ΣΙΛΦΙΟΝ– SILPHION "*…multis iam annis in ea terra non invenitur…*"

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Keywords: historic records, botanical identification, Umbelliferae (Apiaceae), *Ferula*, *Narthex*, *Thapsia*, *Cachrys*

Background

"*As long as many years you can't find it at this country anymore …*" (Plin.n.h. XIX 39). This statement of Pliny the Elder (23-79 AD) refers to the ancient Silphion plant. Called *laserpicium* or *laser* by the Romans, it was a highly recognized useful plant from the Roman province of Cyrenaica (today part of Libya). It was famous as medicine and very expensive: "*... being sold as the same rate as silver.*" (Plin.n.h. XIX 39). Pliny also tells us the reason why it is not found anymore: the farmers who hold the land there on lease considered it more profitable to bring in flocks of sheep, and, as a result of that grazing, Silphion disappeared from the Cyrenaica. Pliny also reports "*Within the time of our memory, only one single stalk has been found there, and that was sent to the Emperor Nero*" (Plin.n.h. XIX 39).

Why is this plant still so fascinating – even after 2,000 years? Silphion is the first useful plant species said to have become extinct by men. But many scientists do not want to believe that it really has gone forever and hope it might still grow somewhere hidden in Northern Africa and waits for its rediscovery. Additional questions relate to the botanical identity of the Cyrenaic Silphion and to its next relatives still existing today. Finally, there is also an increasing interest in the medicinal uses of this plant in antiquity during the last twenty years. According to recent literature, papers and internet articles one can get the impression that Silphion was THE most important plant for birth control in ancient times.

The aim of this paper is to identify and correct some of the most widespread misinterpretations about Silphion. They relate to two main fields: interpretation of images and botanical identification and medicinal utilization in ancient times. Here, especially interpretations related to birth control and aphrodisiac effects will be dealt with in more detail, as both subjects are in urgent need of clarification and correction.

History, botany and documented uses

The first detailed descriptions of Silphion were provided by the "father of botany", Theophrastos, in his "*Historia Plantarum*" and by Pliny the Elder in his "*Naturalis Historiae*". They describe the whole plant from the roots to the seeds. According to this description Silphion clearly is a member of the family Umbelliferae (Apiaceae). Theophrast and Pliny distinguish it from other, similar plant species, especially from *Ferula*, *Thapsia*, and *Narthex*. A number of historians such as Skylax, Pindar, Herodot, Theophrastos, Strabo and Pliny report that Silphion only occurs in the semi-desert

region around the city of Cyrene in Northern Africa. There it is said to have shown up first and spontaneously after a dark rain seven years before the foundation of the city of Cyrene (611 B.C. according to Pliny). All attempts to cultivate Silphion outside of the Cyrenaica obviously failed (Hippocrates).

For more than 200 years Silphion was the main trade product of the Northern African region of Cyrenaica and the image of the plant is frequently found on Cyrenaic coins. Leaves and stalks were roasted and eaten as vegetable. The plants were used as fodder for sheep and goats. A sticky reddish brown resin produced by the plant after cutting into the head of the black rootstock or by carving the stalk was collected in jars and mixed with bran or flour. This resin was sold as a very expensive condiment and as medicine. Numerous ancient authors like Pliny the Elder, Dioscorides, Scribonius Largus, or Galen report about its height value as medicine. Cato and Columella describe its uses in agriculture. Silphion is also referred to as luxurious food condiment, for example by Aristophanes (4th century B.C.) who mentions it as a condiment for roasted birds (Aristoph. av. 534). In the only existing cooking-book from the Roman time, written by Apicius (1st century A.D.), Silphion or *laserpicium* is mentioned 96 times, thus being one of the mostly used condiments [1].

During the Ptolemaic and Roman reign, traded amounts of Cyrenian Silphion were successively becoming smaller, and the original Silphion was more and more replaced by a substitute (botanically identifiable as *Ferula asafoetida*) from Persia, Syria and Media (today part of Iran). At the time of Julius Caesar, it was already so rare and expensive that he held Silphion, besides gold and silver, in the temple treasure (Plin.n.h. XIX, 40). After the time of Nero (emperor 54-60 A.D.) only the substitute was reported in trade.

Images and botanical identification

There are numerous literature reports about images believed to show Silphion, which could potentially be used for a botanical identification of the species behind that name. At closer inspection, however, many of these reports unfortunately prove to be incorrect. Some of them are discussed briefly here.

Cretan hieroglyphs from the Minoan time (c. 2,000 B.C.) interpreted as Silphion by Evans [2] (284f.), and Glotz [3] (197f.), not only do not really look like Silphion. More importantly, the authors overlooked the fact that there is no evidence for any Silphion-trade at that time. Silphion only appeared in trade or even was discovered more than 1,000 years after these hieroglyphs were used. Therefore we can, with high certainty, exclude that they show Silphion.

Similar arguments hold true for a golden ring from Mykene which, according to Kandeler [4] (53), shows Aphrodite sitting under a Silphion plant. However, the plant looks much more like a tree (which would fit to the interpretation of Simon [5] (183), who states that the goodness is sitting under an olive tree). Also, Silphion had never been an attribute for Aphrodite. But most convincingly, there is no evidence that Silphion was already known in Mykene at this time, 1000 years before being first reported from Libya.

A plant image at the cup of Naukratis for which Roscher [6] (1728) , assumes that it shows Silphion can be excluded because it does not exhibit any botanical characters of Umbelliferae.

For a column found in Delphi, identification as “Silphion column” is still found in quite recent university lectures (e.g., Lycoudis [7], esp. Figure 5). But already Elderkin [8] showed how unlikely it is to assume Silphion would be represented here and therefore, named the column “Akanthos Column”.
Some column-capitals in Libya are said to bear images of Silphion. At closer inspection, the capital of Battos in Cyrene depicts a typical theatre mask with acanthus around (Kiehn [9], 64 f.). The capitals at the temple of Asclepios at Al Beidha, build under Emperor Hadrian (117-138 BC), exhibit characters fitting much better to an *Aloe* (or another monocotyledons species) than to Silphion [10].
A study of the “goddess with Silphion” from the Louvre by the author revealed that the figure holds a lappet, not a plant in her hand (Kiehn [9], 71f.).
Probably most disappointing for people acquainted with the “Silphion-story” is the analysis of the famous “Arkesilas cup”. Solely based on the spelling of names of persons written on this cup, a whole story was developed – this cup would show the survey of weighting and shipping of Silphion by a king Arkesilaos from Cyrene. One key argument is the Greek name “silphomachos” found on the cup, which, if slightly altered, can be read as “silphiomachos”, translated as a person working with Silphion. But there are equally logical other options to translate this name, even in its original spelling (for details see Kiehn [9]). The most convincing argument against Silphion being subject of this cup relates to the traded goods. They are packed in nets. However, how could a resinous substance reasonably have been packed in a net? Theophrast and Pliny report that Silphion was packed in jars. Thus it is much more likely that the handling and shipping of a woollen substance is shown on the cup, and this was already proposed and argued for by Lane in 1933/34.
What images are left? Plants held by small clay figurines from the Museum at Apollonia (Libya) and some figurines at the British Museum possibly represent Silphion. One stylized Silphion root is found in the Codex Vindobonensis (Diosk. Codex Vind. 398, [11]).
The only images of Silphion we can really trust in are the coins of the Cyrenaika. They all provide indicative pictures of the Silphion plant, showing fruits or whole plants with leaves, sometimes also with fruits and rootstock. It is clearly recognizable that the plant is a member of Umbelliferae (Apiaceae).The British Museum holds a large collection of such coins which have been published by Robinson [12]. The oldest coins are drachms from 570 B.C. They show Silphion-fruits. In all the literature they are described and positioned as “heart-shaped”. But other coins, tetradrachms from the same time, exhibit whole plants with fruits. Already Oersted (in Strantz [13], 176f.) correctly describes that the coins show, quite realistically, two winged mericarps (half-fruits) of an Umbelliferae still connected at the basis, resulting in an inverted heart-shaped appearance. Such fruits do exist in several extant members of the family. Siphion-fruits are not “heart-shaped”, but inverted heart-shaped!

Silphion, an aphrodisiac?

First of all, it is obviously unlikely that Silphion motifs on Cyrenaic coins are advertisements for aphrodisiacs in the Roman Empire, because they had already disappeared “in the sand of the Cyrenaica” for several centuries and thus never ever circulated in Rome. But nevertheless, the assumed “heart”-form of the fruits brought some authors to strange ideas. They speculate that, in the Roman society, the coins

with the "heart" would be indications for love and sex, and thus would advertise Silphion as aphrodisiac and love portion. In this context, Koerper & Kolls [14] as well as Koerper & Moerman [15] even doubt the "heart shape" to be a realistic image of the Silphion fruit. Koerper & Kolls [14] state that *"…The fruits or seed pod … is testicular (realistic to cordiform) in morphology ... We do not interpret the cordiform element as naïve, but rather … it is the result of a conscious effort to mimic testicles."* and *"Such fiction was abetted by the fact that overseas consumers obtained a processed product … certain aphrodisiacs of antiquity that were prepared of plant parts resembling male genitalia."* Koerper & Moerman [15] come to similar conclusions: *"… The seed pods – look like testicles – sometimes they look rather realistic, but sometimes more heart-shaped"*. Koerper & Moerman [15] write that coins from the Cyrenaica indicate *"Cyrenaic juice as an effective ingredient of love potions."* As shown above, these authors are totally wrong, regarding the interpretation of the fruit form, probably the effect of a lack of botanical knowledge.
Favorito & Baty [16] hypothesize that the heart-symbol had survived from the antiquity through the Roman "lupercalia" and through the medieval age until today's St. Valentine's Day. These authors even ignore three facts: the coins, of course, do not show little hearts; the St. Valentine's type of heart was first used in Victorian times as a symbol for romantic love and was not known that way in ancient times. And finally, the last relicts of the "lupercalia" were forbidden by Pope Gelasius I in 496 A.D. and it is more than unlikely that any of them would have "survived" until today.
Remarkably, Koerper & Kolls [14] as well as Koerper & Moerman [15] admit that there is not a single antique text directly mentioning Silphion as an aphrodisiac. In summary, all the above cited speculations as well as a phallic interpretation of the Silphion plants on Cyrenaic coins found, e.g., in Koerper & Moerman [15] *"…evoke images of an erect penis"* are obsolete in the light of the real botanical and historical facts.

Silphion, an effective contraceptive and abortive?

A chapter in the book "Contraception and abortion from the ancient world to the renaissance" by the American historian John Riddle [17] resulted in a real hype about Siphion. It is argued here that Cyrenaic Silphion was a powerful agent for birth control in the Roman society and it would be evident from the ancient sources that the most prominent use of Silphion products was abortion. Until today, numerous other articles as well as the Internet are full with speculations about this effect of Silphion. The English Wikipedia page on Silphium (http://en.wikipedia.org /wiki/Silphium) also gives the impression that Silphion had been a most effective contraception and abortive in the ancient world. Some authors even say that use would have been the reason for its extinction: "… *Silphium…had become extinct…because of high demand in the Roman world for effective family planning.*" [18].
How does Riddle [17] corroborate his view? He assumes that not only substances explicitly mentioned as abortive were used that way, but also others which were, i.a., reported to initiate menstruation. Therefore he interprets Dioscorides's report of Cyrenaic Silphion to cause menstruation (Dioscrides m.mt. III84) as an evident and intended indication of its abortive function.

Such an assumption might be logical for societies tabooing contraception or abortion. However, this was not the case in the time of the Roman Empire. Dioscorides, e.g., explicitly names several other plant species useful for abortion, such as the next plant in his book, Sagapen. Taking this into account Silphion hardly can be considered the most effective tool for abortion. Would women at Roman times not have used one of those drugs explicitly mentioned instead of Silphion?

Pliny the Elder is another author cited by Riddle [17] to support his views. Pliny was a very conservative officer in the time of Nero and Claudius. In his writings he explicitly avoids to list plants with negative effects. "*… Greek authors have gone so far as to give a description of noxious plants … the only result of the use of which is to derange the intellect, to produce abortion, and to cause numerous other effects equally pernicious? So far as I am concerned, I shall describe neither abortives nor philtre,… I shall have abundantly done my duty, if I point out those plants which were made for the benefit of mankind*" (Plin.n.h.XXV 25). Pliny praises Silphion several times as *"… the most precious gifts presented to us by nature"* (Plin.n.h.XXII 101). Would Pliny have stated such a high opinion of Silphion, and would he not have warned women to use Silphion, if he would have been aware of "birth control" effects of Silphion and its products especially in cases of pregnancies?

What about other ancient medicinal sources cited by Riddle [17] to corroborate his views? No mentioning of any contraceptional or abortive effect of Silphion is found in Scribonius Largus or Galen, who, similar to Dioscorides, describe other plant species with potential in this regard. In the texts of Hippocrates and Pliny, Silphion occasionally is mentioned (together with numerous other plants) in the context of expelling a dead foetus. Again, this does not at all indicate a pronounced role of the Cyrenaic Silphion as abortive or contraceptive.

One additional reason for a wrong perception of Silphion as contraceptive by Riddle and co-authors might be, that they do not differentiate between the effects described for "true" Cyrenaic Silphion and those attributed to its substitutes. This, e.g., becomes obvious when looking at Soranus´ text about "opos cyrenaicos" (Cyrenaic juice). The text is used by Riddle [17] to underline his theories. But it is not at all sure that the "opos cyrenaicos" is a product containing Silphion at all. And even if containing Silphion, it is more than unlikely that Cyrenaic Silphion is meant, because, according to the ancient sources, Cyrenaic Silphion had already completely disappeared from the market at the time of Soranus (who lived around 100 A.D.). Thus effects attributed to the "Cyrenaic juice" by Soranus either are reports from oral tradition or, if valuating Soranus' texts as instructions for a daily use, they must refer to the substitutes.

Riddle and co-authors (e.g., Riddle & Worth Estes [19]) also interpret an image on a tetradrachm from Cyrene to underline their theory of the eminent importance of Cyrenaic Silphion in the context of birth control: *"… Its connection to reproduction is suggested by the iconography used on the Cyrenian four-drachma coin: A seated woman's left hand points to her genital area, and her right hand touches a silphion plant." and state from this: "We know that silphion was valued as contraceptive from both objects and writings of the day."* [19]. This coin from the Cyrenaica, dated 570-480 B.C., shows the sitting nymph Cyrene (symbolizing the city) pointing to a Silphion plant with one hand. The other hand, however, is not pointing to anywhere, but just lies on her lap as it happens when one is sitting. Any interpretation beyond that is

more than speculative. This also becomes obvious when looking at another interpretation of the same coin by Koerper & Kolls [14]. They are taking it as an advertisement for Silphion as aphrodisiac: "*... We propose that this is just as likely to have been an erotic motif whose metaphoric reference was fertility …*". And, of course, all these authors have overlooked the fact that these coins never circulated in the Roman Empire and that, at that time, they already had vanished into the soil, in the true sense of the word, for more than 500 years.

While Riddle [17] at least cites historical sources as support for his ideas, other authors seem to not even have looked at original historical texts at all. This is the only explanation for statements now quite often found in the literature like: *"The juice appears from many descriptions in Pliny and in medical writers such as Soranus and Dioscorides to have been widely known as a contraceptice or abortifacient … Riddle has pointed to enough evidence to confirm that the contraceptive functions of laser-juice were important enough and well enough known among the learned and sophisticated élite in Rome"* [20], or *"Contemporary medical authorities were universal in their praise for Silphium's value as a contraceptive. … Dioscorides, … recommended silphium for contraceptive and abortive purposes."* [21].

In summary it must be stated that, after in-depth evaluation, the original historical texts and sources about the medicinal uses of Silphion do not provide any proof for hypotheses about a prominent role of Silphion as contraceptive or abortive. Or, to cite Pliny (Plin.n.h. XIX 46): *"Per que omnia adulterator rei saluberrimar utilissimaeque auctoritas"- "All this sheds a negative light on a useful product of highest esteem"*.

Searching for Silphion

The list of "modern" scientists trying to identify and rediscover Cyrenaic Silphion is long. In the 16th century Matthioli [22] and Bauhin [23] compiled all information about Silphion from the ancient literature. Prosperus Alpinus (1553-1617) was the first who really searched for it. He found a Silphion-like plant in Thrakia (Romania) and named it *Laserpicium* (see Alpinus [24], published posthumus). But as already Strantz (1909) pointed out that the plant described by Prosperus Alpinus cannot be the ancient Silphion, as the description of the sap and the leaves do not fit.

The description of a journey through Libya by Della Cella [25] is the first in a series of papers reporting a "rediscovery" of Silphion in Northern Africa. Sprengel [26], Viviani [27], and Beechey [28], Link [29], Oersted [30] or Ascherson & Taubert [31], only to name a few, attempted to identify Cyrenaic Silphion. They described or discussed species of *Thapsia* (e.g., *Thapsia garganica* and subspecies of it), *Narthex* (*N. silphium*) or *Ferula* (like *F. marmarica*, *F. narthex* or *F. tingitana*) and brought them into connection with the ancient Silphium. But after closer inspection and comparison it always turned out that the suspected species was not fitting the description of Cyrenaic Silphion. The only generally accepted conclusion of all of this work was that the ancient Silphion must have been a *Ferula*-like plant.

The last scientist who claimed to have found the real Silphion was, in 1996, Prof. Antonio Manunta from Urbino (Italy). He argues that *Cachrys ferulacea* (= *Prangos ferulacea*), a species native to the Cyrenaica, represents the ancient Silphion. But Manunta´s (1996) comparison of botanical characters is incomplete. He only compares characters of the coins and does not fully consider character mentioned in

ancient written sources. He also compares the characters of the coins only with *Cachrys ferulacea* and not with any other large Umbelliferae occurring in the Cyrenaica. Inclusion of the data of the written sources and the comparison to other umbelliferous taxa make it obvious that characteristic features documented for the Cyrenaic Silphion (like, e.g., the reported size of the ancient plants) fit much better to *Ferula* species than to *Cachrys ferulacea*. It is also interesting to note that Manunta [32], in spite of the fact that he refers to a paper by Gemmill [33], does not mention Gemmill's [33] remark about *Prangos ferulacea* (synonym of *Cachrys ferulacea*) being identical with the ancient Magydaris. Magydaris, however, was clearly distinguished from Silphion already by the ancient authors. This is another strong argument against the identification of the Cyrenaic Silphion with *Cachrys ferulacea*.

Summary and closing remarks

All available data and information on Cyrenaic Silphion clearly indicate that this species must have been a close relative of its later substitutes, which, according to the ancient authors, are distinguished from the "real" Silphion only by their bad taste. This "Silphion" of Persia and Media, today identified as *Ferula* species, was very much used in the Roman Empire and, until today, it is a very important condiment in many countries, especially in India. Species with such uses are, e.g., *Ferula narthex,* native to Afghanistan, or *F. asafoetida* and *F. foetida*, native to Iran and Afghanistan. Botanical descriptions and species delimitations for *Ferula* species from this part of the world, however, are still far from being completed (M. Zych, Warsaw, pers. comm.).

There is no Umbelliferae native to Libya exhibiting all characters reported for the ancient plant. Consequently, all attempts to identify a modern Umbelliferae as the Cyrenaic Silphion have failed up to now. The present studies clearly show that many so-called "facts" about the ancient Silphion are the results of misinterpretations or wishful thinking. This holds true for most images brought in connection with Silphion, and also for some hypotheses related to its uses, e.g. that ancient practises of birth control have caused its extinction. The ongoing interest in the botanical identification and medicinal uses of the ancient Silphion, however, is a clear indication for the fact that it seems difficult to accept the extinction of this enigmatic plant.

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