The Saami Shaman's Drum and the Star Horizons

By Bo Sommarström

The aim of this contribution to research on the magic drums used by the Saami people during the 17th and 18th centuries is principally to examine more closely one basic prerequisite for my previous studies concerning possible *influences of stellar constellations on the positioning* of the drum figures. Since I have tried to maintain that certain of the drum figures seem to have a similar position to corresponding figures on traditional star maps, both with respect to single star constellations and to some members of the Zodiac circle, it would be natural to ask the following question: which of these star constellations could possibly have been *seen by the Saamis with their own eyes at the latitudes where they live?* And which constellations are not observable at all and could therefore only have influenced the Saamis by hearsay? The answers to these questions would naturally affect the hypothesis, which is based on the importance of orientation by the cardinal points as the common basis for comparisons between the star maps or related astrolabes, used by the neighbouring Nordic peoples, and the drumheads of the Saamis. The degree of possibility to observe the stars depends on their brightness, on variations in their visibility according to seasons, and on the most fundamental factor theoretically determining the limits for local visibility, i.e. the *star horizons.*

Before we consider the visibility of certain constellations for latitudes where Saamis live in the Northern Hemisphere, it will be convenient to recapitulate how the hypothesis about star constellation influences on Saami drum figures has been advanced in previous studies by the author.

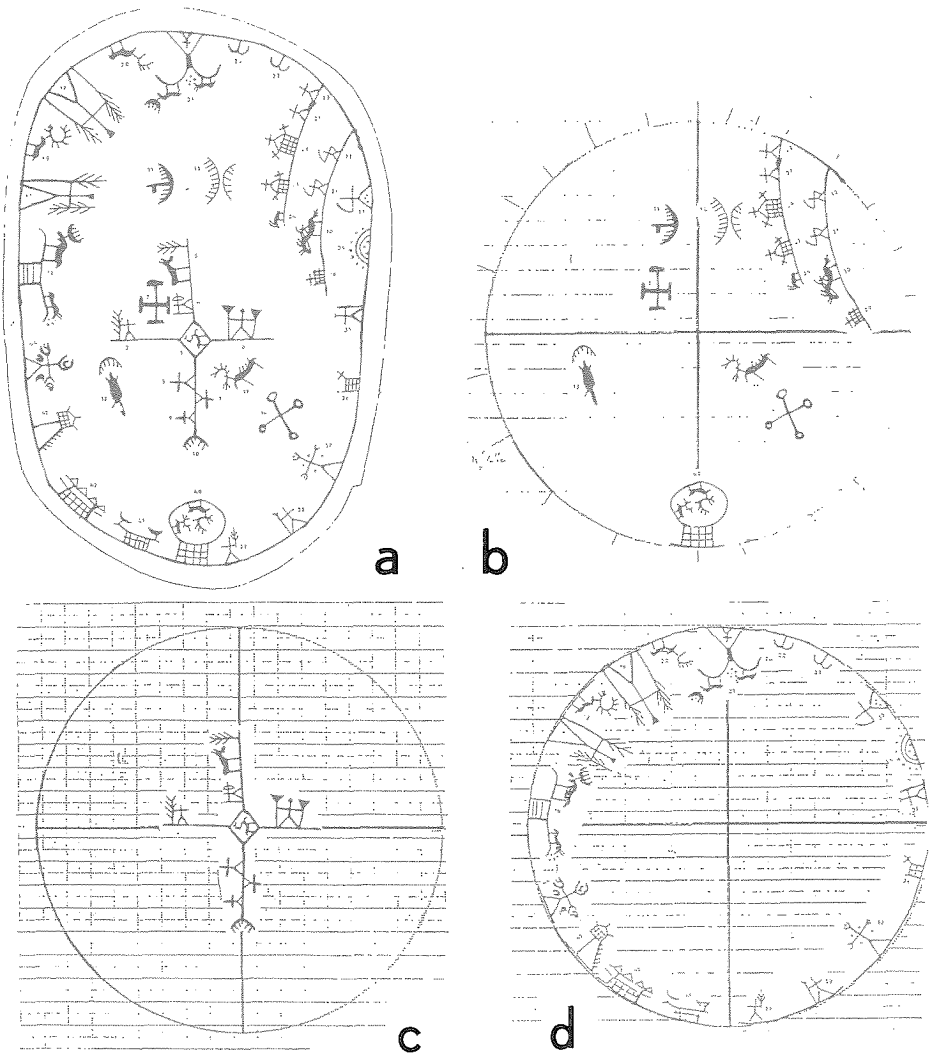

Fig. 1

Survey of the star map influence hypothesis

A series of pictures (Figs. 1–5) will be referred to in order to facilitate this summary of the rather detailed and sometimes complex investigations, begun in the autumn of 1980 and published in two parts (Sommarström 1985; Sommarström 1987).

Fig. 1 a–d shows the red-painted pattern of a Saami drumskin (Manker 1950, Abb. 82, Drum No. 1), representing the main type among the 73 drums preserved from the 17th and 18th centuries. This type with

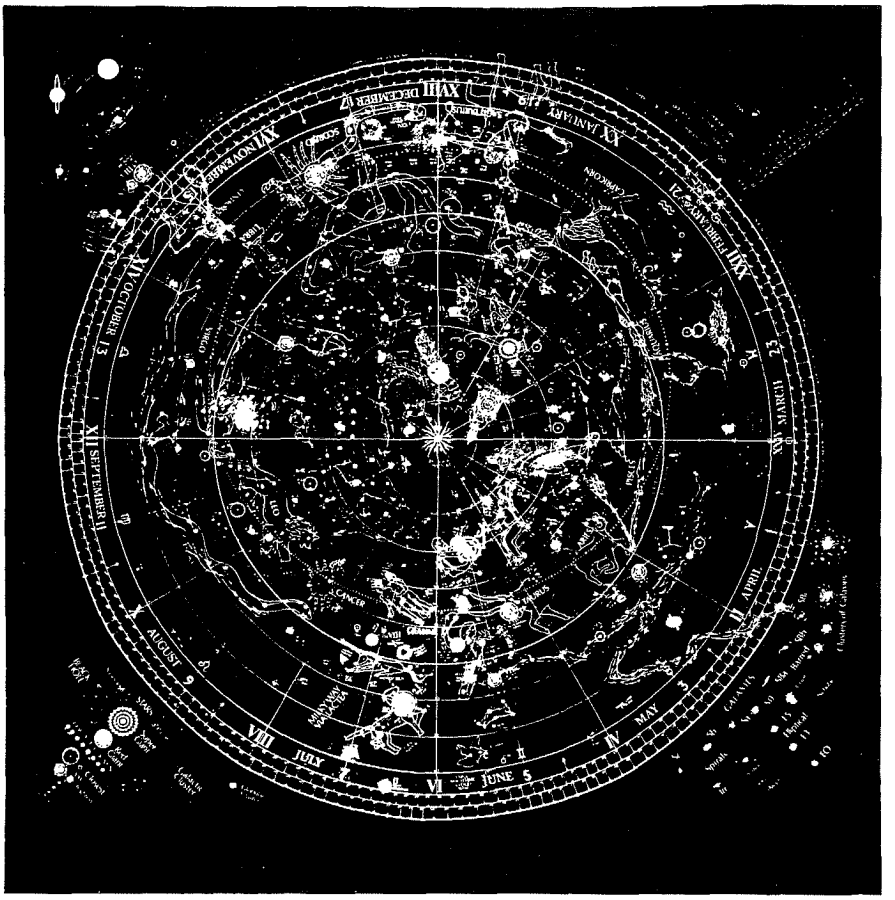

Fig. 2 a.

a central cross design was classified by Ernst Manker as the "Åsele" type. It corresponds to the modern classification of a main "Southern Saami" group (of 41 items plus one without a cross) and a closely related "Ume" sub-type of "Central Saami" drums more to the north; this sub-type of 9 items has a cross placed below a transverse line, thus in a more subordinate position (cf. map Fig. 6; cf. Kjellström & Rydving 1988, 8 ff.).

The total pattern (a), with all of its red-painted figures, was divided by the author in 1980 into 4 quadrants of a circle by extending the arms of the central cross to the edge, to resemble the round sky horizon. The individual figures were then seen as more or less "free" in a zone around

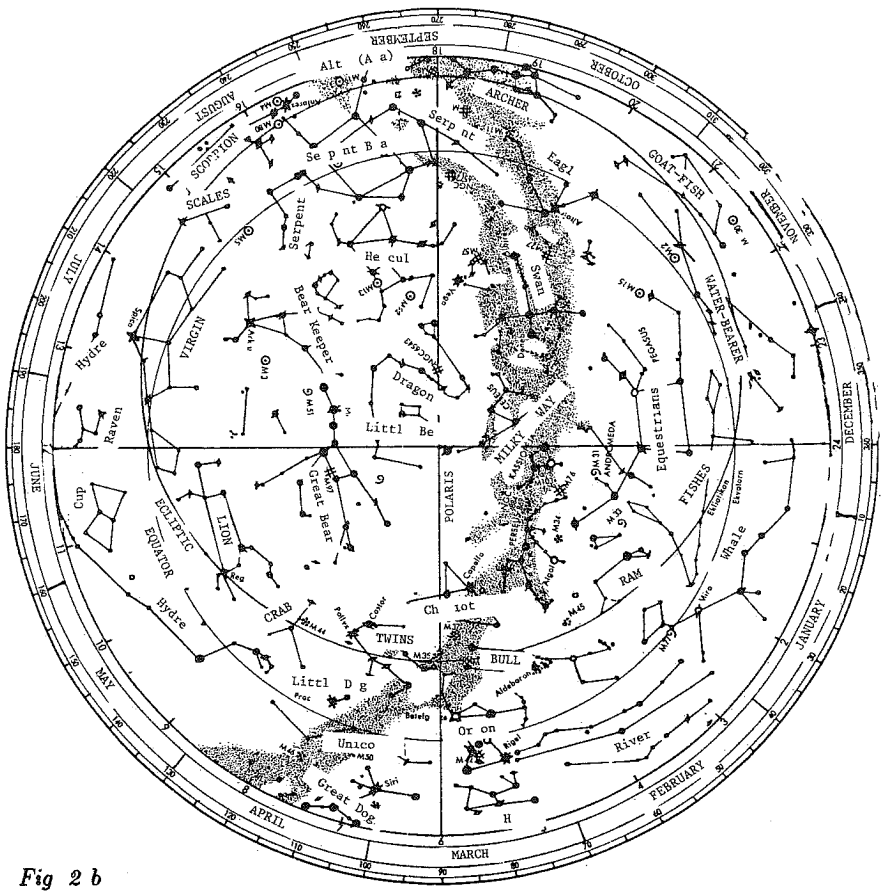

Fig 2 b

the centre (b), as fixed parts of the central cross design (c), and as parts mostly firmly fixed to the double border line (single in our drawings here) painted along the edge of the drum (d) The aim of these arrangements was to make it easier to look for possible regularities in the *position* of the individual figures, especially in relation to the four main sections of the surface which had been indicated by the cross in the centre When converting the original oval drumskins into circles, care was taken to preserve the relative distances as far as possible

Fig 2 a, b are two instances of maps with traditional star constel lations The more artistically executed one (a) is called "The Map of the Universe" and was designed and compiled by Tomas J Filsinger in 1981 as a wall map, which is distributed together with a companion text guide (Filsinger 1981a; Filsinger 1981b) The other map (b)

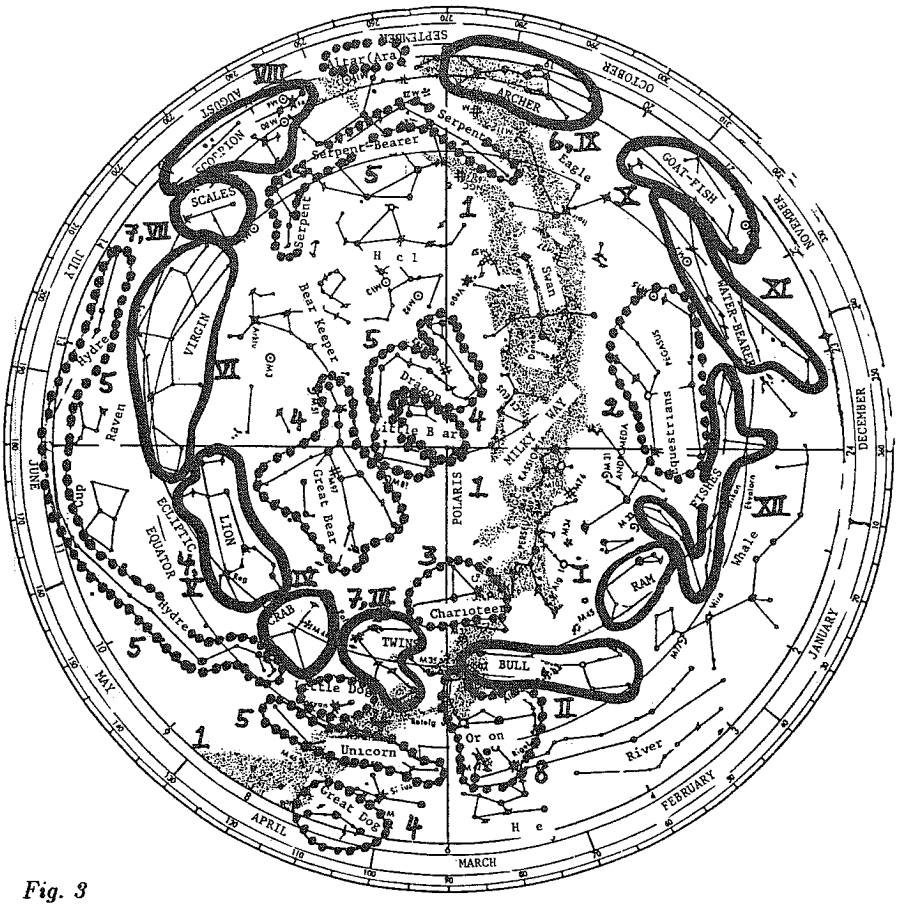

Fig. 3

with the constellations marked only by simple lines was designed and compiled by Björn Hedvall, likewise for practical use, but is even more handy as it is in fact a simple but effective astrolabe (or planisphere) made of cardboard (Hedvall 1962; here in English) The latter was used by the author when he became struck by certain *similarities* between some of the Saami drum figures and *star constellations,* starting with the positions of the Milky Way and Pegasus (the rider), which appeared to be quite fixed in relation to each other The first results of these and of other comparisons between figures within the "free" zone of the drumskin patterns and more or less similar star constellations were published in 1985 (Sommarström 1985)

Fig 3 shows Hedvall's star map with the constellations which have to date been chosen for comparisons with the Saami drum figures

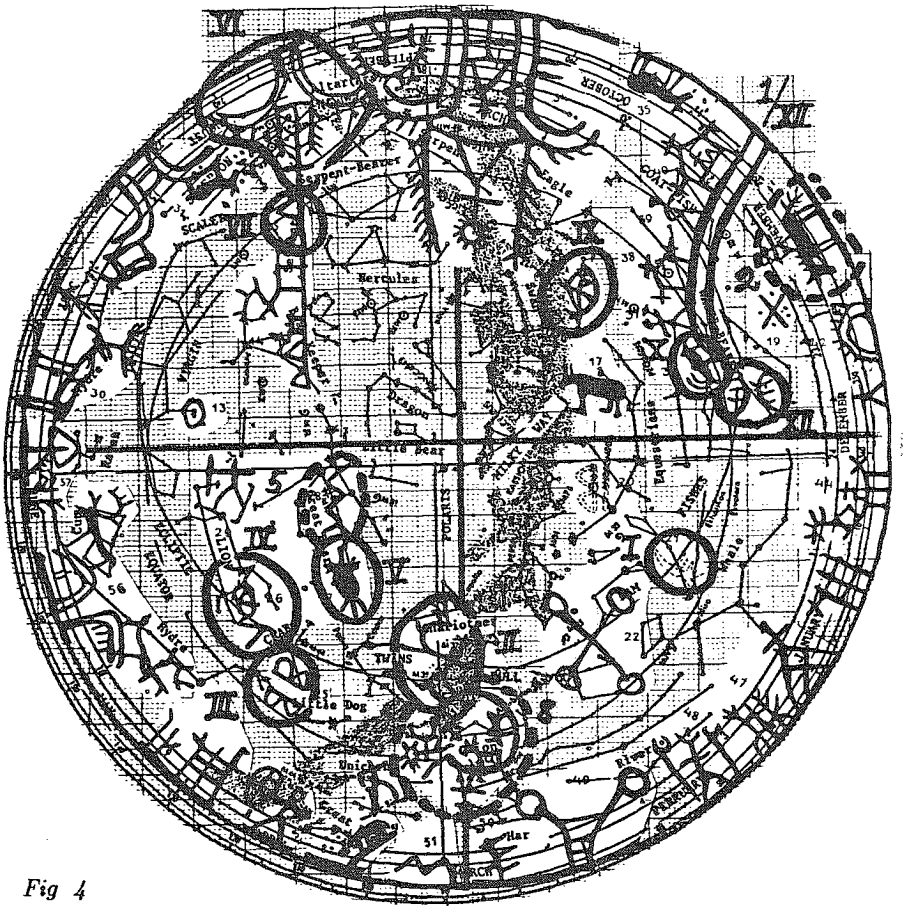

Fig 4

During the first phase of the investigation (1980–1984) eight types of figures were sought: 1 larger single or double bow line = ?Milky Way, 2 rider = ?Pegasus, 3 reindeer with sledge or dragging a ski runner = ?Charioteer, 4 beasts of prey, dogs = ?Bears, *Lion,* Dogs, 5 snake = ?Hydre, Dragon, Unicorn, 6 sailing boat or ship, bow and arrow = *?Archer,* 7 pairs = *?Twins, Scales,* 8 reindeer corral = ?Orion Those in italics above are not "free" because in a sense they are bound to the Zodiac circle (constellations I–XII) This fact led to the second phase of the investigation (1984–1985) when the author discussed the possibility that the *Zodiac circle* as such had partially influenced the positioning of the drum figures; this study was published in 1987 and included detailed comments on the figures which were more or less fixed in relation to the central cross design

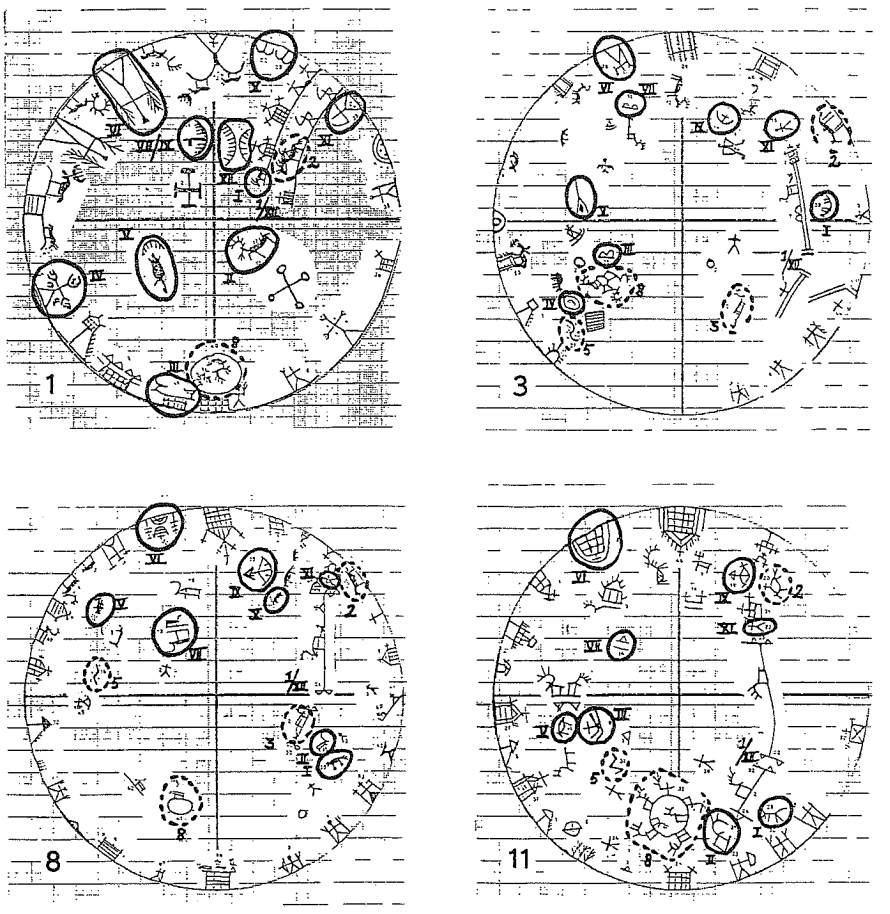

Fig 5 a

and the border respectively (Sommarström 1987) Possible "Zodiac" figures were sought both among the "free" and the "border" figures, which had this time not been moved from their original oval frame The results may not have been very convincing, but at least a few more members of the Zodiac circle seemed to be related to some of the Saami figures in the "free" or "border" zones In Fig 3, as well as in the two following Figs 4–5, straight lines encircle Zodiac constellations (I–XII), and broken lines other, single constellations (1–8)

In Figs 4–5 the drum figures have been contracted into a round frame, instead of the original oval one, in order to facilitate a com parison whith star maps In Fig 4 Hedvall's map in the form of a transparent copy has been superimposed on the Saami pattern of

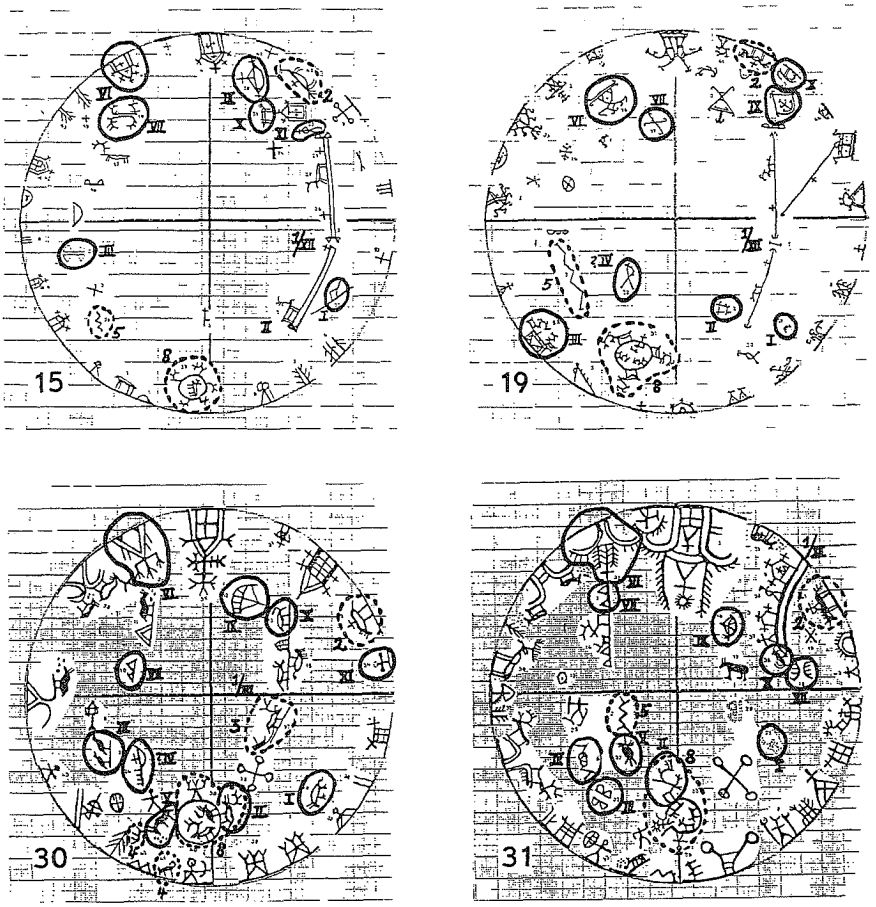

Fig 5 b

Drum No 31 (Manker 1950, Abb 112) The same method may be used for the other relevant drum patterns, but we have now chosen only seven more items as examples of such comparisons (Fig 5 a, b); these are drums No 1 (Manker 1950, Abb 82), No 3 (Manker 1950, Abb 84), No. 8 (Manker 1950, Abb. 89), No 11 (Manker 1950, Abb 92), No 15 (Manker 1950, Abb 96), No 19 (Manker 1950, Abb 100) No 30 (Manker 1950, Abb 111), and No 31 (Manker 1950, Abb 112) The results have been summarized in Table 1 of the 17 figure identifications attempted in the investigations, these eight drums (chosen among 41 with a central cross) have an average of 13 possible ones If these identifications can be accepted as fairly likely in most cases, then it seems safe to assume that both the Zodiac

Table 1 Drum figures resembling star constellations (Figs. 5 a, b)

	Drum Nos (according to Manker 1950)							
	1	3	8	11	15	19	30	31
Zodiac constellations:								
I Ram (Aries)	x	x	x	x	x	x	x	x
II Bull (Taurus)	x		x	x	x	x	x	x
III Twins (Gemini)	x	x		x	x	x	x	x
IV Crab (Cancer)	x	x				?	x	x
V Lion (Leo)	x	x	x	x			x	x
VI Virgin (Virgo)	x	x	x	x	x	x	x	x
VII Scales (Libra)		x	x	x	x	x	x	x
VIII Scorpion (Scorpio)								
IX Archer (Sagittarius)	x	x	x	x	x	x	x	x
X Goatfish (Capricorn)	x		x		x	x	x	x
XI Water-bearer (Aquarius)	x	x	x	x	x		x	
XII Fishes (Pisces) – cf 1, below	x							x
Single constellations:								
1 Milky Way; ?Fishes (XII)-bow lines	x	x	x	x	x	x	x	x
2 Pegasus – man on horse	x	x	x	x	x	x	x	x
3 Charioteer – reindeer drawn sledge or skier		x	x				x	
4 Lion (V); Bears, Dogs – beasts of prey, or dog		-		-				x
5 Hydre, Dragon, Unicorn – snake		x	x	x	x	x		x
6 Archer (VI); – ship or bow-and-arrow	-		-	-	-	-	-	
7 Twins (III), Scales (VII) pair	-	-	-	-	-	--	-	-
8 Orion – circle with reindeer	x	x	x	x	x	x	x	x
Total	13	13	13	12	12	11	15	14

(Single or double strokes indicate that a figure has already been marked above among the Zodiac constellations)

circle and separate constellations have beyond doubt influenced the positioning of several of the figures on the Southern type of Saami drums

This conclusion was reinforced during further study carried out after 1985, especially as more accurate methods worked out in cooperation with a professional astronomer (Per Ahlin) proved the relevance of natural explanations for the consistent absence of at least one of the Zodiac constellations (Scorpion, VIII) This new test was first presented in a preliminary form at the Seminar on Saami drums held in Åbo in 1988, and is the main theme of the present article

The table shows that 3 of the Zodiac constellations (Ram, Virgin, Archer) and 3 of the single ones (Milky Way, Pegasus, Orion) obtain the highest score If this is not mere chance or the result of too much subjectivity in identification, it may possibly have been caused by significant associations with the Saamis' own cultural concepts (which 200–300 years ago seems to have contained a high percentage of Germanic pagan, Catholic, and more recent European secular elements)

Checking the hypothesis against earlier interpretations

I have previously generally avoided using conventional interpretations in earlier studies, in order to see how far one could get with the star map hypothesis, without mixing it with the extant partly contradictory mixture of a few original facts and later speculations or over simplified descriptions It would now, however, be interesting to start such a comparison as a preliminary step to a more integrated investigation; a thorough analysis can only be attempted after we have completed the present test of the visibility of star constellations It is important to bear in mind that the star map hypothesis does not replace other interpretations: in principle it only affects the system of arranging the figures on the drumskin [1]

In his second volume on the Saami drums (Manker, 1950) Ernst Manker gives the following interpretations, based on his comparative research, for the six figures which we have found to be particularly likely candidates for star map influences Table 2 will help the reader

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[1] For such future studies there are now two new systematic surveys for practical use Rolf Kjellström and Håkan Rydving have published a handy booklet (Kjellström & Rydving 1988) with the individual figures grouped according to categories, and Josef Borbas has written a thesis called "Kosmograf – Kosmogram for a Phil Lic degree in Art History at Lund University (LUB Borbas 1989) a MS of 202 pages describing all the drums — It would also probably add to drum research to continue comparing with other Saami and circumpolar sources such as figures engraved in wood (e g boards of buildings such as described in Sommarström & Liman 1966), bone, and stone — Sonic studies on the effects of drum sound, of which Rolf Kristoffersson's contribution to the present Seminar is a fascinating example, are certainly far from exhausted They could be tried in relation to new general theories based on clinical observations of our senses, on which I have made some preliminary reflections (Sommarström 1989) Special biochemical and electronic responses to sound impacts are phenomena on which Don Robins has founded his theory combining high technology with human neurology (Robins 1988)

Table 2

	Drum Nos 1	3	8	11	15	19	30	31
Zodiac constellations:								
Ram	24	20	37	29	32	29	19	21
Virgin	19	38	52	45	45	16	29	32
Archer	11	14	20	19	20	21	12	16
Single constellations:								
Milky Way	24–32	17–19 23	26–30 32–34	23–25 26–28	25–29 30–31	26–27 23–25	13–15 17	36–40
Pegasus	30	41	57	20	49	42	33	41
Orion	40	30	41	32	35	31	20	23

to find all the individual figures numbered by Manker for each of the eight drums

For each individual figure on all the drums preserved Manker first refers to similar figures on the other drums, and often also to such figures in earlier publications as those of Lybecker, Utterius, Skanke Jessen, and Fries He then gives a description, and finally his own interpretation, sometimes with the addition of earlier interpretations (including ancient annotations written directly on the drumskin in a few cases).

For the figures which I have chosen as equivalent to the Zodiac constellation of the *Ram (Aries)* the following summary of Manker's information (translated from the German text) will be given for each of our eight drums Drum No 1 *goat,* which is written in Swedish ("get") on the drumskin near this figure No 3: animal difficult to determine, but probably a fur bearing animal such as a *fox* or *wolf* No 8: difficult too, possibly *wolf* (?) No 11 apparently a *wolf* No 15: possibly a *reindeer,* maybe on its way from the realm of death *(jabmeaimo)*[2] to a more paradise-like spiritual world *(saivo)* to be sacrificed there (?) No 19: possibly a furred animal (?) No 30: animal difficult to determine, but earlier commentaries point to *lynx* or *wolf* ("the Devil's dog") No 31 apparently a harmful animal, *wolf* (?) The conclusion does not seem to support the idea of a possible similarity of meaning, and in most cases the form is that of a beast

[2] Saami words cited from Manker's publications are unchanged For modern transcriptions of other Saami words in the present article (as well as in my previous article, Sommarström 1987) I am indebted to Professor Olavi Korhonen, the Institute for Saami language, Umeå University

of prey rather than of a goat However, in the folklore of the Saamis, as well as in Nordic and other European folklore, the goat can be the companion of the Devil, or even form part of it According to a story from Arjeplog parish in Swedish Lapland two *noai des* were having a contest to find out who was the best shaman Finally one of them said: "Tomorrow you will have spirits which I will fetch from Norway!" This was of course an outrageous lie because the shortest possible distance must have been 50 kilometres as the crow flies in these high mountains on the Swedish Norwegian border, say between a nomadic settlement on Lake Mavas and the village of Fauske in the inner part of the Saltfjorden It must have taken at least two days in each direction even for a good runner, as most of the reindeer herders of course were (I know because I once made most of this high way myself) Nevertheless, next morning *a goat appeared with a keg of spirits* hanging from a strap around his neck, just like the famous St Bernhard dogs in Switzerland, trained by monks to rescue trav ellers who have gone astray So, at least we have a certain similarity between two *companion figures:* one is the wolf, the principal enemy of the reindeer herder, who therefore regarded him as "the dog of the Devil" (in Christian time); the other "power animal" was the goat of the shaman, the *noai'de* who was often equalled with the Devil already in the earlier sources Could, therefore, a goat or a smaller beast of prey (fox, lynx, wolverine, wolf) be substituted to suit the strange, foreign idea of attaching importance to a *ram?* The wolf would in fact be a better expression of the basic meaning of Ram/Aries as a symbol of energetic forces: "restless environment, assertive power, ambition, ardour, quick temper, forceful speaker; rash, fanatical, independent, versatile, quarrelsome, aggressive, violent" (to cite A T Mann in his book on astrology, 1979) (Mann 1979, 138) [3]

The next Zodiac constellation is the *Virgin,* for which Manker gives these explanations Drum No 1 a human figure with a tree in each hand, which might symbolize good weather, thus a weather or forest spirit, according to an inscription here meaning "clear weather" Man

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[3] The citation of course refers to the *sign* of the zodiac with the same name as the star *constellation* A sign is a 30° division of the ecliptic in both astronomy and astrology, equal to two hours of time The personality traits cited are common traditional elements of Western horoscopes and therefore not to be completely dismissed as one of the sources of influence on ancient Saami divination system Certainly not directly, but only as an underlying tendency which has created the basic zodiac constellations and signs, as personalized expressions of the yearly changes of seasons and seasonal variations of the visibility of the stars

ker notes that the motif of a ruling deity (a *Radien*) "does not seem to be unfamiliar" and cites a late commentator (Reuterskiöld), who advances the idea that the figure represents *Tjorveradien* This god, however, usually has a reindeer antler as a halo, as in figure 33 on drum No 31 Instead of this son of the highest god *Radienattje,* the latter's wife *Radienakka,* or his daughter *Rana-neida,* if we prefer to follow Manker's and Reuterskiöld's suggestion of a Saami Holy Family, or Trinity (with the Holy Spirit in a female form) The members of this group of deities reside on the upper part of the drumheads (when the large bow line design is to the right) This is also the place of Christmas and the New Year, as I have previously suggested (Sommarström 1987, 237, Fig 12) Drum No 3 has a similar figure at the corresponding place, and Manker also refers to the first-mentioned one saying that it may be "one of the *Radien* aspects or a forest spirit" No 8: Manker says that "the figure apparently belongs to the *Radien*-group and would in this case preferably be regarded as *Radienakka*; may possibly also represent a weather spirit" No 11: "apparently a figure of the *Radien*-group; *Radienakka* (?) No 15: *"Radienakka* (?)" No. 19: if we choose figure 39, which is at the border and therefore in the same place as the other Virgin like figures, the interpretation according to Manker is this: "Sacrificial platform with idol or sacrifice; *passe* (holy place)", for figure 16, an alternative which suits the Virgin idea better, but is in the "free" zone, he states that it may be a "sacrificial place with sacrified reindeer antlers (?, possibly a camp with tents and reindeer?)" He admits that these figures are hard to determine; all the figures of this drum are painted in a unique way with plenty of extra decorative twirls, which might suggest to the snags of antlers For me it is obvious that figure 16 is a woman, and in a place quite acceptable for that of a Zodiac Virgin. No. 30: several commentators refer to the Holy Spirit, or to *Radienakka,* the wife of the Ruling Deity No 31 "one of the three figures of the *Radien* group, probably *Radienakka",* with *Radienpardne* (her son, also called *Tjorveradien* and *Radienkiedde*) between her and his father, *Radienattje* — All commentaries taken together indicate a female figure of mythical dimensions: Virgin, Wife, or Mother

The *Archer* is the third member of the Zodiac group that interests us with reference to the Saami meaning of its counterpart on the drums For No 1 Manker gives this information: "Boat with mast", "Boat sacrifice" referring to Reuterskiöld who specifies "A sacrifice to the dead at Christmas time" (which is a qualified guess only); an old inscription here has the Scandinavian word for ship (Near to the right

there is a generally similar figure, which has been interpreted as a ship with its reflected image; this idea is in my opinion too sophisticated, and I have preferred to see such convex/concave designs as perhaps representing the Zodiac Fishes, especially as the Zodiac *sign* (not constellation!) has the same basic construction) No 3: "Boat with cross shaped mast", "Boat sacrifice" No 8: "Boat with cargo and a triangular sail", "Boat sacrifice", in my eyes the "sail" is more like an arrow, but I must admit that the bow in such a case has been turned the wrong way No 11 "A boat with mast and a triangular sail (?)", "Boat sacrifice" No 19: "Figure hard to determine, suggests a boat as well as a strung bow; encloses a figure which has a certain similarity with an anchor, and also with a sitting human being", "Boat sacrifice (?)", for me it is more a design of a strung bow with the arrow free inside as if just released No 30: "Boat with mast", "Boat sacrifice" No 31 "Figure similar to a boat", "Boat sacrifice", the boat apparently being loaded — In our present selection of eight items, our Archei constellation clearly corresponds to a boat figure, and only in one case to a possible bow with arrow (another bow and arrow is quite clear in drum No 17, figure 22 in about the right position for an Archer; it looks more like a crossbow, however, and is painted on a drumhead which belongs to the Ume sub type where the cross design is close to the centre but below a transverse line). Still, the boat forms generally show peculiarities and similarities with the bow and arrow motif Besides, the bow would have been the only part of the Archer constellation that was possible to observe, as the centaur holding the bow is concealed below the horizon (but we come to that later)

Among the *single* constellations of special interest in the present survey we first look at the *Milky Way,* which is of course not a constellation proper but a galaxy (comprising our solar system) For drum No 1 Manker follows earlier commentators in describing the left hand bow line group as representing the "Christians' Path" as well as the realm of living human beings The opposite of this is the right hand bow line with a "Christian grave", "aggressive men", and an rider which Manker, Fries and Reuterskiöld identify as *Rota (Ruto),* the demon of death and disease, riding to the realm of death Reuterskiöld and other earlier scholars propose that the prototype for *Rota* was Odin, who also is connected with the land of the dead Gustav Ränk has recently (Ränk 1985, 170) pointed out that this is a too narrow an interpretation and that the motif is much older and more widespread Henceforth we will treat this figure separately in

connection with the constellation of Pegasus, which comes next in our survey, as he is mostly not directly associated with the large bow lines on other drums No 3: "A Lapp/Saami/ in his sledge returning to his camp from the church or the church village; possibly symbolic *saivo* (Paradise)-motif showing the dead person travelling from his grave or churchyard to his camp in the other world, *saivo"*, the shorter part of the broken bow line also being a *saivo* motif No 8: Manker gives the same kind of interpretation here as for No 3: a Saami in his sledge travelling from the church village to his camp, possibly a *saivo*-motif; the triangles at the ends of the bow lines are tents according to Manker No 11 the same interpretation No 15: "Men and reindeer between two camps in the *saivo* realm; possibly on their way from one camp to the other", and for the short bow line: "Reindeer (herd) and reindeer herder in *saivo* (?) The group seems to correspond with" the longer bow line group No 19: "The *saivo*-realm with people and reindeer (?)", No 30: "The settlement or the church village with houses and cattle: goat, cow, and horse", and a speculation that the reindeer drawn sledge at the shorter bow line may be a *noai de* together with his reindeer making a spiritual journey No 31: this double bow line represents a "Settlement or church village, showing a house, church or maybe a storehouse on piles, goat, and a couple of persons, possibly man and wife"; reference is also made to Fries who names this group in the common way *"Rist-balges"*, the Saami word for the "Christians' Path" — The interpretations tally well with the complementary ideas of this living world and the other dead or spiritual world This also partly coincides with a Fenno-Ugric concept that equates the Milky Way with the destination of dead souls So, in a very general sense, at least, there may be a link between the star maps' Milky Way bow line and e g Saami concepts of life and death connected with *their* bow lines painted on the drums to the right of the central cross (As a secondary motif fused with that of the Milky Way we might consider the Zodiac constellation of the Fishes, who are separated from each other in a manner reminiscent of the gap cutting both the Milky Way and the bow lines on the drums in two parts)

Pegasus was the first real constellation like figure to appear in a fixed position in relation to a drum surface divided into 4 quadrants The similar horse figure moves only within the upper quadrant to the right We have already seen that Manker and other scholars have associated this rider with the death- and disease demon *Rota (Ruto)* in Saami mythology; he has many counterparts in Eurasia (cf later investigations, e g Pettersson 1987, Mebius 1968, Bäckman 1975,

Ränk 1985) But in our present context we limit ourselves to the basic information related to the drums which Manker had collected up to 1950 Drum No 1 the rider figure here has already been commented on in connection to the Milky Way above: *Rota (Ruto)* as a death and disease demon No 3: "*Rota* on a horse" No 8: "*Rota* on horseback" Nos 11, 15, 19 and 30: ditto, the latter with commentaries by others mentioning that the horse was the typical sacrifice to this "god of the Nether world" No 31 the same identification — There is a certain similarity between *Rota (Ruto)* and the classical concept of Pegasus The former "appears as a dualistic spirit of disease who could *both cause and remove illnesses*", and "he sat on a dead horse, which was then dug down to enable him to ride down into *Rutaimo* with the torment An act of purification was thus carried out there which can suitably be called *a transference rite*" (Ränk 1985, 169) The latter was born from the side of the monstrous gorgon Medusa when Perseus cut off her head; the head was then carried in a goat skin by Athena, or used as a shield by her, Zeus and Apollo in battle (could this have been the "Golden Fleece", which was a *Ram*'s hide and stolen by Medusa and Jason, one of the Argonauts?) Medusa's blood was considered to have *both healing and destroying* properties, and even after death her eyes issued flashes of lightning which petrified enemies

The sixth and final constellation for our purposes here is *Orion,* a cluster of stars with a striking combined brilliance [4] The drum design at a corresponding place is naturally recognized by all observers as a corral with reindeer, and sometimes also herder(s) Manker does so too, and the only interesting point he notes is that the corral was used during summer time when the reindeer were to be milked (During recent generations this has ceased as a daily procedure, and corrals are now used for ear marking the calves, castration of the bulls, separating into smaller herding units during the autumn, and principally for slaughter during winter time) There is apparently no resemblance between the corral concept and the classical myth of the wild hunter Orion — if the corral is not regarded as an enclosure for *wild* reindeer which have been driven into it; the time of the preserved drums was

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[4] *Orion* is one of the most prominent star groups in Eurasian mythology and has been widely used by seafarers for orientation especially before the invention of the magnetic compass in China in about the 10th century A D and its subsequent spread westwards For its ancient mythological and astronomical history see e g Bal Gangadhar Tilak's works (Tilak 1893; Tilak 1925), the first one specifically dealing with the constellation *Orion.* For other perspectives, cf Sommarström 1987 230

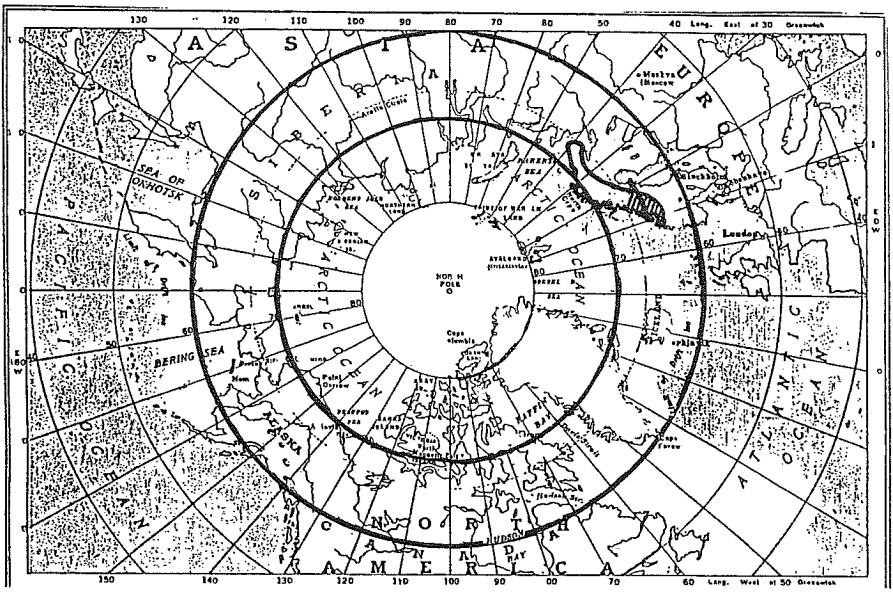

Fig 6 Circumpolar zone between Latitudes 60° N – 70° N Within this are the southern Saami drums with central cross design (hatched area), and most of the other drum types of the Saamis (encircled area of traditional population distribu tion). Latitude 65° N (short transverse line) was chosen for the present investigation of which star constellations could actually have been seen by the southern Saamis in clear weather during different parts of the year

not far away from the Medieval time when tame reindeer were still kept in small numbers mainly for transport, and hunting wild reindeer was an important part of the Saami economy[5] Another interesting possible connection might also be considered: that between Orion and the Zodiac constellation of the Bull within which there are the Pleiades (or Seven Stars), which are always being "hunted by Orion" It may therefore not be a coincidence that on some of the drums a large reindeer bull stands on the outside of the corral instead of at the proper place in the relevant constellation (to the right of the corral/Orion)

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[5] The transition from hunting to herding reindeer among the Saamis has been ex tensively studied by several scholars May it here suffice to mention Vorren's study on reindeer pens (Vorren 1966), and two short surveys on reindeer herding develop ment and its ecological background (Sommarström 1956–78b; Sommarström 1956–78a) Just to show that the reindeer economy was not the only one among the Saamis but a gradually increasing and dominating part of their total economy I also want to refer to my study on Fishing Saamis (Sommarström 1966)

I am of course aware of the great risk of pressing the facts too far to suit the star map hypothesis I still keep to the main idea that its value lies in the *probability of influence on positioning,* or arrangement system, of the individual figures on the drumskins However, if the above discussion has led to a *possibility of greater similarities in meaning* for some of the correspondences than merely formal resemblances indicate, then it would certainly strengthen the hypothesis The natural background for this is the fairly advanced degree of acculturation prevalent for the time when the drums studied were in use The Saami people was far from isolated, especially not after developing full nomadism for many groups after the post medieval period and crossing the Scandinavian peninsula annually, often from coast to coast The Southern Saamis even went southwards to the winter market connected with the "Disa assembly" in the town of Uppsala, centuries before the period which we are now studying, and even after this until 1895, when the market was abolished in its traditional form

Planisphere with tables made for the present study[6]

The astronomer *Per Ahlin,* of the Stockholm Public Observatory, has prepared a planisphere and tables containing calculations for determining of the *rising and setting of the sun* relevant for latitudes 60°, 65° and 70°, and the *stars visible within* the corresponding *three horizons* As the Arctic circle in the Northern Hemisphere has the latitude 66° 30′, the chosen horizons are accordingly representative for the circumpolar region and most of the peoples living there or near to it In any case, the circumpolar zone comprises those Southern Saami regions which have produced the type of drums that are the object of our investigation, i e the type with a central cross (including the sub type with a transverse line above), all in all 50 drums (Map, Fig 6) The planisphere (Fig 7) with accompanying calculations (Example

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[6] This section about astronomical technicalities is based on Per Ahlin s detailed introduction to his specially prepared planisphere and its appurtenant tables with calculations of the rising and setting etc of the Sun for the relevant horizons Ahlin has changed an ordinary planisphere made by George Philip and Son for Latitude $51\frac{1}{2}^{\circ}$ N, useful also for zone $46\frac{1}{2}^{\circ}$ N – $56\frac{1}{2}^{\circ}$ N, published in 1978 by making a new oval opening (through shading) which generally corresponds to the more northern horizons fo the Saamis At the inner edge of the window like opening's plastic pane Ahlin has line marked three ovals representing the latitudes 60° 65° 70° N with blue, black and red lines respectively DI Ahlin 1988; Philips planisphere 1978

Fig 7 Planisphere used for the present investigation of the visibility of certain star constellations on latitudes where Saamis live in their traditional regions Original planisphere (made by George Philip and Son, Ltd, London) has been adjusted by astronomer Per Ahlin, Stockholm Public Observatory, to suit the horizons of the more northernly latitudes of the Saamis Different portions of the star map of the bottom disc are seen as the top disc when its transparent opening is moved clockwise. The main change is at the opening, the form of which has been altered by shading and by 3 differently coloured line ovals at the inner edge representing latitudes 60°, 65°, and 70° N respectively

in Table 3) may of course also be used to check realities behind astral myths among other circumpolar peoples, besides the Saamis, in different kinds of material, folkloristic, religious and artistic

The planisphere is naturally not an exact instrument for precise measurements The rate of accuracy may be estimated at about

one degree perpendicular to the horizon The horizons shown in the planisphere are so called "ideal" horizons which in reality only exist on the sea and on the tundra But the instrument is probably sufficient for the purpose of our study, which aims at determining the visibility of constellations for their main (mythical) features only The tables with calculations are, on the other hand, much more precise than would be necessary This high degree of precision reminds us of the fact that such accuracy was common for both astronomers and astrologers These were often identical, in the case of Tycho Brahe, Kepler and other famous scientists who lived partly by making horoscopes for rich people, basing their prophecies on actual relationships between stars and planets, in combination with the person's birthday, and other circumstances Nowadays, these two spheres of activity have separate practicians in the West, at least as a rule, but the use of exact calculations for astral matters is still the same for both categories, and thus also the tables of the astrologers may be as impressive as any work of their more established scientific colleagues (such as Table 3)

The *calculations* for the rising and setting etc of the sun, made for our special planisphere by Per Ahlin, are valid for as much as *6 horizons* (the planisphere itself is for 3 only), viz for the time meridian with latitudes 60°, $62\frac{1}{2}°$, 65°, $67\frac{1}{2}°$, 70°, and for Stockholm Such a fine adjustment might be of some advantage when making additional field research regarding the knowledge of stars and planets among local people living at these horizons within the circumpolar zone But for our present purpose, references will be made only to conditions related to the three horizons with latitudes 60°, 65° and 70°, and detailed tables only for latitude 65°

The time which is indicated at the edge of the planisphere's upper disc is not the time which is shown by our modern clocks and watches The latter indicate a time which is usually common for a whole coun try, the so called "normal" time The time of the planisphere, on the other hand, indicates "local" time, or the "local mean solar" time according to the terminology of astronomers Formerly, mean solar time was in general use, in Sweden, for instance, until 1879 Mean solar time and normal time have the same speed and differ from each other only by a constant value which is called the "time difference" Its size depends on the distance to the time meridian which for Swedish normal time is based on longitude 15° East of Greenwich The time difference is accordingly a difference in longitudes which may be measured either in degrees (one round is 360 degrees) or in hours (one round is 24 hours)

Table 3 Example of one page of calculations made by astronomer Per Ahlin showing the visibility of the sun through a year

SOLENS UPPGÅNG OCH NEDGÅNG
SAMT GRYNING OCH SKYMNING (— 6°)

FÖR LATITUD 65

0 min 0 sek västerom Sveriges tidsmeridian
65 grad 0 min 0 sek nordlig latitud

Mars 1988

	Solen upp	Solen söder	Solen ned	Gryn börj	Skym slut	Dagens längd	Skillnad vinter	Skillnad sommar	Skillnad igår
1	7 12	12 12	17 14	6 20	18 06	10 02	+ 6 39	11 42	+ 7
2	7 08	12 12	17 17	6 16	18 09	10.09	+ 6 46	11 35	+ 7
3	7 05	12 12	17 20	6.13	18 13	10 15	+ 6 52	11 29	+ 6
4	7 01	12 12	17 24	6 09	18.16	10.23	+ 7 00	11 21	+ 8
5	6 58	12 11	17 27	6 06	18 19	10 29	+ 7 06	11 15	+ 6
6	6 54	12 11	17 30	6 02	18 22	10 36	+ 7 13	11 08	+ 7
7	6 50	12 11	17 33	5 59	18 25	10 43	+ 7 20	11 01	+ 7
8	6 47	12 11	17 36	5 55	18 28	10 49	+ 7 26	10 55	+ 6
9	6 43	12 10	17 40	5 52	18 31	10 57	+ 7 34	10 47	+ 8
10	6 39	12 10	17 43	5 48	18 34	11 04	+ 7 41	10 40	+ 7
11	6 36	12 10	17 46	5 44	18 37	11 10	+ 7 47	10 34	+ 6
12	6 32	12 10	17 49	5 41	18 40	11 17	+ 7 54	10 27	+ 7
13	6 28	12 09	17 52	5 37	18 44	11 24	+ 8 01	10 20	+ 7
14	6 25	12 09	17 55	5 33	18 47	11 30	+ 8 07	10 14	+ 6
15	6 21	12 09	17 58	5 30	18 50	11 37	+ 8 14	10 07	+ 7
16	6 17	12 09	18 02	5 26	18 53	11 45	+ 8 22	9 59	+ 8
17	6 14	12 08	18 05	5 22	18 56	11 51	+ 8 28	9 53	+ 6
18	6 10	12 08	18 08	5 19	18 59	11 58	+ 8 35	9 46	+ 7
19	6 06	12 08	18 11	5 15	19 03	12 05	+ 8 42	9 39	+ 7
20	6 03	12.07	18 14	5 11	19 06	12 11	+ 8 48	9 33	+ 6
21	5 59	12 07	18 17	5 07	19 09	12 18	+ 8 55	9 26	+ 7
22	5 55	12 07	18 20	5 03	19 12	12 25	+ 9 02	9 19	+ 7
23	5 52	12 07	18 23	5 00	19 16	12 31	+ 9 08	9 13	+ 6
24	5 48	12 06	18 26	4 56	19 19	12 38	+ 9 15	9 06	+ 7
25	5 44	12 06	18 29	4 52	19 22	12 45	+ 9 22	8 59	+ 7
26	5 41	12 06	18 33	4 48	19 25	12 52	+ 9 29	8 52	+ 7
27	5 37	12 05	18 36	4 44	19 29	12 59	+ 9 36	8 45	+ 7
28	5 33	12 05	18 39	4 40	19 32	13 06	+ 9 43	8 38	+ 7
29	5 29	12 05	18 42	4 36	19 35	13 13	+ 9 50	8 31	+ 7
30	5 26	12 04	18 45	4 32	19 39	13 19	+ 9 56	8 25	+ 6
31	5 22	12 04	18 48	4 28	19 42	13 26	+10 03	8 18	+ 7

April 1988

	Solen upp	Solen söder	Solen ned	Gryn börj	Skym slut	Dagens längd	Skillnad vinter	Skillnad sommar	Skillnad igår
1	5 18	12 04	18 51	4 24	19.46	13 33	+10 10	8 11	+ 7
2	5 15	12 04	18 54	4 20	19 49	13 39	+10 16	8 05	+ 6
3	5 11	12 03	18 57	4 16	19 52	13 46	+10 23	7 58	+ 7
4	5 07	12 03	19 00	4 12	19 56	13 53	+10 30	7 51	+ 7
5	5 04	12 03	19 04	4 08	19 59	14 00	+10 37	7 44	+ 7
6	5 00	12 02	19 07	4 04	20 03	14 07	+10 44	7 37	+ 7
7	4 56	12 02	19 10	4 00	20 07	14 14	+10 51	7 30	+ 7
8	4 53	12 02	19 13	3 56	20 10	14 20	+10 57	7 24	+ 6
9	4 49	12 02	19 16	3 52	20 14	14 27	+11 04	7 17	+ 7
10	4 45	12 01	19 19	3 48	20 18	14 34	+11 11	7 10	+ 7
11	4 42	12 01	19 23	3 43	20 21	14 41	+11 18	7 03	+ 7
12	4 38	12 01	19 26	3 39	20 25	14 48	+11 25	6 56	+ 7
13	4 34	12 00	19 29	3 35	20 29	14 55	+11 32	6 49	+ 7
14	4 31	12 00	19 32	3 31	20 33	15 01	+11 38	6 43	+ 6
15	4 27	12 00	19 35	3 26	20 37	15 08	+11 45	6 36	+ 7
16	4 23	12 00	19 39	3 22	20 41	15 16	+11 53	6 28	+ 8
17	4 19	12 00	19 42	3 18	20.44	15 23	+12 00	6 21	+ 7
18	4 16	11 59	19 45	3 13	20 49	15 29	+12 06	6 15	+ 6
19	4 12	11 59	19 48	3 09	20 53	15 36	+12 13	6 08	+ 7
20	4 08	11 59	19 51	3 04	20 57	15 43	+12 20	6 01	+ 7
21	4 05	11 59	19 55	3 00	21 01	15 50	+12 27	5 54	+ 7
22	4 01	11 58	19 58	2 55	21 05	15 57	+12 34	5 47	+ 7
23	3 58	11 58	20 01	2.50	21 10	16 03	+12 40	5 41	+ 6
24	3 54	11 58	20 05	2 46	21 14	16 11	+12 48	5 33	+ 8
25	3 50	11 58	20 08	2 41	21 19	16 18	+12 55	5 26	+ 7
26	3 47	11 58	20 11	2 36	21.23	16 24	+13 01	5 20	+ 6
27	3 43	11 58	20 15	2 31	21 28	16 32	+13 09	5 12	+ 8
28	3 39	11 57	20 18	2 26	21 33	16 39	+13.16	5 05	+ 7
29	3 36	11 57	20 21	2 21	21 37	16 45	+13 22	4 59	+ 6
30	3 32	11 57	20 25	2 16	21 42	16 53	+13 30	4 51	+ 8

Teckenförklaringar
* = Tiden anges i sommartid. I övriga fall anges tider i normaltid.
Justering för sommartid är alltså redan gjord för * markerade tider!
o h = Solen är över horisonten hela dygnet (midnattssol)
u h = Solen är under horisonten hela dygnet
++ = Solen når aldrig mer än 6 grader under horisonten. Om det inte är midnattssol varar skymning+gryning från solnedgång till soluppgång

upp / ned = Tider då solens centrum passerar en i skymd horisont
söder = Tiden då solens centrum står i söder
Dagens längd = Den tid under dygnet som solen är över horisonten
Skillnad vinter = Dagens längd minus längden av årets kortaste dag
Skillnad sommar = Dagens längd minus längden av årets längsta dag
Skillnad igår = Dagens längd minus gårdagens längd

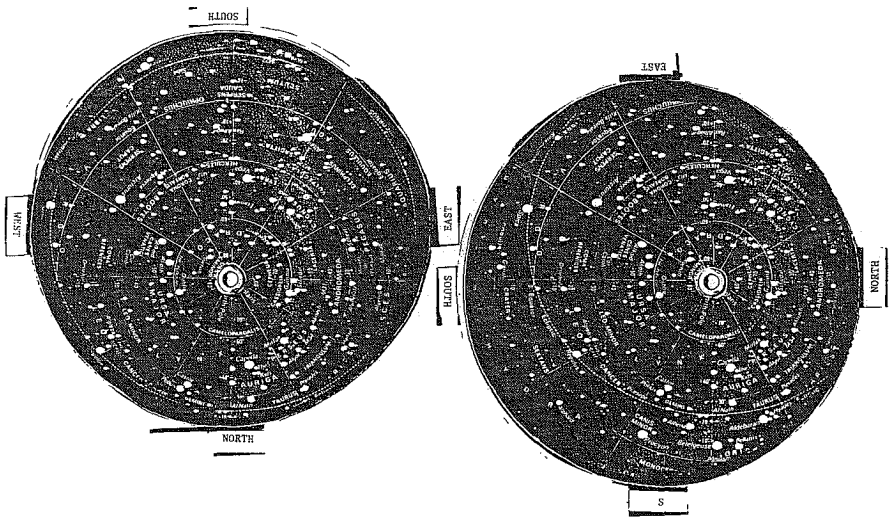

Fig 8 a *Fig 8 b*

The calculations for the rising and setting etc of the sun are, for the sake of simplicity, made for the year 1988, but can nevertheless be used for other years as well, because the time differences between years in our era is much smaller than the uncertainty which is caused by the planisphere

Per Ahlin's calculations comprise the following factors: for each *day* in each *month* (on the time meridian of Sweden) the *sun's* rising, position in South, setting, start of dawn, end of dusk, length of day, differences of daylight during winter, summer, between two days Dawn and dusk are calculated for two situations: 6 degrees (−6°) below the horizon (the maximum setting of the sun's light), and 12 degrees (−12°); in this study only the former will be utilized As we are studying the stars, several of the above-mentioned factors are not of immediate use, since they refer to day-time when the stars are invisible (even if they are within the horizon of theoretical visibility) (Cf Fig 8 a–d)

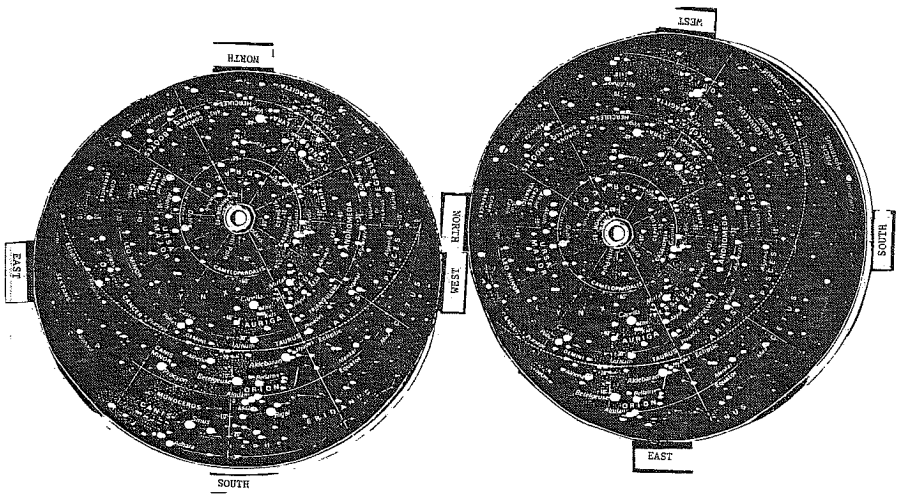

Fig 8 c. *Fig 8 d*

Fig 8 a–d ***The planisphere shown in four major positions*** according to equinoxes and solstices The investigation covers all parts of the year and shows when the star constellations appear above the horizon and when they sink below and cannot be seen even theoretically Daytime, dawn and dusk are controllable factors of visibility, which are also tested in the investigation (For clear or bad weather prognostication, you have to use the drum)

Test of visibility

In the following account of our *test of the visibility of 17 chosen constellations* and the *Milky Way,* the tables show the relevant times (in hours and minutes) calculated for the *horizon at* 65° *latitude* in some detail, but give (separately) only the final sums of visibility hours for the horizons at latitudes 60° and 70° When the planisphere has been fixed for the rising and setting of stars, comparisons of hour time and dates have been limited here to the first day and night of each month

In the same way as for Table 4 below, all the other tables for calculation of the real visibility possibilities have been constructed It would be a dull and lengthy process to print the complete tables, and therefore only the final results of each will be accounted for here, viz the last sum, which is the measure of hours when the stars can really be seen in darkness Thus the *Ram* is visible for more than *5 hours* during the first day and night (fdn) of each of altogether *7 months* and must, accordingly, be seen as an acceptable constellation to be

Table 4 Ram (I) 65° – 6

Dates	*Stars* rising in East	setting in West	*Sun* dawn starts	dusk ends	*Star visibility* (in darkness)
Jan 1	12	4	8 44	15 23	15 23–4:12 23
Feb 1	10	2	7 50	16 38	16 38–2:9 38
Mar 1	8	0(24)	6 20	18 06	18 06–24:5 54
Apr 1	6	22	4 24	19 46	19 46–22:2 14
May 1	4	20	2 11	21 48	21 48–20: 0
Jun 1	2	18	----	----	--------- 0
Jul 1	0(24)	16	----	----	------ - 0
Aug 1	22	14	1.13	22 52	22 52–1.13:2 21
Sep 1	20	12	3.44	20 13	20 13–3.44:7 31
Oct 1	18	10	5 21	18 17	18 17–5:21 11 04
Nov 1	16	8	6 53	16 33	16 33–6 53:14 20
Dec 1	14	6	8 15	15 23	15 23–6:14 37

---- indicates direct continuation of dusk into dawn (or from sunset to sunrise), and 0 absence of darkness, or the stars being below the horizon

compared with figures of the Saami drums' cosmology

The *Bull* is also a possible choice as its visible appearances for more than *4 hours* are also during fdn *7 months* (January to December 11 37, 8 22, 4 54, 1 14, 0, 0, 0, 0 13, 4 44, 8 21, 11 53, 12 00)

The *Twins* are observable for more than *6 hours* during fdn *7 months* (16, 13 22, 9 54, 6 14, 2 12, 0, 0, 0, 3 44, 7 21, 10 53, 14 15)

The *Crab* is similar to the *Bull* in that both are clearly visible more than *4 hours* during fdn *7 months* (11 30, 11 22, 7 54, 4 14, 0 12, 0, 0, 0, 1 14, 4 51, 8 23, 11 30)

The *Lion* appears like the *Bull* and the *Crab* (10 44, 11 50, 11 54, 8 14, 4 12, 0, 0, 0, 0, 1 21, 4 53, 8 15)

The *Virgin* is seen clearly only *6 months* fdn from December to May (Jan etc 5 44, 6 50, 7 20, 7 24, 4 23, 0, 0, 0, 0, 0, 0, 3 15)

The *Scales* are partly seen for up to a little more than *2 hours* during fdn *5 months* (0 44, 1 50, 2 20, 2 24, 2 11, 0, 0, 0, 0, 0, 0, 0)

The *Scorpion* is almost wholly absent, being visible only for less than $1\frac{1}{2}$ *hours* during fdn *4 months* (0, 0 50, 1 20, 1 24, 1 11, 0, 0 0, 0, 0, 0, 0)

The *Archer* can be seen a few minutes more than the previous constellation, and during *one month more* (0, 0, 0, 0, 0, 0, 0, 1 08, 1 47, 1 43, 1 27, 0 37)

The *Goatfish* is seen for up to *3 hours* during fdn *6 months* (0 37, 0, 0, 0, 0, 0, 0, 2 13, 3 00, 3 00, 3 00, 3 00)

The *Waterbearer* is visible not more than $3\frac{1}{2}$ *hours* during fdn *6 months* (3 07, 0, 0, 0, 0, 0, 0, 0 13, 3 30, 3 30, 3 30, 3 30)

The last of the twelve Zodiac constellations, the *Fishes,* rises to as much as *10 hours* during fdn for a period of *8 months* (7 37, 4 22, 0 54, 0, 0, 0, 0, 2 13, 6 44, 10 00, 10 00, 9 37)

Among the separate or *single constellations* the measures arrived at with the planisphere and the calculation tables are as follows:

The *Milky Way* is partially seen all the time, and is therefore circum polar in the astronomical sense of the word However, as it stretches across the horizon of the sky, we may restrict the commentaries in this respect to noting that, at the time of January 1 and one o'clock, the Southern horizon is at the Dog's constellations, and the Northern at the constellation of Lyra when the Milky Way is "rising", when "setting" it is at the Charioteer (Auriga) in the North and at Ara at the South

Pegasus is absent 5 months, but for the other *7 months* it is visible many hours up to *9 hours* fdn (6 37, 3 22, 0, 0, 0, 0, 0, 2 21, 6 57, 9 00, 9 00, 8 37).

The *Charioteer* is a truly circumpolar star constellation in that it is seen all the time, on all three latitudes (60^, 65^, 70°)

The *Big Dog (Canis Major)* has a small score of appearances: shows itself only *4 months* for *2 hours* fdn at the most (2 00, 2 00, 2 00, 0 14, the rest 0) The *Small Dog* however is better seen during *9 months* it can be observed up to *14 hours* fdn (14 00, 13 22, 9 54, 6 14, 2 12, 0, 0, 0, 1.44, 5 21, 7 53, 11 15)

The *Hydre* is visible only *5 months,* each time for $1\frac{1}{2}$ *hour* fdn, especially at its ends — this constellation is among the longest of the star constellations and its form also probably counts for difficulties in measuring

The final test within this horizon at latitude 65° was made for *Orion* Of the *8 months* when it can be seen 6 have values of above *4 hours* fdn, which stresses the fact that this constellation is one of the most conspicuous (8 30, 9 22, 4 54, 1 14, 0, 0, 0, 0, 1 14, 4 51, 8 23, 8 30)

The most general impression one gets when comparing all the above information may be that the constellations which have been noted as most difficult to relate to drum figures are the ones recording the highest number of absence Corresponding figures on the drumheads are also either missing, or more or less corrupted, or only partially represented (as e g the *Archer*) The worst case in this respect is the

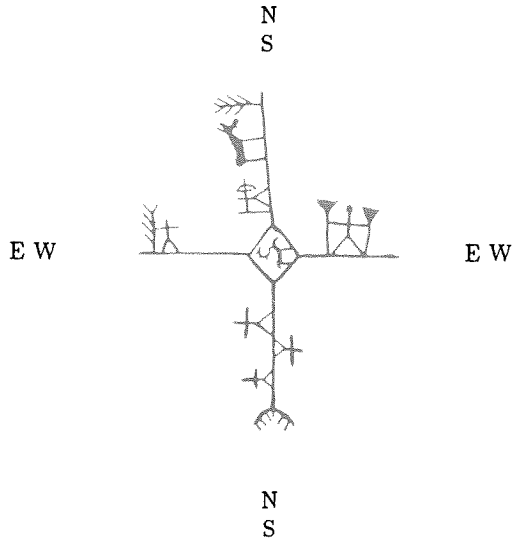

Fig. 9 a–d. This cross from one of the southern Saami drums here represents the compass-rose which may be the underlying concept of the central design. *a, b* show the consequences if the top of the tree-like cross points to South and to the constellation of *Ara (Altar)* at Noon on the Winter Solstice, and to *Orion* on the Summer Solstice; East to the right and West to the left when the drum is used for the sky. East and West change places when the drum is turned downwards and becomes a geographical chart. *c, d* represent the case when North is upwards and South at the root of the Sun-tree, and the consequences will be similar to that of the first situation.

Scorpion: it is almost completely absent in both the horizon of latitude 65° and at the corresponding place on the drums. It may therefore be a reasonable statement that an investigation of the visibility rates of the star constellations supports the star map hypothesis.

Conclusions

In the course of this new study I have become even more convinced that the star map hypothesis is a model that can be used to explain the *basic pattern* of the figures on the Saami drums of the Southern type.

The most general correspondences between star maps (including planispheres or three-dimensional astrolabes) and the painted designs on Southern drums depend on the existence of a *cross for determining the four cardinal points* in both cases (Fig. 9 a–d). As the central cross according to original Saami statements is "like a compass" for showing the routes one has to take as a result of drum-divination (e.g. to find a

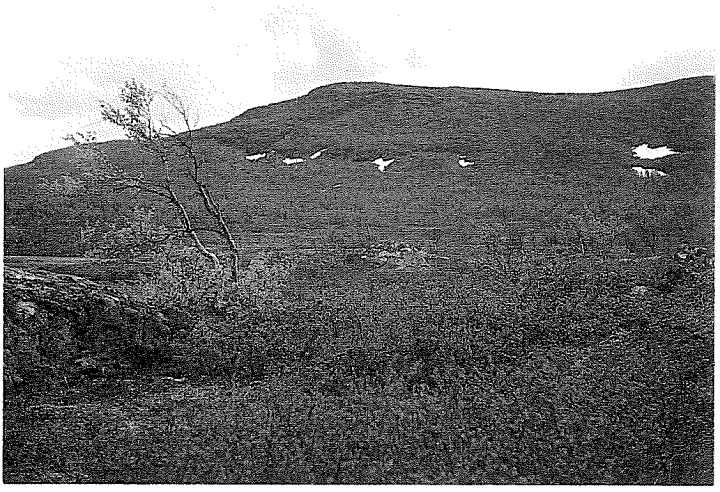

Fig. 10 a. Traditions of famous shamans, *noai'des,* still exist among the Saami people. The drum of one of these was said to be hidden in a cave on the northern side of the small hill, *Vuoktanj,* south of the mountain ridge, *Barturte,* in Arjeplog parish, North Sweden. In the summer of 1964 the author went there with two Saami men, but the cave was filled with snow and ice and could not be entered. Three years later the author was approached by a Saami at another place in the same region who said: "Stop searching for the drum! By the way, we have already moved it." — The exact geographical positions for these two photographs taken by the author have been determined by the Saami, *Lars Erik Ruong,* who is a local expert on the culture of this region.

wolf to hunt), it is convenient to see the whole design of the drumhead as a *geographical map* (Fig. 9 b, d). However, other early statements indicate that the region for "Death" (e.g. *saivo,* "Paradise"), as well as its earthly counterpart "Life", is depicted as a settlement on a simple or double bow-line resembling a bridge, to which the death- and illness spirit *Rota (Ruto)* is riding. This motif, which we have compared with the *Milky Way,* appears to the right of the central cross, i.e. to the *East* — if the cross is regarded as equivalent to an ordinary compass centre. But this direction is against most world-wide common beliefs

Fig. 10 b. This view shows another hill associated with drums: farthest away is seen the bowl-shaped *Guob'dábák'te* at Parka on a parallell mountain ridge (cf. Sommarström 1987, 213, Fig. 1). The point of observation is on *Barturte,* not far from *Vuoktanj* (which is behind you, to the South). The Arctic circle (66°30′ N) is close just in front of you. In the *Pite* river valley between the two mountain ridges there is a third region famous for its shaman. Could the three *noai'des,* if they were contemporary, have heard each other at these distances — and communicated with their drums? — A revival of their ancient psycho-mental techniques has recently begun among some Saamis who are learning "core" shamanism in workshops and courses and try to reconstruct or establish new forms of traditional local shamanism. Even drums are again used in *Saami-land* for changing one's state of consciousness in order to experience non-ordinary realities.

about *Death* being connected with *the West,* the region of the sunset. Likewise *the East* is connected with *Life,* because the Sun rises there (as do the stars which illuminate the dark sky). However, if you lift the star map, or one of our Southern drums, over your head, then — almost as if by miracle ! — East becomes West and *vice versa,* and the map is turned into an *astral map* (Fig. 9 a, c). This would resolve the apparent contradiction as the drum could be used for both purposes simply by being regarded as turned up or down: for matters

concerning *life on earth* the drum was possibly seen as if with the drumhead turned *upwards*; for *spiritual* matters such as illness, death, and the future, the astral map directions could have been seen as more appropriate, and accordingly the drumskin was looked upon as if held with the skin *downwards*. — If this interpretation is correct, it follows that the Saami drum was a truly holistic instrument, and consequently, different interpretations do not necessarily contradict each other. This view also strengthens the star map hypothesis, which is founded on the relationship between the central cross and the bow lines on its right side; this is a fixed position which allows for two initial arrangements, with either North or South pointing at the Ara (Altar) constellation and Mid-Winter around December 20, which was also the approximate time of the New Year for the ancient Saamis; either North or South then points at the constellation of Orion at midsummer time. The final choice may be easier after the following discussion.

The *Zodiac* constellations on the Ecliptic are seen almost completely and *all at the same time* when South in the star map is at Noon (12) on Christmas (nowadays December 24) which is also in the direction of the constellation *Ara (Altar)*. In all other kinds of position the Ecliptic will not be seen as a whole, and the 12 Zodiac constellations will completely disappear under the horizon for parts of the year. It is also noteworthy that the *full view of the Ecliptic is valid only for the horizon at latitude 65°* — not for latitudes 60° or 70°! All taken together, this strongly suggests, in my opinion, a decision in favour of the alternative shown in Fig. 9 a, where North is in front of you and South at your back, and East to your right side, when the *star map or the drum* is lifted up towards the sky. When put down and therefore turned so that South is in front of you and North at your stomach, and East consequently must be looked for to your left, you have a *map with earth orientations* (Fig. 9 b). Even if each separate Zodiac constellation did not call for any incorporation, the curious fact is that the *whole circle* can be seen at a time just *around Noon in Mid-Winter* (when it is dark about $21\frac{1}{2}$ hours), it is the time when Christ was born, and the time when the New Year begins. Add to this that a Saami "Holy family", similar to the Christian family or Trinity, is depicted on the drums at this very place, which has an especially large sacrificial altar as its dominating feature (the constellation Ara/Altar being close behind, i.e. below the horizon). It is too much to be sheer coincidence!

The *Milky Way, Pegasus,* and *Orion* are the most suitable examples among the *separate (single)* constellations to be compared with similar figures on the drums. They have been shown to have resemblances not

only with regard to forms but also as to their deeper meanings (but this may be due to archetypal concepts) But the great positional similarities between these stars and the corresponding drum-figures point to influences from star maps even more strongly than for the cases related to the Zodiac circle

Single or bound together in a ring, all these constellations which we have compared with the drum-figures are in fact *peripheral* Saami skies It is hard to believe that they can have played any vital rôle in their capacity as star symbols within the frame of the Saamis' own astral cosmology It is more probable that the earthly meanings of most of the figures were more important to the drummer, who was usually either a shaman *(noai de)* or an ordinary master of a household Still, a relation to other worlds with which one communicated my means of the drum had to be conceptually framed and graphically shown in a way that could be understood by the public. Much work remains to be done in reconstructing the Saami people's ancient cosmology, and for the astral dimension efforts should especially be made for the *central* region around the Pole star

By way of conclusion, I would like to repeat once more what was stated in an early source about the relation between drum and drummer: "the most successful" *noai des* were not dependent on drums for their spiritual journeys [7] It therefore follows that the drum figures were not absolutely necessary for specially gifted persons But, on the other hand, most drummers seem to have been ordinary house-holders, and the drums therefore have a great value in reflecting common beliefs and ways of life among the ancient Saami people [8]

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[7] According to Johannes Jonae Tornaeus, cited by Schefferus 1675 (Schefferus 1956, 153, 173 I stressed this view in my article of 1987, note on p. 225, last lines

[8] For recent discussions on Shamanism as a religious or non-religious system see e g Åke Hultkrantz 1988 (Hultkrantz 1988) and Mihály Hoppál 1987 (Hoppál 1987) For inside information about revival movements for Shamanism to be used in our modern society — so called neo-Shamanism — see e g works by Michael Harner (Harner 1980; Harner 1983; Harner 1987; Harner 1988a; Harner 1988b; Harner 1989) Jonathan Horwitz (Horwitz 1989), Sandra Ingerman (Ingerman 1989), Leslie Grey (Grey 1987), and Jörgen I Eriksson (Eriksson 1989) One of the latest historical surveys which includes the neo Shamanistic development is the one published by Ward Rutherford (Rutherford 1986) Further information about traditional and "core" Shamanism respectively can be found in collections of Essays such as Samisk shamanism (Eriksson et al 1987), *Shamanism* (1987), *Shamanism, Past and Present* (1989), *Shaman's Path* (1988), and in the two existing Journals on Shamanism: *Shaman s Drum* (in USA) and *Gimle* (in Sweden)

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