with thin gilt and figured bronze plate, fixed by a bending to clasp the edges, in other respects flat but, at the narrow broken end, bent sharply upwards and hollowed on the reverse;

dd. an end knob of silver gilt (pl. X. fig. 21), now of somewhat bent; it has been fixed by two pins, one silver, the other of iron and has probably belonged to a chain;

ee. 2 bronze gilt strap-buckles, both alike (pl. X. fig. 12) and with iron tongues, in shape and ornamentation much like one from Hedrum (Annual Report of 1875 fig. 35), belonging no doubt to a belt;

ff. a strap runner or slide (pl. X. fig. 11) likewise of gilt bronze and belonging to a belt;

gg. et endebeslag af forgyldt bronse, til en belterem, med gjennembrudt arbeide og en underlagt glat, forgyldt bronseplade, der sees i aabningerne; under bronsepladen igjen er en tilnaglet kobberplade, som har fastholdt remmen;



Fig 2. 1/1.

gg. a bronze end mounting of a strap, belonging to a girdle in open work with a smoth underplate of gilt bronze, seen through the openings, and again under the bronze plate a copper plate with nails to fasten the strap;

hh. et endebeslag af samme materiale, med lignende formaal og arbeide;



Fig. 3. 1/1.

hh. an end mounting of like material and workmanship and for a similiar purpose;

ii. 4 ensformede rembeslag af forgyldt bronse med underlagt plade, ligeledes forgyldt og af samme metal;



Fig 4. 1/1.

ii. 4 strap mountings of like form of gilt bronze with underplate gilt and of the same metal;

kk. 2 beslag af samme slags arbeide og metal som foregaaende, begge væsentlig ens og yderst merkelige ved sin hos os enestaaende figur; thi medens de øvrige foran og nedenfor omtalte lignende beslag fremvise kun ornamentale forsiringer med den yngre jernalders sedvanlige stil, i det højeste (som fig. 4) et, noget mindre fantastiskt dyr, sees her en kriger med hjelm og fremstrakt spyd paa en galoperende hest, alt tegnet med en vis dygtighed og med gjengivelse af et bestemt kostym, men dog øjensynlig i flere dele saa fremmedt for vort land og dets daværende skik, at forbilledet dertil rimeligvis er ligefrem overført fra udlandet; sadelen viser ingen bommer, medens det ej sikkert kan sees, om den har stigbøjler; derimod er spydet forsynet med modhager, hvad der kunde synes stridende med, at denne spydform hidtil hos os kun er truffet i fund fra ældre jernalder; dog maa herved merkes, at ligesom spydbladene paa Bayeuxbroderiet[1]) alle vise denne form, saaledes nævnes i vor ældre Gulathingslov fra midten af 10de hundredaar baade *krókör* og *krókspjót*, hvad der kun kan forstaaes om pile og spyd med modhager, saa at disse følgelig maa have været anvendt ogsaa i den yngre jernalder;



Fig. 5. 1/1.

kk. 2 mountings of the same kind of metal and workmanship as the preceding, both essentially of one character and both extremely remarkable because of their form being with us unique; for whereas those similar mountings, before and subsequently spoken of, exhibit embellishments merely ornamental in the customary style of the younger iron age, and at most (as fig. 4) a somewhat less fantastic animal; here is to be seen a warrior in his helmet and with outstretched lance on a galloping horse, designed with a certain skill and with the reproduction of a precise costume, but nevertheless in many respects so strange to our country and its then existing customs, that its prototype probably was brought hither immediately from abroad. No saddle-tree is seen, nor can it certainly be perceived whether there are or are not any stirrups, the spear however is barbed, a circumstance which might seem to bring us into conflict with the fact that spears of this form, hitherto discovered, belong only to the earlier iron age. It must however be remarked, that irrespective of the fact, that as all the spear heads, at the Bayeux tapestry, exhibit that form, so also in our elder Gulathing's law, from the middle of the 10th century, both *krókör* and *krókspjót* are named, words which can only be understood in relation to the barbed arrow and spear head, and consequently they must also have been in use in the later iron age;

ll. rundt beslag af bly med 5 jernnagler til fæstning og gjennembrudt arbeide, saaledes at den underlagte, tynde, forgyldte bronseplade af presset arbeide skinner igjennem; ornamentstilen sjelden hos os, men dog med sidestykker paa et beslag fra Haugen i Tune (aarsber. 1867, fig. 30 *a*);

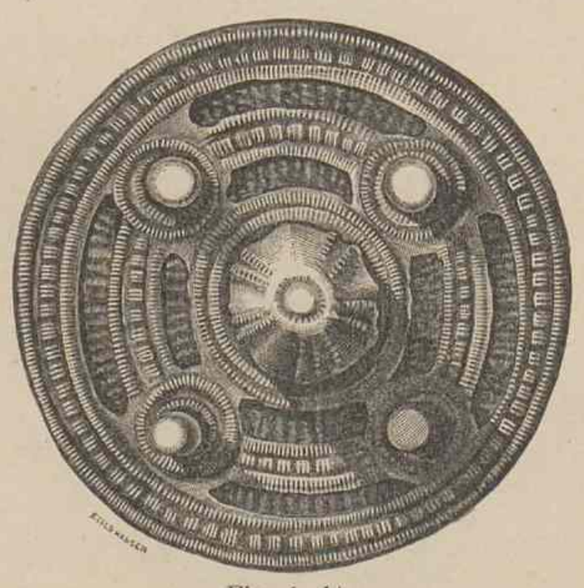


Fig. 6. 1/1.

ll. a round lead mounting with 5 iron pins as fasteners, and of open work so contrived that the thin bronze gilt plate in pressed work shines through; the mode of ornamentation rare among us, though specimens of similar mounting were found in the Tune-boat;

[1]) Fowke l. cit. pl. XI—XIII, XVII, XXI, XXIV, XXIX, XL

mm. 3 noget lignende beslag af bly (pl. X. fig. 15), men uden bronseunderlag og gjennembrudt arbeide;

mm. 3 somewhat similar lead mountings (pl. X. fig, 15) but without the open work and the bronze underplate;

nn. 17 mindre runde beslag af bly, hvoraf 3 vare fæstede tæt i tæt paa den ene ende af en 7.7 cm. lang og 2 cm. bred læderrem; der fandtes ogsaa et andet lignende læderstykke, hvorpaa sees mærker efter saadanne beslag;

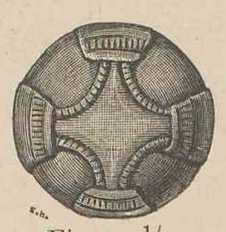


Fig. 7. 1/1.

nn. 17 smaller round lead mountings of which three were fastened close together to the end of a 7.7 cm. long and 2 cm. broad leather-strap; there was also found another similar piece of leather on which the marks left by such mounting are visible:

oo. 23 firkantede, ensdannede beslag af bly;

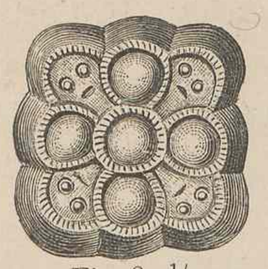


Fig. 8. 1/1.

oo. 23 square uniform lead mountings;

pp. 9 firkantede beslag af bly med samme størrelse men 3 forskjellige mønstre, nemlig 5 som tegningen, 1 lidt forskjelligt derfra og 3 med midtfigur væsentlig som fig. 10.

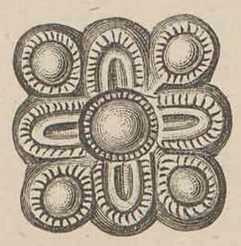


Fig. 9. 1/1.

pp. 9 square lead mountings of like size but having 3 varieties of pattern — viz. 5 as the drawing, 1 of slightly different kind, and 3 in the centre as fig. 10;

qq. 2 mindre beslag af bly, 1.8 cm. i hver kant, hvis mønstre stemme med fig. 8 eller 9;

qq. 2 small lead mountings 1.8 cm. square, the pattern of which corresponds with fig. 8 or 9;

rr. 3 korsformede beslag af bly;

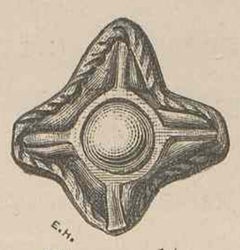


Fig. 10. 1/1.

rr. 3 cruciform mountings of lead;

Lidt bagenfor de under *t—rr* nævnte sager blev ogsaa truffet en kjæve og et led af en ryghvirvel af en hund, men disse vare rimeligvis gledne ned med leret udenfra, hvor der paa dette sted laa, som nedenfor vil sees, flere hundeskeletter.

At a short distance behind the things specified under *t—rr* were found a jaw bone and one of the dorsal vertebræ of a dog. These relics however had probably sunk down to their present position with the clay from the outside, wherein, as will appear below, several skeletons of dogs were discovered.

Udenfor skibet fandtes for det første henimod 1 m. bagenfor agterenden i højde med det øverste af stavnen et afbrækket blad af en aare (pl. V. fig. 8), og som støtte mod agterstavnens nederste del var anvendt et stykke af en baadside med spant og, som det synes, et ror til en meget liden baad.

Endvidere blev paa bagbordside forenfor agterenden mellem denne og gravkammeret truffet en paalstav af jern (pl. X. fig. 25) og to skeformede bor med samme hovedform, den ene afbrudt øverst, den anden fuldstændig (pl. X. fig. 3), begge enestaaende derved, at de have en løkke for haandtaget, medens skaftet paa de tidligere fundne bor fra yngre jernalder er formet som en stang, der gaar igjennem haandtaget (jfr. aarsb. 1873 fig. 23).

Outside the vessel was found in the first place about 1 m. from the ship's stern and at about the height of the highest point of the stern, the broken blade of an oar (pl. V. fig. 8), and as a stay at the aft stem's lowest part, a fragment of a boat-side was employed with a frame and as it seems, a rudder, of a very small boat.

Further on the portside ahead of the aft end, between the latter and the sepulchral chamber, an iron palstave (pl. X. fig. 25) and 2 spoon shaped augers were found, generally of the same form, the one broken at its upper part, the other perfect (pl. X. fig. 3); both are so far unique that they have an aperture for the handle (conf. Ann. Rep. 1873 fig. 23). A little distance

Kort agtenfor skibets forstavn laa et lidet øxeblad, 7.7 cm. langt, 1.6 cm. bredt foran skafthullet, med yngre jernalders form og navnlig fremspringende spidser for at støtte skaftet, og lidt længer bag 2 spredte stykker rens-horn, hvoraf det ene viser begyndelsen af tilskjæring. Endelig var der fra forenden og agterover, et stykke nedenfor rælingen, lagt en vel bevaret landgang (jfr. s. 23) af grantræ med fladen i horisontal stilling og trinene op (pl. VI. fig. 17), og hvorved kan merkes, at planken i den ene ende har en aflang, firkantet aabning for derigjennem at fæste den til skibet, naar den brugtes, medens den anden ende da hvilede paa land eller paa et andet ved siden liggende skib.

Foruden de ovennævnte ting blev der langs skibet paa begge sider mellem stavnene fundet en mængde skeletter af heste og hunde, flere af de første med levninger af hud, haar og hover, dog var der ved de smaa ben af en hund, som laa tæt under forenden af den omtalte landgang, hverken kranium eller ryghvirvler. Ifølge den undersøgelse, som hr. konservator G. A. Guldberg har gjort af de indsendte dyreben, antager han, at der har været mindst 12 heste, unge og gamle, noget mindre end vore nuværende almindelige heste og efter al sandsynlighed tilhørende samme race som fjordhestene. Hvad hundene angaar, maatte der have været mindst 6 individer, hvoraf i det mindste ét var temmelig højbenet, medens to andre have været meget smaa og det ene af disse nærmest har lignet vore mindste skjødehunde. En merkelighed er det, tilføjer hr. Guldberg, at der paa en af de hele tibiæ i dens øvre del hænger nogle haar af graabrun farve, hvilke ligne haarene af almindelige finne- eller lappehunde, medens benets størrelse nærmest stemmer med vore sedvanlige gaardshundes.

Ved et hundeskelet paa bagbordsside fandtes levningen af et halsbaand af bronse (pl. X. fig. 9), og ved to saadanne skeletter paa styrbordside laa dels et lignende halsbaand, men af jern, og dels et lidet stykke af en spæd jernlænke med S formede led.

Endelig fandtes ved hesteskeletterne paa bagbordside 2 smaa krumjern med pig (pl. X. fig. 24), hvoraf flere lignende tilforn ere fremkomne blandt fund fra yngre jernalder, men hvis bestemmelse først nylig er bragt til temmelig sikkerhed (aarsb. 1880, s. 192 noten), hvad der ogsaa styrkes ved det heromhandlede fund, idet de nemlig maa have været hovbeslag, dog selvfølgelig kun for vinterføre, da piggen ellers snart maatte sløves.

aft of the vessel's forestern, lay a small axe blade, 7.7 cm. long, 1.6 cm. broad before the head, of a form belonging to the younger iron age, and specially projecting laps to support the shaft, and a little further back, distant from each other, pieces of reindeer-horn one of which has indication of having been begun to be cut, and finally from the forepart aftwards, a little below the gunwale lay a well preserved landing stage of pine wood (conf. p. 23), its surface in a horizontal position and the steps upward (pl. V. fig. 17), at which it may be noted, that the plank had at one end an oblong quadrangular opening by which when in use it was made fast to the ship, while its opposite rested on land or on a ship lying alongside.

In addition to the aforenamed things there was length-wise of the ship, between the stems, on both sides, found a number of skeletons of horses and dogs, many of the first named with remains of hide, and hoofs, but together with the small bones of a dog, that lay under the fore end of the just named landing stage, neither skull nor dorsal vertebra was found. As result of the examination of these bones made by Mr. Conservator G. A. Guldberg, he estimates, that there were not fewer than 12 horses young and aged rather smaller than our ordinary horses at present and in all probability of the same race as the fiord horses. Touching the hounds there must have been at least six of which one at least must have been tolerably long-legged, while the rest must have been very small, one of them indeed narrowly resembles our smallest lap dogs. One thing remarkable, adds Mr. Guldberg, is that some hairs of greyish brown colour which is like the hair of ordinary Finnish or Lapland dogs, hang on the upper portion of one of the perfect tibiae, while the size of the bone agrees nearly with that of our common house dog.

The remains of a collar of bronze (pl. X. fig. 9) were discovered close by a dog's skeleton on the port side, and by two skeletons lying starboard a similar collar but of iron and a small fragment of a slender iron chain with a link of S form. And lastly:

By the horse skeletons on the port side were found 2 small crooked iron pieces with a spike (pl. X. fig. 24) many similar to which have formerly been found among relics from the later iron age and the application of which has only recently been with tolerable certainty ascertained (Ann. Rep. 1880 pag. 192, note) and the opinion thus formed, is further corroborated by the discovery now treated of, in as much as they must have been a kind of horse-shoes, though self evidently only for the winter ways, as otherwise the spike must soon have been

Egentlige hestesko kom hos os først i brug langt ned i tiden. De kjendtes heller ikke hos Romerne og vise sig overhovedet neppe før midten af det 8de hundredaar[1]), medens de sees overalt paa broderiet i Bayeux[2]).

For fuldstændigheds skyld maa jeg sluttelig tilføje, at der, efterat jeg var kommen tilbage til haugen fra transporten af skibets sidste del, blev rakt mig en bronsering, som sagdes for et øjeblik siden at være funden i blaaleret omtrent derunder, hvor gravkammerets bagerste stykke havde staaet. At ringen virkelig var funden paa dette sted, maa imidlertid højlig betviles, da den aabenbart tilhører en forholdsvis ny tid. Den er 5.5 cm. i ydre tvermaal og viser formen af en med store skjæl besat slange, som bider sig i halen og har en ringformet hempe paa hovedet. Det hele stykke er uden stil, aldeles naturalistisk behandlet. Ved en eftergravning paa stedet fandtes intet.

Kaste vi nu et blik tilbage over alle de i eller udenfor skibet fundne gjenstande, er der flere omstændigheder, som maa være paafaldende. Det var saaledes for det første her i Norden ikke noget usedvanligt i den yngre jernalder, ja endog, som en saga[3]) udtrykker sig, gammel skik (*forn siðr*), at begrave hunde og heste sammen med den afdøde person. Dette træffes ogsaa hos os oftere og navnlig netop ved de tidligere fremkomne skibsfund i Borre, Dønnæs og Tune[4]). Men saamange dyr, som det heromhandlede fund viser, have vi ej noget exempel paa. Dernæst maa det fremhæves, at der i gravkammeret ikke saaes spor af vaaben, som vi dog maatte have ventet, og at en stor del af de ting, der havde sin plads enten i gravkammeret eller andensteds i fartøjet, vidnede om en forsætlig sønderbrydelse. At der ikke fandtes vaaben, bliver dog let forklarligt, da det netop maa have været dem, gravrøverne især eftersøgte og som de visselig ogsaa toge med sig, og selve gravkammerets ødelæggelse (jfr. s. 46) kan meget vel tænkes under den ivrighed, hvormed gravrøvere huserede. Udenfor kammeret slaar dog den anførte forklaring ikke til, da der andensteds i skibet ej var spor af nogen tidligere gravning. Her maa derfor ødelæggelsen vistnok skrive sig fra den samme

blunted. Horse-shoes proper, are first brought into use among us at a much later period; they were not known to the Romans either, and at all events were scarcely to be seen before the middle of 8th century[1]), but are everywhere to be seen on the Bayeux tapestry[2]).

To make this statement complete, I must add in conclusison that after the last part of the vessel had been removed and I had returned to the barrow, a bronze ring was handed to me, said to have been a moment before found in the blue clay about under the spot, where the hindmost part of the sepulchral chamber had stood. It may nevertheless be a matter of great doubt, whether the ring was actually found on that spot, since it obviously belongs to a relatively much more recent date. It is 5.5 cm. in outer diameter and exhibits the form of a serpent biting its tail, covered with large scales and carrying on its head a ringformed loop. The entire thing bears no token of style and is treated in an altogether naturalistic manner. During a subsequent excavation of the place, nothing was dicovered.

If we take a retrospective glance at all the objects discovered, within and outside of the ship, many facts must be striking. Thus it was firstly nothing uncommon in Northern countries during the later iron age — nay — it was, as stated in one of the saga's[3]), ancient custom (*forn siðr*) to bury horses and dogs together with the deceased person. We trace this custom in Norway also not unfrequently and, in especial, just by the previously shipdiscoveries made in Borre, Dønnes and Tune[4]). But of so many animals of the kind stated as are shown in the discovery at Gokstad, we have no previous instance. Next the fact may be emphasized, that in the sepulchral chamber no vestige of any weapon was to be seen, though such objects might have been expected, and that a large portion of the things which had their place either in the sepulchral chamber itself or in other parts of the vessel, evinced an intentional breaking asunder. That no weapons were found is readyly explained by the fact, that such were exactly the main object of these tombviolators' search. Those they have assuredly carried away, and the destruction (cfr. pag. 46) of the chamber, can well be imagined from the fierceness with which these robbers of tombs ravaged. Without the sepulchral chamber however the adduced explanation can not avail, for here there was found no trace of any prior excavation. The destruction here, must consequently no doubt be due to that sepulchral

[1]) Lindenschmidt, Handb. der deutsch. Altherthumsk. I, 295. [2]) Fowke l. cit. [3]) Flateyarb. I, 436. [4]) N. Fornlevn. p. 179, 682 (cfr. Lorange Saml. af Norske Oldsager i Bergens Museum p. 193), Skillingmagaz. 1867 p. 738.

gravskik, der ellers saa ofte træffes baade i den ældre og yngre jernalder, navnlig ved sønderbrudte eller sammenbøjede vaaben, hvad enten nu denne skik stod i forbindelse med visse religiøse forestillinger, som et slags ofring, eller den havde sit udspring fra den tanke, at hvad der var brugt ved begravelsen eller nedlagt med den døde, ej skulde kunne benyttes af andre. Paafaldende var det især ved slæden at se, hvorledes den var revet i mange stykker og disse spredte til to, temmelig langt fra hinanden fjernede steder (jfr. s. 39, 45).

Efterat der saaledes er gjort rede for de løse gjenstande, som fandtes i eller udenfor skibet, gaar jeg over til at beskrive fartøjet selv med dets tilbehør samt gravkammeret og baadene.

Skibet har ikke været ganske nyt dengang det blev nedgravet, da der sees nogen, skjønt mindre betydelig, slid, navnlig paa roret og aarerne. Ligesom Tunebaaden er det af ek, uden maling, klinkbygget og sammensat af kjøl, stavne, spanter, tverbaand (biter), knæer og klædning af planker (jfr. pl. I. fig. 1, 4, 7). Fælles for begge farkoster viser det sig ogsaa, at spanterne ikke ere fæstede til kjølen, men ligge løse ovenpaa denne (pl. I. fig. 4, 6, 11, pl. II. fig. 1 *c*. 2, 5, 7—10); ligeledes, at kun den nederste planke fæstes til kjølen ved jernnagler (pl. II. fig. 1 *c*, 4, 5, 7—11), og de øverste bord til knæerne ved trænagler, medens alle de mellemliggende planker blot ere bundne til spanterne gjennem huller, som i visse afstande findes anbragte dels i en fals paa spanterne og dels i klamper, som ere udsparede i plankernes træ (pl. IV. fig. 4 *a*, *b*, *c*). Ligesom i baaden fra Tune, saaledes hvile tverbaandenes (biternes) ender ogsaa her paa spanternes top, hvor de fæstes til knæernes overliggende nedre arm og dennes forlængelse, og da begge de sidste ere noget smalere end tverbaandet, fremkommer derved en fals, hvorpaa tiljernes ender hvile. Ogsaa her som hist er der, til støtte for masten, midtskibs og langs efter kjølen lagt en svær ekebjelke med indskjæring for spanterne, og over denne bjelke igjen en svær ekeblok med indskjæring for biterne (pl. I. fig. 4 7, pl. II. fig. 5—11). Denne blok har form af en fisk, som fra midten aftager i tykkelse mod begge ender og her løber ud i haler; den fæstes yderligere til biterne ved knæer eller krumtræer og har i den bagerste halvdel en lang aabning for at lette mastens nedlæggelse. Endelig viser der sig ogsaa her som i Tunebaaden nogen forskjel mellem bordenes tykkelse, idet den 10de og 14de planke nedenfra ere henholdsvis 4.37 og 3.12 cm. tykke, de to øverste eller 15de og 16de planke kun 1.87 cm. og de øvrige

custom which in other instances meets us so often, in both the elder and the later iron age, and that with especial relation to broken and bended weapons, whether this custom be connected with certain sacred rites as a kind of sacrifice, or had its origin in the thought that what was employed in the burial or laid down with the deaceased, should not be used by others. Signally remarkable was it in respect of the sledge to behold, how it had been rent in pieces, and its fragments scattered in two places rather far distant from each other (cfr. p. 39, 45).

Having thus given an account of the several detached objects found within or without the ship, I pass to a description of the vessel itself with her appurtenances as well as of the sepulchral chamber and the boats.

The Ship was not quite new at the time of its interment; some though inconsiderable wear and tear being traceable especially on the rudder and the oars. Like the Tune-boat it is of oak, unpainted, clinker built and composed of keel, stem and sternpost, frame timbers, beams, knees and external planking (conf. pl. I. fig. 1. 4. 7). A common feature of both these craft is, that the frames are not fixed to the keel, but lie free above it (conf. pl. I. fig. 4. 6. 11. pl. II. fig. 1 *c*. 2. 5. 7—10); as likewise that iron spikes have been used to fasten the garboard to the keel (pl. II. fig. 1 *c*. 4. 5. 7—11), and trenails to fix the uppermost planks to the knees, while all the intervening planking is tied to the frames by means of apertures, placed at set distances partly in ledges on the frame timbers, and partly in cleats scored into the substance of the plank itself (pl. IV. fig. 4. *a*. *b*. *c*.). As in the Tune-boat the ends of the beams rest on the top of the frames, where they are fitted on to the overlying lower limbs of the knees and its continuation; and as both these are somewhat narrower than the beam, a ledge is formed on which the ends of the bottom-boards rest. Here also, as there, to support the mast, a great oaken balk is laid amidships and along the keel slotted to admit the frame, and again over this, a large oaken block, grooved to admit the beams (pl. I. fig. 4. 7. pl. II. fig. 5—11). This block is fishformed, being champed from its middle towards each end, and being shaped like a tail. It is further fixed to the beams by knees or crooked timber heads and has a long opening in its hindermost part to facilitate the lowering of the mast. Lastly, and in this also like the Tune-boat, in the planking a difference in the thickness of boards occurs; for the 10th and 14th plank, reckoned from the keel, are respectively 4.37 cm. and 3.12 cm. thick, while the uppermost two: viz. the 15th and 16th,

2.50 cm. At de to førstnævnte planker ere saameget sværere, end de andre, hænger vel sammen med, dels at toppen af spanterne støtter sig til 10de bord, og dels at aarehullerne have sin plads i det 14de.

Ved siden af alle disse ligheder viser der sig ogsaa flere forskjelle mellem begge fartøjer. Medens kjøltræet i Tunebaaden fæstes i hver ende til vedkommende stavn, er der i det andet skib indsat et eget stykke, som ved laskning og 2 rader nagler forbindes med kjølen paa den ene side og stavnen paa den anden; dette mellemstykke svarer saaledes ganske til Nordlandsbaadens saakaldte lot (*hlutr*?). Spanterne i Gokstadskibet ere ikke surrede til plankerne med bastetaug, men med vidjer af træ-rødder, og heller ikke er der, saaledes som det synes i Tunebaaden, tættet mellem bordene med løse kohaar, hvorimod disse ere spundne sammen til en trestrenget snor, som følgelig ej er indstukken senere, men paalagt ved bordenes sammenføjning. Først derved bliver ogsaa det ovennævnte (s. 14) udtryk *síðþráðr* (af *síð*, drev, og *þráðr*, traad) fuldt forstaaeligt. — Tuneskibet har kun de med biterne forbundne knæer, hvorimod det senest fundne skib desforuden mellem hvert andet par af knæerne er forsynet med et kort spant eller en forbinding fra rælingen nedad og som støtte for denne, ligesom der i midten under biterne findes støtter (pl. I. fig. 4), som øverst ere indtappede i hine og nederst have form af en gaffel, der griber over spantet (pl. IV. fig. 3). Til styrkning af begge skotter er indsat trekantede vertikale plankestykker (pl. I. fig. 4, 7), hvoraf det bagerste (pl. II. fig. 4 snit *C D*) har 3 huller rimeligvis for at optage rortauget. Mellem 7de og 8de spant forenfra (pl. I. fig. 4, 7, pl. II. fig. 5, 8, pl. III. fig. 1, 2) er ved hver side af skibet anbragt en svær træklods med to i skraa retning indskaarne runde fordybninger, hvis bestemmelse mulig har været at ne som støtte for et vindespil eller en buk ved mastens reisning og nedlæggelse. Medens det ikke kan sees, om og hvormange opstandere Tunebaaden har havt, er der i Gokstadskibet 3 saadanne (pl. I. fig, 4, 7, pl. II. fig. 1, 5—7), afsluttede øverst med en korsarm, hvori findes to halvcirkelformede nedskjæringer (pl. II. fig. 7) for rundholter. Den mellemste af opstanderne har en fod med tre arme, som ere naglede til mastefisken; de to andre hvile derimod i et firkantet spor i bunden, efterat være nedstukne gjennem et hul i den lille fiskelignende blok mellem vedkommende biter, saaledes at disse opstandere følgelig kunde tages bort, naar det maatte ønskes. Endelig er der mellem begge fartøjer nogen forskjel med hensyn til

are 1.87 cm. and the rest 2.50 cm. The reason why the two planks firstnamed are so much stouter than the others, is perhaps to be found in the fact that the top of the frames abuts the 10th plank, and that the oar-ports are placed in the 14th.

Side by side of all these similarities, many differences between the two vessels may be remarked. While in the Tune-boat the keel at each end is fixed to its appropriate stem or stern, in the other ship a peculiar piece is put in, bound to the keel by a scarfing and two rows of spikes, on one side, and to the stem, on the other; this intermediate piece answering accurately to the so called «lot» (*hlutr*?) of the Nordland boat. The frame timbers of the Gokstad-ship are not lashed to the planking by bast cords, but by withes made from roots of trees, nor here, as apparently in the Tune-boat, are the seams of the planking calked with loose cattle hair, but the latter has been spun together into a three-stranded cord so that consequently this caulking material is not a sub sequent application but has been laid along simultaneously with the actual junction of the planks themselves. And this method first renders intelligible the previously (p. 14) cited expression *síðþráðr* (*síð* calking material and *þráðr* thread). The Tune-ship has only knees attached to the beams, whereas the ship more recently discovered is additionally furnished between each alternate pair of knees, with a short frame, or timber, going down from the gunwale and supporting it, and likewise pillars are set amidships under the beams (pl. I. fig. 4) which at the top are let into the latter, while the other end in fork-shape clips the frame timbers below (pl. IV. fig. 3). To strengthen both the bulkheads, vertical pieces of plank in triangular shape are set up (pl. I. fig. 4, 7) of which the hindmost (pl. II. fig. 4 cut *C. D.*) has 3 holes probably intended to receive the rudder rope. Between the 7th and 8th forward frame (pl. I. fig. 4. 7. pl. II. fig. 5. 8. pl. III. fig. 1. 2.) a large block of wood is placed on each side with two round sockets cut slantwise, and probably intended to support a windlass or shear, for the raising or lowering of the mast. In the Tune-boat one can not see how many stanchions it had; in the Gokstad-ship there are three (pl. I. fig. 4. 7. pl. II. fig. 1. 5—7) ended at the top by a cross beam in which are two semicircular depressions (pl. II. fig. 7) for the spars to rest in. The middle stanchion is borne by a tripod spike fastened to the mast-block; the other two rest in a foursided step in the bottom, after having been passed through an aperture in the little fish shaped block between the beams in question so that these stanchions could be removed at pleasure. Lastly there is some difference

anbringelsen og formen af de to forannævnte (s. 20) svære ekeblokke for støtning af masten. I Tunebaaden strække begge sig lige langt eller over 5 spanter og 5 biter, masten hviler paa overkanten af den underste blok og støttes paa forsiden mod en fremspringende tyk kvist af træet, saa at der mellem masten og kanten af fiskens aabning er et mellemrum. I Gokstadskibet (pl. I. fig. 4. 7, pl. III. fig. 1. 2) ligger derimod den underste bjelke over 4 spant, den øverste over 6 biter; mastefoden gaar ned i en fordybning i sidstnævnte bjelke, og masten omsluttes dels af den øverste blok (mastefisken) og dels af det over dennes aabning anbragte løse stykke, der ved sin fals paa underkanten passer ned i aabningen som et laag. Det hele viser sig saaledes meget mere hensigtsmæssigt end i Tuneskibet og yder derfor masten en større støtte. Desuden har den underste bjelke nederst to aabninger paa tvers (pl. I. fig. 4, jfr. pl. II. fig. 5) og mastefisken ligeledes to aabninger langsefter (pl. I. fig. 6, pl. II. fig. 9), formodentlig dels for at gjøre det hele noget lettere og dels for at vandet kunde have frit gjennemløb.

Hertil kommer, at det senest fundne skib overgaar Tuneskibet baade med hensyn til størrelse og i flere andre punkter. Det første har saaledes 16 bord i højden og 17 spanter, medens det sidste, som det synes, kun har havt henholdsvis 12 og 13. Endvidere er Gokstadskibet 20.10 m. langt i kjølen og 23.80 m. mellem stavnenes ydersider, 5.10 m. bredt midtskibs og 1.20 dybt sammesteds mellem rælingens overkant og kjølen, medens Tuneskibet i alle disse henseender maa have været meget mindre, skjønt maal her ikke lade sig angive paa grund af dets mangelfulde tilstand, idet ikke engang kjølen er helt tilstede. Dertil kan føjes, at ihvorvel ogsaa Tuneskibet viser meget godt arbeide og baade indvendig og udvendig er forsiret med lister, saa kan det dog langtfra maale sig med det andet skib, der ogsaa udmerker sig ved sin skarphed og sit smukke løb. Dette vil bedst sees af pl. I. fig. 2 og 3, hvorved man gjennem de med visse mellemrum fremstillede snit vil faa et klart billede af skibets hele figur. Seet ovenfra (pl. I. fig. 7) staar det ved sit forhold mellem længde og brede endog meget over Nordlandsbaaden og har blandt alle vore nuværende smaa baade i den nævnte henseende kun ét sidestykke i dem, som almindelig bruges i Trysil, medens disse ellers vise sig noget forskjellige, navnlig derved, at de mangle kjøl og desuden at de i lighed med Nordlandsbaaden

between the two vessels in respect of the form and position of the two before mentioned heavy oaken blocks used to stay the mast. In the Tune-ship both extend in equal length over 5 frame timbers and 5 beams; the mast rests on the surface of the under block and is to the fore supported against a projecting thick knot of the wood so that there is a space between the mast and the side of the slot in the mast block; in the Gokstad-ship (pl. I. fig. 4. 7. pl. III. fig. 1. 2) however the lower block extends over 4 frame-timbers while the upper span 6 beams; the foot of the mast is put down in a socket in the timber, and the mast itself is grasped in part by the upper block, and in part by the loose slab which is laid over its opening and which by means of its ledge on the under side fits the opening like a lid. Altogether its arrangement is obviously much more convenient than that of the Tune-boat and consequently gives to the mast a firmer support. Besides, the undermost block has two cross openings (pl. I. fig. 4 conf. pl. II. fig. 5) and the uppermost also two openings lengthwise (pl. I. fig. 6. pl. II. fig. 9), presumably intended in part to lighten the whole and in part to give free water-passage.

Be it added that the ship of the most recent discovery surpasses its forerunner in both magnitude and some other characteristics. Thus the Gokstad-ship has 16 planks in height and 17 frames, the Tune as it seems respectively but 12 and 13. And still further the Gokstad-ship is 20.10 m. long on the keel, and from outside to outside between fore and aft 23.80 m., is amidships 5.10 m. broad and at the same point 1.20 m. in depth from top of the bulwark to keel, while the Tune-ship was assuredly much smaller, although accurate admeasurement is not possible because of that vessel's dilapidated condition, for not even the keel is to be found entire. And to this may be adjoined, that although the Tune-ship also shows very good workmanship, and its boards both within and without have beaded edges, it is nevertheless far from being able to compete with the other vessel, which, over and above its other and higher qualities, has greater sharpness of build and a finer sheer. This will best be seen from pl. I. fig. 2. 3, wherewith by means of the transverse sections presented as taken at various points we may obtain a clear idea of the vessel's form and figure in their entirety. Seen from above (pl. 1. fig. 7) it stands by its proportions of length and breadth, much in advance of the Nordland boat, and among all our present small boats, has, in that respect, its parallel only in the boats generally used in Trysil, — these meanwhile exhibiting many points in difference and that point especially, that they are keelless, and besides, that like the

have meget stærkere reisning i stavnene. Det kan derfor ikke være tvilsomt, at Gokstadskibet med stor lethed har gledet gjennem vandet til samme tid som det ved sin flade bund var meget stivt. For at dets ydre listforsiring tydelig kan vise sig, er der paa pl. III. fig. 4 gjengivet i stor maalestok et stykke af skibets agterende paa bagbordside, hvorved kan merkes, at styrbordssiden er aldeles ens, medens de tilsvarende dele af skibets forende ere bortraadnede, skjønt de selvfølgelig maa have været ligedanne. Men foruden at de nævnte lister vise forsiringsmaaden, faa vi derved ogsaa det eneste bidrag til at bestemme formen af stavnenes fritstaaende del eller den i vort gamle sprog saakaldte *brandr*. Allerede paa grund af, hvad der ovenfor (s. 16) er sagt, maatte det blive sandsynligt nok, at stavnen heller ikke paa dette skib løb op i en spids, og her faa vi tildels bevis derfor. Det vil nemlig for det første sees, at den list, som gaar langs stavnens yderkant (pl. III. fig. 4 *a*), følger denne helt op. Paa stavnens indside derimod afsluttes den tilsvarende list allerede langt nedenfor hin; derefter kommer en indskjæring i stavntræet, rimeligvis for en fals, hvortil klædningsbordene vare naglede, og strax ovenfor begynder en ny list, der efter sin stilling maa have løbet ret op. Heraf kan følgelig sluttes, at stavnens fritstaaende del eller den omtalte *brandr*, saaledes som antydet med prikker paa pl. I. fig. 1, 4, beholdt sin fulde brede til toppen og her var ret afskaaren. Derimod kunne vi hverken bestemme stavnens højde eller, om der øverst var et hoved; det sidste turde dog være mindre sandsynligt paa et saa lidet skib som dette. Forresten bliver, hvad foran (s. 33) er sagt, om at skibenes stavnfigurer vare løse, styrket baade ved biskop Nikolaus's skib (s. 29) og Bayeuxbroderiet, hvorpaa der, naar stavnen er uden hoved, i dens top sees[1]) et hul, udentvil for den bolt, hvormed hovedet fæstedes. Derimod er der intet i Gokstadskibet, hvoraf det kan sees, om fartøjet ligesom Nordlandsbaaden i forstavnen har havt «krydsstok» og «koller» (jfr. s. 16), skjønt det i sig selv synes rimeligt nok, at i alle fald de sidste for nyttens skyld vare anvendte paa vedkommende steder.

Foruden det nye, der, som ovenanført, tildels har vist sig ved Gokstadskibet, faa vi af dette ogsaa en fuldstændig

Nordland craft, the posts are much more vertical at both extremities. It must therefore be indisputable that the Gokstad ship glided with great facility through the waves, and that its flattened bottom at the same time secured remarkable steadiness. To present a distinct idea of the exterior ornamental mouldings, an enlarged drawing of a fragment of the vessel's aft end on the port side is given (pl. III. fig. 4) and be it remarked, that the starboardside is quite similar and that although the correspondent portion of the vessel's fore end is wholly decayed, there can not be a doubt, that its ornamentation was identical. But besides that these specimens of moulding exhibit the mode of embellishment, we obtain thence our sole contribution towards ascertaining of the form of that free standing portion of the vessel's stems or the in our ancient tongue so called *brandr*. Already from what has been said (pag. 16) it must seem likely that the posts of the ship did not curve upwards to a point, and here partial proof at least is obtained. In the first place it will be seen, that the moulding placed along the outer edge of the stem (pl. III. fig. 4 *a*) is continued right up; along the inner line however the corresponding moulding is discontinued a good distance below. A cutting follows in the stem intended probably as a ledge, on which to spike the planking, and immediately above a new moulding is begun, which, to judge from its position may have run right up. Hence consequently may be inferred, that the free standing portion of the stem heretofore named *brandr*, as indicated by dots in pl. I. fig. 1. 4, maintained its full breadth to the top, and was then cross cut. On the other hand the height of the stem cannot be determined, or whether at the top it was surmounted by a head; a supposition rendered less probable by the smallness of this vessel. For the rest, what has been said (pag. 33) concerning the movability of the figure head, derives support both from the ship belonging to Nicolaus, the bishop, mentioned pag. 29, and from the Bayeux tapestry, whereon when the figure head is removed, a hole is to be observed in the highest point of the stem[1]) intended doubtless for the bolt that should fix the figure head. But nothing is to be found in the Gokstadship whence it can be seen, whether the vessel, like the Nordland boat, in the prow had or had not «krydsstok» and «koller» (p. 16) although it would seem probable, that at any rate the last named, on account of their usefulness were employed in their proper places.

Besides the above mentioned new matters, with which the Gokstad-vessel has partly made us acquainted, we obtain

[1]) Fowke l. cit. pl. XLVI, XLVII.

eller i hvert fald klarere forestilling, end nogensinde før, om alt, hvad der vedkommer rælingen og teltet samt aarestellet, roret, tiljerne og skjoldene.

Hvad først rælingen angaar, var, som foran (s. 6) bemerket, en del deraf bortraadnet, og hele den øvrige del bøjet indover; men der fandtes dog levnet saameget, at den tildels med sikkerhed har kunnet rekonstrueres (se pl. I. fig. 4, 5). Heraf vil sees, at der langs under rælingen og kun med afbrydelse for de ovennævnte korte spanter er fæstet en list eller række, hvori med visse mellemrum findes langagtig firkantede aabninger (i større maalestok og med snit paa pl. I. fig. 5). Denne list stanser for og agter først, hvor rælingen faar en større bøjning opad, og fra dette sted af ere de omtalte aabninger udskaarne i selve rælingstræet, saa langt som dette er bevaret, hvorved dog maa merkes, at de ved en forglemmelse af lithografen under korrekturen ikke ere tilføjede ogsaa paa det levnede stykke af rælingen agtenfor tverfjælen bag roret. Hensigten med disse aabninger, der vistnok efter det anførte have gaaet lige fra stavn til stavn, kan neppe være nogen anden, end at teltsnorene bleve fæstede dertil, enten alene eller mulig i forbindelse med de foran (s. 38) omtalte sneldelignende træstykker. Forresten have snorene rimeligvis ej været anbragte i selve kanten af tøjet, da det paa den maade ikke lod sig forhindre, at vandet, naar det regnede, løb ind i skibet, men derimod paa tøjets underside, et stykke ovenfor kanten, saa at denne har gaaet ud over rælingen. Af alt dette kan vistnok sluttes, at teltet dækkede over hele skibet (jfr. s. 33), saaledes at teltets ryg var horisontal mellem den forreste og bagerste støtte, men fra hvert af disse steder skraanede nedad mod nærmeste stavn. Det følger ogsaa af sig selv, at teltets horisontale ryg blev baaret af en aas, ved hvis ender de foran (s. 41) omtalte vindskier vare anbragte i korsstilling (pl. XI. fig. 6), saaledes at de udskaarne hoveder reiste sig op over teltets ryg[1]), medens vindskiernes planker i sine nederste dele fæstedes ved rælingen. Derimod kan det være tvil underkastet og synes neppe rimeligt, at de trende opstandere i midten af skibet og navnlig deres tverarme tillige have tjent som hvilesteder for teltaasen. Endelig bør det maaske tilføjes, at masten blev nedlagt, før teltene reistes.

Ligesom i de romerske skibe og paa Bayeuxbroderiet, saaledes er der ogsaa i Gokstadskibet udskaaret runde aarehuller i siden, men det er her første gang,

[1]) Conf. Flateyarbók I, 359.

further a complete, or at all events a clearer than ever before obtained idea of all that concerns the gunwale of the vessel, its tilt, the arrangement of the oars, the rudder, the flooring of the hold, and the shields.

Touching the gunwale, a portion, as already said (pag. 6), was wholly decayed, all the rest bent inwards; but among the relics so much has been found as to render reconstruction, and that with certainty, practicable (pl. I. fig. 4. 5). Hence it will be seen that, lengthwise under the gunwale there runs a skirting, wherein at set intervals, and broken only by the above mentioned short timbers, a series of oblong rectangular openings occurs, (shown, parallel and in section, on a large scale pl. I. fig 5). This skirting is discontinued, both fore and aft, just where the gunwale takes a larger curve upwards, and from this point such openings are cut into the woodwork of the gunwale itself for so long as it is preserved. Here however it must be noted that inadvertently on the part of the lithografer, these openings were, in the proofsheet, omitted from the residual portion of the cross board behind the helm. The purpose of these apertures, that certainly extended from stem to stern, could scarcely have been other than to afford means to fasten the cords of the tilt, either singly or in combination with the forementioned (pag. 38) reel shaped pieces of wood. Further more, it is likely that these cords were not fastened to the very edge of the cloth; for if so, in rainy weather, water could not have been kept out of the ship; but rather on its inner surface at some distance above the edge, so that a portion might hang over the gunwale. From all this it may be inferred, that the tilt covered the entire ship, and thus its ridge was horizontal between the fore and aft tilt posts, while at each of those points it drooped towards the respective ends of the ship. As a matter of course, the tilt's horizontal ridge was supported by a pole, at whose ends the aforenamed (pag. 41) verge boards were set crosswise (pl. IX. fig. 6) and thus the carved heads rose above the tilt[1]), while the opposite end of the boards was fixed to the gunwale. Still however, it may be matter of doubt, and indeed seems hardly probable, that the three stanchions along the central line of the ship, and more specially their cross-arms, had likewise served as supports for the tilt's ridge. And finally — it may be proper to add that before setting up the tilt the mast had to be lowered.

Just as in the Roman ship and as shown in the Bayeux tapestry, so in the Gokstad vessel we find port holes cut in its sides to receive the oars, but

at vi faa en fuldstændig forestilling om disse huller og hvad dertil hører. Som allerede ovenfor (s. 55) bemerket, have de sin plads i det tredje bord ovenfra og midt imellem hvert par knæer. Tallet af dem er paa hver side 16, og deres tvermaal bliver lidt efter lidt mindre mod begge ender af skibet i forhold til aarerne. I den bagerste halvdel af hvert huls periferi og noget ovenfor den horisontale diameter er udskaaret en liden split, afpasset efter aarebladene, saa at disse kunde stikkes ud indenfra, og da retningen af splitterne overalt er ens, have følgelig alle aarebladene i det øjeblik, da de skjødes ud fra skibet, dannet samme vinkel mod vandfladen. For derhos at hindre søen fra, naar der ikke roedes, at trænge ind gjennem hullerne, dækkes de paa indsiden med runde skyveluger (pl. I. fig. 4). Disse ere af ek og forsynede med to, noget forskjellig formede fremspring (pl. IV. fig. 5, 6, 9, 10), det ene for at optage den nagel, hvorom lugen drejede sig, den anden for at dække over aarehullets omtalte split. Lugerne aabnedes ved at skyves forover, og hvilede, naar de lukkedes, ved splittens underkant mod en nagel, som omfattedes af en indskjæring i lugens næb, saa at lugernes plade klemtes fast mellem nagelens hoved og skibsplanken. Fire luger med de tilhørende aarehuller mangle paa bagbordside, hvor den oftere omtalte forhugning af skibet havde fundet sted. Af de øvrige 28 ere 9 forsirede med udskjæringer; en paa hver side af skibet har en cirkel i kanten af periferien, 3 paa bagbord (jfr. pl. IV. fig. 5) og 1 paa styrbord have koncentriske cirkler og 3 paa styrbord forskjellige, korsdannede figurer (pl. IV. fig. 9, 10).

Hvad dernæst rorskarlene og deres plads angaar, kan det for det første neppe være tvilsomt, at mandskabet ogsaa ved skibe, ligesom i baadene (jfr. s. 24), indtog en siddende stilling under roningen. Vel er der, saavidt bekjendt, i de gamle skrifter ikke noget sted, hvoraf dette med fuld sikkerhed kan sees, men et tilstrækkeligt bevis derfor ligger i den omstændighed, at rorskarlenes plads betegnes med ordet *sess* (sæde). Dertil kommer, at den siddende stilling ikke alene var almindelig hos Romerne, men ogsaa træffes baade paa Häggebystenen i Sverige[1]) og paa broderiet i Bayeux[2]). Hvorledes derimod selve sædet var beskaffent, og navnlig om det bestod af en gjennemgaaende tofte, ligesom i baadene, eller,

here we can and that for the first time, form a perfect conception of these, with their belongings. They are, as before stated (pag. 55) set in the third plank from the top, and midway between each pair of knees. The number on each side is 16, and their diameter is gradually diminished from amidships towards each end in proportion to the size of the oar fitted to each port. In the furthest part backward of each port's circumference, and a little above its horizontal diameter a small slit is cut through, to pass the oar blades, so that they might be put through from within, and the direction of the slit being alike in all the ports, each blade, when thrust out, would meet the water-surface at the same angle. To prevent influx of the sea through the ports when there was no rowing, they were protected from the inside by a circular oaken thutter (pl. I. fig. 4), fixed on both sides and having two projections of diverse shape to answer their diverse use (pl. IV. fig. 5. 6. 9. 10), that of the upper one being to receive the spike by which it is fastened to the ship's innerside, and on which it is moved to and fro, the other, to cover the before named slit. All were opened by a forward movement, and, when closed the lower ear rested against a pin at the underside of the slit, to which it was hitched by a slot in the ear itself, and the shutter by this means held fast between the spike head, and the ship's planking. Four of these shutters with their correspondent ports were wanting on the port side, where the so oft mentioned breach of the vessel had been effected. Among the 28 shutters preserved 19 are without ornament; of the remaining number, one has a circle scored out at the edge of the circumference, 3 on the port (conf. pl. IV. fig. 5) and one on the starbord side have several concentric circles and 3 also on the latter side exhibit various cruciform embellishments (pl. IV. fig. 9. 10).

Next, — relatively to the oarsmen and their position, it can, in the first place, scarcely be a matter of doubt that, as in the boats, so likewise on the ship, the men while rowing held a sitting position (conf. pag. 24). True it is that, for so much as is known, no passage exists in ancient writings from which so much can be surely predicated, but efficient proof is found in the fact that the oarman's place is designated by the word *sess* (seat). And to this may be added, that the sitting position was customary, not only among the Romans, but that it is also shown on the Häggeby stone, in Sweden, and on the Bayeux tapestry[2]). Nevertheless how the placing of the seat itself was effected, and especially

[1]) G. Stephens, Old North. Runicmonum. I, 190.

[2]) Fowke l. cit. pl. IV. V.

som oven (s. 25) antydet, af kortere bænke ved hver af skibets sider, lader sig i almindelighed ikke afgjøre. Var der tofter, kunne disse under ingen omstændighed have været faste, da de i saa fald maatte hindre den frie gjennemgang i skibet, som overalt sees under en kamp. Og hvis der var kortere rorbænke, maa man ved den sedvanlige betegnelse (jfr. s. 25) af skibets størrelse efter bænkenes tal følgelig kun have tænkt paa skibets ene side. Men hvad enten der var tofter eller kortere bænke, bliver betegnelsen af rummenes og aarernes tal den samme. Saaledes vilde f. ex. en *þrettánsessa* i hvert tilfælde have 13 rum, 26 halvrum og 26 aarer, men under forudsætning af, at den første mening antages, 13 tofter, i modsat fald derimod 13 rorbænke paa hver side eller i det hele 26. Desværre gav heller ikke Gokstadskibet noget bidrag til løsningen af det omhandlede spørsmaal, da der ved udgravningen hverken fandtes tofter, som kunde passe for skibet, eller noget slags kortere rorbænke, og der heller ikke paa knæer eller biter sees nogetsomhelst spor af, hvor saadanne bænke kunde have været fæstede.

Derimod faa vi her for første gang en aldeles udtømmende oplysning om roret med tilbehør, og ikke mindst derved, at roret, da det fandtes, netop havde den stilling, som det indtog under brugen (pl. I. fig. 1, 4, 7, pl. II. fig. 4). Det ansees overflødigt her at gjentage de ovenfor (s. 18) omtalte navne paa rorets forskjellige dele eller at paapege den bestyrkelse, som her viser sig, af hvad derom er sagt paa det anførte sted. Derimod maa det nye fremhæves, som i denne henseende er kommet for dagen ved dette fund. For det første er der indvendig i skibet til forstærkning paalagt et tømmerstykke (pl. I. fig. 4) med et rundt hul i midten for rortauget, dernæst sees længer oppe to firkantede aabninger for snoren (*stýrihamla*) omkring rorets hals; endnu længer oppe er der i denne hals en firkantet aabning for rorpinden (jfr. s. 18) og øverst en jernring. Dels i denne ring og dels i krampen ved rorets hæl maa enderne af et taug have været fæstede, saaledes at dette taug følgelig haledes stramt oppe og slakkedes nede, for at roret kunde faa sin rette stilling, medens tauget i modsat

whether, as in the boats, it consisted of a thwart across the entire ship's-breadth, or as before intimated (p. 25), of short benches on each of its sides, is a question which can not, in general, be conclusively settled. Were there thwarts, these not could have been fixtures; since, in that event, free passage along the vessel —, seen to have been in every instance provided during battle, — must have been impeded. And were the short oarsmen's benches used, the usual mode of computing a vessel's side (cfr. p. 25) by its number of seats would have been applicable only to one side of the ship. Still whether thwarts or short benches were used, the numerical designation of the oars and of the divisions remains the same. Thus e. g. a *þrettánsessa* (thirteen benched vessel) must, in each instance, have had 13 divisions, 26 halves of such and 26 oars; but under this premise, that the first opinion is assumed, 13 thwarts, and contrariwise, on each side 13, or in the whole 26 oarmen's benches. Unhappily the Gokstad ship contributed naught towards solution of the question here discussed. For, during the excavation, neither thwarts which might have been fitted to the vessel, nor any kinds of shorter oarsmen's benches were discovered, and neither on the knees nor on the beams is there found a trace of aught by whose means such benches might have been fixed.

On the other hand we have here, and that too, for the first time, exhaustive information concerning the rudder and its appurtenants, information acquired with so much the greater facility, besause this Gokstad rudder, when unearthed, was in exactly that position which it would have held, while in use (pl. I. fig. 4. 7. pl. II. fig. 4). It were superfluous to repeat here what has already been stated (pag. 18); such as the names of the different parts, or to point out the corroboration here presented, of what has been set forth in the passage referred to. Prominence must however be given to things unknown before, but now brought to light by this discovery. And firstly there was found fixed within the ship, to strengthen its sides, a timber stock (pl. I. fig. 4) with a round hole in its middle to pass the rudder line, — next further up two foursided apertures for the grommet (*stýrihamla*) around the neck of the rudder, still further up in the neck, another foursided aperture to receive the tiller (cfr. pag. 18); and at its top an iron ring. Partly in the ring, partly in the cramp at the rudder's heel, the ends of a rope must have been fastened, so that the rope, consequently was hauled taut up, and slackened downwards to bring the rudder into its true working position, but conversely, when it should be

fald, eller naar roret «lagdes ud af lag», tjente til at hale roret op med, efterat tauget øverst var slakket. Dernæst sees, at der til forstærkning af skibssidens øverste del udvendig er paalagt en pude af træ (i profil og snit paa pl. II. fig. 4), hvorigjennem det ovennævnte baand (*stýrihamla*) gaar for at omfatte rorhalsen. Længere nede er til siden naglet en gjennemboret, kegleformet knop, der tjener dels til at holde roret ud fra skibssiden og dels som gjennemgang for rortauget, hvoraf levning fandtes i hullet, da det fremkom. Tampen af dette taug har da paa hullets yderside havt en knude for at holde roret fast, medens den anden ende af tauget gik igjennem det ovennævnte hul i spantet og blev fæstet i de huller, som findes paa det opretstaaende tverstykke. Den styrende sad som oven (s. 18) omtalt lidt bagenfor roret med ryggen mod det vertikale tverbræt (*höfðafjöl*), hvorimod der ikke var levnet noget af sædet; forresten svarer nysnævnte bræt, baade hvad form og plads angaar, ganske til det, som træffes i mange af vore bybaade, især paa østlandet, hvor det paa grund af sin delvise bestemmelse gaar under benævnelsen navnebrættet. Naar skibets boug skulde gaa til styrbord, trak styremanden selvfølgelig rorpinden til sig, medens han i modsat fald skjød den fra sig. Sammenlignes endelig Gokstadskibets ror med Tunebaadens (pl. II. fig. 3), kunne de opstilles som træffende udtryk for den forskjel i størrelse og formfuldkommenhed, der i det hele finder sted mellem begge fartøjer. Som en egenhed ved Tunebaadens ror kan forøvrigt tilføjes, at der i dets smale kant opover fra hælen har, som det synes, været flere kramper for tauget, medens Gokstadskibets ror som anført kun har én saadan krampe.

Det er allerede foran (s. 54) omtalt, at der baade i Tune- og Gokstadskibet paa tverbaandene (biterne) er en fals for tiljerne, men ingen af disse fandtes bevarede i det første fartøj, hvorimod de vare fuldstændig tilstede paa sin plads i Gokstadskibet. Tiljerne bestaa af tynde plankestykker af gran eller fure, lagte kant i kant, saaledes at to og to paa undersiden forbindes med en tverlist af ek, fæstet med trænagler, og medens de øvrige af disse plankestykker ere retlinjede, vise de af dem, som laa yderst i rækken, paa den ene side en buelinje, svarende til skibets bøjning; kun i for- og bagskottet bestod tiljerne af et helt stykke træ i lighed med de tilspidsede, i vest- og nordlandske baade, saakaldte «pligter». Merkes maa det og, at de to klamper, en paa

thrown out of gear, served to haul up when the upper rope had been slackened. And next it is seen that, to strengthen the upper part of the ship's side, a wooden pillow (or blocking) has been laid outwards, seen in section and in profile (pl. II. fig. 4) through which the just named grummet (*stýrihamla*) passed in order to be cast over the neck of the rudder. Further downwards we find, nailed to the side, a knob of conic form bored through, which served, partly as a fender to keep the rudder from the ship's side and else as a passage for the rudder rope some remains of which were found in the cavity. One end of that rope had then, at the outside of the conical piece, a knot, to hold fast the rudder while the other end was passed through the forenamed hole in the frame timber and was fixed in the apertures found in the upright crosspiece. The helmsman sat as described (p. 18) a little behind the rudder, with his back to the upright cross-board (*höfðafjöl*) but no remains of the seat were discoverable. For the rest, the board in question answers in both form and situation precisely to such as are found in many of our town boats, particularly those of the eastern districts, where, with reference to its partial destination, it is known as the name-board («navnebræt»). When the vessel's course was to be starboard, the helmsman naturally drew the rudder towards himself, but thrust it outwards under the opposite conditions. Finally if we compare the Gokstadship's rudder with that of the Tuneboat (pl. II. fig. 3) they could be applied as adequate examples of the difference in magnitude, and in completeness of form which actually exists between the two vessels themselves in their entirety. And for the rest, it may be noted as a peculiarity in relation to the Tuneboat's rudder, that on its narrow side from the heel upwards traces are to be found, as it seems, of several cramps for the rope, whereas the Gokstadship has but a single cramp.

It has been already remarked (p. 54), that in both the Tune and the Gokstad vessels, a ledge was provided for the flooring (tiljerne) but in the first named boat none of those boards were preserved, whereas in the latter all were found, and in position. This flooring consisted of pieces of thin boards of fir- and pinewood laid edge to edge, and on their underside bound two and two together by oaken fillets across fastened down with trenails; and while the rest are in a right line, such as lie outside in the range on one side, show a curve corresponding with the curve (or sheer) of the vessel itself. In the fore and aft ends of the vessel alone, did the flooring consist of one entire piece of wood sharpened, like those socalled «pligter» of our

hver side af skibet, som (pl. I. fig. 4) ere fæstede til det 7de og 8de bord ovenfra mellem roret og agterste spant, vel have tjent til støtte for de derværende tiljer. Forresten ere alle skibets tiljer forsirede med indridsede cirkler, enten koncentriske eller skjærende hverandre paa forskjellig maade (jfr. pl. VI. fig. 12—14).

Som hørende med til skibets indre, maa, foruden det allerede nys ovenfor omtalte vertikale tverbræt (*höfðafjöl*) bagenfor roret (pl. I. fig. 4), endnu nævnes den lille vinkelformede klamp paa hver side tæt forenfor roret, men hvis bestemmelse ikke skjønnes, samt de trende klamper, ligeledes paa hver side og meget lige nutidens, som sees efter hverandre lidt forenfor den nysomtalte og maa have tjent til fæste for sejlets skjøder og braser.

Skibet var paa hver side fra lidt fremmenfor det forreste aarehul indtil lidt agtenfor det bagerste udvendig behængt med 32 lige store, cirkelrunde skjolde, eller rettere sagt, saaledes havde tilstanden været fra først af. Men dels vare flere skjolde forsvundne med det borthuggede mellemstykke af skibets bagbordside, dels vare de øvrige bøjede indover med rælingen (jfr. s. 6), saa at kun det nederste segment af hvert skjold havde sin oprindelige stilling, medens den øvrige del var bøjet to gange, først næsten horisontalt, med bulen omtrent midt paa, og dernæst i skraa retning nedover kanten af rælingen. Hvert skjold (pl. VIII. fig. 7) var 94 cm. i tvermaal og sammensat af tynde, mod periferien tilspidsede brætter, lagte kant i kant og forbundne paa forsiden tildels ved den nysnævnte jernbule og paa bagsiden ved en helt over gaaende tverstok (jfr. s. 34), der tillige under bulen har tjent som haandtag. Desuden viser der sig langs periferien fine huller for stifter, udentvil til fæstelse af en rundtom gaaende metalspange, som har ydet hele pladen stor støtte, men hvoraf der ej fandtes mindste spor. Træsorten er efter den undersøgelse, som hr. professor A. Blytt velvillig har foretaget, ikke lind, men gran, og bulen fremviser ved indknibningen ovenfor randen bestemt hen til den yngre jernalders sedvanlige typ. Skjoldene vare lagt over hinanden paa den foran (s. 34) omtalte maade, idet man havde begyndt agtenfra, saaledes at hvert skjold med kanten af sin periferi stødte imod eller gik lidt op paa bulen af det bagenfor liggende samt derhos skjulte det

West- and Nordland boats; and it is also noticeable that the two clamps, one on each side of the ship (pl. I. fig. 4), which are fixed to the 7th and 8th planks downwards, between rhe rudder and the furthest aft frame-timber, have served as supports for the flooring boards. For the rest all these boards have their surface ornamented by circles scored thereon, either concentric or in various ways intersecting each other (conf. pl. VI. fig. 12—14).

Besides the beforenamed upright screen (*höfðafjöl*) aft of the rudder (pl. I. fig. 4), there, in relation to the vessel's interior, must be named the small angular clamp on each side, to the fore of the rudder, the intention of of which however is not known; as well as the three clamps, following each other in a forward direction, also found on the ship's sides, and closely resembling those in use to this day. These must have served to fasten the sheet and braces of the vessel.

From a short distance beyond the foremost oar-port, up to a little behind that furthest sternward, the ship was hung, externally, with 32 shields of like size, or to speak more accurately, such had, in the first instance, been its equipment. Some of these, however, had disappeared with that portion of the ship's portside where the inroad took place. Of those remaining, some had been bent up inwards with the gunwale (cfr. pag. 6), so that only the inferior segment of each shield held its original position; and the residue had been bent in two ways, — either nearly horizontally, close to the central boss, or askance over the edge of the gunwale. Each shield (pl. VIII. fig. 7) was 94 cm. in diameter, and the discs were formed of thin boards, laid vertically edge to edge, chamfered towards the circumference, and fastened together, on the obverse, partly by the semispherical boss just named, and on the reverse, by a cross-piece (cfr. pag. 34) that part of which immediately under the boss did duty as a handle. In addition, fine holes, as for the reception of points, are traceable around the circumference, and these were, indubitably used, for fastening a metallic rim that encircled and supported the entire disc of the weapon, but of which no trace remained. After an investigation, kindly undertaken by Professor A. Blytt, touching the kind of wood used, it is found not to be linden, but white pine; and the central boss indicates, by the pinching above its edge, its connexion with the ordinary types of the later iron age. The suspended shields overlapped each other in the way described (cfr. pag. 34) i. e. the ranging having been begun from aft, each subsequent shield was so placed that its outer edge touched the boss of that last preceding; thereby covering the corresponding oar

tilsvarende aarehul og reiste sig fra først af et stykke op over rælingen. Forresten var hvert skjold stillet saaledes, at dets enkelte stave gik i vertikal retning og tverstokken paa bagsiden følgelig var horisontal. I tverstokken var fæstet en tynd bastesnor, der udentvil havde været bundet i de ovenfor (s. 58) nævnte firkantede aabninger paa rælingens underkant. Selve pladen i hvert andet skjold var malet gul og hveranden sort, med samme farvetone som i de udskaarne hoveder paa teltets vindskier og rorpinden. Den hele skjoldrække fik derved udseende af vexlende gule og sorte halvmaaner, saaledes som fremstillet paa titelvignettet. Noget lignende sees og, som foran (s. 34) bemerket, paa broderiet i Bayeux[1]), dog med den forskjel, at skjoldene, som forresten her vise den senere tids trekantede form, ere stillede indenfor rælingen. Forøvrigt maatte skjoldene paa grund af sin tyndhed kun frembyde et svagt værn, skjønt man naturligvis søgte at optage hugget med bulen, og vi se derfor ogsaa paa flere steder i sagaerne, hvorledes skjoldene under kampen ofte kløves og ombyttes med nye.

Gokstadskibet er saaledes det største, mest fuldkomne og bedst bevarede fartøj, som overhovedet nu er til fra saa gammel tid. Da det, som vi have seet, baade var et ro- og sejlfartøj, og derhos havde huller i siden for aarerne samt tiljer paa tverbaandene (biterne), kunde det, efter hvad ovenfor (s. 36) er sagt, hverken være en baad eller et handelsskib og neppe heller en karve, men kun et langskib eller krigsskib, med 16 aarer paa hver side, altsaa en *sextánsessa*. Dog kan fartøjet ikke have hørt til ledingsskibenes klasse, dels fordi det mindste af disse (jfr. s. 31) havde 20 aarer paa hver side eller var en *tvitugsessa*, og dels fordi det ikke er vel tænkeligt, at et ledingsskib brugtes til begravelse.

Det maa følgelig have været en enkelt mands ejendom. Efter tallet af aarerne og skjoldene maa besætningen have udgjort mindst 64 mand, foruden høvdingen selv, styremanden og maaske nogle faa flere, eller i det hele omkring 70. Skulle vi dernæst i henhold til, hvad ovenfor (s. 32) er sagt, afgjøre, hvor de sedvanlige afdelinger i krigsskibet her vare, saa har løftingen strakt sig til 1ste tverbaand (bite) fra agterenden, og forrummet

[1]) Fowke l. cit. pl. VI, XVIII, XLIII—XLV.

port, and, from the first passing somewhat above the gunwale. The obverse of the shield was set vertically, consequently the crosspiece on the reverse maintained its horizontality, and by it the whole was fixed, a thin bastcord being used that, doubtless, was passed through one of the small quadrangular apertures in the skirting of the gunwale (cfr. pag. 58). The shields were painted alternately yellow and black, of the same tint as that used on the carved heads of the tilt's vergeboards and the tiller. The whole range thus assumed the appearance of yellow and black half moons, as shown on the frontispieces. It has, previously (p. 34), been remarked that, something like this is seen in the Bayeux tapestry[1]), except that there the shields, as well as having the triangular form of a later period, are ranged within the gunwale. After all these shields must, because of their thinness, have been but indifferent weapons of defence, although the warrior, naturally, sought to parry blows aimed at himself, by means of the boss; and we read likewise in many passages of the Sagas how, during a battle, the shield was frequently cleft, and had to be exchanged for a new one.

Take it all for all, the Gokstad ship is thus the largest, the most complete, and the best preserved vessel, of so ancient date, in existence at the present time. Since, as we have seen, it was fitted alike for a rowing and a sailing craft, and further, had oar-ports in its sides and flooring on the beams, it could, in accordance with foregoing statements (cfr. pag. 36) have been neither a boat, nor a trading ship and scarcely a «Karve», but a long- or warship only, with 16 pair of oars, therefore a *sextánsessa*. The vessel could not, either, have belonged to the class of leding-ships which the districts were bound to supply; for one reason — (conf. pag. 31) because the least of that class had 20 pair of oars — (*tvitugsessa*); and for another reason, that it is a thing not to be thought of, that a «leding-ship» should be used for a burial.

This Gokstad vessel must, consequently, have been individual property. In accordance with its number of oars and shields, the crew must have numbered at least 64, besides the chieftain himself, the steersman, and, it may be, a few more, or in the whole about 70 men. Should we, with reference to what has previously been adduced (cfr. pag. 32) determine where the customary compartments of a ship of war were in the Gokstad vessel, we shall find that the raised «løfting» extended to the first tie-beam from the aft end and the «forrum»,

derfra til mastefisken; kraprummet har havt netop samme længde som den sidste, og højst rimeligt er selve navnet, der betyder det trange rum, endog opstaaet derved, at dette rum var saa betydelig indskrænket af den i midten liggende mastefisk. Derefter kom saxerne fra mastefiskens forende til 1ste tverbaand forenfra, og endelig stavnen. Øsningen skede naturligvis i fartøjets skarpeste dele for og agter (jfr. s. 17) eller ved det første tverbaand (*biti*) fra for- og bagstavnen, hvorfor det var det sidste baand, som bar navnet *austrbiti*.

Som ovenfor (s. 46) antydet, kommer jeg her tilbage til gravkammeret og særlig til dets overbygning. Denne har, hvad hovedform og arbeidet angaar, kun mindre interesse, men mere derimod med hensyn til sin sammensætning. Af tegningerne (pl. III. fig. 1—3, jfr. pl. I. fig. 4, 7) vil sees, at kammeret indtager skibets rum mellem mastens forside og det 2det spant bagenfor mastefisken. Overbygningen har form af et sadeltag med gavl i hver ende, og sammensætningen er udført paa følgende maade. Først er der bagerst lagt en horisontal tverstok med halvrund indskjæring i midten, som støtte for en stander. Dernæst er dels paa denne stander og dels paa en lignende tæt ved masten fæstet den foran (s. 46, 48) omtalte firkantede mønsaas af ek. Til mønsaasen støtter sig igjen de tæt i tæt lagte runde sperrer, dels af fure dels af ek, som dækkedes af flere lag næver. Sperrernes fod gaar ned i en fals i de underliggende sviller (pl. III. fig. 3), og disse udgjøre den øverste stok af et rammeverk paa to stokhøjder, hvis ender vexelvis lægges over tverstykkernes ender med udstaaende nover. Endelig lukkes kammerets gavlsider med en væg af tykke firskaarne ekeplanker, som ere satte kant i kant og hvile i tversvillernes fals, medens deres øverste ender ere afskraanede i flugt med sperrerne og fæstes til disse med jernnagler. Som en egenhed kan merkes, at plankerne øverst omkring naglernes hoveder have en raat udhugget fordybning, hvis hensigt vistnok har været at bøde paa kortheden af naglerne, saaledes at disse kunde drives saameget længer ind i sperrrerne. Af hele den her forklarede sammensætning kan det dog, naar tversvillernes fals undtages, neppe sluttes hverken fra eller til, at

thence to the mastblock; «Kraprummet» had exactly the same length as the lastnamed; and it is in the highest degree probable, that the name itself, signifying the narrow or strait room, originated from the fact of its being so much restricted by the mastpartner (mastefisken) lying in its midst. Then followed the socalled «saxerne», running from the fore-end of the mastpartner to the first tie-beam forward; and finally, — there was the «stavn» or stern room. Clearance of the vessel from water, naturally took place at extreme fore and aft in the most sharply built part (conf. pag. 17), or at the first tie-beam (*biti*) from the stern and stem, whence the last named beam obtained the name of *austrbiti*.

As before (pag. 46) indicated I resume here the subject of the sepulchral chamber, and, in especial, its superstructure. In form and workmanship the chamber offers but little of peculiar interest. A larger demand on an observer's attention is made by the mode in which its materials are put together. The drawings (pl. III. fig. 1—3, conf. pl. I. fig. 4, 7) show that this chamber takes up the space between the foreside of the mast and the second frame-timber aft of the mastpartner. The entire superstructure shows the form of a span-roof with a gable at each end, and the mode of construction is as follows: In the first place at the point furthest aft, a horizontal cross-tree is laid with a semicircular slot scored in the centre to form the bed of an upright post. Next on this and on a similarly set post close to the mast, the previously (conf. pag. 46, 48) named oaken ridge pole is set, axe-dressed on two sides towards the top, to bed the closely laid round rafters, partly oaken, partly of fir, and these, when laid, are covered by several layers of birch bark. The lower end of these is, on each side, birdsmouthed into a round log set lengthwise and which forms the top of a log-framework, two timbers in height alternately laid on the ends of the crosstrees a part of each log-end projecting at the point of junction and thus forming corners. Lastly the gables of the chamber are closed by thick oak planking, butt jointed and set edgewise, the first plank resting on a groove or rebate in the crosstrees, while the opposite ends are fitted to the slope of the rafters and fastened thereto with iron spikes. It may be noticed as a singularity in this fixing, that each plank has at its upper end a rough slot, (to receive the spike head), the purpose of which assuredly was to meet a difficulty arising from the shortness of the spikes, and (by means of this rugged countersinking) obtain a firmer hold on the rafter. If from the mode of putting the building materials together, thus described and explained,

man allerede dengang kjendte den udviklede reisverksbygning, som sees i vore stavkirker. Derimod viser det sig her, at vor nu sedvanlige laftbygning var vel kjendt. Vistnok maatte dette i sig selv synes rimeligt, hvortil kommer, at denne bygningsmaade i en saga[1]) omtales som anvendt i Thorolf Kveldulfssøns hus paa Sandnes, der blev brændt af kong Harald haarfagre i 877. Men saadanne enkeltheder i sagaer, der først ere nedskrevne flere hundrede aar efter begivenheden, tør ikke ansees aldeles paalidelige. I alle fald faa vi først ved det her omhandlede gravkammer sikkert bevis for, at laftning hos os saa tidlig var i brug.

Med hensyn dernæst til de fundne baade kunne disse ansees endnu merkeligere end skibet, forsaavidt de vistnok ere de eneste farkoster af dette slags, der nu kjendes fra gammel tid. Som ovenfor (s- 38 *h*) bemerket, vare de trende i tallet, men revne i mange stykker, saa det viste sig umuligt at sammensætte dem igjen Alligevel kunne vi ved hjelp af de levnede dele danne os en temmelig klar forestilling om baadenes væsentlige beskaffenhed, og herved bliver det, som foran (s. 24) er sagt, dels bestyrket, dels fuldstændiggjort. Ligesom skibet vare de af ek, uden maling, meget skarpe i begge ender og sammensatte af kjøl (pl. V. fig. 8, 12), spanter og bord, de sidste indbyrdes forbundne med klinksøm og fæstede til spanterne ved hjelp enten af baand eller trænagler. Som i skibet træffes ogsaa her tverstykker (pl. IV. fig. 16, 17) i begge skotter, og hvoraf det ene, i agterenden, ligeledes har huller for rortauget. Ogsaa rorene (pl. V. fig. 2—4) vise væsentlig samme form og indretning som skibets, dog ere de uden jernring øverst, og kun det ene (pl. V. fig. 2) ror, som udentvil hørte til den største baad, havde en jernkrampe nede ved hælen, da det fandtes, men som siden er udfalden. Endelig har rormanden ogsaa her kunnet støtte sig til et tverbræt (pl. V. fig. 10), hvorhos aarerne havde væsentlig samme form (jfr. pl. V. fig. 1) som i skibet. Selve kjøltræet er fuldstændig tilstede for den største og mindste baad og viser en længde henholds-

we except the ledge or groove in the sills, scarcely anything can be found either for or against, to decide the question, whether at that period, the high development of vertical wood structure, seen in our old churches, the so called «Stavkirker», was or was not known. But that the horizontal construction of a log-house, called «laftbygning» was well known, the present instance proves conclusively. So much might almost in and of itself be deemed probable; but still further, this construction is mentioned in a Saga[1]), as having been applied in Thorolf Kveldulfsson's house on Sandnes, burned by Harald Haarfagre, 877. Such particulars however found only in Sagas not written until after the lapse of several centuries from the date of the event recorded, can hardly he held altogether trustworthy; but at all events, we have in the sepulchral chamber here treated of, the first authentic evidence that the style named, «laftbygning», was in use at so early a period.

Relatively then to the boats discovered, they may be deemed more noteworthy than even the vessel itself, for so much as they are the only specimens known, of that kind of craft, of so high antiquity. Their number, as already stated (conf. pag. 38 *h*) is three, — but they were broken up into so many fragments, that reconstruction proved impossible. Nevertheless, aided by those relics, we can form a tolerably clear idea of the boats' original form and character, and hereby, as formerly remarked (pag. 24), will that idea be in some instances corroborated, in others rendered complete. Like the ship, these boats are oak-built, unpainted, very sharp at each end, and they consist of a keel (pl. V. fig. 8, 12) framing and board planking, the last named put together with nails clinched, and attached to the framing by either cords or trenails. A bulkhead too is found here as in the ship (pl. IV. fig. 16, 17) at each end, that aft being provided with holes for the tiller lines. The rudders (pl. V. fig. 2—4) are also, in all material points, the same in shape and equipment as that of the vessel; but are without the iron ring at the top, and only (pl. V. fig 2) one of them, unquestionably that belonging to the largest boat, had, when unearthed, an iron cramp at its heel, which, however, has since smouldered away. Finally, here also the helmsman has had opportunity to support himself against a screen (pl. V. fig. 10) The oars, too, are in form (pl. V. fig. 1) like those of the ship. Of the largest and smallest boats, the keels are in perfect preservation and hold the respective lengths

[1]) Egils a. kap. 22.

vis af 7.7 og 4.1 m.; den tredje kjøl, der mangler noget, men som det synes kun lidt, er 5.4 m. lang.

Ved siden af de anførte ligheder mellem skibet og baadene sees der ogsaa nogen forskjel. Saaledes er baadenes kjøl i hver ende fæstet umiddelbart til stavnene (pl. V. fig. 11, 12 *a*) uden noget mellemstykke eller «lot» (jfr. s. 55); baadene have ikke havt tverbaand (biter), men kun løse tofter (pl. VII. fig. 4, 5), heller ikke mastefisk, men vel et mastespor (pl. IV. fig. 7), der er lidt anderledes end det, som findes anvendt under skibets opstandere (pl. II. fig. 1 *a*, *c*). Foruden dette spor har der rimeligvis i midten af den overliggende tofte været et hul for masten, som derved yderligere blev støttet i forbindelse med stag og vant. Baadene have større «stavnskud», end skibet, eller mere liggende stavne (pl. V fig. 11, 12 *a*), og foruden at disse ere forholdsvis smalere, løbe de op i en spids. Tiljernes plads var i bunden mellem spanterne (jfr. s. 25), og naar undtages de to trekantede «pligter», en i hver ende, ere de øvrige tiljer sammensatte, som nu, af flere tversgaaende bordstykker, der underneden forbindes ved en paanaglet list. Heller ikke have baadene huller for aarerne, men keiper (pl. V. fig. 5—7, 9, 13, 15, 18), som fæstes med nagler paa rælingens overkant og ere forsynede med huller for hamlebaand. Noget eget for baadene ere ogsaa de ovennævnte (s. 38 *h*) klamper eller lapper (*fila*). Derimod har jeg hverken i baadene eller skibet kunnet opdage noget saadant hul i agterenden til udløb af vandet ved landsætning, som nu er sedvanligt i en stor del af vore baade, og hvis udfyldning foregaar ved en rund pind eller prop, paa Østlandet kaldet «tap», paa Vestlandet og nordenfjelds «nygla». Forresten udmerke baadene sig ved samme dygtige og smukke arbeide som skibet og navnlig ved lister og udskaarne forsiringer (pl. V. fig. 5—7, 9, 13, 15, 16—18); ligeledes have tiljerne lignende indridsede cirkler (jfr. pl. VI. fig. 12—14).

Hvad nys blev sagt om arbeidet paa skibet og baadene, gjælder ogsaa næsten i sin helhed om de andre ting, som fandtes, enten de ere smedede, støbte, eller gjorte af træ. Dog have træsagerne en overvejende interesse fremfor de øvrige slags derved, at der af de sidste allerede tilforn var fremkommet en større mængde, skjønt hverken nogen saa stor kjedel (s. 43) eller en saa rigt udstyret skjærdingslænke (s. 45) og heller ikke beslag eller spender til remme med saadan rigdom af forsiringer (s. 49, pl. X. fig. 11. 12). Af træsager fra den yngre jern-

7.7 m. and 4.1 m.; the fragment of the third keel, for it lacks somewhat though not much of its original length, is 5.4 m. long.

Side by side with these adduced resemblances, some differences appear. Thus the boat keels are, at each end, fixed immediately to the stem (pl. V. fig. 11, 12 *a*) without intervention of any middle piece or socalled «lot» (conf. pag. 55); the boats have no beams, but simply detatched thwarts (pl. VII. fig. 4. 5), neither have they a mastpartner, but are however provided with a mast step (pl. IV. fig. 7) differing slightly from that applied under the stanchions in the ship (pl. II. fig. 1 *a*. *c*). In addition to this step, there has also, probably, been found in one of the thwarts a hole to receive, and, aided by a stay and shroud, further to support the mast. The boats had lower lying stems than the ship (pl. V. fig. 11. 12 *a*), and besides, the post being proportionally narrower, springs up to a point. The place of the bottom boards was between the frames (pag. 25), and except two triangular «pligter», one at each end, the other bottom-boards («tiljer») were, as now, put together by several pieces laid across and on the underside bound together by a nail-fast fillet. Further the boats had not oar ports, but angular rowlocks, or «keiper» (pl. V. fig. 5—7. 9. 13. 15. 18) made nail-fast to the edge of the gunwale, provided with holes for an oarsgrommet (hamlebaand) to pass. The clamps or «lapper» (*fila*) named (p. 38 *h*) are also peculiar to these boats. Neither in the ship nor in the boats have I been able to discover any contrivance for the outlet of water, when the vessels were laid up on land. With us nowadays this is effected by means of a stern port, closed when not in use by a plug, called, in our eastern districts, «tap», and in the northern, «nygla». For the rest the boats are, like the ship, remarkable for the skilful and beautiful workmanship they exhibit, and that especially in their beadmouldings, and graven embellishments (pl. V. fig. 5—7. 9. 13. 15. 16—18); their bottom-boards also (tiljer) being in like manner adorned with graven circles (conf. pl. VI. fig. 12—14).

What has just been stated touching the workmanship of the ship and her boats, is also nearly in its entirety applicable to the other relics, whether forged, cast or wrought in wood. Such as are formed of wood possess, however, a predominant interest over those of any other kind, since of the latter a considerable number had been previously brought to light, although no caldron so large (pag. 43) or any so well manufactured suspending chain (p. 45), neither any strap-mountings or buckles with such a wealth of embellishment (p. 48, 49, pl. X. fig. 11. 12); whereas of relics in wood from the later iron

alder havde vore samlinger derimod, før skibet kom frem, kun de yderst faa, som fandtes paa Vold i Borre (1851) og Haugen i Tune (1867), men i størst antal paa Voll i Overhalven (1873). Endvidere er der blandt Gokstadskibets træsager mange redskaber, som hidtil vare uden sidestykker, saaledes for kun at nævne ting, der ikke udelukkende brugtes ombord, slæden (s. 39), teltplankerne og højsædesstykkerne (s. 41), senge (s. 42, 46), spikkefjæle og tallerkener (s. 43), bødkerarbeide (s. 43, 45), lyseplader (s. 45), spillebræt (s. 46). Og endelig da en stor del af de fundne gjenstande ere smykkede med forsiringer, have vi derved faaet en langt klarere forestilling, end nogensinde før, om den ornamentik, som dengang kom til anvendelse paa træsager. Disse forsiringer kunne deles i to slags, eftersom de ere gjort paa fri haand eller for største delen frembragt ad rent mekanisk vej. Til sidste slags høre linjer og lister (pl. III. fig. 4 *a. b. c.* pl. V. fig. 11, 12), cirkler (pl. IV. fig. 5, pl. VI. fig. 11—14, pl. VIII. fig. 2—4) og ruder, da disse maa være udførte ved hjelp af høvl, passer eller lineal. Større interesse knytter sig derimod til de forsiringer, som udelukkende ere gjort paa fri haand. Af saadanne se vi de simpleste paa pl. VII. fig. 3. 8, 9, mere sammensatte og rigere baand med rette linjer[1]) paa pl. IV, fig. 9, 10, pl. V. fig. 13, pl. VI. fig. 9, pl. VII. fig. 12, 13, eller med krumme linjer[2]) (pl. V. fig. 5—9, 15, pl. VI. fig. 6), eller sammenbøjede i sirlige knuder (pl. VIII. fig. 1 *b*). Vi træffe ogsaa meanderen (pl. VII. fig. 16, jfr. s. 49) og kugleforsiring, den sidste enten alene (pl. VII. fig. 17) eller i forbindelse med retlinjet fletverk (pl. VIII. fig. 1 *a*) eller med baandslyngninger (pl. IX. fig. 10). Mere staaende for sig ere de ornamenter, som sees paa pl. IX. fig. 1 og 2, skjønt de sidste minde noget om et stykke fra fundet paa Voll i Overhalven (aarsb. 1879 fig. 44). En meget merkeligere og rigere forsiring fremkommer, hvor det ovennævnte fletverk eller perlerader træde i forbindelse med kjækt stiliserede dyrehoveder (pl. VI. fig. 1. 2. pl. XI. fig. 2—5), tildels med anvendelse af farver. Men det merkeligste stykke er rorpinden (pl. XI. fig. 1) ikke alene ved arbeidets udførelse, men ogsaa ved dens forsiringer og den formsands, som her viser sig, i forbindelse med en stor moderation i brugen af forsiringer og og en fin følelse for at anvende dem paa de rette steder. Hvad stoffet i farverne eller deres fedtsubstans angaar, kan dette ifølge den velvillige oplysning, jeg har faaet af hr. professor T. Hiortdahl, ikke nu

[1]) Jfr. Aarsber. 1880, fig. 26; MONTELIUS, Sverig. Fornt. no. 496.

period, our collections before the discovery of the Gokstadship, possessed but few; those consisting of specimens found at Vold in Borre (1851), Haugen i Tune (1867) and, in greatest number, those brought from Voll in Overhalven (1873). Further, among the relics in wood from Gokstad, there are many implements which up to the time of that discovery had no counterpart; such as, to mention only things not exclusively for ship's use, the sledge (p. 39); the tilt boards and fragments of the elevated seat of honor (pag. 41); the bedsteads (pag. 42. 46); the cutting boards (pag. 43); the coopers-work (pag. 43. 45); the candle-tablets (pag. 45), the playing board (pag. 46). And, — finally, since a large portion of these relics is ornamented, we have, by this means, gained a much clearer idea than ever before of the styles of ornamention of wood-articles then in vogue. These are divisible into two kinds: — according as they have been executed from a free hand draught, or mostly mechanically produced. To the latter class belong fillets and mouldings (pl. III. fig. 4 *a. b. c.*, pl. V. fig. 11. 12); circles (pl. IV. fig. 5. pl. VI. fig. 11—14. pl. VIII. fig. 2—4); and squares, which must have been wrought with the assistance of plane, compasses or rule. Greater interest is necessarily attached to those embellishments engraven off hand, the simpler forms of which are shown (pl. VII. fig. 3. 8. 9), the more intricate and richer forms in right lines[1]) (pl. IV. fig. 9. 10, pl. V. fig. 13, pl. VI. fig. 9, pl. VII. fig. 12. 13), or curvilinear[2]) (pl. V, fig. 5—9. 15, pl. VI. fig. 6); or interwreathed into elegant knots (pl. VIII. fig. 1 *b*). We likewise find the fret (pl. VII. fig. 16, conf. p. 49) and pellet; this lastnamed either alone (pl. VII. fig. 17), or combined with rightlined mat-work (pl. VIII. fig. 1 *a*) or interlaced ribbons (pl. IX. fig. 10). The ornaments, shown pl. IX. fig. 1. 2, are more unique, although we are by these slightly reminded of a specimen found at Voll in Overhalven (Annual Report 1879, fig. 44). A much more remarkable and luxuriant embellishment is exhibited where the before named matwork and the pellet are connected with boldly drawn animal heads (pl. VI. fig. 1. 2, pl. XI. fig. 2—5) and with a partial application of colour. Still of all the relics the most remarkable is the tiller (pl. XI. fig. 1), not by its execution alone, but by its ornaments and the artistic sense of form there shown in connexion with great moderation in the use of ornaments, and a good feeling for its appliance on the right points. As to the the colour employed and its fatty substance, the kind explanation of Professor T. Hiortdahl, to whom

[2]) Jfr. Aarsber. 1878, fig. 29; MONTELIUS, l. cit. no. 651 *b*.

afgjøres paa grund af sagernes lange henliggen i jorden. Dog tør det i sig selv være sandsynligt nok, at man som bindemiddel ogsaa her (jfr. s. 25) har benyttet tran. Med hensyn endelig til stilen i forsiringerne med deres fletverk, baandslyngninger, knuder og sløifer, som tildels træffes ogsaa paa metalsagerne (jfr. s 48 *y—ö*, 49 *cc*, *ee—gg*), da kunne vi her vistnok faa nye støtter for den forlængst udtalte mening, at der paa dette felt har fundet en stærk indvirkning sted fra den irske kunstmaade. Denne havde som bekjendt i miniaturtegningen og den dermed forbundne ornamentik i sin tid naaet en større udvikling end noget andet sted i Europa. Det var derfor intet under, at der fra Irland udgik en stor paavirkning til andre lande, om end, ligesom ellers, ad mange, for eftertiden skjulte veje. Dog gjelder det sidste mindre for Norge, som fra vikingetogenes begyndelse eller fra slutningen af det 8de hundredaar kom i nøje forbindelse med landene mod vest.

Som afslutning paa denne redegjørelse for udgravningen og dens udbytte kan endnu tilføjes nogle bemerkninger om, hvorledes og naar begravelsen antagelig foregik, og om den begravne person.

Tage vi saaledes hensyn til de ovenberørte stedlige og andre omstændigheder og til den gamle skik, tør det ligge nærmest at tænke sig den hele begravelse foregaaet paa følgende maade. Efterat manden var død, blev stedet for den vordende haug valgt, hvorved man særlig havde for øje, at haugen kom i nærheden af søen, frembød fri udsigt til denne og viste sig tydelig for alle, som færdedes der forbi. Det kan saaledes antages (jfr. s. 1), at søen tilforn gik meget længer op end nu, ligeledes at sletten da, som nu, var skovbar, og at der mellem Sandefjorden og Lahellebugten allerede dengang var et slags vej, men kun for fodgjængere, ryttere og dem, som kjørte i slæde, da man i den tid ikke kjendte vogne eller hjulredskaber. Efterat madjorden paa den valgte plads var borttagen i saadan udstrækning, som krævedes, blev skibet af den dødes heste trukket op fra Midtfjorden eller det derværende nøst, nedgravet i blaaleren, med forstavnen mod søen, og afstøttet, som vi have seet (s. 5), med stokke til begge sider. Derefter opførtes gravkammeret

I referred these points, indicates that they are rendered inascertainable by the lengthened period during which our relics have been buried in the earth. Yet it may well be deemed in itself probable, that here also (conf. pag. 25) that substance has been fish-oil. And lastly touching the style of the ornaments with their mat-work, frets, interlaced ribbons, knots and bows, be it observed, that these are in design partly identical with such as occur in the relics in metal (conf. p. 48 *y—ö*, 49 *cc*, *ee—gg*). We may here no doubt get fresh support for the opinion long time ago advanced, that in this field a strong influence specially from Irish art is manifest. For during its flourishing period that land is known to have in miniature-painting and its style of ornament attained a higher state of development than any other portion of Europe. No wonder therefore that thence there should radiate a mighty influence to other regions, though as in instances elsewhere the means and modes thereof be hidden from posterity. This last remark has however less bearing in Norway, which from the commencement of the viking expeditions, at the close of the 8th century, was brought into intimate relations with the western countries.

And now, to conclude this account of the excavation and its issue, a few remarks may be added as to how and when the actual interment presumably took place, as well as concerning the buried personage himself.

Due regard had to local and other incidents and to old custom, it would seem most probable to assume the sepulture to have taken place in the following manner. Immediately after the death of the person concerned, a spot for the future tumulus was selected, with special reference to its proximity to the sea, of which there should be a free view, and so that all passers by might see it distinctly. In the present instance, therefore, the assumption is safe that, at that period, the sea flowed much further inland than at the present day (conf. pag. 1); that the ground was as now woodless, and that between Sandefjord and the Bay of Lahelle a way of some kind existed, but that, a road exclusively for foot passengers, horsemen or drivers in sledges, since waggons, or indeed any kind of wheeled vehicles, were unknown. After removal of the mould from the place chosen to the requisite extent for the purpose, the ship was drawn, from the Midtfjord or from its specific shed, to that spot, by the horses of the deceased, and there lowered, with its stem set seaward, into an excavation in the blue clay, and stayed on each side, as we have seen (pag. 5), by struts or shores. The

af det fremkjørte tømmer, som tilhuggedes paa stedet, hvad der maa kunne sluttes af den mængde flis og smaa træstykker, som fandtes. Saasnart kammeret var færdigt, blev manden, i sin bedste dragt og omgjordet med vaaben, kjørt paa den fundne slæde af sine heste til stedet og gjennem en midlertidig levnet aabning i kammeret indlagt paa en seng i dette, som derefter lukkedes og blev dækket med næver. Dernæst blev de øvrige gjenstande, som havde tilhørt manden, nedlagt i skibets andre rum, men først efterat mange, deriblandt slæden, vare revne i stykker; af dyr fik dog kun paafuglen, maaske som hans yndling og til tegn paa hans udenlandstog, en plads i skibet. Hans øvrige dyr, heste og hunde, bleve derimod, efterat være dræbte, henlagte tæt ved skibets begge sider, og hele fartøjet, undtagen kammeret, fyldt med blaaler, som ovenpaa fik et lag af mose*) og hasselgrene. Til slutning kastedes haugen op over det hele.

Hertil kan endnu føjes et par bemerkninger vedkommende begravelsen. Det kunde saaledes af de foran (s. 52) omtalte jernbeslag paa hestenes hover vise sig, at begravelsen er foregaaet om vinteren, skjønt der neppe tør lægges synderlig vegt derpaa. Med større grund kan det vistnok formodes, at indlæggelsen i skibet af den oven (s. 41, 43) nævnte træflis har havt en bestemt hensigt. Dog kunde man derved selvfølgelig ikke, saaledes som ved blaaleren, have tænkt paa at bevare fartøjet og

*) Da beskaffenheden af denne kan have interesse for botanikere, hidsættes hvad hr. læge og kgl. fuldmægtig Fr. Kiær har havt den godhed at meddele mig, efterat han har undersøgt en større mængde af de fundne moser. »Lerklumperne, hvori de forekom, bleve udblødte og udvaskede, hvorpaa jeg undersøgte de rensede moser. Der fandtes kun 2 arter, nemlig: *Climacium dendroides Web. & Mohr*, *Hylocomium squarrosum Br. Eur.*, begge uden frugt; den førstnævnte sparsomt, den sidstnævnte i stor mængde. Professor Lindberg i Helsingfors har ogsaa undersøgt nogle af mig sendte exemplarer af disse 2 moser og er kommen til samme resultat som jeg. Begge disse arter forekomme ogsaa nu for tiden hyppig i Norge paa fugtige steder; især har jeg fundet dem paa uopdyrkede enge. Begge arter havde antaget en mørkere, brunere farve, end de nu have i frisk tilstand, men ellers vare de taalelig godt konserverede, saa at man under mikroskopet kunde se de fine cellevægge vel vedligeholdte, ligesom bladenes form var karakteristisk for arterne.»

sepulchral chamber was then erected of the timber driven thither, and, as is manifest from the chips and small pieces of wood discovered, there also hewn. When the chamber was fully prepared, the corpse of its intended tenant arrayed in its state-attire, and begirt with its arms was drawn, in the sledge discovered, to the ground, introduced to the chamber through an opening temporarily left for that end, and laid on its couch therein. The opening was then permanently closed, flakes of birch-bark were placed against it, and, finally, the other articles, which had all belonged to the deceased, were laid in the remaining unoccupied space of the vessel, but not until many of them and specially the sledge had been broken up. Of the animals only the peacock, probably a favourite of the deceased and as a memento of his foreign expeditions, was placed within the vessel. The rest of his animals, horses and dogs, were also slain but their bodies laid close on each side of the ship, and its entire hold, — the sepulchral chamber alone excepted, — filled up with the blueclay, whose surface was, in its turn, covered with a layer of moss*) and hazelbranches, the tumulus piled up over all, and there was the end.

Two remarks may still be added concerning the sepulture. From the before mentioned (conf. pag. 52) character of the iron shoes of the horses, it might be inferred, that this burial took place in the winter season, but on this point scarcely any particular stress can be laid. It might, however, on sure grounds be presumed that the chips, and other wood-offal found (conf. pag. 41, 43), were not laid there without some definite intention. But, as a matter of course, the intention could not, as in the instance of the blue clay, have been the preservation of the vessel's fabric itself, and of the

*) Since a description of these mosses may be interesting to botanists, that, obligingly communicated by the Physician and Royal «Fuldmægtig» M. Fr. Kiær, after examination of a considerable quantity, is here submitted. «After the clay clods in which these mosses were embedded had been moistened and thoroughly washed, I thereupon proceeded to examine the cleansed plants themselves. And they were found to consist of but two species; viz: *Climacium dendroides Web. & Mohr* and *Hylocomium squarrosum Br. Eur.*; both without fruit. The firstnamed was found in sparse, the latter in tolerably large proportion. Professor Lindberg, of Helsingfors, has also examined some specimens of these mosses forwarded to him by myself, and has arrived at the same result. Both species occur frequently in Norway at the present day on swampy ground, and particularly on uncultivated grassland. Both had acquired a darker and browner hue than that of their fresh condition, but were, otherwise in good preservation, so much so indeed that, when placed under the microscope, one could see the fine partitions of the cells well preserved, and the form of the leaves was also characteristic for the species.»

de nedlagte sager, da saadant vilde være meningsløst. Antages det derimod, som nys nævnt, at det omhandlede træaffald efter al rimelighed hidrører fra tilhugningen paa stedet af gravkammerets tømmer, synes den formodning ikke fjern, at man vilde lade alt, hvad der var fremkommet ved indretningen af kammeret, følge skibet.

Naar vi endelig skulle bestemme tiden for begravelsen og udtale nogen mening om den begravne person, da vidner stilen i de fundne sager, som allerede paa flere steder ovenfor anført, sikkert om, at de tilhøre den yngre jernalder eller det tidsrum, der begyndte omtrent ved aar 700 efter Kristus og sluttede noget senere end aaret 1000. Men da stilen her allerede viser sig fuldt udviklet og, som bemerket, antages stærkt paavirket af den irske ornamentik, kan de fundne sagers alder neppe sættes længer op end til det niende hundredaar. Paa den anden side synes det ikke rimeligt, at en begravelse i skib og dertil i forbindelse med en saa storartet ofring af husdyr, som vi her have truffet, kan være foregaaet saa langt ned i tiden som henimod aaret 1000. Der tages saaledes vistnok neppe synderlig fejl ved at sætte mandens død til omkring 900 efter Kristus. Hvem han var, kan derimod ikke bestemmes. Kun saameget tør temmelig sikkert antages, at han ej var nogen kongelig person. Om alle dem, der nævnes som konger over Vestfold i den her omhandlede tid, og næsten ogsaa om alle de nærmest foregaaende konger fortælles nemlig i sagaerne, hvor de bleve begravne, og dette var ikke i Sandehered, men som oftest paa Borre og kun et par gange i Skiringssal eller det nuværende Thjødling prestegjeld. Blandt de sidste var kong Olaf, der døde omtrent 840 af «fodverk» (*fótarverkr*, podagra?) paa sin gaard Geirstad (nu Gjerstad), og hvis derværende grav i 995 blev opbrudt og plyndret for vaaben og andre kostbarheder[1]). I to henseender viser der sig saaledes ved et snurrigt træf en lighed mellem ham og Gokstadskibets ejer; thi ogsaa dennes grav blev, som vi have seet, plyndret — rimeligvis mens der endnu gik sagn om, at man med ham havde nedlagt et eller andet, mulig berømt vaaben —, og ligeledes bliver det, efter hvad professor Heiberg har oplyst i anhanget, sandsynligt nok, at ogsaa han døde som en verkbruden mand. Forresten

objects deposited therein; for such an assumption would be altogether absurd. On the other hand were the fact assumed, as recently stated, that this waste-wood fell, on the spot, from the preparation of the timbers used in erecting the sepulchral chamber, the further assumption is by no means far fetched, that the intention was to let all that fell, during the construction of the chamber, accompany the vessel.

Should we, finally, seek to define the period of this sepulture, and venture any conjectures as to the person interred, then the style of the unearthed relics renders certain, as already noted, their assignment to the later iron age, or to that period which commenced about A. D. 700, and closed shortly after A. D. 1000. Here, however, since the style adopted indicates a period of full development, and, as previously remarked, infers a powerful influence received from the decorative art of Ireland, the date of these relics can scarcely be placed earlier than the ninth century. On the other hand it may hardly be deemed probable, that a ship-burial, a burial attended too with so large a sacrifice of domestic animals as that which, in this instance, occurred, can have taken place so late as A. D. 1000. Assuredly, then, there can scarcely be any essential error in setting the decease of the personage here buried at about A. D. 900. Who or what was that personage cannot now be decided. Consistently with rational probability only so much may be negatively said: — that he ranked not with royalty. For of the burialplace of all the kings of Vestfold within that term whereof we treat, as well as of almost all their nearest predecessors, the saga record is unbroken; and that place was not Sandehered, but oftenest Borre and, that in but two instances, Skiringssal or the present parish of Thjødling. Of these one instance is that of King Olaf, who resided at Geirstad, (now Gjerstad), and died of gout (?*fótarverkr*) about A. D. 840; his grave there was broken open A. D. 995, and its weapons, as well as other treasures, pillaged[1]). In two respects there is by a strange coincidence a similarity between him and the owner of the Gokstad ship; inasmuch, as we have seen, the sepulchre of this latter too was violated and plundered — and that in all likelihood at a period so early after the interment, that stories were circulated to the effect that with him some famous weapon was interred — and, according to what Professor Heiberg has shown in the appendix, it is also probable, that he too died a paralytic.

[1]) MUNCH, det norske Folks Hist. I *a* p. 398, *b* p. 494.

kan det kun siges om ham, at han efter al rimelighed maa have været en mægtig høvding. Da det derhos synes lidet tænkeligt, at han blev begraven paa en anden mands ejendom, maa han selv have ejet Gokstad og rimeligvis med det store omfang, som gaarden havde, før nogen deling (jfr. s. 2) var indtraadt.

Det er ikke usandsynligt, at der paa flere steder i landet endnu kan ligge nogenlunde bevarede skibe i gravhauger nær kysten, dog alene hvor bunden er blaaler. Men der vil neppe findes noget større og bedre udstyret fartøj end det her beskrevne, ihvorvel det nok var muligt, at der kunde komme for dagen et skib, som paa grund af en usedvanlig omhyggelig bevarelse vilde give oplysning om, hvad der savnes ved Gokstadskibet, og navnlig vise højden af stavnene og beskaffenheden af rorbænkene. Sikkert er det, at vi ej ville faa frem af jorden noget fartøj, som fra formens og arbeidets side overgaar Gokstadskibet, da dette efter sagkyndiges dom tør ansees for et mesterverk i sit slags, som intet værft i vor tid vilde kunne levere bedre. Vel gjør fartøjet efter vor forestilling mere indtryk af en stor baad end af et skib, men alligevel viser der sig i dets smukke, hensigtsmæssige forhold og udmerkede løb en fuldkommenhed, som efter en meget senere, men lang tids kluntede former først i vort hundredaar igjen er naaet ved klipperbygningen.

For the rest only so much can be said of him that he must have been a mighty chieftain. Further that he was buried on other than the land owned during life by himself, is highly improbable, and it may therefore be assumed that he owned as an undivided estate all the farms, now included under the designation Gokstad (conf. pag. 2).

That there may yet be found in many parts of our country, near its seacoast, tumuli containing ships in tolerable preservation, is by no means improbable; though this can only occur when the underground is blue clay; but any larger or better appointed vessel than that herein described, can scarcely be found. Still, it is not impossible that one may yet be brought to light, whose exceptionally careful conservation will enable us to elucidate that which in the Gokstad-ship is still awanting, and specially show the height of the posts and the form and fixing of the oarsmen's benches in our ancient vessels. Certain, nevertheless, it is that we shall not disinter any craft which, in respect of model and workmanship, will outrival that of Gokstad. For, in the opinion of experts, this must be deemed a masterpiece of its kind, not to be surpassed by aught which the shipbuilding craft of the present age could produce. Doubtless, in the ratio of our present ideas, this is rather a boat than a ship; nevertheless, in its symmetrical proportions, and the eminent beauty of its lines, is exhibited a perfection, never since attained, until, after a much later but long and dreary period of clumsy unshapeliness, it was once more revived in the clipper-built craft of our own century.

IV. APPENDIX.

BESKRIVELSE OVER DE I GOKSTADSKIBET FUNDNE MENNESKEBEN.

AF

DR. JACOB HEIBERG,

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De oversendte ben og benstykker ere 9 i tallet og tilhører 7 forskellige ben, hvoraf 1 stykke af basis cranii sammenhängende, 3 løse stykker af et venstre skulderblad med indbyrdes til hinanden svarende brudflader, 1 overarmsben, 1 venstre lårben, 1 højre lårben, 1 venstre skinneben, 1 venstre läggeben.

Samtlige ben ere befriede for organisk substans, forholdvis lette, grå af farve, hist og her kläber der lere ved, hvilken let lader sig fjerne ved vask.

På overfladen af benene, såvel på de såkaldte frie anatomiske flader som også inde imellem de fine benbjelker af spongiosa sees en kridtlignende blålig substans. Ved ganske smaa friske brud af benene kan et lignende farvestof bringes for dagen, hvilket stof sees at ligge inde i de nyåbnede hulrum af bensubstansen, ofte på frie, fuldständigt isolerede, steder, uden at stå i forbindelse med farven paa overfladen. Ved undersøgelsen af skibet findes, især henimod midtrummet, på naglerne et lignende farvet stof, hvilket tillige gjenfindes på friske brud af trävärket, midt inde i selve vedens substans. Alene ved at undersøge benene kunde man derfor fristes til at tänke på karinjektion af et farvet stof, måske endog balsamering; men iagttagelsen af et lignende stof inde i selve träet af skibet udelukker muligheden heraf. Jeg betragter indträngningen af farvestoffet som en geologisk proces.

1. *Basis cranii* (pl. XII. fig. 5) består af:

a. et nästen helt bevaret *højre tindingben*, på hvilket kun mangler enkelte spidser som af proc. zygomaticus og proc. styloideus. Margo parietalis af squama er skarp og hel, sutura spheno-temporalis at forfølge på hele dens ydre flade, på den cerebrale flade er suturen mindre stärkt fremträdende. Sutura parieto-mastoidea udvendig tydelig, indvendig utydelig, su-

THE HUMAN BONES FOUND IN THE GOKSTAD-SHIP.

DESCRIBED BY

DR. JACOB HEIBERG,

PROFESSOR OF ANATOMY AT THE UNIVERSITY OF GHRISTIANIA.

The bones and pieces of bones sent to me, are 9 in number and belong to 7 different bones, out of which 1 piece of the base of the skull coherent, 3 loose pieces of a left shoulder blade (scapula) with fragments mutually corresponding with each other, 1 humerus, 1 left thigh bone (femur), 1 right thigh bone (femur), 1 left tibia, 1 left fibula.

All bones are free from organic substances, are proportionally light, grey of colour. Here and there some clay adheres that easily may be removed.

On the surface of the bones as well on the free anatomical planes as also inside between the fine bony walls of the spongiosa, a bluish substance resembling chalk is seen. Under a slight, fresh fracture of the bones, a similar blue coloured matter may be observed. This matter is seen to lie inside in the freshly opened hollows of the bony substance, even on fully isolated free places, not at all connected with the colour on the surface. When examining the ship we also on the nails more particularly about midships find a similar coloured stuff, that also may be seen on recent fractures of the wood in the very heart of the latter. By only examining the ship one might feel inclined to guess at the injection of a coloured stuff, perhaps even of embalming, but a similar stuff having been observed in the very heart of the wood of the ship, the possibility of any such thing is excluded. I consider the penetration of coloured stuff as produced by some geological process. .

1. *Basis cranii* (pl. XII. fig. 5), consists of fragments of three connected bones:

a. almost a wholly preserved *temporal bone*, of which but single prominences as of the Zygoma and of the Styloid process are wanting. The parietal margin of the squamous portion is sharp and entire. The spheno-temporal suture may be traced along the entire exterior surface; on the cerebral surface the suture does not show itself so strongly. The masto

tura occipito-mastoidea omtrent forsvunden. Sutura spheno-temporalis udvendig tydelig, indvendig ikke til at se. Processus mastoideus 1 1/2 cm. høj, stärk og kraftig; cavitas glenoidea dyb og bred, på insertionslinjen af ledkapselen på tuberculum articulare en noget opdrevet kam.

b. Af *kilebenet* haves corpus med dens bagre flade fuldständigen sammensmeltet med pars basilaris af baghovedbenet, en kunstig åbning gjort paa clivus bringer ingen skilleväg for dagen. Procc. clinoidei afbrukne. Den største del af højre ala magna og kun en liden del af den venstre findes. Begge processus pterygoidei afbrukne paa midten. Alae parvae borte. Fra forsiden sees ind i store sinus sphenoidei, hvilke kryber helt ind under cella turcica.

c. Af *baghovedbenet* er en stor del af venstre squama, en mindre del af højre afbrukket, ligeså lidt af venstre massa lat. dis. Foramen magnum 36 mm. langt, 31 mm. bredt. Ledfladerne vel udviklede, omkring dem sees en voldformig opdrivning af bensubstans, svarende til ledkapselens insertion.

2. Af *venstre skulderblad* (pl. XII. fig. 4) sees tre løse dele, hvoraf den ste[illegible]er den udvendige rand, ledhulen, acromic[illegible] proc. coracoideus. Muskeludspring stärkt fremträdei[illegible]. Langs med randen af ledhulen en voldformig fremstäenhed af bensubstans; lignende mere uregelmæssige excrescenser sees på overfladen af acromion, paa spina scapulae og på proc. coracoideus.

3. Det *højre overarmsben* (pl. XII. fig. 3) er 0.360 m. langt, stärkt bygget med fremträdende udväxter, svarende til udspring og insertion af muskler og bånd; benet i sin helhed särdeles vel bevaret. På tuberculum minus og majus samt på tuberositas deltoidea vorteformede udväxter af bensubstans.

4. Det *venstre lårben* (pl. XII. fig. 1) 0.500 m. langt, kraftigt, vel bevaret med undtagelse af troch. major og dele af condylerne, hvor den spongiøse substans er blottet; paa trochanter major og minor samme benudväxter som på overarmsbenet.

På linea aspera antager disse end større dimensioner, idet de välter sig frem som en fri, bugtet kam, opad med retning bagtil, längere ned med retningen indad. Langsmed insertionen af knäleddets kapsel paa lårbenet sees paa de steder, hvor benet er helt, bensubstansen fremdrevet i en tyk, läbeformig fra 0.5 til 1.0 cm. bred rand.

5. Det *højre lårben*, 0.503 m. langt, af styrke og udseende ligt det venstre, nästen fuldständigen bevaret; her sees de samme udväxter af benvävet, stärkere fremträdende på linea aspera, betydeligt mindre langs insertionen såvel af hofteleddets som af knäleddets kapsel.

6. Det *venstre skinneben* (tibia) (pl. XII. fig. 2) 0.413 m. langt, kraftigt, forresten af udseende som lårbenene, nästen helt bevaret. Langs linea poplitea samt ved mallel. internus mindre fremträdende, benede ud-

parietal suture is on the outside plane; on the inside indistinct. The masto-occipital surface almost disappearing, the temporo-sphenoid suture outside obvious inside invisible. The mastoid process 1 1/2 cm. high, strong and powerful; the glenoid cavity deep and broad; on the line of attachment of the capsule upon the eminentia articularis is to be seen a somewhat protruding ridge.

b. Of the *sphenoid bone* the main body is seem with its hind surface wholly united to the basilar process of the occipital bone; an artificial opening made on the basilar groove shows no partition wall. The clenoid process broken. The greater part is found of the right greater wing; of the left only a lesser part. Both pterygoid processes broken in the middle; the lesser wings missing. From the front you may look into great sphenoidal sinus which extends quite under the dorsum ephippii.

c. Of the *occipital bone* a great deal of the left squamous portion is lost, a lesser part of the right broken off. Also a little of the left lateral portion is wanting. Foramen magnum 36 mm. long, 31 mm. wide. The articular surfaces well developed, about them is seen a mound-like protrusion of bony substance corresponding to the attachment of the joint capsule.

2. Of the left *shoulder-blade* (pl. XII. fig. 4) three loose parts are seen, of which the greatest contains the axillary border, the glenoid cavity, the acromion and the coracoid process. A distinct prominence indicating the origin of the muscles is to be seen. Along the border of the socket is a moundlike protrusion of bony substance; similar though more irregular excrescences are seen on the surface of the acromion, on the spines of the scapula and on the coracoid process.

3. The *right humerus* (pl. XII, fig. 3), 0.360 m. long, is strongly built with prominent excrescences, indicating the origin and the insertion of muscles and ligaments; the whole bone is extremely well preserved. On the greater and lesser tuberosity and on the deltoid ridge wartlike excrescences of a bony substance.

4. The *left thighbone* (pl. XII. fig. 1), 0.500 m. long, is powerful, well preserved excepting the trochanter-major and parts of the condyles where the spongy substance is bare. On the trochanter-major and minor the same bony excrescences are found as on the humerus.

On the linea aspera the latter have still greater dimensions, they seem rolling forward like a free undulating ridge, upwards in a backward direction, further down in an inward direction. Along the attachment of the capsula of the knee-joint of the thighbone, on the places where the bone is entire, is seen the bony substance projecting in a thick labial-formed ridge, from 0.5 up to 1.0 cm. wide.

5. The *right thigh-bone* 0.503 m. long, of strength and appearance like the right almost wholly preserved. Here the same excrescences of bone are seen, more strongly protruding on the linea aspera, a great deal less prominent along the attachment of the capsule belonging as well to the hip as to the knee joint.

6. The *left tibia* (pl. XII. fig. 2) 0.413 m. long, presents the same appearance as the thigh-bones, almost wholly preserved. Along the oblique line as well as along the internal malleolus, lie protruding bony excres-

växter, langs kapselinsertionen derimod tykke, afrundede voldformede lignende, hvilke på brudfladen viser samme bygning som spongiøs substans. Tuberositas tibiae stärkt fremträdende.

7. Af *läggebenet* (fibula) mangler den nederste ende. Benet tykt, särdeles kraftigt, viser samme stärke muskellinjer og benede udväxter på caput som lår- og skinneben.

Konklusion.

De beskrevne ben har alle tilhørt et menneske; antallet af benene taler ikke imod, medens de fälles egenskaber, benenes styrke, de fremträdende muskelinsertioner og de (sygelige) benede udväxter, hvilke findes på samtlige ben, taler stärkt for, at de har tilhørt et og samme individ.

Styrken af proc. mastoideus og øvrige muskelinsertioner taler med sikkerhed for, at individet har väret en mand, de fuldständigt manglende epifyser for, at han har väret voxen, og sammenlodningen af suturerne og af baghovedbenet med sphenoideum såvelsom størrelsen af sinus sphenoidei og af marvhulerne for, at han har passeret 50årsalderen; men han kan også have väret äldre. Längden og tykkelsen af samtlige ben lader slutte, at manden har väret särdeles kraftigt bygget. Lägges Hoffmanns[1]) udmålingstabeller over et antal mänd og et større antal løse skeletdele til grund, i hvilken meddelelse längden af en mand sättes til 1.678 meter, så erholdes følgende 3 ligninger:

	Det enkelte ben. (The single bones.)			Legemets længde. (The length of the body)
Humerus . .	0.360 : x	=	0.312 : 1.678	= 1.936
Femur . .	0 500 : x	=	0 419 : 1.678	= 2.002
Tibia . .	0.413 : x	=	0.396 : 1.678	= 1.750

Middeltal (the medium) = 72½ norske tommer = 1.896
Meter = 6 feet 3″ English.

Heraf er man berettiget til at slutte, at manden har väret särdeles højvoxen eller over 6 norske fod.

Også angående andre forhold giver disse få ben oplysning. Langs randen af samtlige ledflader af de forefundne ben svarende til ledkapslernes insertioner finder vi spor af abnormt sygelig bendannelse i enkelte i meget høj grad, i andre i ringere. Dette må betragtes som rester efter kronisk leddegigt (arthritis deformans). Sygdommen har väret stärkest i venstre knäled, hvor den i høj grad må have besvärliggjort gan-

[1]) Lehrbuch der Anatomie des Menschen. I. B. p. 49.

cences; on the other hand, along the attachment of the capsule, thick, rounded, mound-like which on the edges present the same construction as spongy substance. The tubercle of the tibia strongly protruding.

7. Of the *fibula* the lower end is wanting. The bone is thick, exceedingly powerful, and shows the same strong lines of muscle and bony excrescences on its head as the femur and the tibia.

Conclusion.

All the bones described have belonged to a man; the common qualities, the strength of the bones, the protruding muscle-insertions and the bony excrescences, found on all the bones strongly indicate that they have belonged to one individual, while the number of bones does not contradict such a supposition.

The strength of the mastoid process and of other muscle-insertions prove to a certainty, that the bones have belonged to a male individual, that the epiphyses are entirely wanting, shows that he has been a grown up man; and the close bony conjunction of the sutures and of the sphenoid bone with the sphenoideum, as well as the size of the sinus sphenoidei and of the medullary [illegible]rove, that he has passed the age of 50 [illegible] but that he may have been older. The length a[illegible]he thickness of all the bones lead to the conclusio[illegible] that the man has been very strongly built. If Mr. Hoffmann's measuring tables[1]) of a number of men and of a greater number of loose parts of skeletons in which the length of a man is put down at 1.678 metres be made the basis, we get the following equations:

From this we have the right to conclude, that the man has been very tall or more than 6 feet 3″ English.

Also in other respects these few bones give us some information. Along the borders of all the surfaces of the joints of the bones found, corresponding with the attachments of the capsule of the joints, we have discovered traces of abnormal morbid bony formation, in some of them in a very high degree, in other in a lesser degree. These traces must be considered as having supervened of a chronic rheumatism in the joints (anthritis deformans) and this disease has been strongest in the left knee-joint,

gen, men desforuden har den väret tilstede i käveleddet, baghovedleddet, hele højre skulderled, begge hofteled, højre knäled og venstre fodled, kort i ethvert af de forefundne led, og det ligger derfor när at formode, at også de ikke forefundne led mere eller mindre har väret angrebne. Fremdeles har andre tendinøse dele været angrebne, idet de fleste andre steder, hvor muskler, sener eller bånd fäster sig, viser sig meget opdrevne af sygeligt nydannet bensubstans, og heraf må drages den slutning, at manden har lidt i høj grad af muskelgigt (Rheumatismus chronicus muscularis).

Nogen formodning om hovedets form har väret dolichocephal, brachyocephal &c. &c. vover jeg ikke at udtale, da jeg blot har den fundne rest af baghovedet.

Angående dødsmåden formår jeg heller ikke at uddrage nogen slutning.

Kristiania i maj 1881.

Pl. XII.

Samtlige figurer viser den stärke bygning og de ensformige sygelige forandringer af benene. De fremträdende muskelinsertioner &c. såvelsom den benede nydannelse langs med insertionen af ledkapselen isär tydelig på fig. 1 og fig. 3.

Fig. 1. Venstre lårben i hele sin längde, seet bagfra.
„ 2. Venstre skinneben (tibia), seet forfra.
„ 3. Overarmsbenet (humerus) forfra.
„ 4. Scapula, bagfra.
„ 5. Basis cranii, nedenfra.
„ 6. Ledfladerne af venstre
„ 7. knäled.

where it must have made walking very difficult. It has besides this also existed in the joint of the jaw, in the occipital joints, the whole right shoulder-joint, both the hip-joints, the right knee-joint and the left foot-joint, that is to say in one word, in each of all the joints discovered, and it is therefore easy to suppose, that the joints wanting, have also been more or less affected. Other parts have also been attacked; for most places where muscles, tendons or ligaments are fastened, appear very protuberant from a sickly newly formed bony substance. We may consequently conclude, that the man has been a great sufferer from rheumatism in the muscles (Rheumatismus chronicus muscularis).

As I have nothing to judge from but the discovered remains of the back part of the head, I dare not express any opinion regarding the shape of the skull, whether dolichocephal, or brachyocephal.

Nor do I feel able to draw any conclusion as to the cause of death.

Christiania May 1881.

Pl. XII.

All the figures show the powerful construction and the uniform pathological character of the bones. The prominent muscle-insertion &c. as also the new bony formation along the insertion of the capsule of the joint, are visible particularly on figure 1 and on figure 3.

Fig. 1. The left thighbone in its whole length, seen from behind.
„ 2. The left tibia seen from the front.
„ 3. The humerus, seen from the front.
„ 4. The scapula, seen from behind.
„ 5. The basis cranii, seen from below.
„ 6. The articular surfaces of the left
„ 7. knee-joint.

V.

FORTEGNELSE OVER AFBILDNINGERNE

MED HENVISNING TIL TEXTEN.

A. TRÆSNIT.

S. 48—51. Forskjellige beslag til hestesæler eller belter.

B. LITHOGRAFIER.

Titelvignet med fremstilling af skibet under sejl; mastens og stavnenes højde samt sejlets og fløjens form efter gjetning.

S. 1. Kort over en del af Sandehereds prestegjeld.

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Pl. VIII. **Fig. 1.** Fragment of a play table (p. 46 *f*). — **Fig. 2.** The middle stave with its ear of a wooden bucket (p. 45 *d*). — **Fig. 3, 4.** Wooden Dishes or trenchers (p. 43 *ö*). — **Fig. 5.** Bottom of a flat candlestick (p. 45 *d*). — **Fig. 6.** An implement, use unknown (p. 40 *m*.) — **Fig. 7.** A shield (p. 62). — **Fig. 8, 9.** Wooden pieces, use unknown (p. 43 *ö*, 46 *c*). — **Fig. 10, 11, 13, 14.** ditto (p. 43 *ö*) — **Fig. 12.** Wooden needle to bind yarn with (p. 42 *u*). — **Fig. 15.** A wooden implement, use unknown (p. 44 *b*).

Pl. IX. **Fig. 1.** Fragments of a saddle (?) (p. 47 h). — **Fig. 2.** Fragment of a wooden dish (p. 47 *k*). — **Fig. 3, 4, 5.** Fragments of a leathern purse (p. 47 *m*). — **Fig. 6** Piece for play (p. 46 *g*). — **Fig. 7.** Ladle (p. 45 *d*). — **Fig. 8.** Cup (p. 45 *d*). — **Fig.** A wooden axe (43 *ö*). — **Fig. 10—12.** Wooden fragments of uncertain use (p. 40 *n*, 42 *t*).

Pl. X. **Fig. 1.** The ship's cooking copper caldron (43 *æ*). — **Fig. 2.** An iron rod — use uncertain (p. 47 *n*). — **Fig. 3.** An auger (p. 51). — **Fig. 4, 5.** Iron links to hang in the caldron (p. 45 *d*). — **Fig. 6.** A fishing hook (p. 48 *t*). — **Fig. 7.** Handle of a smaller caldron of iron (p. 45 *d*) — **Fig. 8.** Bronze mounting (p. 48 *ö*). — **Fig. 9.** Bronze mounting of a dogcollar (p. 58). — **Fig. 10.** Bronze cheek pieces for a bridle bit (p. 48 *u*). — **Fig. 11, 12.** Slides (or runners) of a strap and buckles of bronze for a belt (p. 49 *ee ff*). — **Fig. 13.** Bronze buckle of a bridle (p. 48 *y*). — **Fig. 14.** Strap mounting of iron (p. 48 *x*). — **Fig. 15.** Mountings of a strap, in lead (p. 51 *mm*). — **Fig. 16—19.** Bronze studs for straps (p. 49 *aa*). — **Fig. 20.** Fragment of an ornament in iron plated with bronze (p. 49 *cc*). — **Fig. 21.** Pendule of a chain in silver (p. 49 *dd*). — **Fig. 22.** Bronze mountings for the ends of a bridle strap (48 *æ*). — **Fig. 23.** Bronze mounting of a strap (p. 49 *bb*). — **Fig. 24.** An iron spiked mounting used for a horse hoof (p. 52). — **Fig. 25.** An iron palstave (p. 51).

Pl. XI. **Fig. 1.** The vessels rudder pin or tiller (p. 44 *c*). — **Fig. 2—5.** Carved heads on the end of the verge-boards for the vessels tent (p. 41 *q*). — **Fig. 6.** Form of the verge-board and their presumed position (41 *q*).

Pl. XII. **Fig. 1—7.** Human bones found in the tumulus (p. 73—76).

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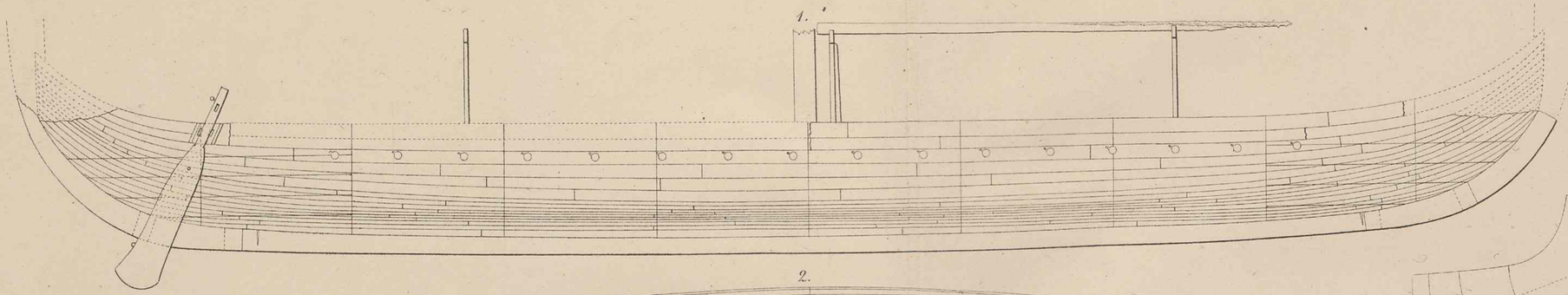
S. 2 l. 21 nedenfra: «Sletten», læs: sletten
- 43 - 16 — «parabolsk» læs: ellipse
- 48 tilføjes under træsnittet: Fig. 1. 1/1.
- 51 l. 12 nedenfra: V læs: IV

ERRATA.

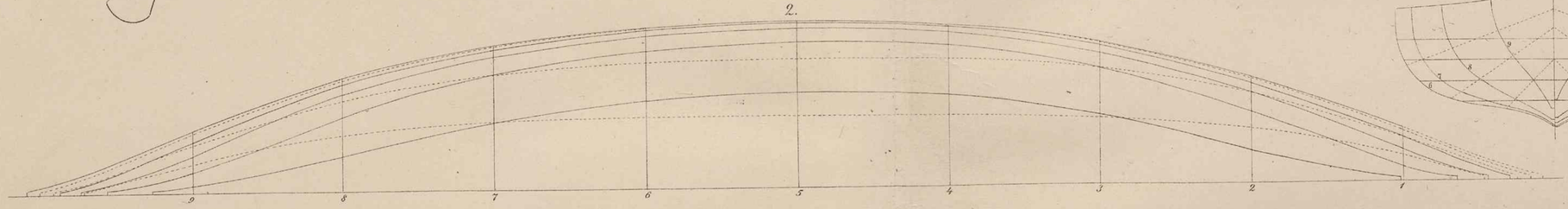
P. 43 l. 16 fr. bel. «parabolic» instead of: elliptic
- 48 Beneath the woodcut is forgotten: Fig. 1. 1/1.
- 51 l. 11 fr. bel. «V» instead of: IV

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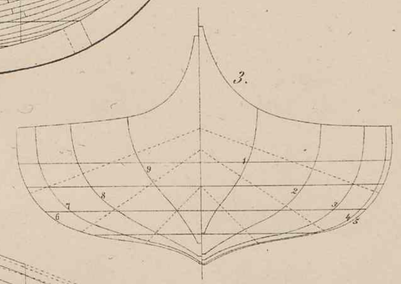
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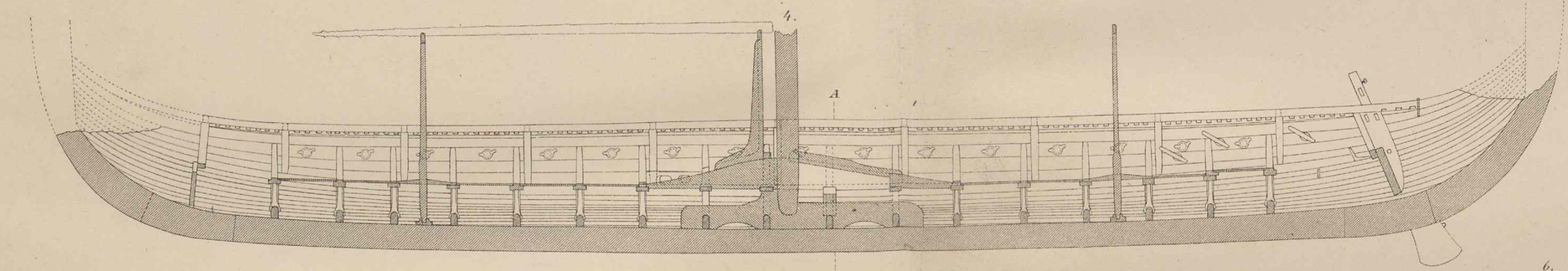
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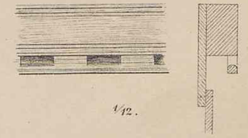
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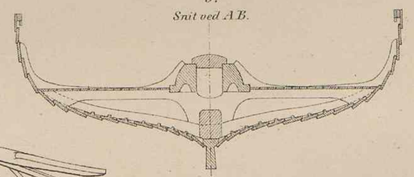


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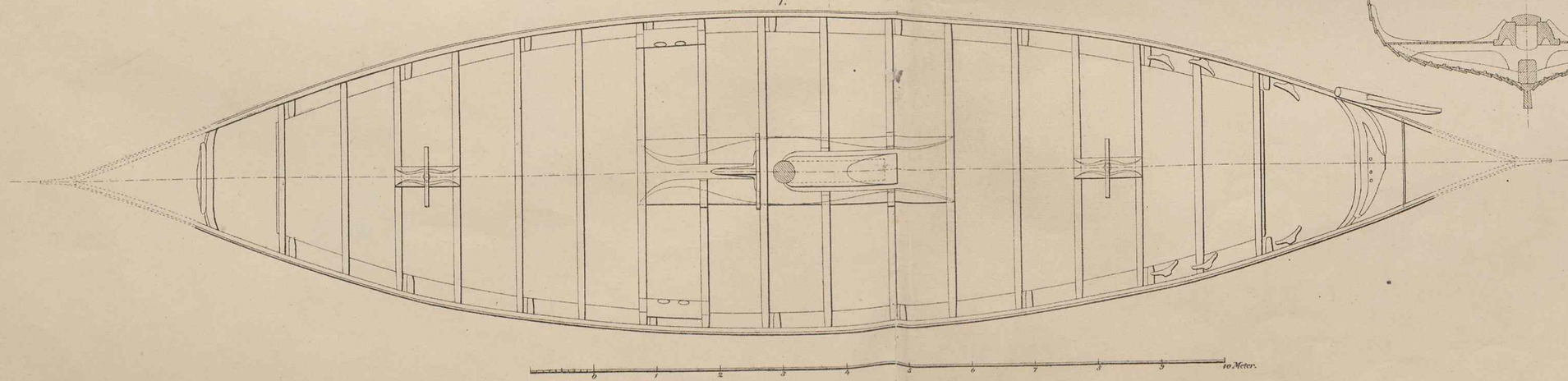


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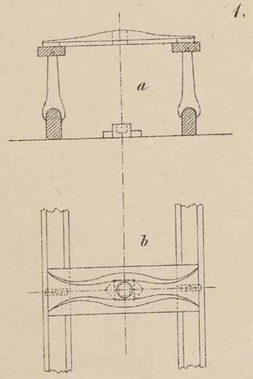
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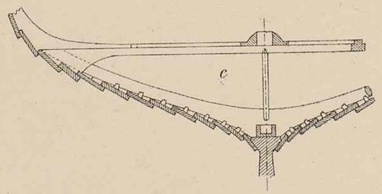
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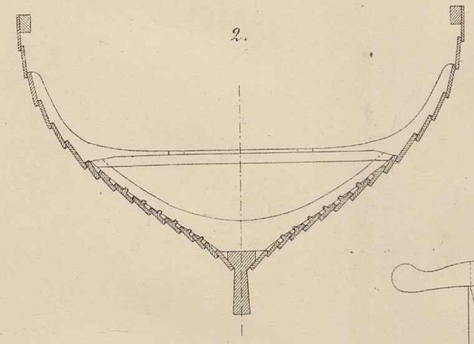
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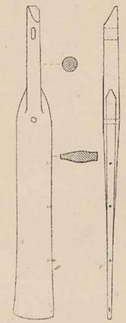




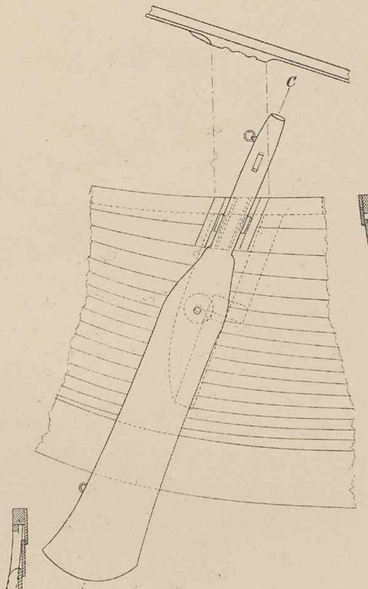
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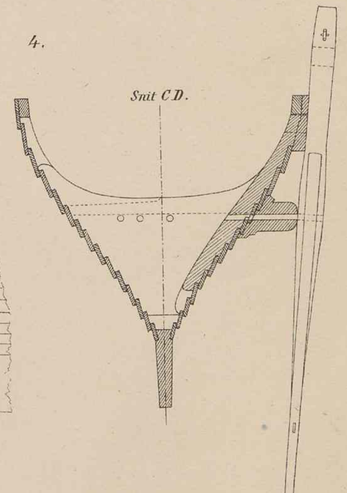
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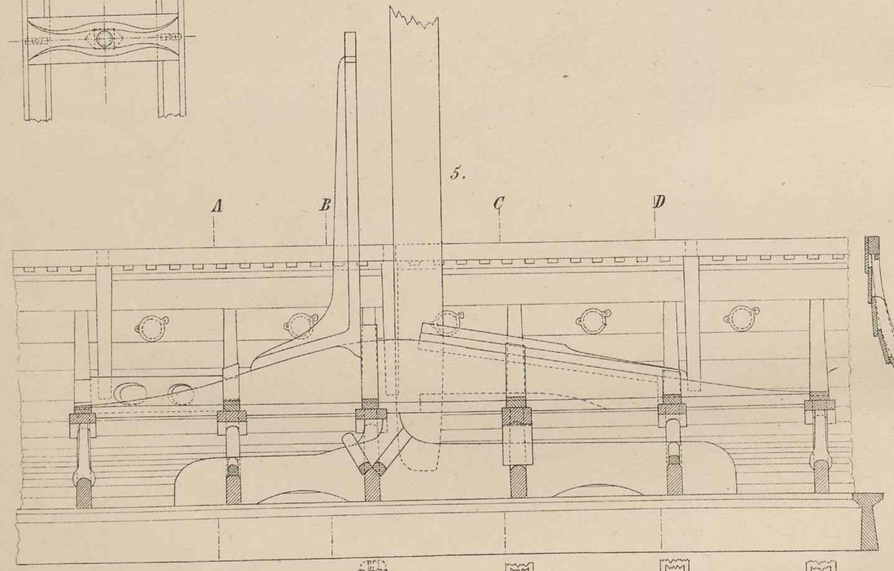
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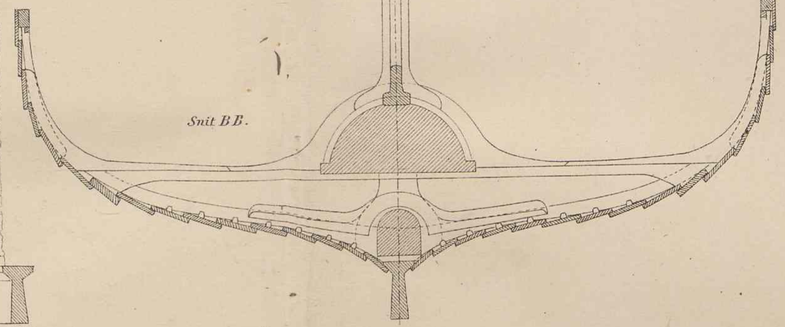
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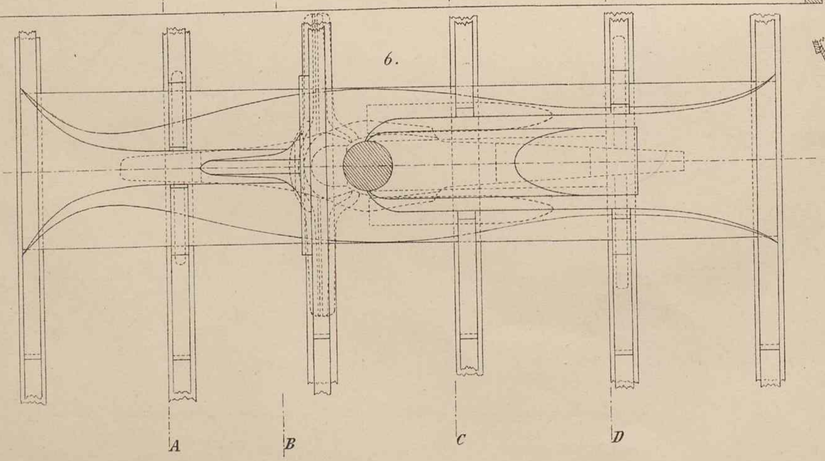


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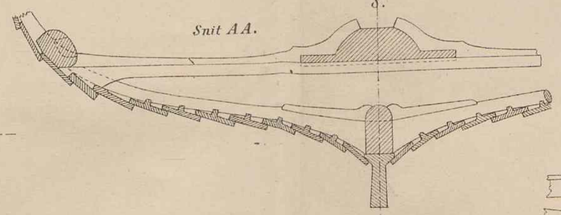
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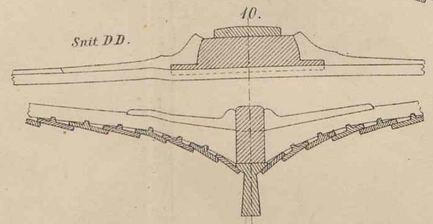
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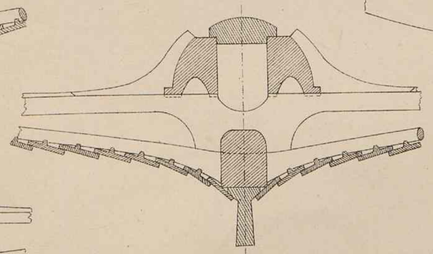
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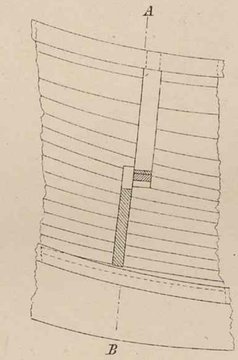


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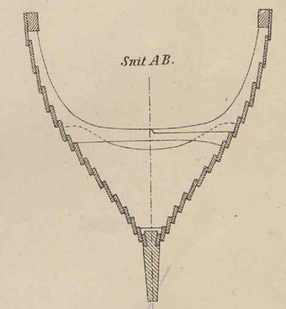
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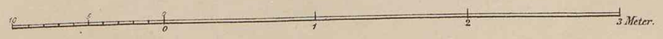


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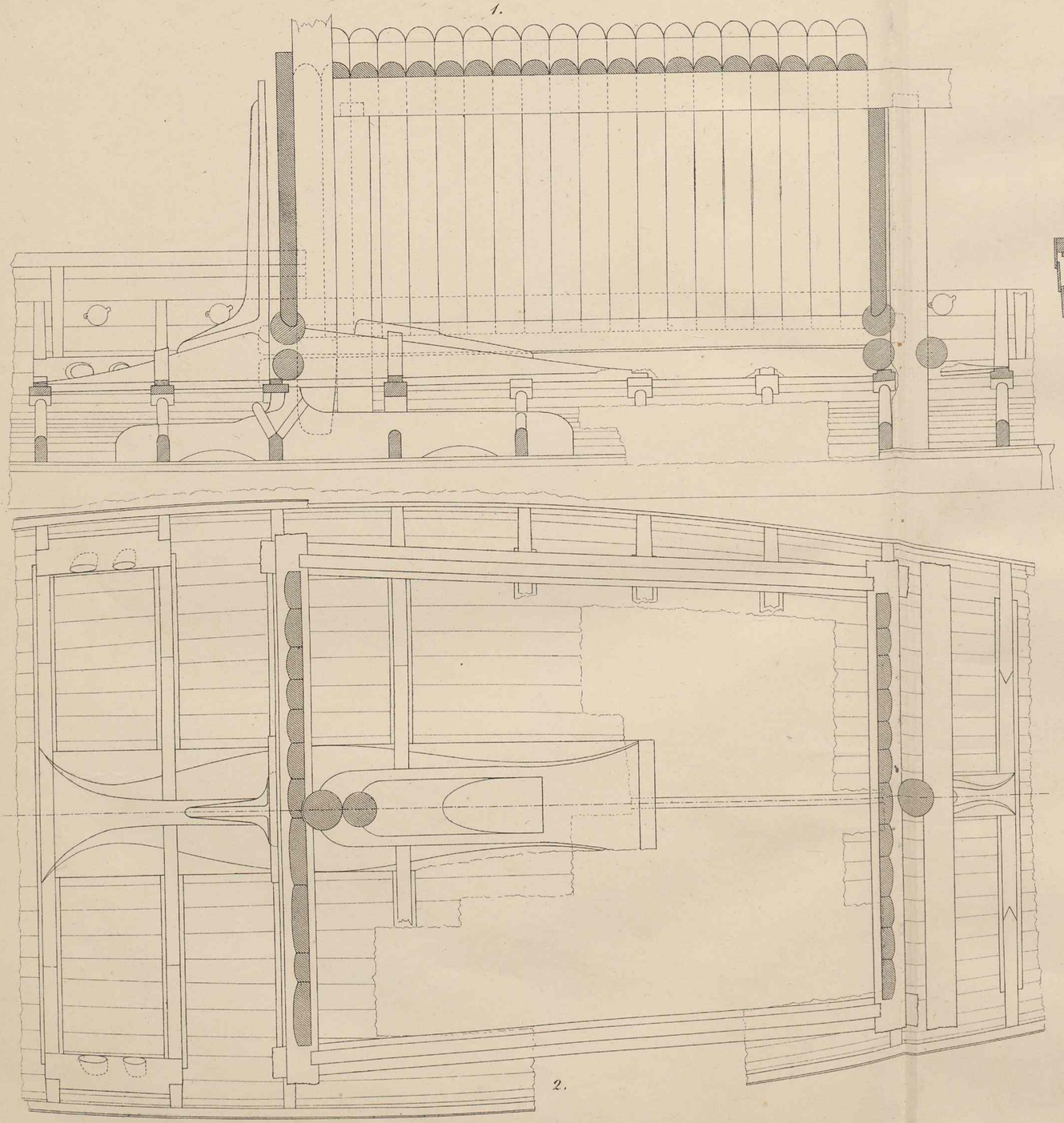
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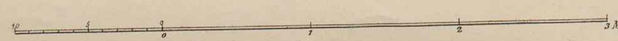
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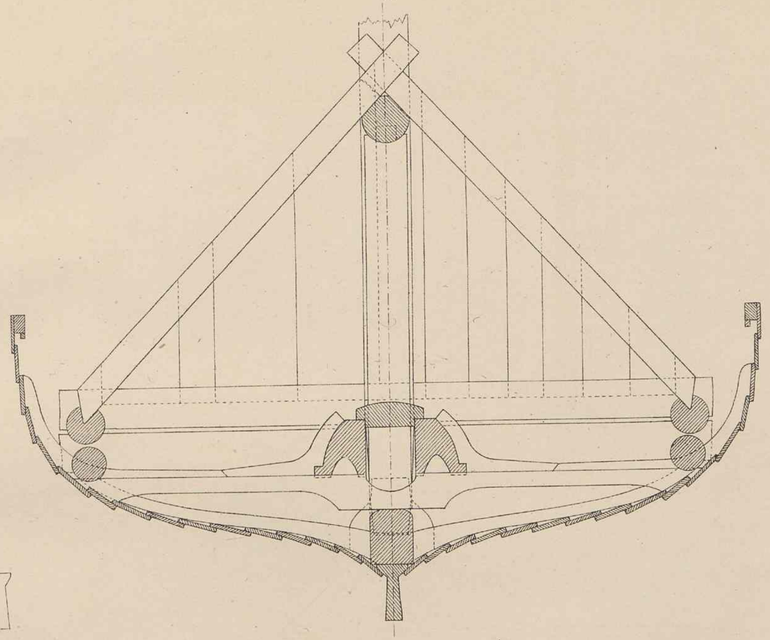
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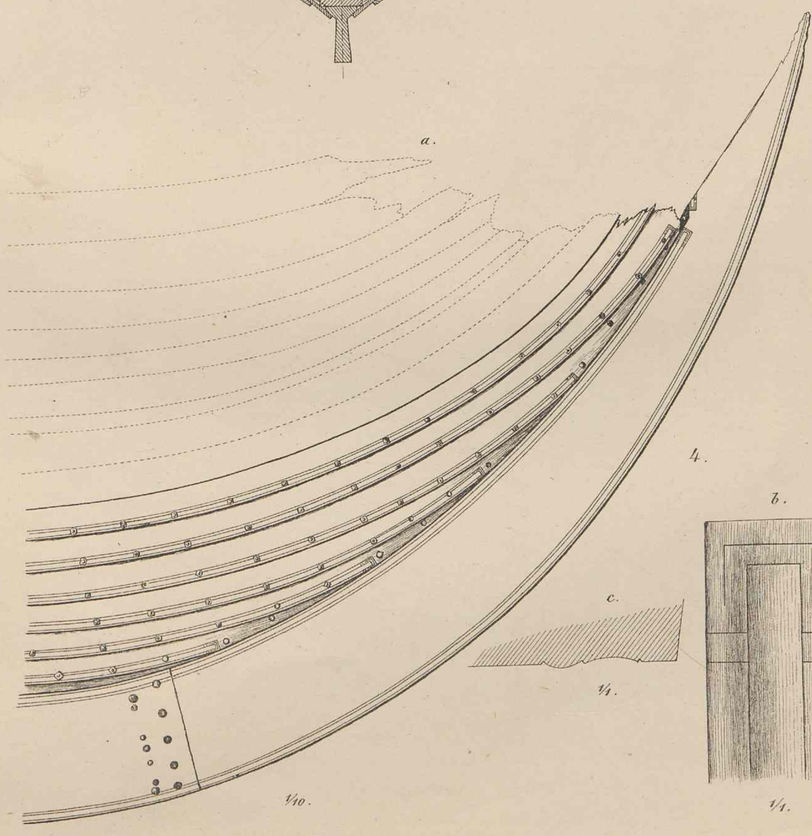
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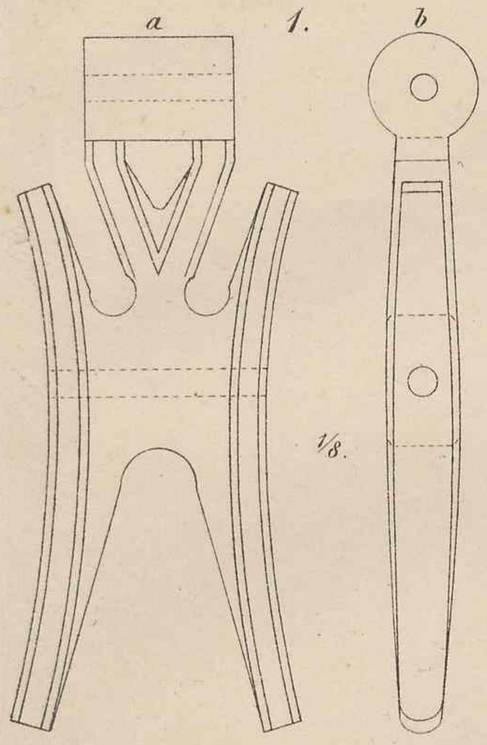


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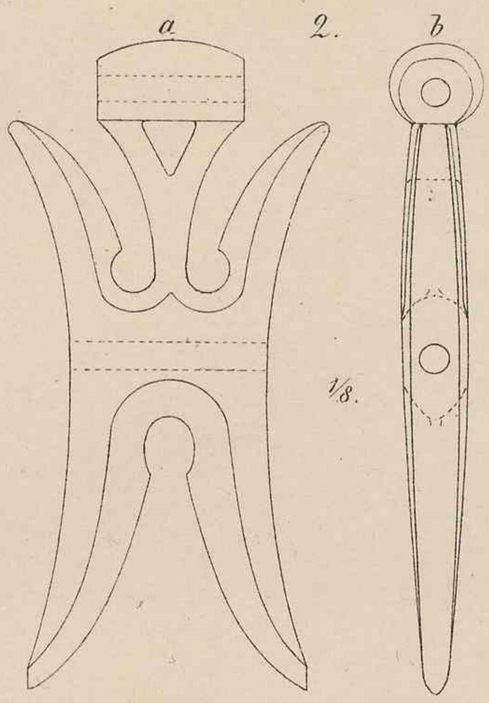
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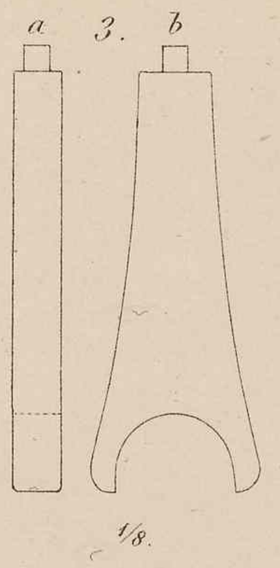
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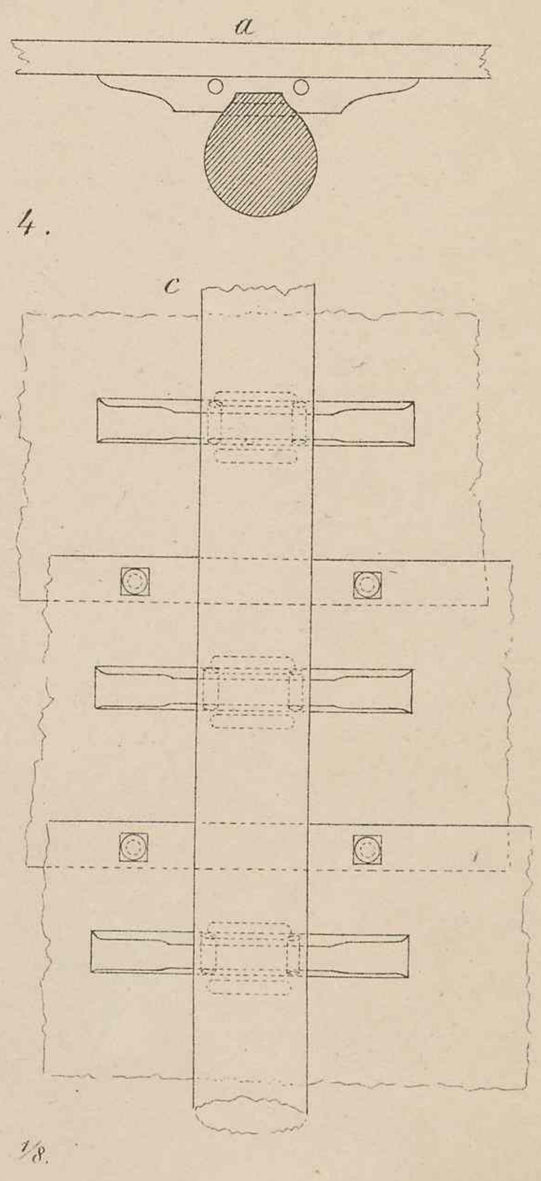
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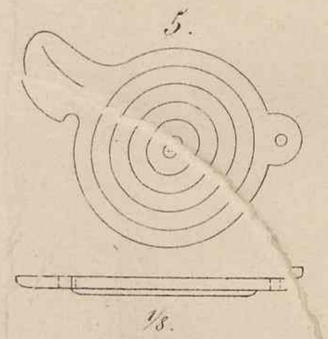
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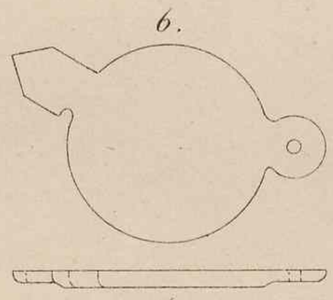
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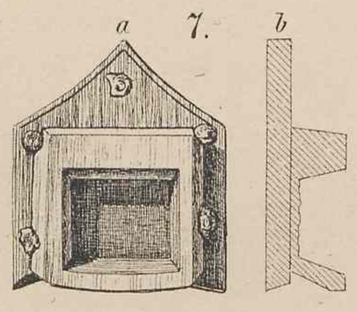
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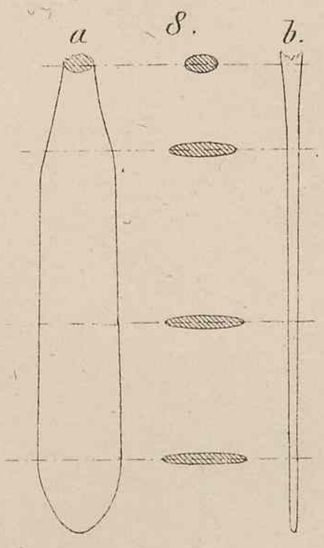
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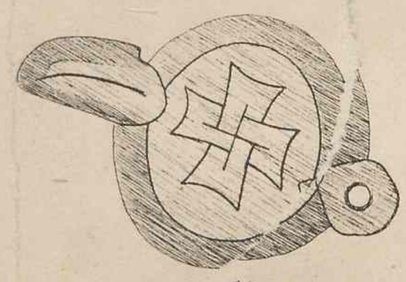
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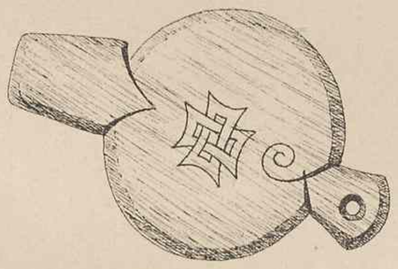
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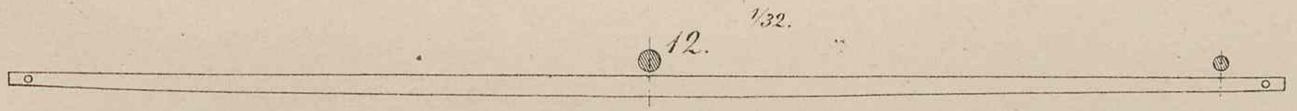
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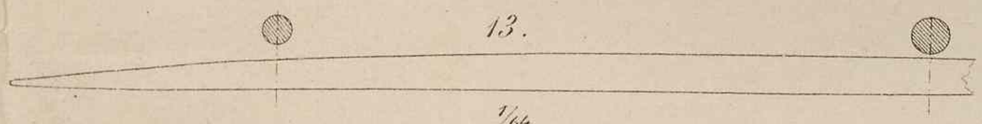
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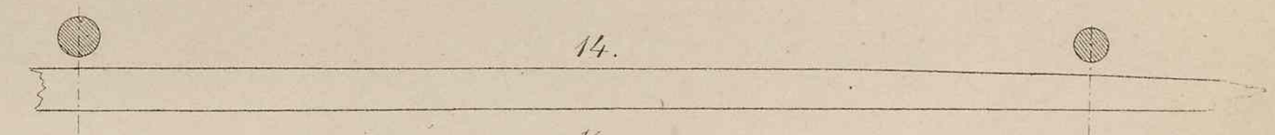
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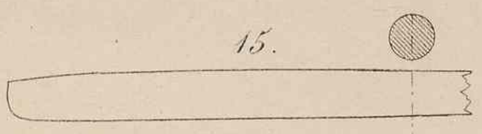
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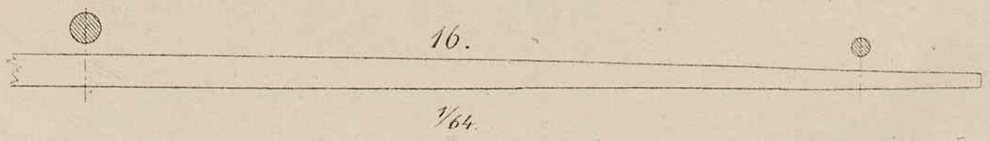
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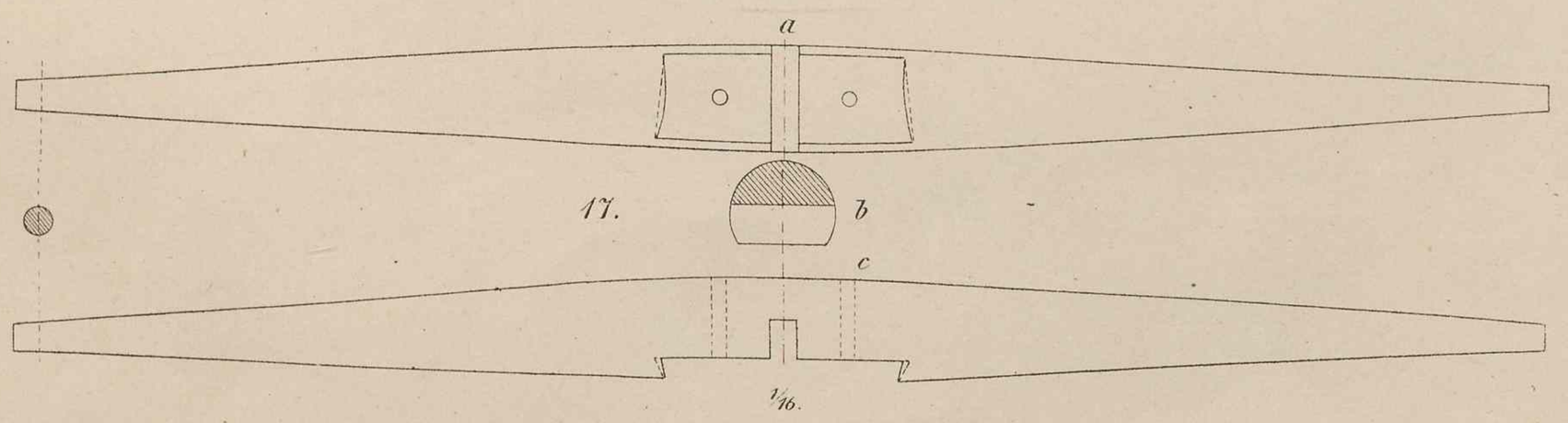
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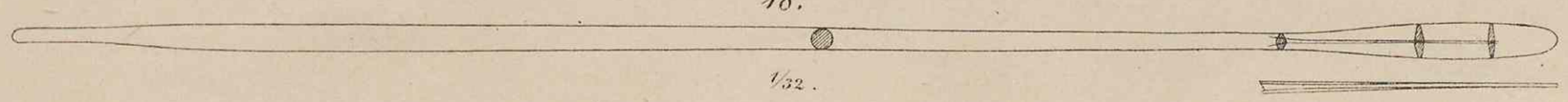
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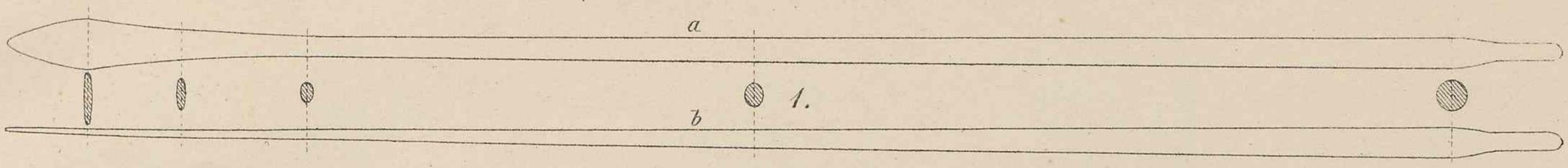


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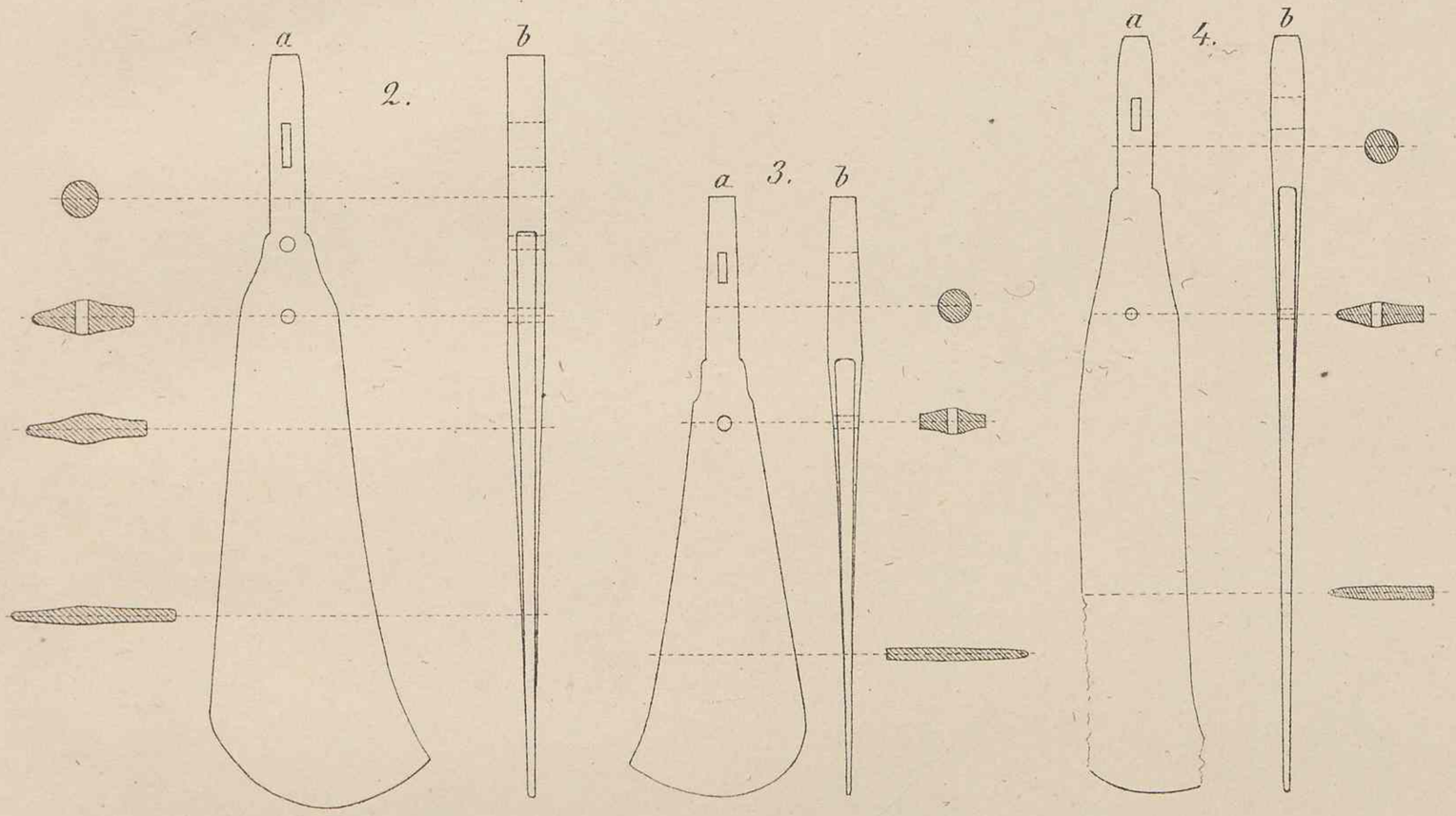
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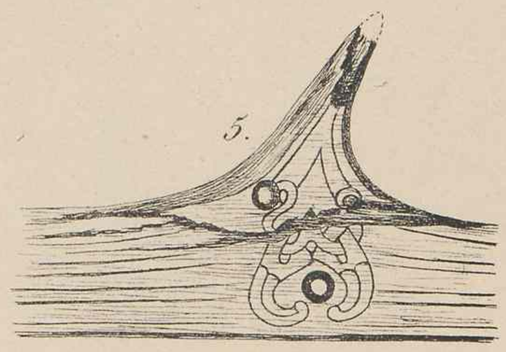
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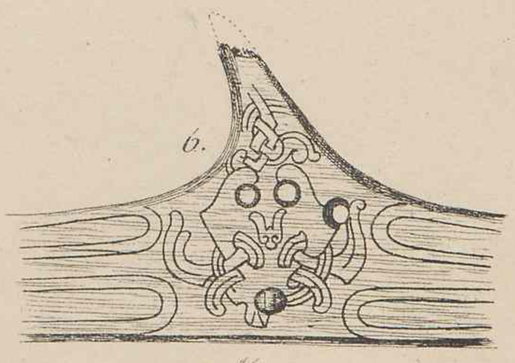
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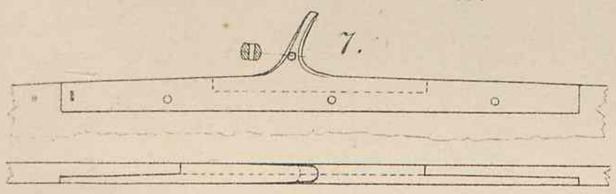
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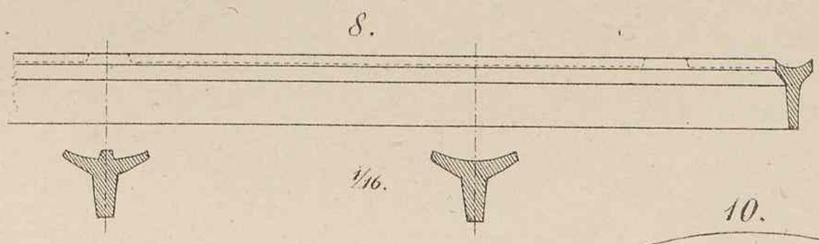
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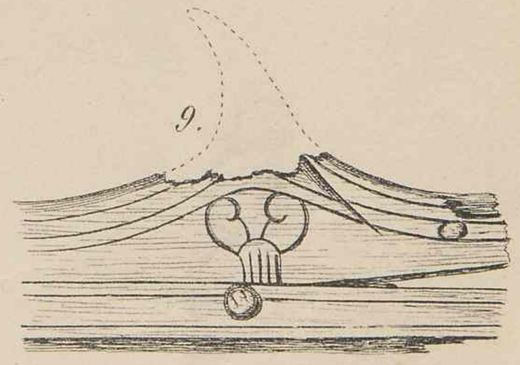
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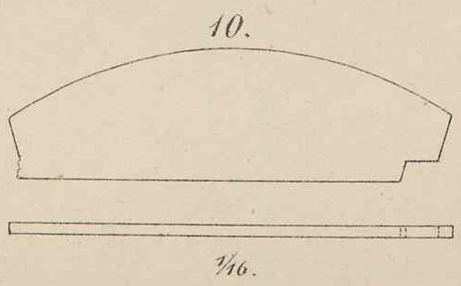
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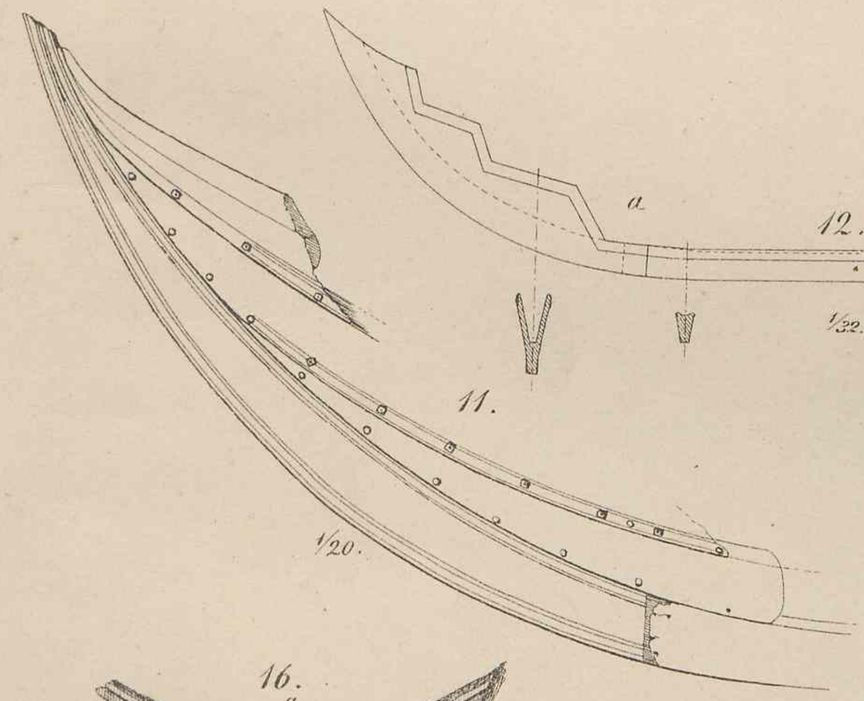
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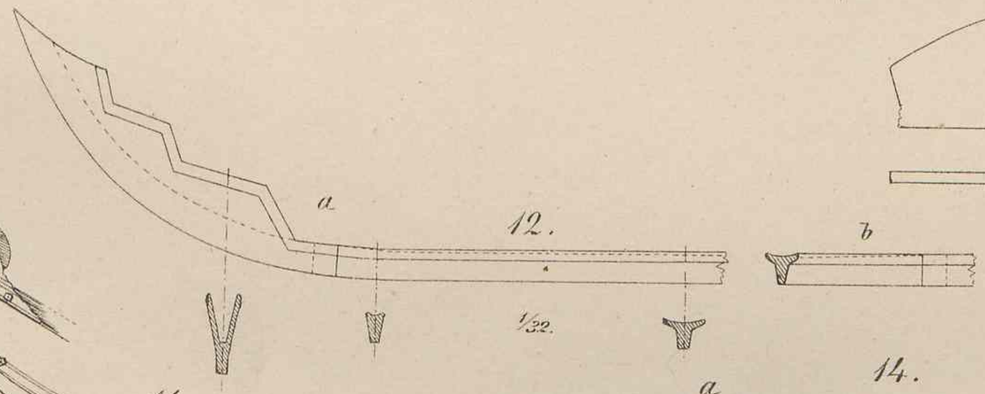
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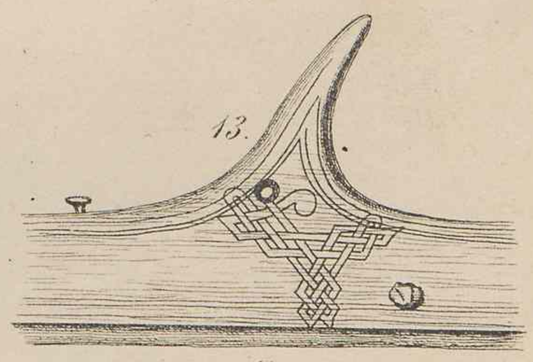
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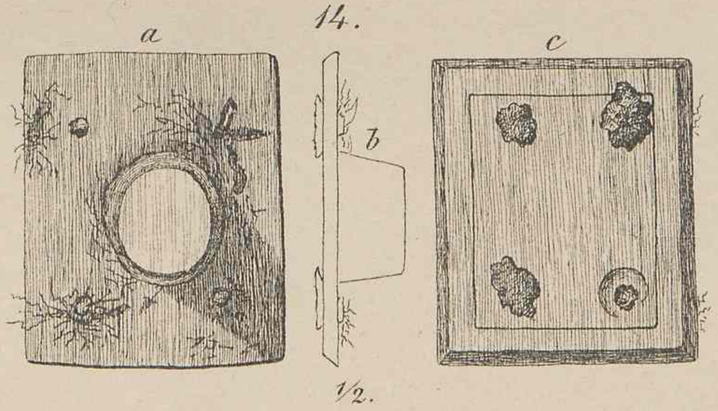
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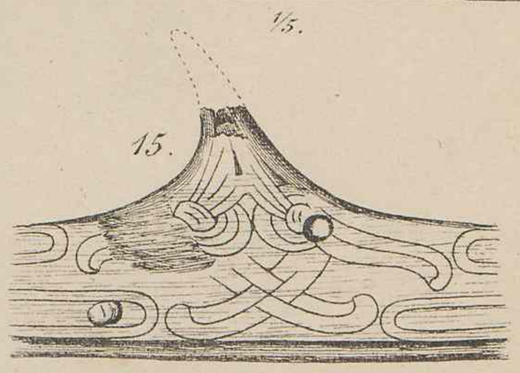
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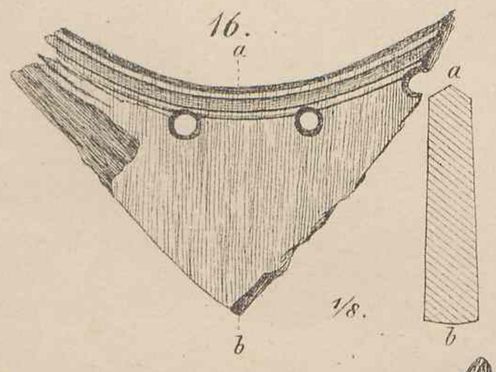
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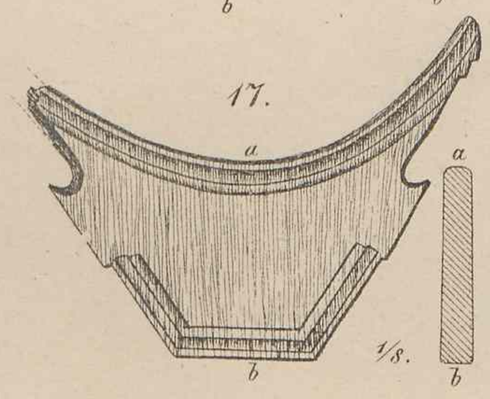
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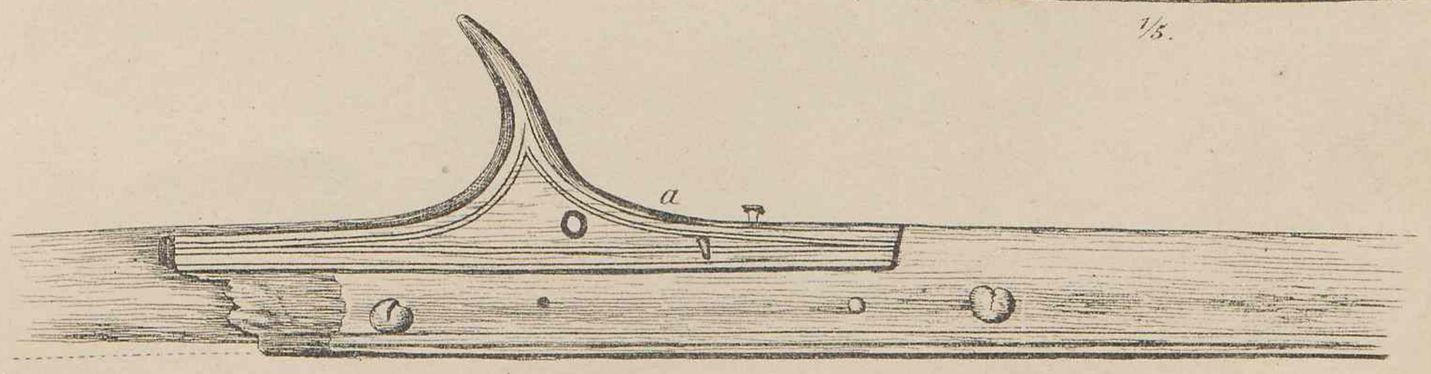
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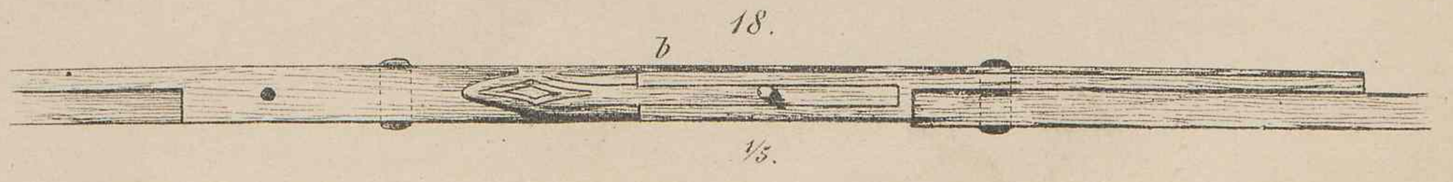


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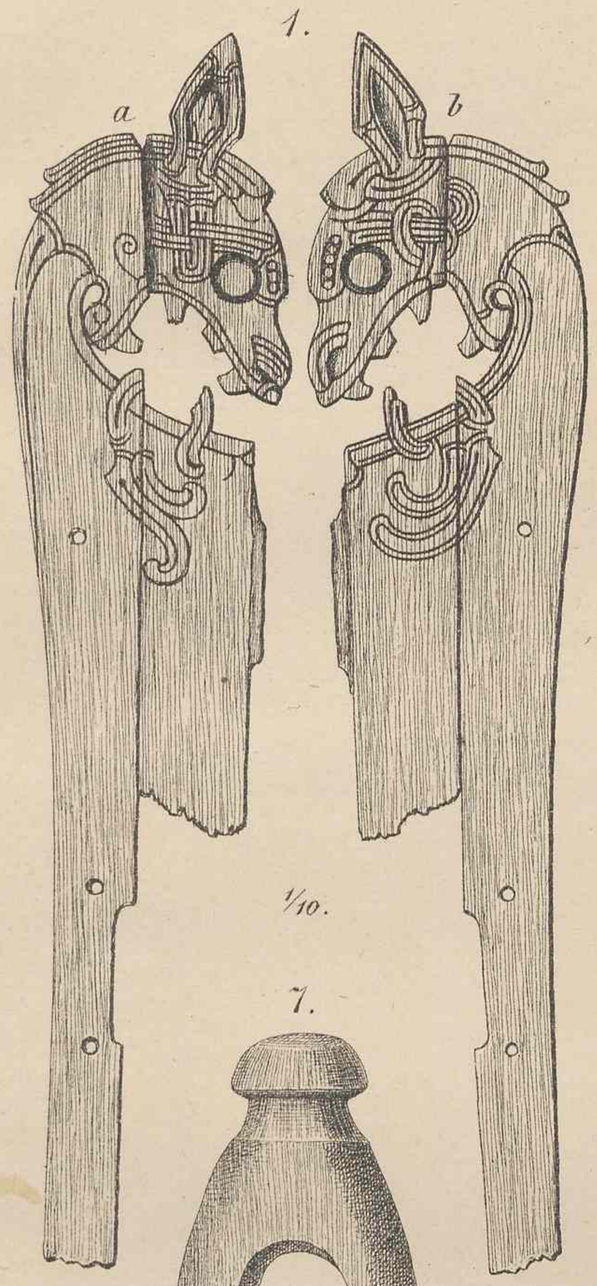
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H. Schöyen & H. Hansen del.

M. Lyng's lith. Anst. Christiania

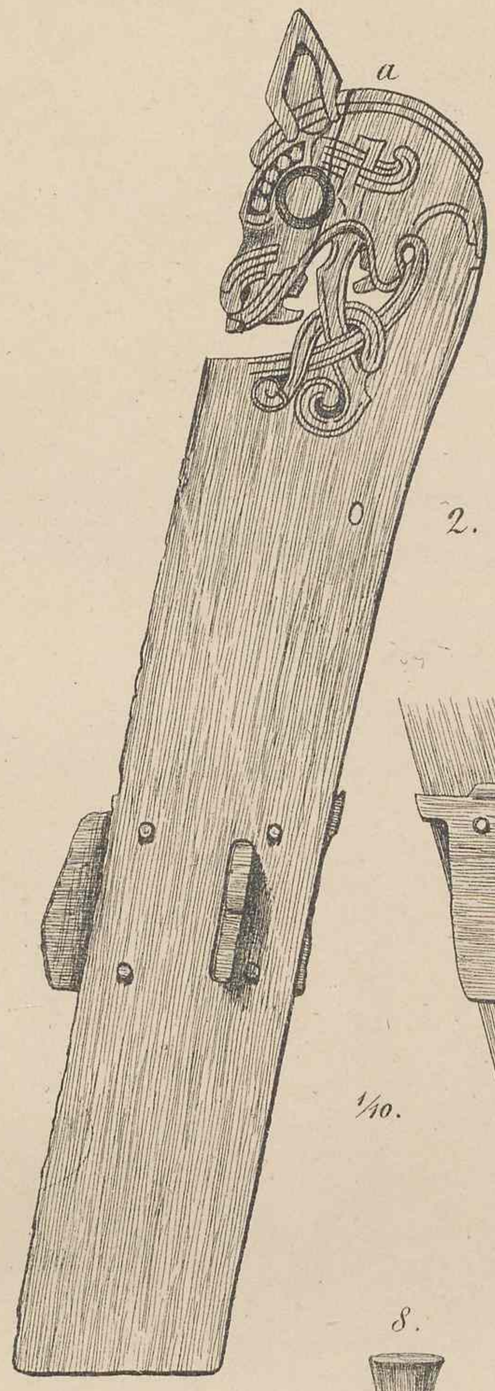
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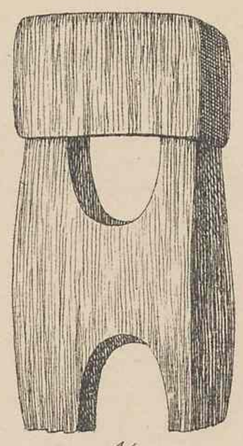
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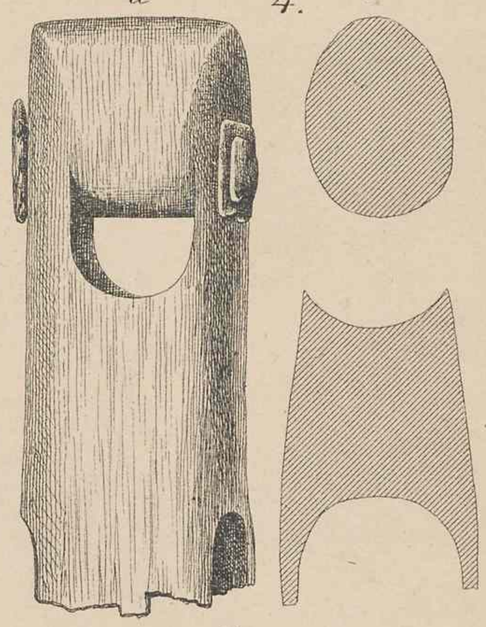
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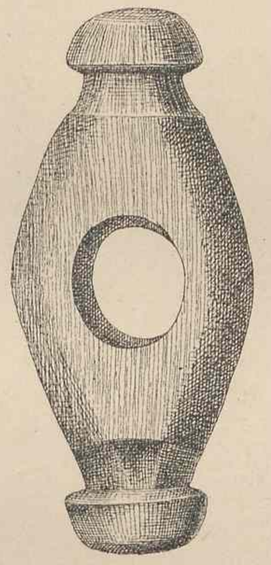
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9.



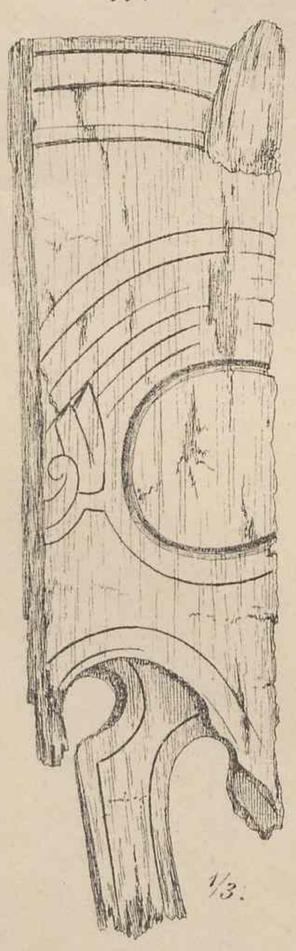
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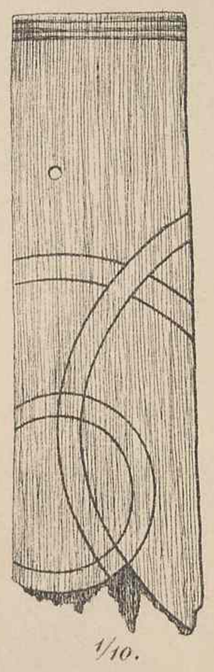
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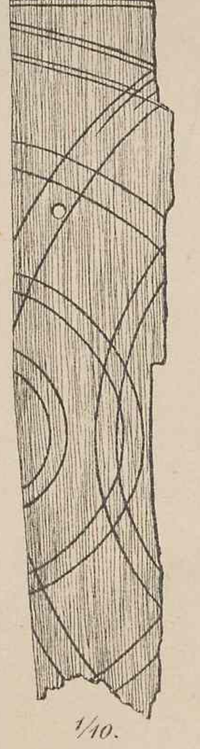
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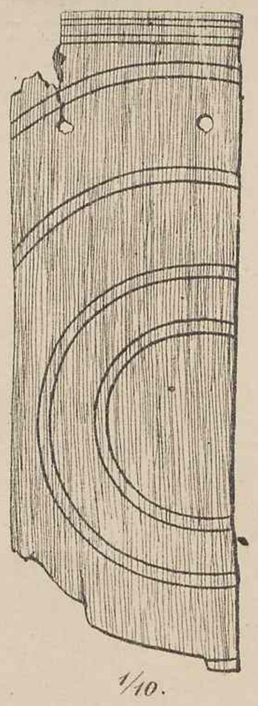
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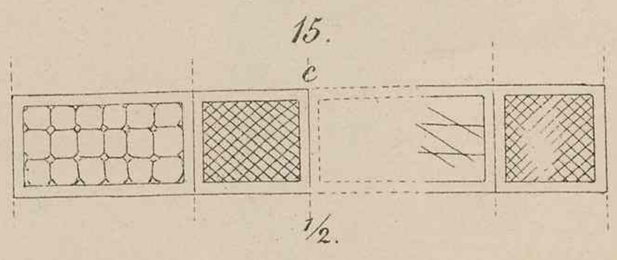
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15.



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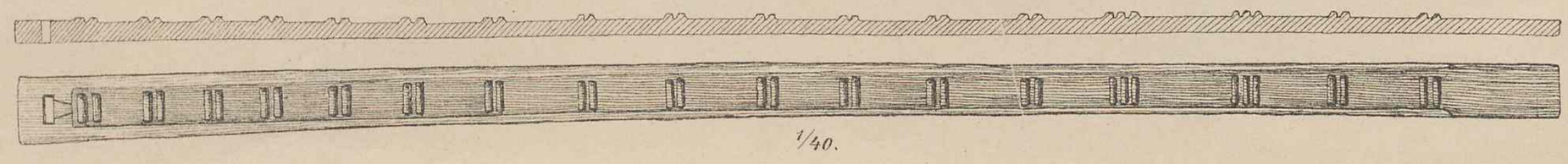
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17.



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H. Schöyen, del.

M. Lyng's lith. Anst. Christiania.

BIBLIOTHECA REGIA HAFNIENSIS

A.

1.

1/20.

2.

1/20.

a b c

C 3. 1/10.

B.

a b c

4.

a

b

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c

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a b

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a b

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19.

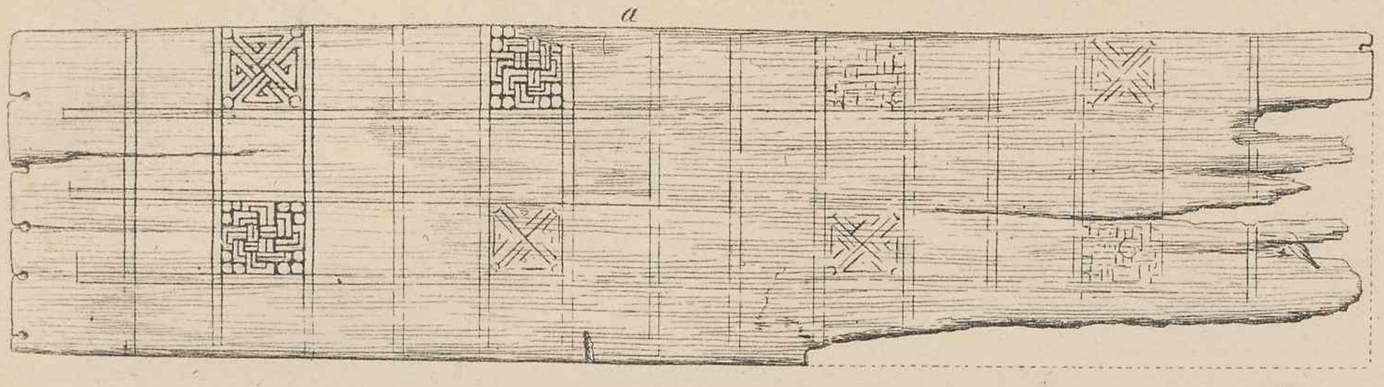
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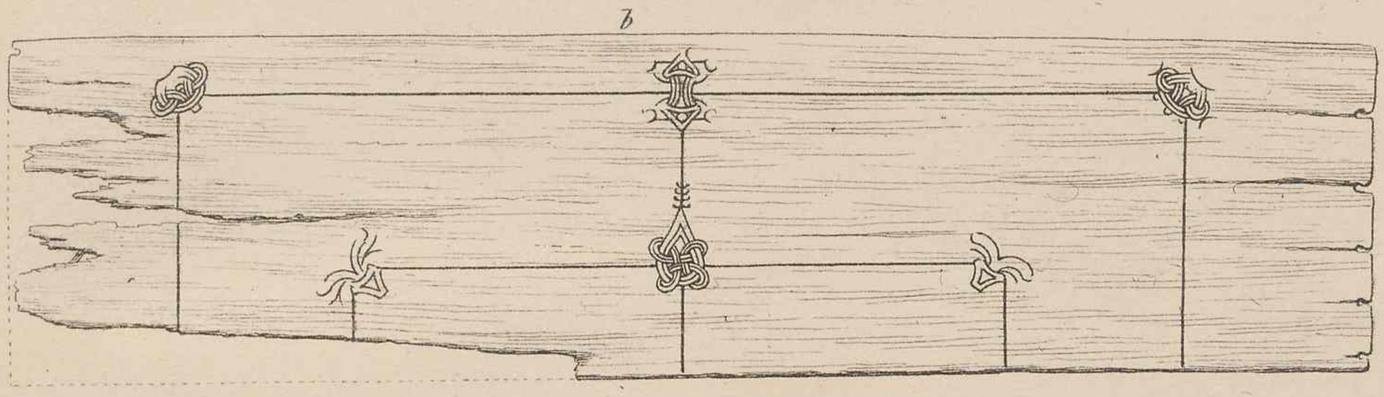
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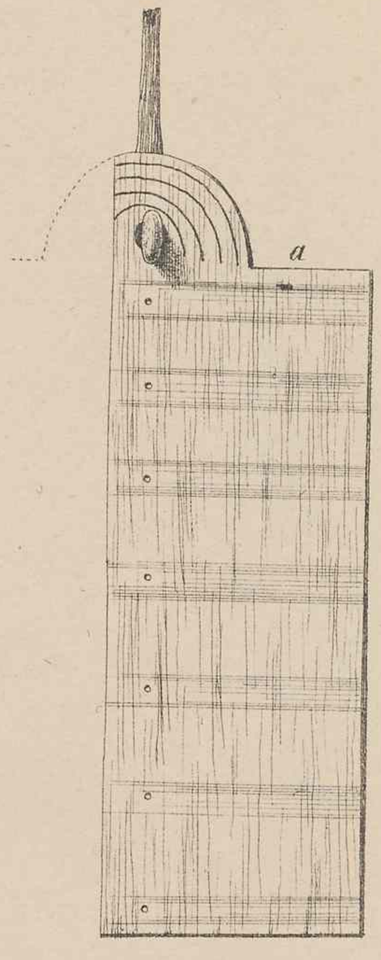
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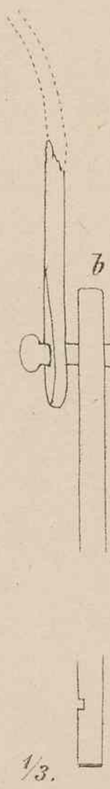


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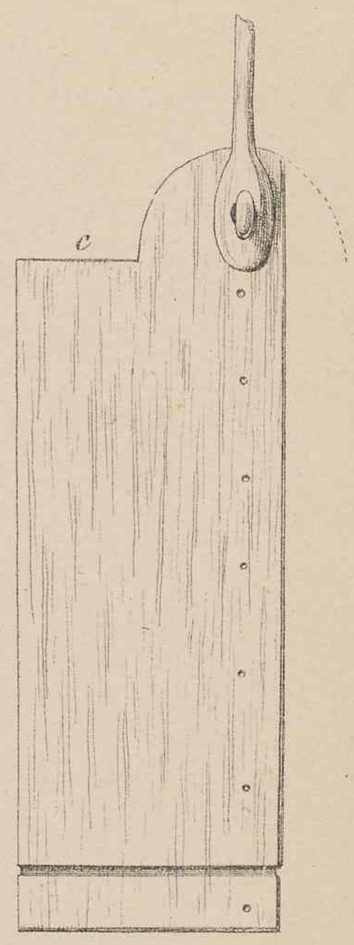




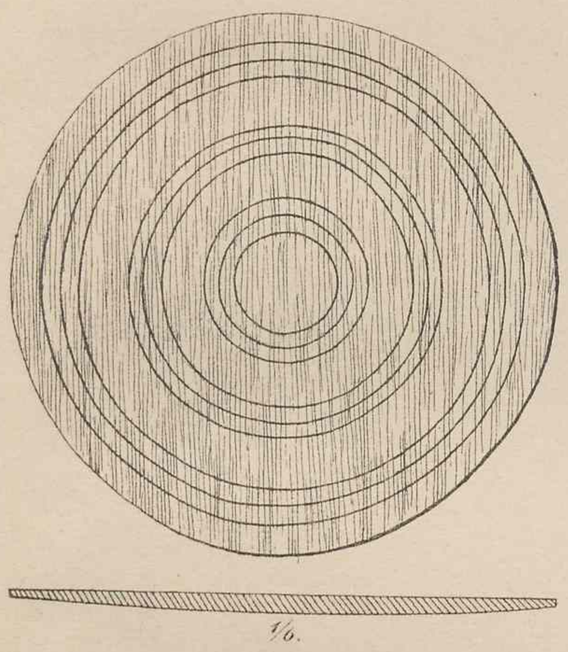


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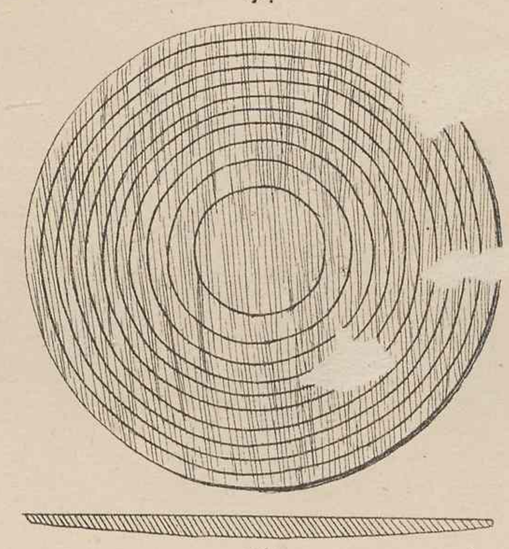


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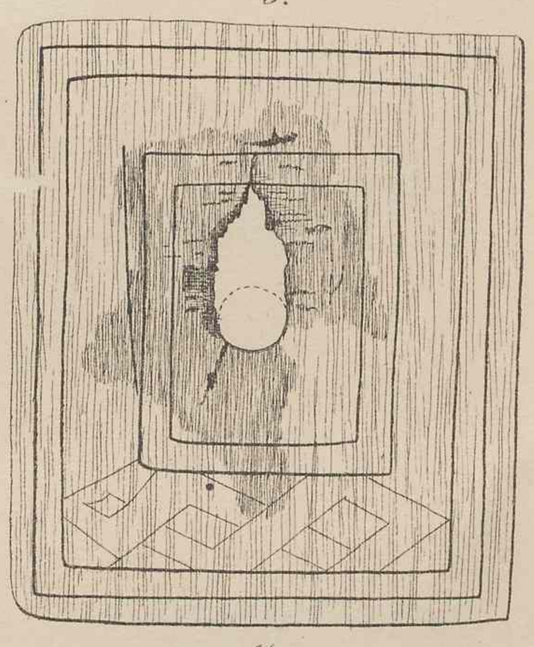
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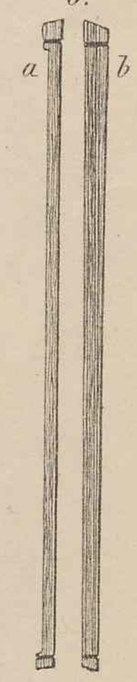
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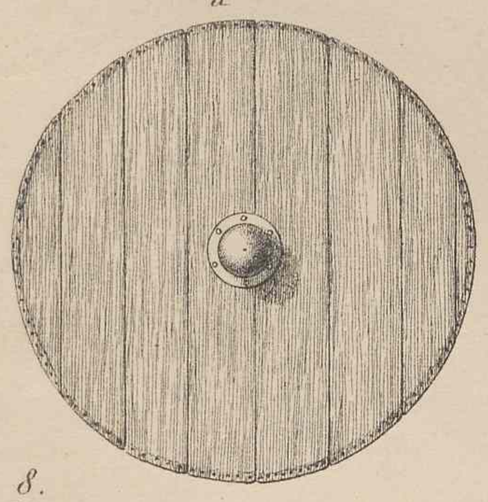
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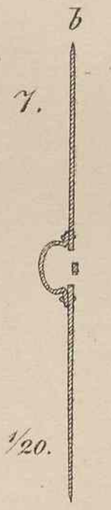
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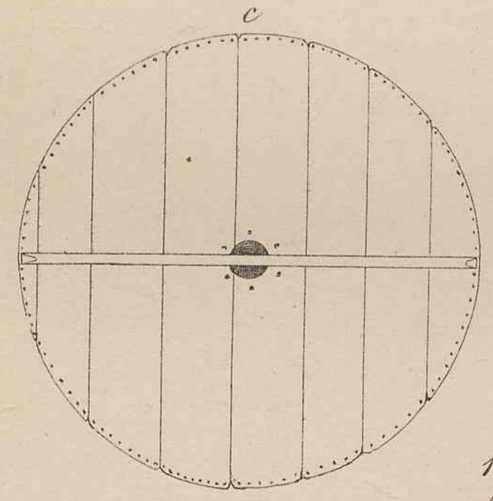
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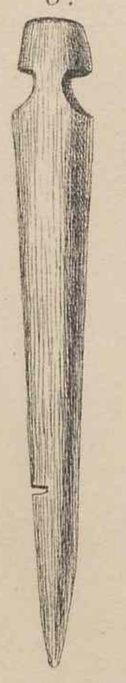


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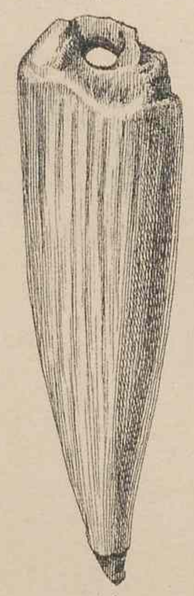


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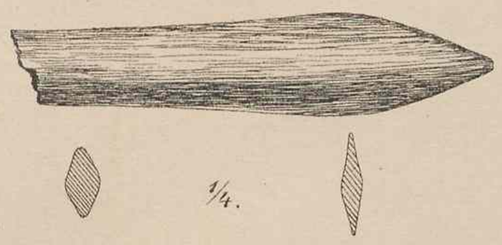
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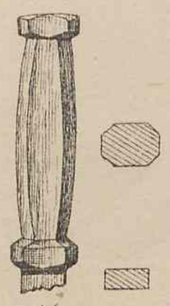
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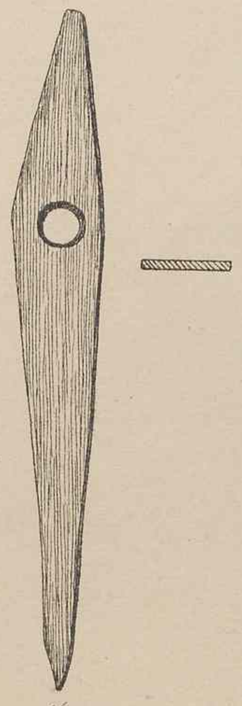
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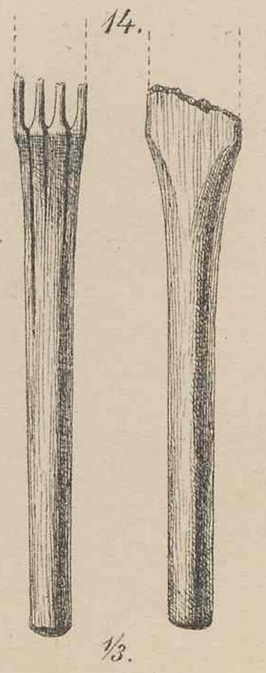


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1/3.

14.



1/3.

15.

a



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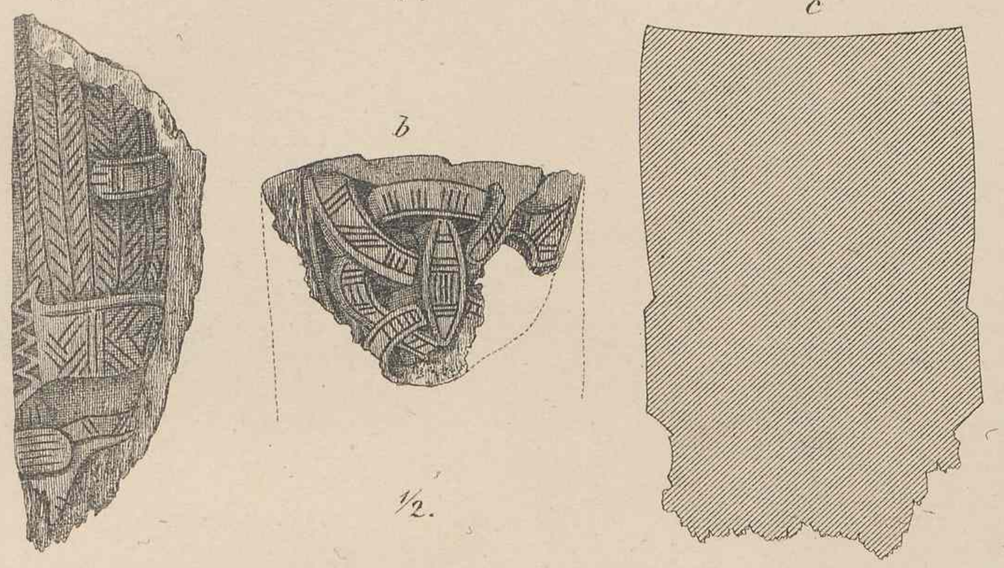


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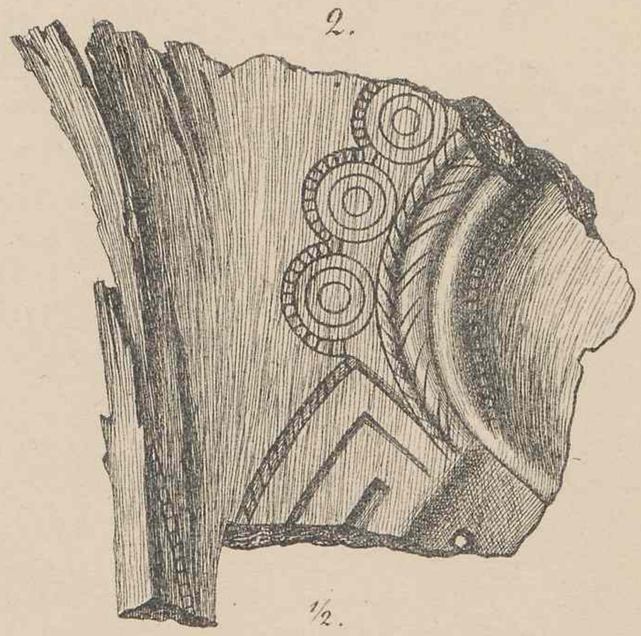
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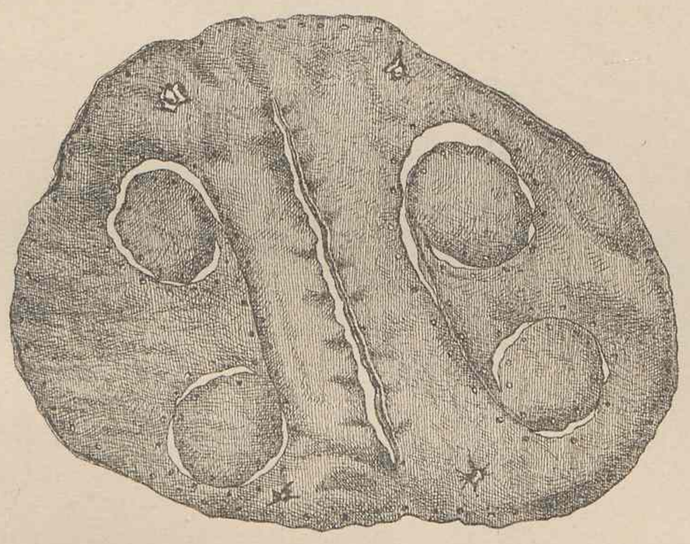
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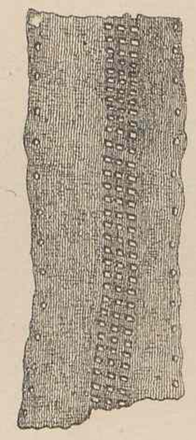
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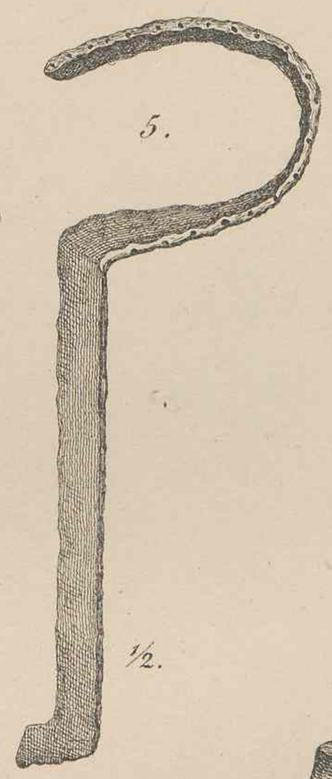
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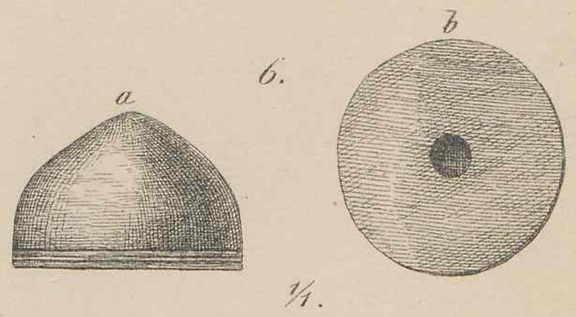
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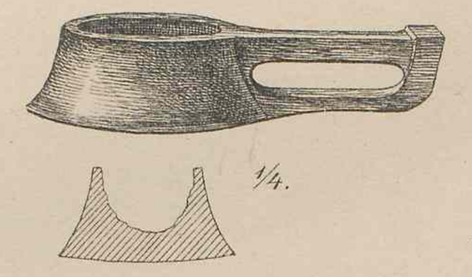
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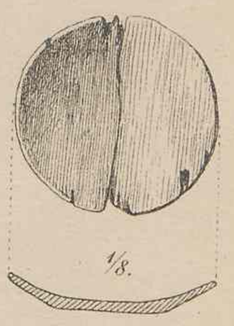
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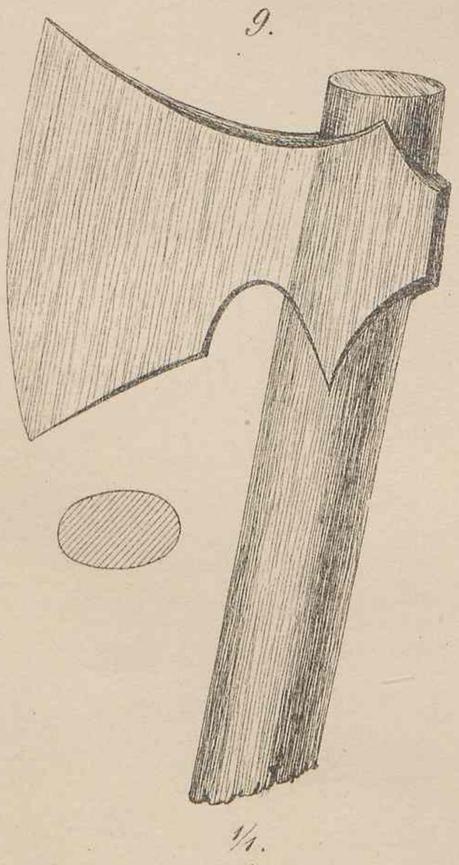
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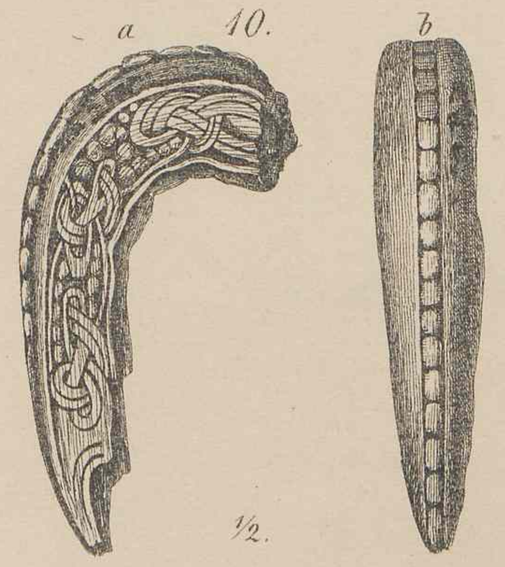
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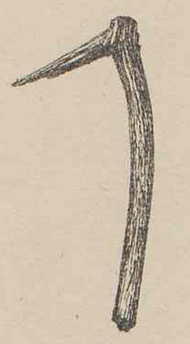
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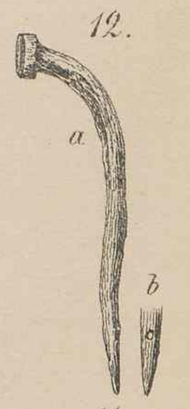
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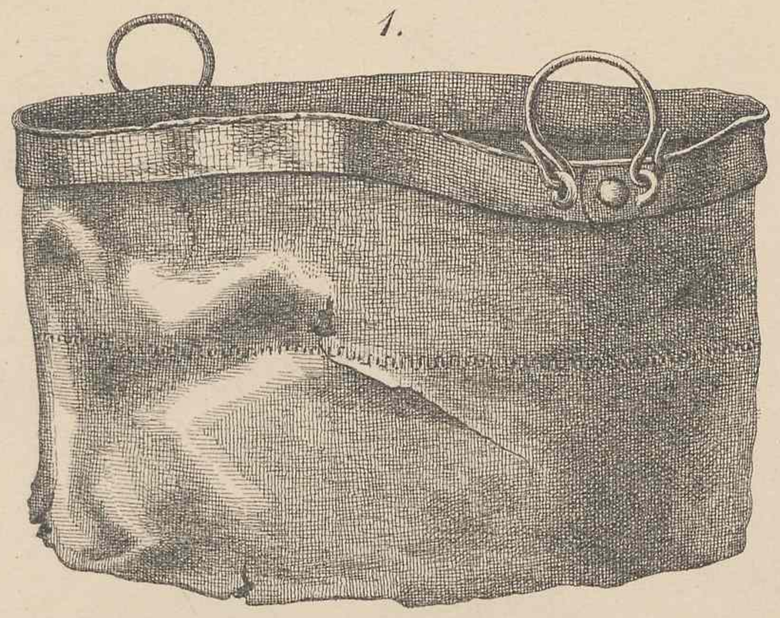
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H. Schöyen, del.

M. Lyng's lith. Anst. Christiania.

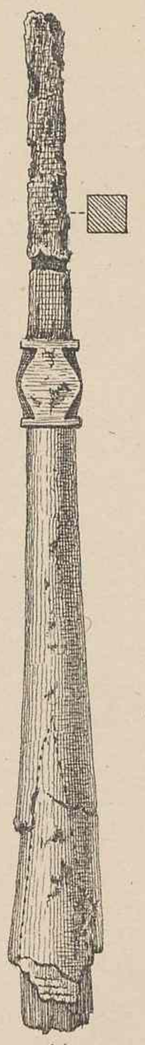
BIBLIOTHECA REGIA HAFNIENSIS

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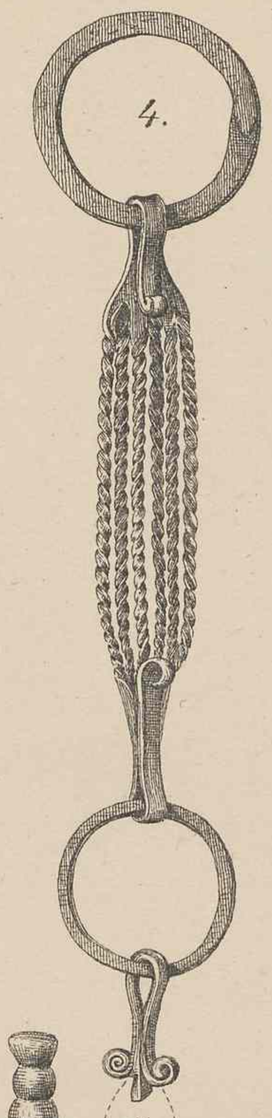
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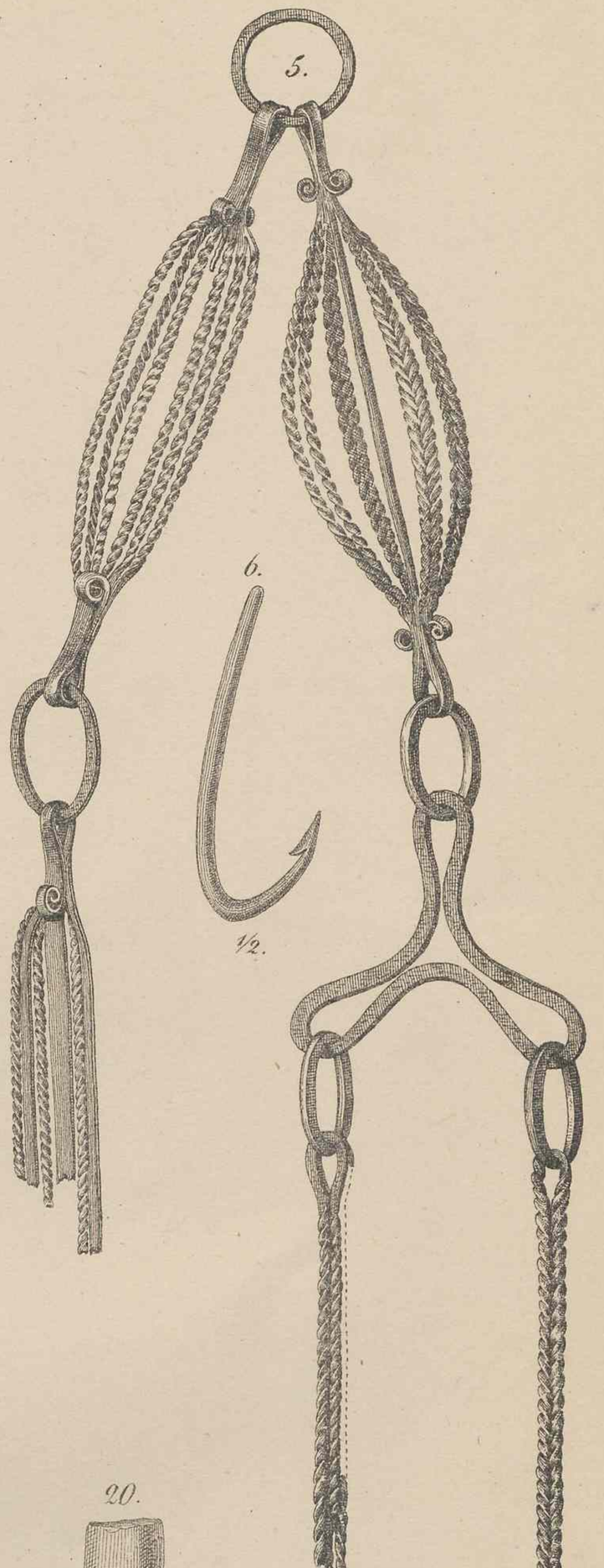
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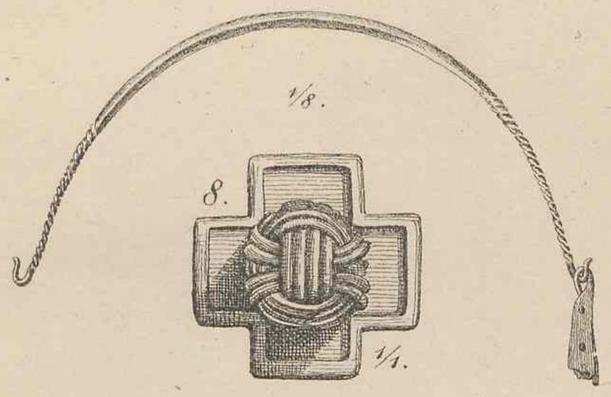
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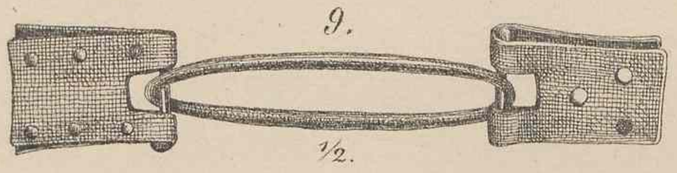


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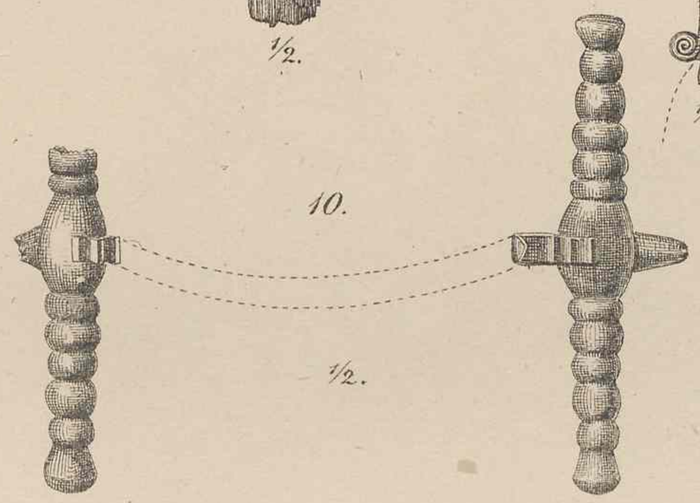
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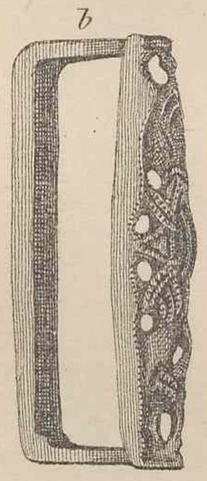
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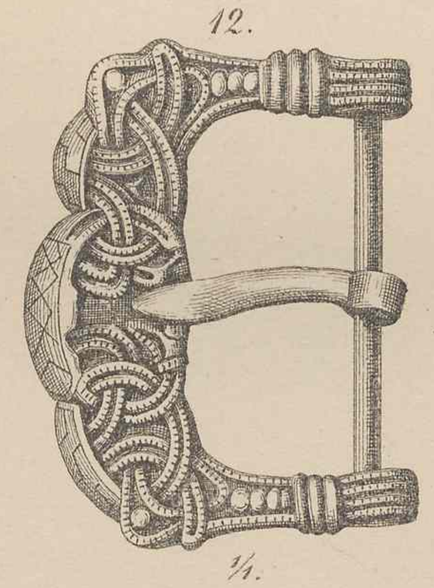


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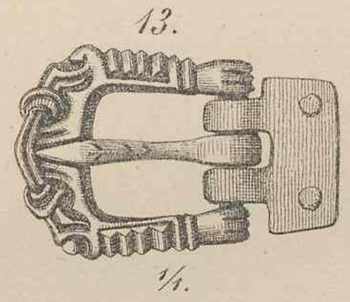
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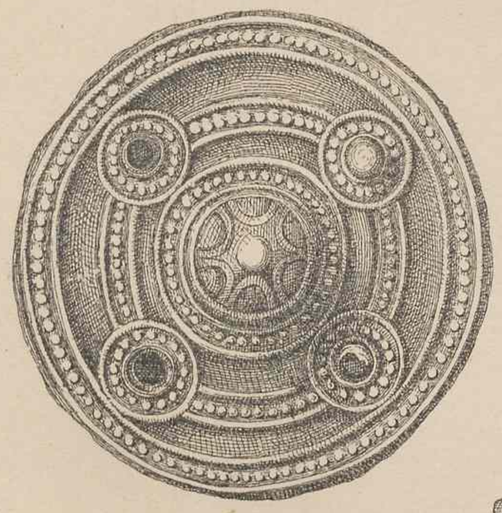
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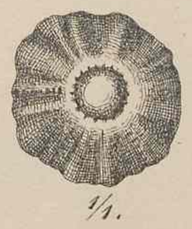
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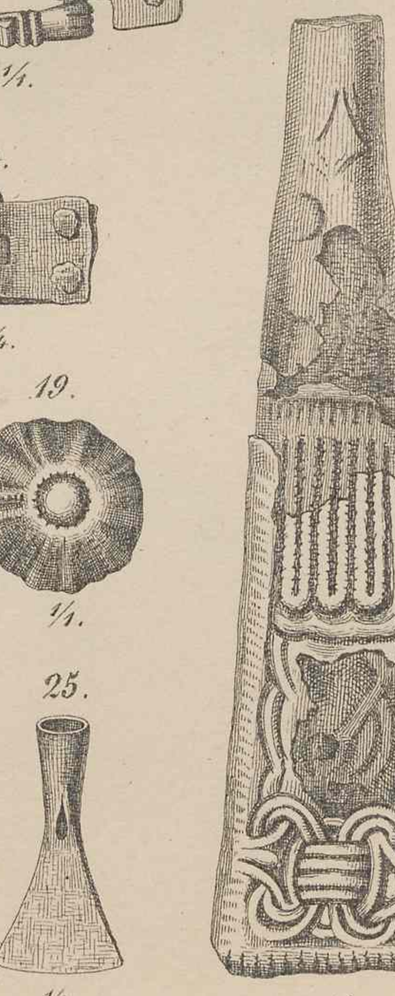
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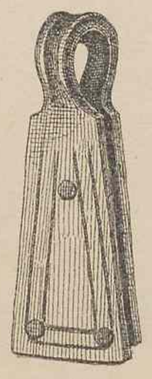
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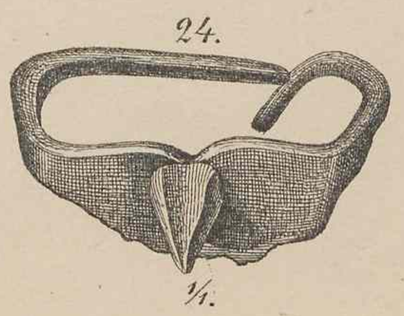
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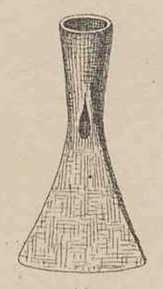
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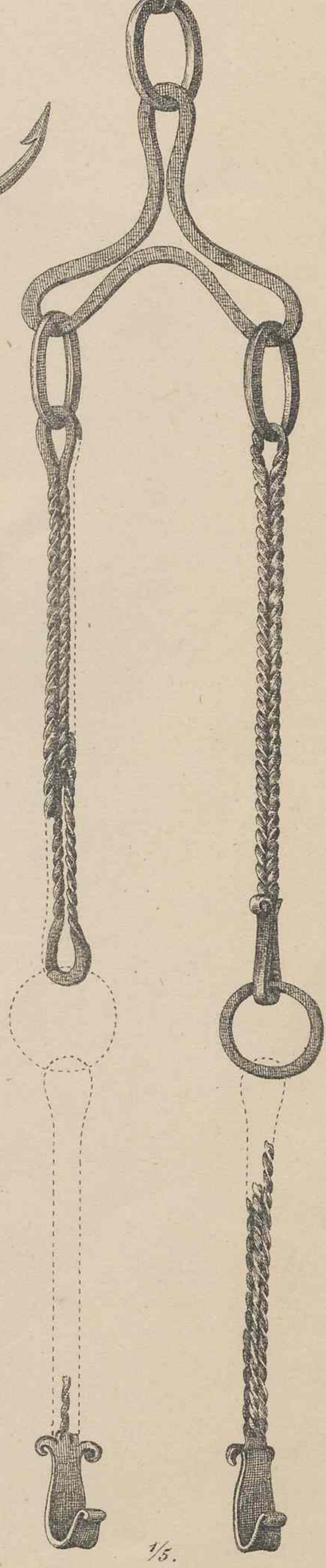


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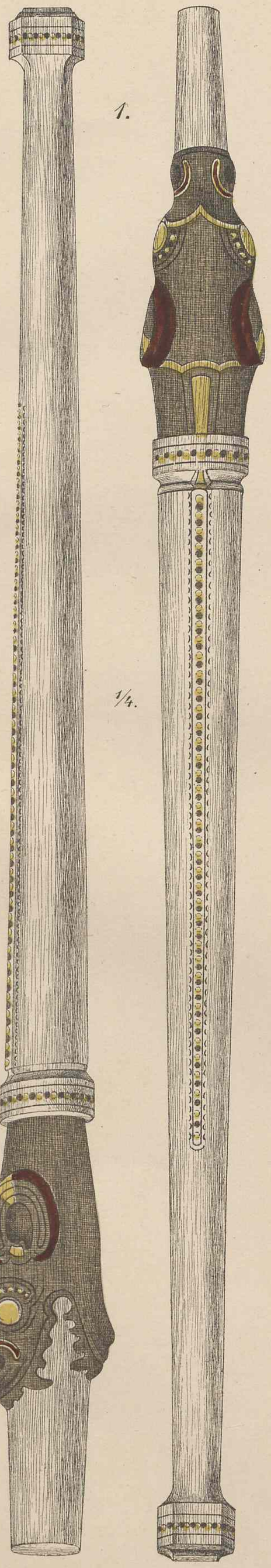


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H. Schöyen, del.

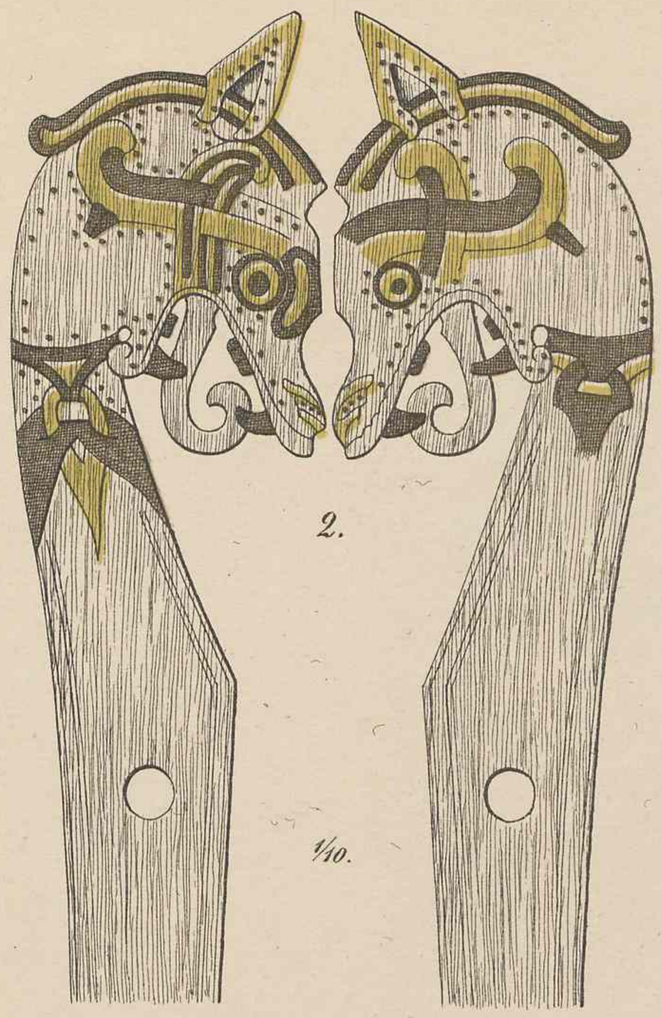
M. Lyng's lith. Anst. Christiania.

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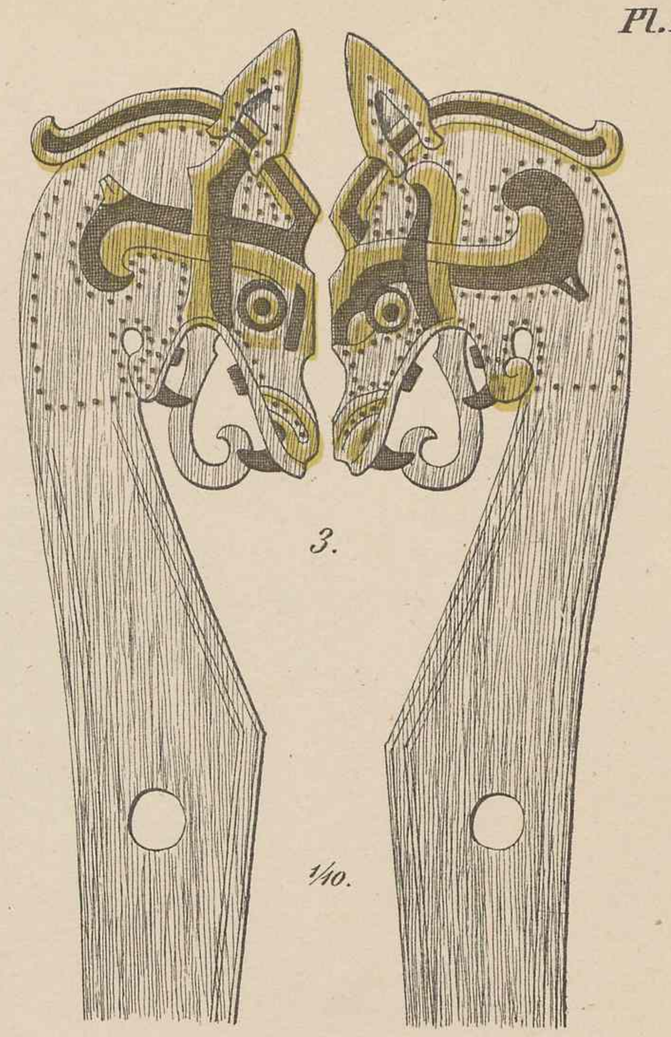
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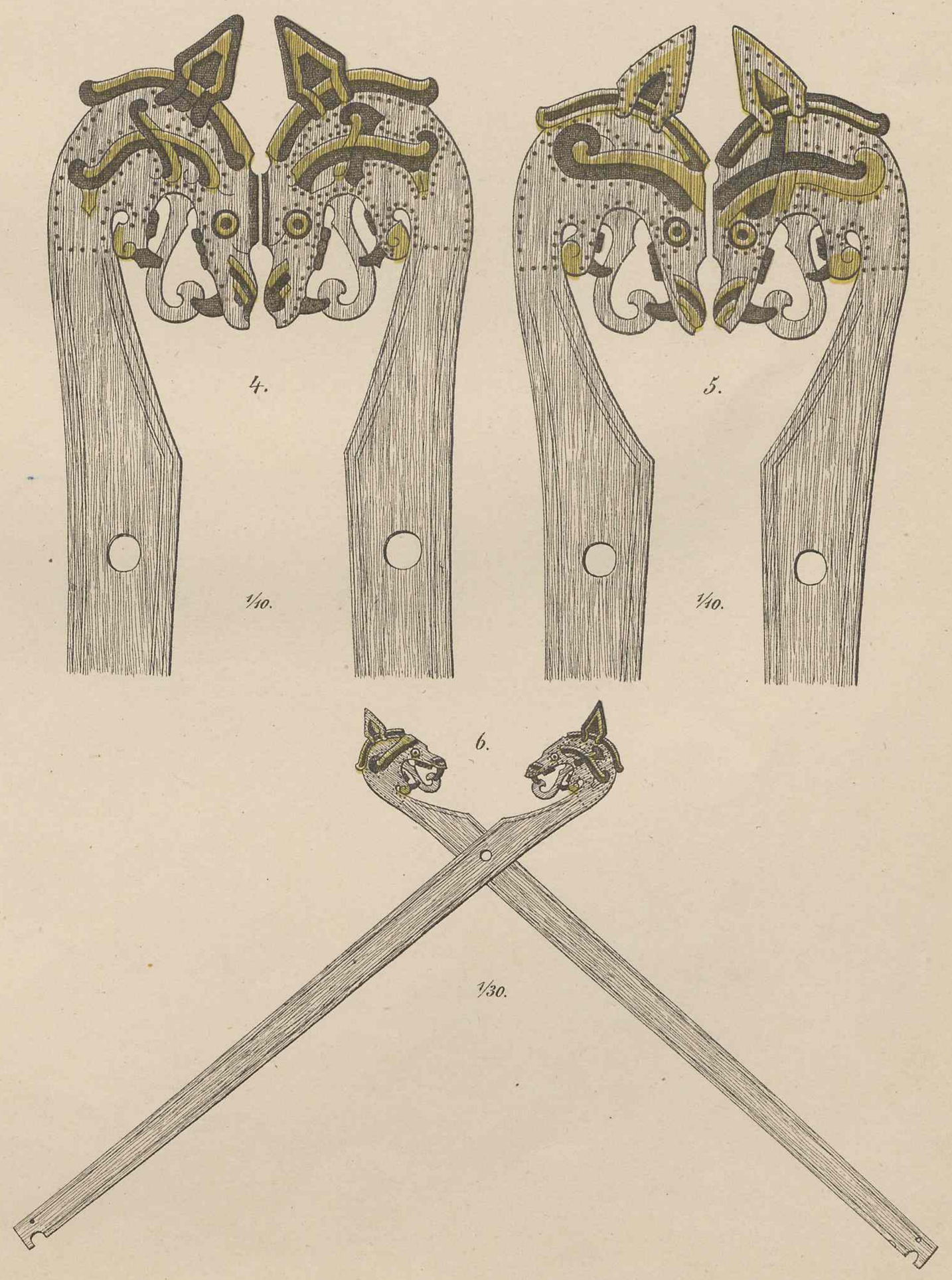
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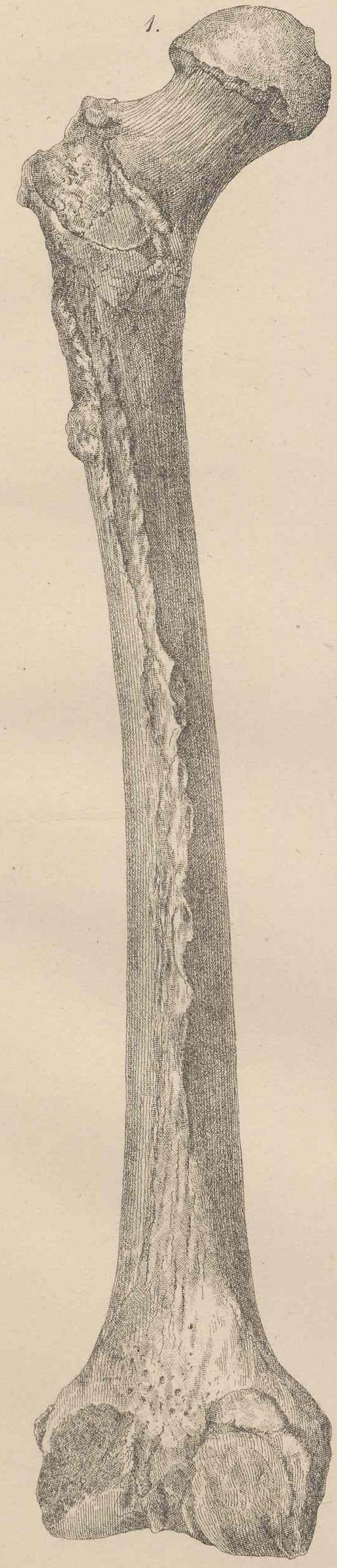
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H. Schöyen, del.

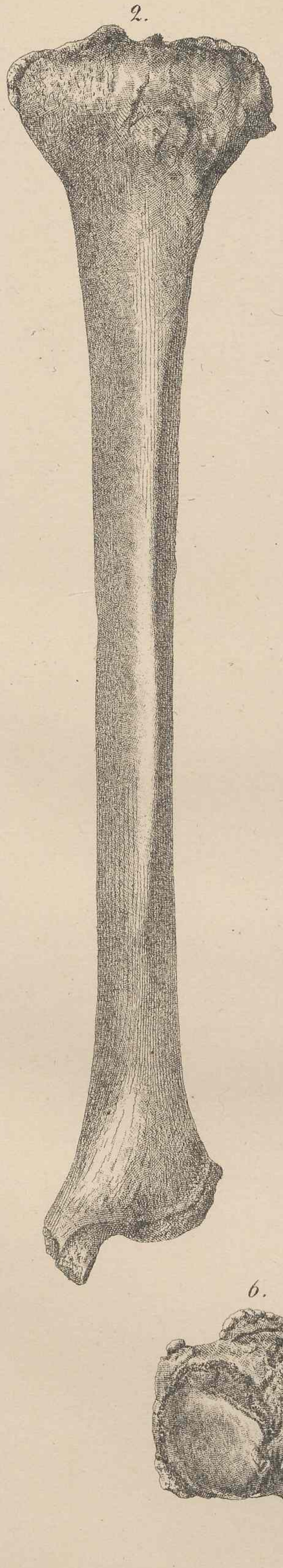
M. Lyng's lith. Anst. Christiania.

BIBLIOTHECA REGIA MONACENSIS

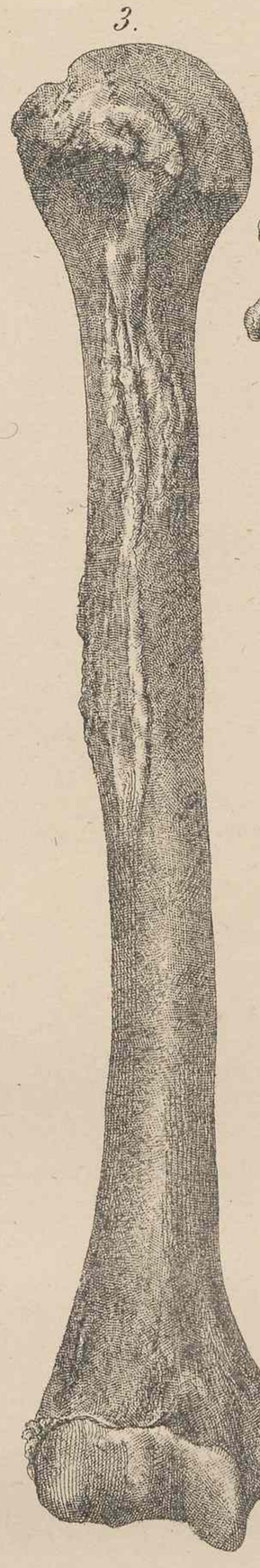
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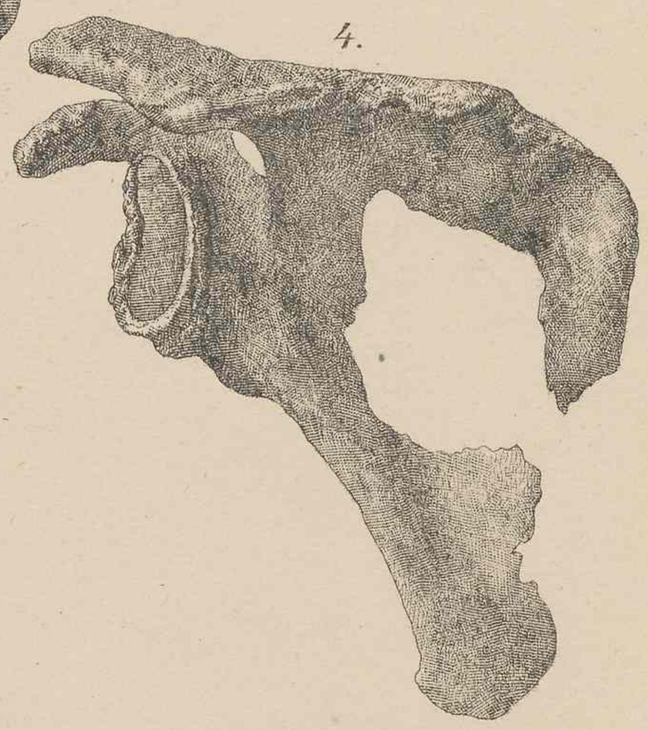
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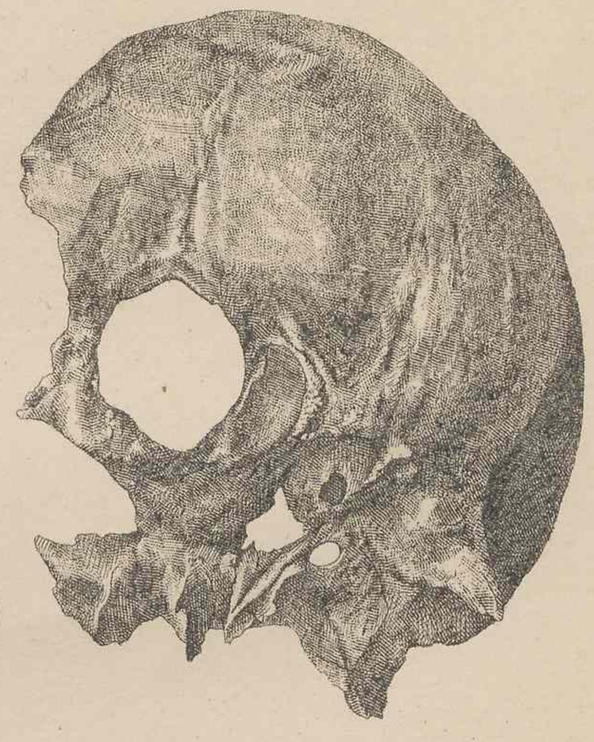
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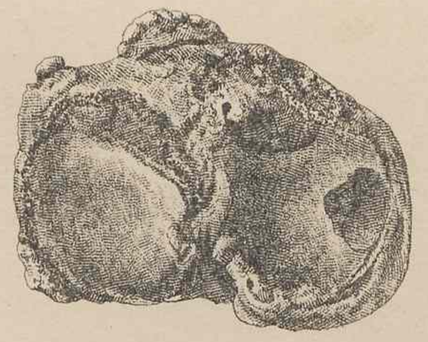
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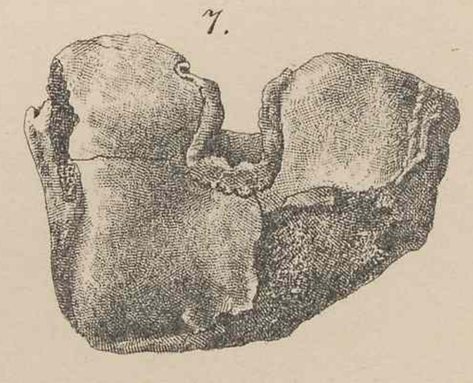
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M. Lyng's lith. Anst. Christiania.

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Ole Olsen.