Intersex Conditions in the Viking Age

The written and genetic evidence

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Author: Margareta Kajsa Wenman
Supervisor: Neil Price

Abstract

Descriptions of intersex conditions as they manifest today gives us a list of cases in which the Vikings would not have noticed in newborns. Modern incidences of such conditions give us an idea of how frequent they were. The practices of consanguinity and infanticide both increased and decreased the presence of intersex individuals in the culture. Amongst our detection options for intersex conditions in the past are osteology and aDNA techniques using standard or quantitative PCR methods.

Hermaphrodites were lumped together manly women and womanly men during early medieval Europe. Cross-gender behaviors in contemporary accounts are displayed in the archaeology through cross-gender graves, which include intersex people. Etymological research suggests that the Norse had a word, *skratti*, with a possible additional meaning of 'hermaphrodite' through its OE cognate *scritta*.

Two graves were chosen for detailed discussion. One from Gotland was a male skeleton with female grave goods and one from Öland was a female skeleton with a weapon. The weapon and other grave goods even suggest a ritual specialist or hermaphrodite status. Proposed aDNA testing includes the suggestion of which intersex conditions are most likely to be found in each of the two possible generalized scenarios.

Cover Illustration: Rebis Hermaphroditus. Emblem 6, woodcut from Hieronymus Reusner's *Pandora*. 1582. Basel. Based on a colored drawing from the anonymous manuscript *Buch der heilgen Dreifaltigkeit*. ca. 1415 (Alchemy).

Contents

1.0 Introduction

Why should we care about intersex conditions in the Viking Age? In the modern age, people with intersex conditions are hidden from view by medical science. It is all too easy to forget how frequent this natural phenomenon occurs. 'If' intersex conditions happened in the Viking Age, it would have been untreated, other than to accept or reject. Consanguineous marriages, common in Viking Age Scandinavia, often contribute to a higher incidence of genetic conditions of which intersex is one. The presence of intersex conditions likely influenced the Vikings' ideas of sex and gender, as can be seen in other cultures and at different times through history.

How might we find intersex conditions in the Viking Age? An intersex condition may lead to a difference in gender expression that becomes evident in the written sources. While saga figures and other accounts of historical figures are possibilities, expressions of sexually ambiguous natures might also be found in the Old Norse myths. The concept of hermaphrodites may be revealed in linguistic evidence. A culture that has a word denoting 'hermaphrodite' points to the existence of intersex conditions. The archaeological record presents a number of so-called 'cross-gender' graves. Are these the graves of intersex people? A preliminary analysis of two such graves seeks to answer this question. The main means of addressing this issue in the past has been detailed observations of osteological remains. It is herein proposed to use the newly available information on specific genetic mutations linked to intersex conditions to find such evidence by aDNA techniques from human bone samples.

2.0 Discussion and Results

2.1 *Intersex Conditions*

First, it would be wise to bring up a few definitions relevant to the discussion. The phrase 'gender identity' refers to an individual's own feeling of whether they are a man, woman, 'two-spirit', etc. 'Gender role' refers to the activities, social relations, and behaviors associated with a gender in specific cultural settings. 'Gender attribution' refers to the social, biological, and/or material criteria used to denote others as male, female, 'two-spirit', intersex, etc. 'Gender ideology' refers to the meanings of masculine, feminine, male, female, and reproduction in a particular culture and often includes rules on appropriate behavior (Arnold 1995). The previous four terms comprise the sex/gender system of a particular culture.

The term 'hermaphrodite' implies a human having the sexual organs of both male and female, a double sex, and was used extensively in Western culture prior to the 20th century. The word 'intersex' implies that a person is in someway between the male and female

constructed ideals and its usage has been gaining popularity since the 20th century (Dreger 1998). For the most part, these two terms will be used in this text where they were used in their context (i.e. hermaphrodites prior to the 20th century). A synonymous term referring to an individual with an intersex condition is an 'intersex person.'

Now a discussion of each intersex condition as understood by modern medical science and how these would occur when untreated would be merited. As will be discussed in section 2.1.2, the physical appearance of intersex infants has a direct bearing on the possibility of infanticide.

2.1.1 *Manifestation*

One of the most common conditions is called Congenital Adrenal Hyperplasia (CAH). There are several forms of CAH caused by an inherited mutation in the enzymes responsible for steroid hormone formation. Classic 21-hydroxylase deficiency occurs in about 90-95% of all CAH cases. 21-hydroxylase converts 17-hydroxyprogesterone to 11-deoxycortisol. A deficiency then, leads the body to secrete excess ACTH and adrenal androgens in a continuously failed attempt to produce 11-deoxycortisol. Modern Western treatment involves the supplementation of synthetic cortisol and surgery as needed to maintain the sexual dichotomy of society. In otherwise normal females, this deficiency usually results in prenatal virilization with an enlarged clitoris (clitoromegaly) and partial fusion of labioscrotal folds. If untreated, a female will not develop breasts, menstruate, or attain full stature, the last due to premature epiphyseal closure. In untreated males, no effects are noted until a few years after birth, when the child will go through early maturation of the external genitalia and secondary sex characteristics. An untreated male will also be of short stature in adulthood. This is classified as the simple virilizing form of classic CAH. One other form of classic CAH exists. A child with salt-wasting CAH left untreated dies early in infancy, so will not be discussed further. Two other forms of CAH may appear. The late-onset form (also called non-classic or attenuated and acquired) has all of the symptoms of the Classic form, but symptoms do not occur until later in infancy, adolescence, or even adulthood. The cryptic form is asymptomatic (Wilson & Griffin 1998).

The next most common form of CAH may be 11beta-hydroxylase deficiency. 11beta-hydroxylase converts 11-deoxycortisol to cortisol. A deficiency of 11beta-hydroxylase will result in the same symptoms as the classic form but with the addition of hypertension. Three other forms of CAH that are less common (3beta-hydroxylase deficiency, 17alpha-

hydroxylase deficiency, and Cholesterol side-chain cleavage enzyme deficiency) result in the lack of virilization of males at puberty (*ibid*.).

Another common intersex condition is Androgen Insensitivity Syndrome (AIS). It is caused by an inherited mutation of the cell surface receptor for testosterone. The androgen receptor is resistant to the presence of testosterone. In the complete form (CAIS), XY individuals are born with highly feminized external genitalia, undescended testicles, and a short and blind-ending vagina. At puberty, an individual with CAIS usually lacks pubic and axillary hair, but otherwise develops completely as a phenotypic female (physically resembles a genetic female). In the partial form (PAIS), a wide range of results exist from normal male to ambiguous genitalia at birth (Fausto-Sterling 2000). PAIS has been given a grading scheme to subdivide the gradations. Grade 1 (also referred to as Mild Androgen Insensitivity Syndrome or MAIS) refers to a normal male phenotype with possible infertility, reduced virilization at puberty, or gynecomastia. Kennedy's syndrome also falls into this category. At the other extreme, Grade 6 refers to a normal female phenotype that develops pubic and axillary hair (Quigley & French 1995).

Gonadal dysgenesis usually refers to XY individuals with abnormally formed gonads. In the complete form, sometimes called Swyer's syndrome (SWS), the infant is born with female external genitalia because the gonads in the form of streaks are unable to produce androgens. Left untreated, individuals will not go through a feminizing puberty. The partial form would likely result in ambiguous genitalia and some virilization at puberty due to lower than normal levels of androgens (Johns Hopkins Children's Center).

Turner's syndrome is the name commonly given to the female form of gonadal dysgenesis. Usually, individuals exhibit a 45,XO genetic make-up, meaning that they lack part or all of one of the X chromosomes. Ovaries do not develop, but instead are gonadal streaks, though they have normal female external genitalia. People with Turner's may have webbing of the neck, low-set ears, fish-like mouth, short fourth metacarpals, and short stature. At puberty, untreated individuals will not experience feminization (Wilson & Griffin 1998).

Individuals with Klinefelter's syndrome are born with a phenotypic male body, though with somewhat smaller testicles than normal. Their genetic make-up is most commonly 47,XXY. At puberty, they often develop gynecomastia (enlarged breasts in a male), infertility, underandrogenization, tall stature due to long leg length, and may exhibit mild mental deficiency and social maladjustment (*ibid*.).

XY babies born with 5alpha-reductase 2 deficiency are often raised as females, since their external genitalia may resemble that of a female's, though they can range to ambiguous

genitalia in the form of pseudovaginal perineoscrotal hypospadias (PPSH). A deficiency in 5alpha-reductase 2 results in an inability to convert testosterone to dihydroxytestosterone (DHT), which is necessary for proper male development in the fetus. At puberty, testosterone virilizes the individual (Johns Hopkins Children's Center).

In Persistent Müllerian Duct Syndrome (PMDS), XY individuals are often born with normal male external genitalia that may even be fertile, but also have fallopian tubes, uterus, and a vagina that does not open to the exterior. It is caused by inherited genetic mutations in either Anti-Müllerian Hormone (AMH) or the Anti-Müllerian Hormone Receptor (AMHR). Individuals masculinize normally at puberty and while undescended testicles may be present, some may not even aware of their condition until surgery is performed for other reasons (Wilson & Griffin 1998, Jasinski 2004).

A condition called XY sex reversal can be caused by mutations in one of several different genes. The external genitalia at birth range from ambiguous to apparently normal female and feminization at puberty is variable. Individuals may also have skeletal or facial deformities, depending on the gene affected (Endotext).

Two disorders can occur in the mutation of the gene responsible for the aromatase enzyme. Aromatase converts testosterone to estrogen in normal males and females to varying degrees. In the case of Aromatase Excess Syndrome, both boys and girls are born appearing normal, but at puberty boys develop gynecomastia and girls experience an early puberty and macromastia (excessively large breasts in a female). In both males and females, early epiphyseal closure leads to a short stature. In the case of Aromatase Deficiency Syndrome, boys are born unaffected but girls are virilized. Left untreated, women continue to be virilized through puberty. Both sexes after puberty have a tall stature with the males having a eunucoid or feminine build, small testes, and infertility (Wilson & Griffin 1998).

A condition called hyperandrogenism leads to hirsutism, deepening of the voice, or clitoromegaly in women. It is caused by a mutation in the gene regulating Sex Hormone Binding Globulin (SHBG) leading to extremely low levels in the blood. In turn, this leads to high levels of 'free' testosterone. In one case, a woman did not exhibit symptoms until pregnancy (Hogeveen et al. 2002).

Other conditions are more likely to be noticed at birth. Hypospadias is a condition in which the urethra exits the penis along the shaft or at the base rather than at the tip and is not always genetically caused. Hypospadias also occurs as a symptom in other forms of intersex conditions (Fausto-Sterling 2000). An XX male has symptoms that are similar to Klinefelter's except with a higher incidence of hypospadias. In Ovo-testes (formerly called

'True Hermaphroditism'), external genitalia appear in all gradations from male to female (Wilson & Griffin 1998). This list is not exhaustive, but gives a summary of the most important conditions to be considered from a genetic point of view.

In many of the above cases, modern medical treatment usually involves the removal of organs 'conflicting' to the gender assigned and hormone therapy. The decision of the gender assignment is often based on an arbitrary measure of phallus length, though in some cases this is overruled in favor of the preservation of potential fertility.

From this discussion a list of the intersex conditions that the Vikings would likely have missed in infants can be generated:

- Late-onset CAH in females
- Cryptic CAH in males and females
- CAIS
- PAIS Grade 1
- Kennedy's syndrome
- Complete gonadal dysgenesis
- Turner's syndrome (depending on severity)
- Klinefelter's syndrome
- 5alpha-reductase deficiency
- PMDS
- XY sex reversal (depending on particulars)
- Aromatase Excess Syndrome in females and males
- Aromatase Deficiency Syndrome in males
- Hyperandrogenism

If the Vikings had a conceptual framework for intersex conditions or even a name for them, what would they have considered in this category? Would only those with ambiguous genitalia at birth qualify? Would those who acquired ambiguous genitalia or secondary sex characteristics of the opposite sex later in life be included? Would those who only did not go through normal puberty at the expected time be included? These are only some of many questions that can not be easily answered here.

But how common are intersex conditions? An average of multiple population surveys suggests that as much as 2% of the modern worldwide population is born with one of these conditions. Surveys have been conducted on 20th century populations of Denmark, Sweden,

and Telemark, Norway for a limited number of these conditions. In Denmark, XX males, XXYY, 47,XXX, and XYY individuals totaled 0.13% of the population. In Denmark and Telemark, Klinefelter's appeared in about 0.08% and 0.05% of the population, respectively. In Sweden, Classic CAH occurred in 0.008% of the population (Blackless et al. 2000). While we can not use these numbers for Viking Age populations, they do suggest the possibility that intersexuality was present. Late-onset CAH occurs in 0.1 to 0.2% of Northern Europeans, but occurs especially frequently in particular populations such as Ashkenazi (3.7%), Hispanic (1.9%), and Slavic (1.6%) groups (*ibid*.). The Ashkenazi during the 10th and 11th centuries lived along the Rhine River in what is now Germany and France. Norse intermarriage with all three of these groups could have occurred whether willingly or unwillingly (e.g. the slave trade) with possible effects on the offspring in the Nordic homelands.

Now that we have an idea of the possibilities, the next step is to look at the two mitigating factors on the incidence of intersex conditions in the Viking Age – the marriage of closely related individuals and the exposure of infants.

2.1.2 *Consanguinity and infanticide*

Jasinski (2004) states that consanguinity between sexual partners makes it more likely that intersex conditions will occur in their offspring. A primary factor contributing to incest is population isolation. Isolation can come about by caste, religious practices, or hostile climates. In hostile climates with limited resources, the necessity of maintaining clan ties reinforces the possibility of consanguinity. The Northern parts of Scandinavia meet the criteria of a hostile climate.

When Christianity was brought to Scandinavia, churchmen helped to institute the Christian marriage regulations. One of these regulations included a ban on sexual relations within the seventh *generatio*. Jochens (1995) states that pagan customs may well have included a similar ban against marrying such close relatives as brothers, daughters, and fathers, but discriminating between the pagan and Christian origins of the laws is difficult. In the mythology, the Vanir allowed incest before joining with the Æsir when such relationships were banned (*Ynglinga Saga* 4), but this only pertained to sibling marriages. Two examples of cousin marriages within the mythological Yngling family tree include Vanlade to Drífa and Agne to Skjalf (Ynglings). The Norse seemed to have no aversion to these arrangements.

We know nothing of Gorm the Old's family. Was Danish king Sven Estridsen trying to hide an inbred heritage from Adam of Bremen? While it is an unreliable source, the fact that *The Saga of the Jómsvíkings* tells us that one set of Gorm's grandparents were brother

and sister suggests some form of consanguinity as an explanation. The seeking of either dispensations to allow cousin marriages or annulments of marriages too close shows that the practice was common at least in the case of the upper classes for reasons of politics. One example is Sven Estridsen's annulment (Sawyer & Sawyer 1993: 171-2). Another is the after the fact dispensation for Folke Algotsson's marriage to a third cousin or closer in 1288 (*ibid*.). By modern definition, offspring by first and second cousin marriages are considered genetically different from the general population, i.e. at a higher risk for genetically inherited diseases (Consang).

19th and 20th century surveys of the general population suggest social acceptance trends in consanguineous marriages. Church records analyzed by Bittles & Egerbladh (2005) suggest a rapidly increasing acceptance of first cousin marriages in Skellefteå after the economic disincentive of fee-based dispensations was removed in 1844. The same trend is shown in estimates for the whole of Sweden along with a North-South cline, which was highest in the North with 6.8% of unions being between first cousins. Such a high rate was attributed to the prevalence of the Sámi in the population. In the 1891 Census of Norway, 6.7% of marriages were between second cousins or closer (*ibid*.). Possibly, these trends reveal the earlier social acceptance of the marriage of kin during the Viking Age.

The other factor to consider is the possible removal of intersex conditions from the population by the exposure of infants. In Norway, the elimination of the practice of infanticide after the conversion to Christianity took more than two centuries to complete. The early laws allowed the exception of the exposure of deformed children. The Gulathing Law of the 1160s states that, "every child born in our country is to be nourished unless it is born with such deformity that the face is turned where the back of the neck should be or the toes where the heels should be. Such a child must be taken into the church and left to die." (Translation from Larson 1935 and modified by Jochens 1995) The condition described is what was called *situs retroversus* and is also mentioned in the Borgarthing Law and the Eidsivathing Law with the additional animal features of dog heads or seal fins (Jochens 1995). Deformities in the extremities and the face, while they could occur for other reasons, may appear as symptoms of Turner's syndrome or XY sex reversal. The other category of infants in the Borgarthing and Eidsivathing Laws only had facial hair (*ibid*.). Possibly, they could be referring to the virilization of newborns seen in various intersex conditions. By the late 13th century, Magnús Hákonarson introduced legislation that appeared in the Borgarthing and Gulathing Laws that stated, "every child born shall be raised even if it is slightly deformed, as long as it has a human head." (*ibid*.)

In comparison, it appears that the ban on infanticide was more easily accepted in Iceland appearing in *Grágás* in the early 12th century. Jochens (1995) suggests that in Norway, small isolated communities may have led to inbreeding and consequential deformities in newborns, whereas Iceland was a melting pot of people mingling from different regions of Norway and the British Isles and therefore did not have such biological problems.

An issue of importance in discussing infanticide is that of carriers. Some intersex conditions, e.g. CAH and AIS, follow recessive inheritance patterns. This means that unaffected carriers would exist in the population and they would not be eliminated by the practice of infanticide. Therefore, these intersex conditions would continue to occur despite the culling of affected individuals. The number of carriers naturally exceeds the number of expressed conditions given by the equation referred to as the Hardy-Weinberg equilibrium:

$$A^2PP + 2ABPp + B^2pp = 1$$

Where, P = the dominant gene
p = the recessive gene
A = the frequency of P
B = the frequency of p
PP = genetically clear individuals
Pp = carrier individuals
pp = affected individuals

Since late-onset CAH in Northern Europeans occur from 0.1 to 0.2%, the carrier frequency can be calculated to be from 6 to 9% of the population. For a worldwide incidence of CAIS of 0.0076%, the carrier frequency is 1.5% of the population. Likewise for PAIS, an affected rate of 0.00076% translates to a calculated carrier frequency of 0.5%. These examples reveal that even when affected frequencies seem exceedingly small, their carrier rates are in a reasonable range for discovery in a limited population.

In nearly all conditions that follow a recessive inheritance pattern, a certain percentage of carriers are manifesting. That is, they exhibit mild versions of the symptoms expressed in the full-fledged condition. In the case of AIS, it is estimated that 10% of carriers are manifesting. Their symptoms include decreased pubic and axillary hair and a delayed menarche appearing at about 16 years old.

It is believed that the persistence of recessively inherited conditions is related to a selective advantage conferred by being a carrier. The advantage of a delayed menarche is that it is a slower rate of maturation, leading to delayed epiphyseal closure. This results in longer legs, narrow hips, and less body fat therefore advantageous in certain sports and

physical activities, but leads to osteoporosis later in life (OHSM). The advantages imbued by CAH may include improved immune response and a possible IQ boost in mild forms and carriers (Witchel et al. 1997, Nass & Baker 1991).

Now we must move on to a critical question – If intersex conditions were present, how would we detect them?

2.1.3 *Detection options*

Of the tools available to an archaeologist, the first choice in identifying intersex conditions would seem to be osteology. From the descriptions in Section 2.1.1, we could observe epiphyseal, stature, and sex specific morphological anomalies (i.e. conflicting results in the measurements of skull, pelvis, and robustness of long bones). The problem is that this procedure may only narrow the list and may also derive from other types of medical conditions (e.g. Knüsel 2002) or even be idiopathic (cause unknown). Certain osteological evidence may be considered circumstantial, but adds to the certainty when multiple positive results are attained. For instance, CAH females have a high incidence of left-handedness and of masculine finger length ratios (Nass et al. 1987, Brown et al. 2001). Both of these can be assessed when the appropriate portions of the skeleton survive.

A much more precise method may be to use ancient DNA (aDNA) methods, in which a small sample is taken from skeletal material and despite its degraded nature can be read after it is amplified using polymerase chain reaction (PCR) techniques. Careful techniques are required to keep the sample free contamination (Hummel & Herrman 1994). While it has become more common to use these techniques to identify the genetic sex of ancient remains, the procedures rely on confirming the presence of the X chromosome and the absence or presence of the Y chromosome (Stone et al. 1996). The current methods of sex determination in ancient remains may be short-sighted and misleading since they completely overlook the possibility of an intersex condition.

Instead, we can take it one step further by comparing the results from the aDNA sample with database information of mutations associated with intersex conditions available on the internet. The two main databases that will be used here are The Human Gene Mutation Database (HGMD) and The Androgen Receptor Mutations Database (ARDB). A search for specific intersex conditions in HGMD gives us 29 genes and approximately 1,000 mutations. Table 1 lists only the abbreviated names of the genes, locations, and their associated conditions. In the location, the first number or letter before ‘p’ or ‘q’ signifies the

chromosome. Only 5 of the 29 genes listed are X or Y-linked, which shows that the so-called 'sex chromosomes' are alone not completely responsible for the physical sex of the

Table 1. Genes and their locations associated with intersex conditions from HGMD.

Gene	Location	Condition(s)
AMH	19p13	PMDS
AMHR2	12q	PMDS
AR	Xq	CAIS, PAIS, Kennedy's syndrome, hypospadias
ATRX	Xq13	XY sex reversal
CYP11A1	15q23	XY sex reversal
CYP11B1	8q	CAH
CYP17A1	10q24.3	CAH in XX, 'Male pseudohermaphroditism' in XY
CYP19A1	15q21	Both Aromatase deficiency and excess syndromes
CYP21A2	6p21.3	Both Classic and Late-onset CAH
DHCR7	11q13	XY sex reversal
DHH	12q13.1	Partial gonadal dysgenesis
DMRT1	9p24.3	XY sex reversal
ESR1	6q25.1	Estrogen resistance
FSHR	2p	Hypogonadism
GNRHR	4q21.2	Hypogonadism
GPR54	19p13.3	Hypogonadism
HSD17B3	9q22	CAH
HSD3B2	1p13.1	CAH in XX, 'Male pseudohermaphroditism' in XY
LHB	19q13	Hypogonadism
LHCGR	2p21	XY sex reversal/Complete and Partial Leydig cell hypoplasia
NR0B1	Xp21.3	CAH
NR5A1	9q33	XY sex reversal
SHBG	17p	Hyperandrogenism
SHOX	Xp	Commonly found in Turner's syndrome patients
SOX9	17q	XY sex reversal
SRD5A2	2p23	Steroid-5 alpha-reductase deficiency
SRY	Yp11.3	XY sex reversal, gonadal dysgenesis
STAR	8p11.2	CAH in XX, 'Male pseudohermaphroditism' in XY
WT1	11p13	XY sex reversal

individual. The other 24 genes then, are autosomal. Much confusion can arise from the lists of conditions in the database since it appears that the medical community still has not standardized terminology, which because of the nature of the field, uses vague catch-all terms. One can also see that in some cases, a mutation in the same gene causes different conditions in an XX individual than in an XY individual.

Two conditions that have mostly been left out by this method are Klinefelter's and Turner's syndromes. These conditions fall under the categories of a polyploidy (extra chromosome) and an aneuploidy (missing chromosome), respectively. The current means of

detecting aneuploidies of the X or Y chromosomes has been the use of quantitative fluorescent polymerase chain reaction (QF-PCR) of polymorphic X chromosome markers along with an X-linked short tandem repeat (STR) (e.g. Cirigliano et al. 2001).

But we can't just test every grave that we find since at roughly 2% of the population, the chances are still slim to find an intersex individual in the Viking Age. The next sections will seek to explore the means to limit our choice of graves through an analysis of gender issues.

2.2 *Sex and Gender*

2.2.1 *Intersex and gender*

The point of this section is to see whether we can associate a particular gender identity with intersex conditions. There are some difficulties involved. Strassburg (1999) has noted that an individual often does not have a static gender identity, but instead consciously or unconsciously chooses a gender identity that is advantageous in each particular context as allowed and over the person's lifetime. But this seems to be a confusion of the fixed core of gender identity with the persona – the changeable personality presented to the outer world. The other problem is that we have no knowledge of intersex people in Viking Age Scandinavia, let alone their biographies. The only paths left to us are the use of early 19th to early 20th century information on patients treated by medical men or the relatively limited literary ideas of the early medieval period about hermaphrodites, both extrapolated into Viking Age Scandinavia.

20th century studies show that patients with patients with complete or partial AIS usually develop a female gender identity, but in some exceptions there are a few who reject having been raised as a female and instead adopt a male identity. In studies of genetic females with CAH, those raised as females did not become lesbians, but those raised as male often married women (Fausto-Sterling 2000: 96-106). Table 2 lists the expected gender identities for some conditions, but mostly based on limited studies. Within modern Western society, there are no clear-cut answers, only some vague possibilities to the intersex-gender identity link if there is one at all. It is tenuous at best to attempt to transplant such results to the completely different sex/gender system of the Norse. Dewing et al. (2003) suggests in their study of mouse brains, that there may be genes responsible for gender identity and 'brain sex', but there needs to be further research before any conclusions can be drawn. The most current research points to a shift from a genitalia and socially constructed paradigm to a biologically innate paradigm (the CNS neurobiological development theory) for gender

identity (Dennis 2004). The mutation of genes responsible for brain sex and/or the improper hormones during fetal development may lead to gender identity disorder (GID), a condition in which a person's gender identity is opposite to that of their genitalia and gender attribution. People with GID in the past may be an alternate explanation for the archaeology discussed in later sections, but is beyond the scope of this document.

Table 2. List of modern outcomes for gender identity of some intersex conditions.

Gene(s)	'Sex Chromosomes'	Condition	Gender Identity
AR	XY	CAIS, PAIS	Usually Female[1]
*	XX	CAH	Usually Female[1]
LHCGR	XY	Complete Leydig cell hypoplasia	Female[2]
LHCGR	XY	Partial Leydig cell hypoplasia	Male[2]
STAR	XY	'Male pseudohermaphroditism'	Female[2]
CYP11A1	XY	XY sex reversal	Female[2]
HSD3B2	XY	'Male pseudohermaphroditism'	Usually Male[2]
CYP17A1	XY	'Male pseudohermaphroditism'	Most Female[2]

*STAR, HSD3B2, HSD17B3, NR0B1, CYP11B1, CYP17A1, CYP21A2

1. Fausto-Sterling 2000: 96-106.
2. Endotext.

It's only after the 19th century that we have the fully developed categories of intersex conditions. Before this time, we only have limited descriptions of symptoms to go by. It was during the 19th century that hermaphrodites came under scrutiny and played a role in the change from the one sex to the two sex model. But in all times and cultures, it is the ambiguous body that forces us to ask what it is that makes everyone else unambiguous. In whatever culture that has a conception of what is a hermaphrodite, there must be definitions of what it is to be male and female.

Three cases reveal attempts by hermaphrodites raised as females to change their gender identity to their own advantage. Axelina/Abel Barbin legally changed her sex in the hopes of marrying a female lover, Marie/Gottlieb Göttlich adopted a male persona and thereafter earned money exhibiting himself to medical men (Dreger 1998), and Henrika Schuria joined the army as a male (Laqueur 1990). In some cases then, it could be an advantage for a hermaphrodite to legally change from female to male in a patriarchal society.

In the early medieval period, Jacopo of Forli stated his conception of the construction of gender as comprising three main differences; complexion (hot/cold), shape (physical), and disposition/temperament (choleric, melancholy, phlegmatic, or sanguine). In each of the main differences, one could be male or female, explaining men, women, manly women, and

womanly men. These differences might also explain hermaphrodites, but there seemed to be no consensus on the issue. Because hermaphrodites' bodies were seen as deceitful, so were their mores in addition to being regarded as disruptive. In 12th century concepts of reproduction, the uterus was seen as seven-celled, explaining multiple births and the range of female (on left side) to male (on right side) infants, including the center cell for hermaphrodites (Cadden 1993). Included in this concept of reproduction was that manly women came from a cell of the uterus only partly to the left side and womanly men from partly to the right side. Therefore, one would think that the hermaphrodite was also seen as a womanly man/manly woman.

2.2.2 *Evidence of cross-gender behavior*

The Written Sources

A few Norse mythological characters exhibiting cross-gender behavior are worth noting. The giantess Skaði, whose father Þjazi was killed by the Æsir for abducting the goddess Iðunn, travels to Asgarð. Depending on how it is read, Skaði either puts on armor, helmet, and all items of war to seek revenge (Jesch 1991) or only carries these items with her hoping rather to reach a settlement (Clunies Ross 1994). Even if the latter were the case, it is still unusual for a woman to carry arms in case they are needed. In addition, as an unmarried only child, she deserves compensation like a son as is found in the *Baugatal* part of *Grágás*. Loki displays powers of what Clunies Ross (1994) calls male pseudo-procreation when he gives birth to the whole tribe of ogresses after eating the half-cooked heart of an evil woman (*Hyndluljóð* 43) and to Sleipnir after distracting the stallion Svaðilfari from his task by turning into a mare (*Hyndluljóð* 42). Then of course, there is the tale of Þórr's loss of Mjǫllnir threatening his manhood and then requiring him to dress as Freyja in order to win it back (*Þrymskviða* 18-19). The presence of Loki near at hand when the hammer was discovered missing upon Þórr's awake brings up some questions; was Loki sleeping with Þórr and did Loki the trickster play some role in the loss of the hammer? (Helgason 2002)

Two heroic legends tell of cross-dressing men. In *Helgakviða Hundingsbana II*, Helgi dresses as a serving maid to escape from Hundingr. In Saxo Grammaticus's *Gesta Danorum* Book VII, Hagbard dresses in women's clothing and claims to be a fighting-maid of Haki's, his rival, in order to gain access to his lover, Signe. Also within *Gesta Danorum*, Saxo mentions several warrior women; Sela (Book III), Lathgertha (Book IX), Hetha, Visna, and Vebiorg (Book VIII, Part I), and Stikla and Rusila (Book VII). In the case of Hetha and Visna, Saxo states, "On these captains, who had the bodies of women, nature bestowed the

souls of men." While the stories are hardly believable, they suggest that the idea of a warrior woman was not inconceivable. Saxo claimed to have used native Scandinavian sources (Jesch 1991).

The Icelandic sagas abound with tales of 'outstanding women', women who were successful enough or bold enough to take on some of the responsibilities attributed to men. In *Gísla saga Súrssonar* 37, Þórdís strikes Eyjólfr with Gísli's sword to revenge her brother. After Þórðr accuses Auðr of wearing breeches in order to divorce her and remarry, she rides to Þórðr's and attacks him with a sword (*Laxdæla saga* 35). Auðr is also one of the few female skalds, an occupation usually of men.

The other case of role reversal is that of men practicing sorcery and they often bore the title of *seiðmaðr*. The practice of sorcery was considered unmanly by the Norse, so was normally reserved for women. Any man that practiced *seiðr* (a form of Norse sorcery) attracted a great deal of *ergi* (a perjorative term relating to unmanliness, cowardice, and passive homosexuality) to himself and was considered effeminate. Meulengract Sørensen (1983: 63) suggests that in *Gísla saga Súrssonar*, Þorgrímr nef was called *seiðskratti* (more will be said on the etymology of *skratti* in section 2.3) because he was a sorcerer and practiced *ergi*. But maybe it could be looked at the other way around. Were men who took up *seiðr* already by their nature effeminate and the choice of practicing *seiðr* was only one occupational option open to them? Could *seiðmenn* be considered to have had the bodies of men, but nature had bestowed upon them the souls of women? People denoted *seiðberendr* possibly combined male and female genders and may be reflected in gold foil figures found in 6th to 9th century Scandinavia (Back Danielsson 2002: 184). It would not be hard to see how a man developing gynecomastia or a woman developing clitoromegaly could be viewed as a shape-shifting *seiðberendr*.

There is only one documentary account of warrior women in the Viking Age that suggests that the idea is founded on reality. After one of many battles between the Rus' and the Byzantines in Bulgaria in the 970s, the Byzantine historian Johannes Skylitzes recorded that the Byzantine army was surprised to find women wearing armor and weapons amongst the enemy dead (Price 2002: 332).

From this summary of the written evidence, we should turn to possibilities of cross-gender behavior recorded in the archaeology.

The Archaeological Sources

The primary source of information on gender articulated individuals in Viking Age Scandinavia is from graves. Grave material, though, leads to several issues in interpretation. About 97% of sufficiently complete skeletal remains can be sexed by osteology (Lauritsen & Hansen 2003). Less complete remains, especially if missing the pelvis or cranium, are more questionable. Grave goods, if present, are engendered to the extent possible based on past archaeological experience. Gender-sex disagreements arise when the gender determined by grave goods does not match the sex of the skeletal remains. But this is the problem – archaeologists easily fall into the trap of viewing past sex/gender systems as if they were the same as that of the archaeologist. Archaeologists have a tendency to dismiss osteological determinations of sex that do not agree with the gender determined by grave goods reasoning that skeletal remains exhibit overlapping sexual dimorphism. Unfortunately, this has colored our view of the past to be one of continuous gender roles since the 5th century AD (Knüsel & Ripley 2000).

Another explanation for gender-sex disagreement of graves is that there was mixing of grave goods in multiple burials, even to the extent of suggesting that apparent individual burials may be double burials with an opposite sex skeleton missing due to poor preservation (e.g. the Santon Downham grave in Evison 1969). Did the grave goods found with the deceased's remains really belong to them, or were they only given to them by the living as part of the funeral proceedings? As an example from a different culture, modern Nepalese widows are often required to return the jewelry their husband had bought for them by placing it in the grave with him (Oestigaard 2000). Are weapons found with skeletons osteologically determined to be female merely signifiers of a male gender role? While no similar examples exist in Viking Age material, a female Samartian grave contained a bent arrowhead in the body cavity, suggesting a violent death in battle (Davis-Kimball 1997) opens the possibility of such a culture. In a study of classical sources, insular 'Celtic' laws, and the archaeological record, Arnold (1995) suggests the autonomy of women during periods of intensive male mobility led to female leaders. This likely plays a similar role for the peoples of the North during the Viking raids and campaigns.

But would we be able to find individuals with intersex conditions amongst graves with gender-sex disagreement? Knüsel & Ripley (2000) believe they would be found as a portion of those interred in such cases. In addition, we have to realize that intersex conditions amongst domesticated animals occurs at an even higher rate than in modern human populations (e.g. 2-15% in dairy goats) and would confront the everyday Viking farmer with its undeniable presence. An intersex burial might have had a gender differing from the

osteological sex whether due to the nature of the condition, individually assumed, or culturally prescribed.

At this point, it is worth giving some examples of Viking Age cross-gender graves. A double grave was excavated near Gerdrup about 10 km North of Roskilde, Denmark. It contained the skeletons of a male bound at the ankles and that had died by hanging along with a female buried with a needle case and a spear point. Each individual had its own knife and they and their grave goods were clearly divided by some animal bones (Christensen 1981). In the cemetery of Luistari, Finland, grave no. 35 contained the skeleton of a female buried with a pair of round brooches and a large axe (Lehtosalo-Hilander 1982). During the 2004 season, the skeleton of a male was excavated at Fröjel, Gotland, Sweden along with a belt buckle, a pennanular brooch, and a key (Carlsson 2005). Keys are normally considered female grave goods due to their association with the portrayal of Norse women as housekeepers. Was this a man that had been single or widowed and in charge of his own farm? Did this presumed man assume the responsibilities of women or even a female gender role? From the district of Sogn, North of Bergen, Norway, there are women's graves with grave goods normally seen as male. Grave B3456 contained a weapon, grave B7761 included a boat-builder's implement, grave B9060 had a carpenter's awl, and from Aurland, "arrowheads are found in a number of women's graves, indicating hunting activities on the part of the women." (Dommasnes 1982) The explanation given that women likely assumed the responsibilities of men during their extended absences could well be true, but we should remember that the perceived role of men was to defend the farm and its inhabitants as well as to provide for them. In section 2.4, we'll take a look at two more cross-gender graves chosen for further study, but now it's time to examine words the Vikings may have used for hermaphrodites.

2.3 *Etymology*

When searching for words relating to the meaning 'hermaphrodite', it is worth while to look amongst Anglo-Saxon words. The Anglo-Saxons at the time of the Viking Age had long since become established in the British Isles, share a common Germanic heritage with the Norse, already had a history of literacy, and came into close contact with the Norse with the creation of the Danelaw. The richest source of Anglo-Saxon words denoting hermaphrodite are the writings of Ælfric (955 – 1010), best known as the Abbot of Eynsham, Oxfordshire. From his writings come three words of interest. *Bæddel*, m. means hermaphrodite, but has no known cognate in Old Norse. *Wǽpen-wífestre*, f. also means

hermaphrodite and does not seem to have a cognate in Old Norse either. The third word is *scritta*, which also means hermaphrodite (Bosworth 1898: 65, 840, 1156, 1217-8). *Wǽpen-wífestre* appears to be a compound of the Anglo-Saxon words for 'man', *wǽpned*, and 'woman', *wíf*. The *–estre* is the OE female agent suffix equivalent to ModE *–ster*. The literal translation would mean essentially 'man-woman', a term often used today by anthropologists to describe men who assume a female gender role in certain cultures. We might wonder that *bæddel*, m. and *wǽpen-wífestre*, f. would refer to different types of hermaphrodites somehow divided by gender.

The Norse living in the Danelaw may have been exposed to all three of these words, but the most important of them is *scritta*, since it is a cognate to ON *skratti* 'wizard; goblin, monster', OE *scrætte* 'adulteress, harlot', OHG *scrato* 'satyr, sprite', ME *scrat* 'hermaphrodite; harlot; gelding', ModE *Old Scratch* 'The Devil' (Bosworth 1898: 65, 840, 1156; Lewis 1986: 240; Magnússon 1989: 859; Onions 1966: 801). It is interesting to note that the ME cognate occurs in two place names, Scrathou and Scrathowe, in Yorkshire, possibly emphasizing a Norse connection. At any rate, these cognates give a picture of a negative sexual connotation. This fits well with the general negative perception of hermaphrodites within Early Medieval Continental European society.

The question is, could the ON *skratti* also have borne a second meaning of 'hermaphrodite'? If so, it would certainly have added to the insult to be called a *seiðskratti*, a sorcerer who took on all manner of *ergi* to enhance their magic. Most likely, multiple meanings were associated with these cognates and the Indo-European root much in the way that hermaphrodites were lumped together with alternative sexualities between the medieval period and the 19th century. There was no consensus on the definition of the physical sexes and no discrimination of these from sexuality. If the Vikings had a word that could mean 'hermaphrodite', then that would confirm that they acknowledged the presence of that natural phenomenon, whether or not they approved of it. In all probability, such a definition would not have been written down for it would have been seen as too obscene much in the way that *níð* poetry (insult poetry often including accusations or insinuations of unmanliness) is only referred to without repeating or only partially transcribed (e.g. Almqvist 1974).

2.4 *Analysis of Cross-Gender Graves*

Geographical and technical criteria were applied in the choosing of cross-gender graves for analysis by aDNA techniques. Choices were limited to within Sweden to ease access to human remains currently in museum collections. A further limitation was to choose

graves only from Öland or Gotland, where because of calcareous soil conditions, skeletons have an excellent chance of nearly complete preservation so that as accurate osteological sexing as possible may be assured. Only inhumation burials can be considered because the heat of cremation pyres usually destroys the DNA in the bones. The results of these criteria are only two cross-gender graves.

Some reasons for this seeming paucity include:

- Only 12% of Mälaren region graves are gender articulated (Bolin 2004) and the same order of magnitude might be applicable to Öland and Gotland.
- Cremations were common in Viking Age Scandinavia.
- The cost of osteological sexing has been and still is considered prohibitive for most excavations.
- Lack of excavated cemetery summaries for Gotland. The only one currently available is for Barshalder (Rundkvist 2003), which covers 2 of the 93 parishes.
- Incomplete excavation of Viking Age cemeteries on Gotland.

2.4.1 *Details of chosen graves*

The first grave to consider is from Grötlingbo parish, Gotland and designated SHM32184:1/71 or Bhr1971:01 according to Rundkvist's (2003) system. It is a single inhumation grave within the remains of a coffin inside of a cist. It was discovered by the activities of the gravel quarry, which caused the left arm and leg and both feet to collapse into the gravel pit. The skeleton was found extended on its back and osteologically determined to be a 45 to 49 year old male but with clearly female grave goods. Three arm-rings were found on the wrists (two on the right and one on the left) and on the chest were found a dress pin, two animal-head brooches, 26 beads with small fragments of textile, and a comb laid on top. Of unknown provenance, but found in a spoil dump on the floor of the gravel pit 25 m from the grave was a badly deformed copper sheet pot (*ibid*.: 213-4). On Gotland, animal-head brooches are the equivalent of the oval brooches used only by women in the rest of Scandinavia. While it is not uncommon to find beads in men's burials, any more than three is exceptional and more commonly found in women's graves (Petré 1993). The arrangement of this grave suggests that the individual was dressed in Viking Age women's clothing. Was this individual considered a hermaphrodite or a womanly man? The current information we

have can not answer this question. While the grave goods do not include anything to suggest a ritual specialist, the possibility can not be ruled out.

The other grave that will be considered here was found at Köping School, Köpings parish, Öland. It is listed as Anläggning 1/80 and was reported in ATA 4865/80. The remains of the wooden coffin contained an osteologically determined 20 to 30 year old female along with one object that is considered a possible weapon. The grave goods included a gold foil fragment, a ring brooch, a belt buckle, a strap mount and a mount fragment, a pair of tweezers, a pair of shears found between the legs, the remains of an awl or knife, coffin nails, a boar's tusk, a piece of fire starting flint, and a unique dagger. The dagger has a fragmentary iron single edged blade attached to a bronze handle shaped and ornamented to look like a bird (Beskow-Sjöberg 1987: 50-4, 96-7). A dagger differs from a knife in that it is used by stabbing rather than cutting and therefore must be a weapon. Weapon details, such as strap mounts and buckles, and flint for fire-making are commonly associated with male graves (Petré 1993), whereas tweezers in general and shears placed between the legs are associated with women's graves.

The bronze attached to iron on the dagger is an unusual and advanced technology used in a similar way that the Klinta staff's iron shaft is attached to bronze animal heads, a bronze polyhedral knob, and a bronze model of a building. This staff was found in a cremation grave of a woman in the same parish and near the same town, Klinta (Price 2002: 183-4). Since this object and others like it have been associated with *vǫlur*, 'staff-bearers', a type of female *seiðr* practitioner, this possibly suggests that the female grave from Köping school may have had a similar, ritual status. The boar's tusk only emphasizes the possibility, since boars were the familiars of Freyr, a god of the Vanir group of deities who brought the magic of *seiðr* to the Æsir. The bird design on the handle might refer to Freyja's feather cloak and to a *seiðr* practitioner's ability to 'travel' as if in flight during a trance state. If it had a use beyond the symbolic, what could a ritualized weapon be used for? Could it have been used for sacrifices or even divination in augury? Öland probably was owned by the kings of the Svear since the late 9th century (Gräslund 1993) and by an analysis of *Ynglingatal*, were associated with sacrifice and divination in augury through the word *blótspánn* (Sundqvist 2002). The gold foil fragment in addition to the other objects suggests a high-status grave, but what connection, if any, is uncertain.

Returning to the boar's tusk and bird design, these items could well represent a fertility god-goddess dualism in one individual interment. What better way to encapsulate the concept of hermaphroditism? Could we have here a ritual specialist and hermaphrodite

combined? This combination might be similar to the Navajo gender category of *nadle*, interpreted as a ritual specialist with 'mixed genitalia', a hermaphrodite gender, and androgynous demeanor, dress, and occupation (Thomas 1997). Might we even suggest that the Norse sex/gender system also consisted of a five gender system comprised of men, womanly men (*seiðmenn*), hermaphrodites (*skratti*?), manly women (warrior women), and women. Just because everything masculine was prized does not mean that we have to dispose of a system of more than two sexes/genders (or of more than one sex/gender).

Another issue of importance to discuss is that of the general isolation or lack thereof in each of these two grave sites. The grave from Gotland might be presumed to be well connected by Gotland's overseas trade network, but would depend on the nearest port (See Figure 1). The project 'Harbours and trading places on Gotland AD 600-1000', conducted by Dan Carlsson suggests that a larger port existed at the point of where Grötlingbo, Fide, and Näs parishes meet at the sea (Harbours). The grave from Öland may seem to be more isolated, but in reality is near the major trade route from southern Scandinavia to northern Sweden and Finland passing through the Kalmar sund (Gräslund 1993) (see Figure 2). Additionally, the name of the parish – Köpings– suggests that the area hosted a market. While both of these areas may be less prone to inbreeding by population isolation, it also means that foreign gene pools containing a multitude of possible intersex conditions could influx into the local populations.

Figure 1. Parish map of the southern portion of Gotland (Gotland).

Figure 2. Parish map of Öland. The number 8 marks Köpings parish (Öland).

2.4.2 *Proposed aDNA testing*

If we were to test the two preceding graves, we should plan carefully in order to best make use of resources. The first question to ask is which set of intersex conditions would result in either male or female skeletal remains. Combined with the limitations of which conditions would have been missed at birth gives the following two results, presented in Table 3 and Table 4. From these lists, one must choose suitable PCR primers for the laboratory work. There is not space here to go into the options, nor would it be of interest to a general audience, but only to a specialist planning to conduct these experiments.

Table 3. Potential intersex conditions for a grave with female skeleton and male grave goods.

Condition	Gene(s)
Late-onset or cryptic CAH	CYP21A2
CAIS	AR
XY sex reversal	*
Aromatase Deficiency Syndrome	CYP19A1
Hyperandrogenism	SHBG

*SOX9, SRY, WT1, NR5A1, DMRT1, ATRX, DHCR7, CYP11A1, LHCGR

Table 4. Potential intersex conditions for a grave with male skeleton and female grave goods.

Condition	Gene(s)
Turner's Syndrome	SHOX and QF-PCR of X markers and STRs
Klinefelter's Syndrome	QF-PCR of X markers and STRs
PAIS Grade 1, Kennedy's syndrome	AR
Complete gonadal dysgenesis	SRY
5alpha-reductase deficiency	SRD5A2
PMDS	AMH, AMHR2
Aromatase Excess Syndrome	CYP19A1

The picture may not be as clear cut as is depicted in Tables 3 and 4. The resulting skeletal features in some instances could depend on the severity of the condition, Klinefelter's syndrome and XY sex reversal being good examples of conditions that possibly should be listed in both Tables. The other complication is the exact nature of the deceased's former gender identity or gender attribution. In some instances, an intersex person might actually be buried with no sex-gender disagreement whatsoever. Other issues worth considering for analysis include testing the graves of potentially related individuals to give a broader perspective of the inherited nature of the intersex condition and to strengthen the diagnosis. Additionally, testing for ethnic markers may add to the story for the individual and shed insight on the population dynamics involved (Lidén et al. 2001). The presence of

cross-gender graves throughout the whole period of the Iron Age in Scandinavia suggests the continuity that might be expected if these at least in part indicated intersex people.

Some general observations deserve mentioning concerning the periods before the Viking Age. Cross-gender graves in Scandinavia have been found in the pre-Roman Iron Age (ATA 1115/85), the Early Roman Iron Age (SHM 30587), and the Migration Period (SHM 32623:18a,b). This suggests the possibility of a continuum of this phenomenon throughout Iron Age Scandinavia.

There is evidence for the ancient origins of intersex conditions. For the case of CAH caused by CYP21A2, the same common mutations at nearly the same incidence have been found in the population of Finland as in those of Sweden, Denmark, and the Netherlands (Stikkelbroeck et al. 2003). It is believed that the modern population of Finland was settled about 2,000 years ago partly from Central Asia where the Tat-C mutation has been found in remains from 4,000 years ago, then this suggests that these mutations leading to CAH are *at least* 4,000 years old. Therefore, this condition most likely existed within Viking Age Scandinavian society. Even at an incidence of 0.1%, that means that in the town of Birka with a relatively dense population of approximately 1,000 inhabitants, there would likely have been one highly visible person with CAH.

3.0 Conclusions

Just because modern medicine hides intersex people from view today does not mean that they did not exist in the past. Rather, they may have played an important role unnoticed by our conditioned point of view. Descriptions of intersex conditions as they manifest today gives us a list of potential cases in which the Vikings would not have noticed in newborns. Modern incidences of such conditions give us an idea of how frequent they might have been. Consanguinity was definitely practiced by the Scandinavian nobility and later church records suggest the preference for cousin marriages, both of which could lead to higher rates of intersex conditions in their offspring. Laws gradually restricting the practice of infanticide suggest the removal of intersex conditions that were noticeable at birth. Amongst our detection options for intersex people in the past are osteology and aDNA techniques using standard or quantitative PCR methods. Many of the conditions result from autosomal mutations, showing that the so-called sex chromosomes are not the final word on the physical sex of the individual. Researchers seeking to determine the sex of ancient remains need to be more critical of their findings based on the real possibility of the presence of intersex individuals.

In some intersex conditions, we have modern trends concerning the usual gender identity of individuals, suggesting a similar possibility in the past. Opting to change gender presentation, especially from female to male in a patriarchal society, was another possibility suggested by early medical studies. Hermaphrodites were likely lumped together with the concept of manly women and womanly men during early medieval Europe. Old Norse and contemporary European sources describing the Norse suggest a multitude of womanly men and manly women in both mythological and profane accounts. The giantess Skaði, the warrior women of Saxo Grammaticus, the outstanding women Auðr and Þórdís, and the Rus' women slain in battle are just a few examples of the latter, whereas the former include Loki's reproductive powers, the cross-dressing of Þórr, Helgi, and Hagbard, and the unmanly *seiðmenn*. Such cross-gender behavior may be displayed in the archaeology through cross-gender graves, some of which could include intersex people. Examples have been given from Denmark, Finland, Sweden, and Norway.

Etymological research suggests that the Norse had a word, *skratti*, with a possible additional meaning of 'hermaphrodite' through its OE cognate *scritta*. This particular definition of *skratti* probably was not put to writing because it was considered too obscene. The Anglo-Saxons may have had different words for different types of hermaphrodites.

Two graves were chosen for detailed discussion. The first was from Grötlingbo parish, Gotland and was a male skeleton with grave goods suggesting having been dressed in the usual female clothing and jewelry for the locale and period. The second grave chosen came from Köpings parish, Öland and was determined to be a female skeleton with a weapon. The weapon and other grave goods may even suggest a ritual specialist and/or hermaphrodite status. There are possible ramifications to our understanding of the Norse sex/gender system. Proposed aDNA testing includes the suggestion of which intersex conditions are most likely to be found in each of the two possible generalized scenarios.

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