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## NOTES UPON THE MANDRAKE.

BY FREDERICK STARR.

Notwithstanding the vast literature of the mandrake, curiously few folklore students are acquainted with the superstitions connected with this famous root. During the past few years several highly important papers treating of the subject have been printed in foreign journals. We venture here to present a brief summary of the whole matter.\*

Botanically the plant of the mandrake has been described as follows:

*Mandragora officinarum*, L, is a native of Spain, Sicily, Crete, Syria, etc. It has a short stem bearing a tuft of ovate leaves, with a thick fleshy and often forked root. Flowers solitary, with a purple bell-shaped corolla. Fruit a fleshy orange-colored berry. Poisonous. Acts as an emetic, purgative and narcotic.—(Encyc. Brit. art. Mandrake.)

The superstitions connected with the mandragora are due in part to its real medicinal or narcotic properties; they are more largely due to the fact that its underground stem or root resembles the human body in form. Sympathetic magic, or the doctrine of signatures, has attributed to these anthropomorphic roots human qualities. The centre of mandrake superstitions today appears to be Asia Minor. There the roots, naturally somewhat man-shaped, are artfully improved.

Von Luschan says:

"Roots of the mandragora, especially in the neighborhood of Mersina and of Antioch, are shaped into forms, resembling human beings by certain artists almost as a profession. The simplest method consists in careful cutting and pressing of the freshly uprooted root while it is still soft, and also during the process of drying to continue the shaping by pressure. \* \* \* Much better, in fact surprising, results are obtained by another process; the living plant is carefully dug out, and the root is prepared by binding with thread, by cleaving, by incising, by scratching, and by bandaging, after which it is replanted, so that it can continue to grow for some time. Only after the different abrasions and wounds are grown over is the

\* von Luschan: on exhibiting six mandrakes from Asia Minor presented a brief discussion of the matter. *Verhandl. Berlin, Gesell. für Anth.* 1891, pp. 726-728.

Ascherson: comments on the above in pp. 729-738.

Beyer: continues the discussion, pp. 738-746.

Ascherson: *Nachträgliche Mittheilungen über Mandragoras*—in same volume, pp. 889-892.

Veth: *De leer der Signatuur*—*Int. Archiv für Ethnog.* vol. vii, pp. 81-88.

Veth: *De Mandragora*—same vol. pp. 199-205.

Minakata: Two interesting papers on Chinese ideas in Nature, April 25, 1895, and August 13, 1896, copied in the *Int. Arch für Ethnog.* vol. viii, p. 249 and vol. xii, pp. 21-25.

Jaworskij: *Die Mandragora im sud russischen volksglauben.* *Zeitschr. für Oester. Volkskunde.* vol. ii., pp. 353 et seq; vol. iii, pp. 63-64.

root again dug out, and when the root has shrunk and become quite dry, it is often difficult to recognize and demonstrate the artificially modified parts. A clever artist will thus produce these little figures, which look entirely natural and whose genuineness no one would suspect. Such figures are not merely "very rare and obtainable only with great danger to life, but are to be considered as costly and valuable talismans." Some protect their owner against blows, thrusts and shots; others are efficacious and infallible aphrodisiacs; others again are said to render their bearer invisible; almost all indicate the spot where subterranean treasures lie hidden, and possess, at the same time the valuable quality of absorbing the disease of the man who bears them. But in this very fact lies danger; the root-manikin can transmit the disease to a new owner, and it can lose, by assuming a disease itself, all its virtue temporarily or forever."\*

This quotation brings the whole matter before us. The superstitions are old and a number of classical writers—both Greek and Roman make reference to them. Pliny is perhaps most explicit. Though somewhat long we quote the passages in full:

Some persons, too, were in the habit of employing mandragora for diseases of the eyes; but more recently the use of it for such a purpose has been abandoned. It is a well-ascertained fact, however, that the root, beaten up with rose-oil and wine, is curative of defluxions of the eyes, and pains in those organs; and indeed the juice of this plant still forms an ingredient in many medicaments for the eyes. Some persons give it the name of "circaeon." There are two varieties, the white mandragora,† which is generally thought to be the male plant, and the black ‡ which is considered to be the female. It has a leaf narrower than that of the lettuce, a hairy stem, and a double or triple root, black without and white within, soft and fleshy, and nearly a cubit in length.

Both kinds bear a fruit about the size of a hazel-nut enclosing a seed resembling the pips of a pear in appearance. The name given to the white plant by some persons is *arsen*, by others *morion* and by others again *hippophlomos*. The leaves of it are white, while those of the other one are broader and similar to those of garden lapathum in appearance. Persons, when about to gather this plant, take every precaution not to have the wind blowing in their faces, and, after tracing three circles around it with a sword, turn toward the west and dig it up. The juice is extracted both from the fruit and from the stalk, the top being first removed; also from the root, which is punctured for the purpose, or else a decoction is made of it. The filaments, too, of the root are made use of, and it is sometimes cut up into segments and kept in wine.

It is not the mandragora of every country that will yield a juice, but where it does, it is about vintage time that it is collected; it has in all cases a powerful odour, that of the root and fruit the most so. The fruit is gathered when ripe and dried in the shade; and the juice, when extracted, is left to thicken in the sun. The same is the case, too, with the juice of the root, which is extracted either by pounding it or by boiling it down to one third in red wine. The leaves are best kept in strong brine; indeed when fresh, the juice of them is a baneful poison, and these noxious properties are far from being entirely removed, even when they are preserved in brine. The very odour of them is highly oppressive to the head, although there are countries in which the fruit is eaten. Persons ignorant of its properties are apt to be struck dumb by the odour of this plant when in excess, and too strong a dose of the juice is productive of fatal effects.

Administered in doses proportioned to the strength of the patient, this juice has a narcotic effect; a middling dose being one cyathus. It is given,

\* von Luschan: l. c. p. 728.

† *Atropa mandragora vernalis*, Bert.

‡ *Atropa mandragora autumnalis*, Bert.

too, for injuries inflicted by serpents, and before incisions or punctures are made in the body, in order to insure insensibility to the pain. Indeed, for this last purpose, with some persons, the odour of it is quite sufficient to induce sleep. The juice is taken also as a substitute for hellebore, in doses of two oboli, in honied wine: hellebore, however, is more efficacious as an emetic, and as an evacuant of black bile.\*

\* \* \* \* \*

There are some marvellous facts related in connection with this plant; the root of it, it is said, bears a strong resemblance to the organs of either sex; it is but rarely found, but if a root resembling the male organs should happen to fall in the way of a man, it will ensure him woman's love; hence it is that Phaon the Lesbian was so passionately beloved by Sappho. Upon this subject, too, there have been numerous other reveries, not only on the part of the Magi, but of Pythagorean philosophers even as well.†

These passages recognize the anthropomorphic and sex characters of the mandrake; they attribute to it power to cure ailing eyes, emetic and purgative action, and counteracting of poison; they mention its anæsthetic, somniferic, and aphrodisiac qualities; they mention its use as a love philtre, its odour producing dumbness, and the fact that caution is necessary in its digging.

On linguistic and other grounds Ascherson concludes that Persia was the original home of mandrake superstitions and that from there these have spread outward, first to neighboring Semitic peoples and later to Europe. The words *mandrake* (English) and *mandragoras* (Greek and Latin) seem to trace back to the Persian *merdom-gia*—man-like-plant. The list of Persian names for the plant is suggestive. Besides *merdom-gia* we find *segken*, *istereng*, and *ebrevi ssanam*. *Segken* means dog-dug; *istereng* is somewhat uncertain but may refer to the phosphorescence of the root, which—as we shall find—is often mentioned; *ebrevi ssanam* means face-of-an-idol. From these names it is clear that most of the superstitions connected with the plant are found in its original home.

Beyer exhaustively considers the ideas of Germans regarding *abräunen*. The true mandrake grows in the Mediterranean area. Its superstitions were in vogue far outside of that area but were often associated with other plants of the local flora. So it was in Germany. Grimm considered the *abräunen* superstitions ancient, but Beyer doubts whether the word was originally applied to mandrakes or their substitutes. He believes the term first designated "white, all-wise, wise-speaking, sorcery-speaking women"; later it was applied to evil demons and only finally to anthropomorphic roots with magic power. He quotes the following from Andrea Mattioli's *Kreuterbuch*, published at Prag in 1563. It is strikingly like von Luschan's Nineteenth Century presentation:

Wandering apothecaries and rovers have carried for sale a root, which is formed like a little man or little woman; they have persuaded the

\* Plinius: xxv, 94.

† *Eryngium campestre*, L.

‡ Plinius: xxii, 8.

people that this root is difficult to obtain and must be dug from under a gallows, with special care. For securing it one must have a black dog, which must drag it out by a rope; the digger must first close his ears with wax for should he hear the screaming of the root, his life would be in danger. What else is that than what is told of the fern? Who will get fern-seed must be bold and able to force the devil. Such foolish play and spectra one must use for the people, because the crowd wishes to be deceived, for which I am here says the wandering apothecary. This they have really accomplished in a masterly manner and have sold these roots at high prices, as if the root rendered people supremely happy and barren women fruitful; they have to bathe it every Saturday with wine and water, wrap it carefully and keep it secretly. And now the kind reader must know that such alräunchen are but frauds; for, they cut bryony roots or flag-roots, while they are still fresh into human shape, insert in them grains of millet in those places where they wish hair to be: thereupon they plant these cut roots in sand until sprouts shoot forth from the grains, which usually occurs in three weeks; thereupon they dig them out again, scrape the sprouts with a sharp knife, making them as thin and delicate as if they were hair upon the head, the beard and the privy parts. Thereby the simpletons are deceived. This rascality has been disclosed to me by a street hawker of medicines, who lay very ill at Rome and was in my care. He showed me several roots thus carved, and told me that sometimes he had sold a single one to wealthy people for thirty ducats.

Beyer's most interesting presentation of German ideas may be condensed and summarized as follows:

Forms are manifold. Usually a hand's breadth to a span long. Hair may occur not only in head hair, beard, and sex organs, but over the whole body. (Such are the two, of differing sex, preserved in the Royal Library of Vienna; these have been there since 1680 and formerly belonged to Rudolph II.) They were regularly bathed; if this duty were neglected they shrieked like babies, until it was performed. Not only carved from the root of bryony and flag but also from that of the *Allium victoralis*. (The one in the Bergen Museum is from this also at least in part.) That in the Märhische Museum in Berlin is not from a rhizome but from a knot of tree. Many were not even from plant products, e. g., one described by Bartholin was made from a dried frog, with a head of the root of *Alpinia officinarum*, Hance. This alräunchen was found under a gallows in Switzerland, and was used to cure epileptic women. This was dressed in a white gown with golden girdle, and it was quite customary to clothe them in silk.

Many superstitions and practices were associated in Germany with these little figures and many tales are narrated of their powers and doings. They had the power to double the gold-pieces laid beside them at night. They could not be thrown away, having the power to return. One sold would return unless the seller made a profit by the sale. One kept in the family descended to the younger son, who was obliged in return for it to lay gold and bread in the father's coffin; in case the younger son died before his father the figure went to the eldest, who was bound to make the customary offering.

It is said that Joan of Arc owed her success to the possession of an alräunchen. An Italian is said to have vitalized one, after which he partly buried it in the ground; the exposed head oracularly answered all questions he asked. It was dangerous, however, to have too much confidence in these little figures; if a person trusted one more than he did God, the devil might enter into the alräunchen with all his power for evil. Many other individual stories are told of the power of these forms. They were family protectors and luck-bringers, if carefully kept, but neglect of them entailed ruin or misfortune. Connected with the idea that such roots were most potent when found under a gallows, was that they were actually the congealed urine or semen of the criminal emitted in the moment of his

death; it was necessary, however, that he should be a thief and one who had held no relation with women.

The old ideas regarding the digging of these roots are found again in Germany. The digger must seal his ears, mark the spot with three crosses, use an ivory stick in digging, have the help of a black dog, about whose neck the string was tied and which suffered the usual fate, on hearing the dreadful cry of the up-torn root; some said the operation must be done at midnight, with the recitation of formulas; others preferred the hour before dawn on a Friday. One author gave minutely detailed information as to the mode of procedure.\*

As recently as 1630 in Hamburg the sale of alräunchen was interfered with. Paul Graebner, student of Ascherson, declared that, some years ago, an old woman near Colberg desired to cure him of some trifling illness by means of a dry, somewhat man-shaped, root.

Schultz reported at a meeting of the Prussian Botanical Society (Jan., 1892) that the rhizomes of *Iris Pseudacorus* are sold under the name of *Gluckwurzel* for ten, thirty or fifty pfennigs apiece, and that those are most prized which present some similarity to the human form. Such roots bring to the purchaser who guards them good luck (wealth, children, etc.)

In England similar beliefs were universal. Shakspeare and Drayton assume their hearers' knowledge of the powers of the mandrake. Thus we find in Anthony and Cleopatra, i, v.:

CLEOPATRA:

Give me to drink mandragore.  
That I might sleep out this great gap of time.

Othello, iii, 111:

IAGO:

Not poppy, nor mandragore  
Nor all the drowsy sirups of the world  
Shall ever medicine thee to that sweet sleep,  
Which thou owest yesterday.

Romeo and Juliet, iv. iii.:

JULIET:

Shrieks like mandrake torn out of the earth  
That living mortals, hearing them run mad.

King Henry VI. Part ii. iii. ii.

KING:

Would curses kill, as doth the mandrake's groan.

Hamlet, i, 5.

And duller should thou be than the fat weed  
That rots itself at ease on Lethe's wharf.

Macbeth.

BANCO: "Or have we eaten of the insane root that takes the reason prisoner?"

In Drayton are several references:†

"The Hermit of Arden whose praise is in Polyolbion sallies forth with a little maund to gather herbs which have sundry strange effects upon mankind. \* \* \* The power of mandrake (*Atropa mandragora*), in philtres, to procure love, and, worn about the body, to correct barrenness was unduly recognized." *Polyolbion*, xiii [iii. 919 et].

\*[Secrets du petit Albert.]

† Folk-lore of Drayton: Folk-lore Journal: ii. 148. 361. iii. 153.

The fleshy mandrake, grown in the shade of the mystic mistletoe, and only to be uprooted with the certainty of the act producing weird vegetable groans, was *par-excellence* the love-compelling agent. Mandrake was also used for sleeping-draughts. — *Nymphal* iii [iv. 1467].

By the mandrake's dreadful groans.  
By the lubrican's sad moans;  
By the noise of dead men's bones,  
In charnel-houses rattling.

— *Nymphal*, viii [iv. 1508 et.]

Among Southern Slavs mandrake superstitions appear to still have all the force that they had in Germany and England formerly. Jaworskij's article is full of interest.

The mere presence of an alrāun plant in a garden or enclosure brings luck. Found wild, it is carefully transplanted. It must be well cared for or it gives bad luck instead of good. If its roots are injured in digging the digger is in danger of insanity. (Galician Poles believe that if a person carelessly injures the plant, this bleeds and he himself is wounded; his wound heals only as the plant itself does.) Only one well-instructed in the matter should attempt to dig up a plant; he must first lay money and a piece of bread upon the ground; after the plant is most carefully removed, the bread and money are buried in its place. The root, once secured, is bathed in milk, carefully dried, wrapped in cloth, and guarded in a chest. It brings luck and wealth to the house and guards it against thieves. It protects cattle from being bewitched; if, however, a witch possesses one, she may, by burning it on the first Thursday of the month, drain all the cows grazing upon nine meadows dry, with its smoke. From a root, left to grow undisturbed in one spot for seven years, a naked child emerges, who runs after the mistress of the house calling her "mamma." Poles say that a root grows more and more man-like and that it brings increasing wealth and good fortune as it grows out above the ground; when it is full grown, it cries out for baptism and becomes the family guardian.

Hartland says:\*

"The recipe current during the middle ages for gathering mandrakes was very much like that still practiced by Danubian gypsies to obtain a kind of orchid which they call boy root. The root is half laid bare with a knife never before used, and a black dog is tied by the tail to it. A piece of ass-flesh is then offered to the animal; and when he springs after it he pulls out the plant. The representation of a *linga* is carved out of the root, wrapped in a piece of hart's leather, and worn on the naked left arm to promote conception." †

It will be here again observed that mandrake superstitions naturally associate themselves locally with other plants when the actual mandrake does not occur.

Before leaving Europe and Asia Minor we may quote an Armenian authority. ‡

The root resembles a man standing upright; the leaves lie flat on the ground, and the plant bears a red berry, with a honey-odor. There are

\* Legend of Perseus, I. pp. 154-155, with ref.

† This "root," by the way, does not simulate a man's form; it consists of rounded tubers attached by a slender stalk; there are two of these tubers usually and the name of the plant is due to their suggesting the testicles of a male.

‡ I cannot give the reference. The notes, "from an Armenian book on Botany," were furnished by Mr. Bedros Tatavian, formerly my student. I think the writer has not before been quoted in recent mandrake literature.

three species—white, blue, and red flowered. That with red flowers is the strongest and best. One of the species bears a black berry instead of a red one. There are two kinds of roots—black and white. The leaves resemble those of the pumpkin and the plant is sometimes called the wild pumpkin. The root can be recognized in the dark by its phosphorescence; the property, however, is shown only in fresh roots; old and dry ones must be moistened to make them phosphorescent.

The root should be dug on a Tuesday, in the month of December or March, while the sun shines. The commonest mode of digging is to dig around the root so much as possible and then tie it to a large dog. Walking away to some distance, call the dog, who in his efforts to answer will pull up the root. The operation is always followed by a screech on the part of the plant and the resulting death of the dog. According to Pliny\* the root was also removed by digging the surrounding earth away from it and then tying an oak branch to it; by pulling upon a long rope fastened to this branch the root was dragged out. Sometimes additional rules were observed; thus the prospective digger might visit the spot three days in succession, accompanied by a young and handsome virgin, richly dressed and ornamented, after which he would employ the dog as above described.

Solomon's wisdom was due to a piece of mandrake in his ring. The charm also gave him complete power over all animals. Alexander the Great owed his power to the possession of a mandrake. The root after being freed from the soil might be safely handled and after careful cleaning was wrapped in a white linen cloth. The flower-buds wrapped in linen and tied with seven strings of seven different colors, were suspended at the neck to cure jaundice. A bit of the root burned drove devils and evil spirits from the room. The smoke of the root was a cure for insanity, especially for that form in which the patient continually talked to himself. The ancient Greeks used mandrake as a cure against loss of flesh; laying the root on the body of a thin person caused him to gain in flesh.

Passing now to China we find many references which have been brought to the attention of Occidental students by the Japanese, Minakata. He says:

In an anonymous work in Chinese, *Tiau-sieh-lui-pien*, nine plants are named as frequently assuming the human or animal figures, viz., *Cypress*, *Nan-tree*, *Turnip*, *Mustard*, *Citron*, *Pachyma cocos*, *Lyidium chinense*, *Phytolacca acinosa*, *Panax ginseng*.

Among these the citron presents these figures by its fruit, the cypress in the veining of its wood, the nan-tree by its stem and branches and the turnip and mustard in their floral parts; the others apparently, like the mandrake, produce roots or underground portions more or less simulating the human form.

Of the nine, doubtless the Ginseng is the plant most celebrated for its medicinal virtues imaginarily connected with its anthropomorphic root.

"The *Shang-luh* grows on the ground beneath which a dead man lies, hence its root is mostly shaped like a man. \* \* \* In a calm night, when nobody is about, the collector, offering the owl's flesh roasted with oil, propitiates the spirit of the plant until *ignes fatui* crowd about the latter; then the root is dug out, brought home and prepared with magic paper for a week; thus it is made capable of speech. This plant is surnamed *Yehu* (i. e., Night Cry) on account of its demoniacal nature † \* \* \* It is also popularly called *Chang liu kan*—Witch-tree-root. There are two varieties of it; the white one is used for medicine, the red one commands evil spirits and kills man when it is internally taken by error. It is the *Phytolacca acinosa*."‡

\* I do not locate this reference. I believe the Armenian author in error.

† The name is also explained thus. "As long as the fruit of the *Phytolacca* remains unripe the cuckoo continues to cry every night.

‡ Quoting from Sieh Tsai-Kang's *Wu-tshu-tsu*, written about 1610.

Parallel between the Shang-luh and the Mandrake superstitions:

1. Roots are anthropomorphic.	Thrives beneath a gallows,
2. Possess power of shrieking.	Shines in the night like a candle;
3. Said to grow upon the ground beneath which a dead man lies.	Arabs call it "Devil's candle."
4. When about to acquire power of speech, <i>ignes fatui</i> , crowd about it.	Old European belief in the diminutive prophetic images made out of mandrake root.
5. "A sorcerer carves the root into a human effigy, which he makes through his spells capable of telling fortunes."	Exorcising power was renowned.
6. Kills demoniacal beings; drives malignant worms out of possessed persons; purges the poison of the <i>ku</i> .	Makes men insane and the reason prisoner.
7. The red variety is poisonous causing men to see the demons.	Throughout the East reputed to remove sterility.
8. As a love-philtre.	
9. "The black ripe fruit is highly valued by rustic women for it favors their fertility."	
10. In medicine used as a cooling stuff, a purge, and for tumors and swellings of the glands.	

Minakata believes, justly I think, that these similarities are too numerous and too detailed to be due to independently similar thought in the two regions. Clearly, we have here again migration of the superstitions and their association with a new plant in the local flora.

That the Chinese, however, knew also of the mandrake is evidenced by this passage from Chau Mih (1232-1308):

Several thousand miles west of the Region of Moslem, the land produces one substance extremely poisonous, which is shaped like a man as our *gin-seng* is. It is called *Yah-puh-lu*,\* and grows under the ground several *chang* deep. Should a man bruise its skin, its poison would adhere to and kill him. The only method of gathering it is this, dig around the said substance a hollow deep enough for man's management therein, with one end of a string tie up the substance lightly, and with the other end bind around a big dog's leg. Now flog the dog; he will, striving to avoid the danger, pluck the substance from the ground, but he will die instantly. The stuff thus procured is buried under other ground, whence it is taken out a year later; then it is dried and prepared with another medicine. When man takes internally a bit of this mixed with wine, it makes him soon fall down unconscious even of cuts and chops; still there is a certain drug which, if used within three days, can recover the man.†

As to ginseng its use by the Chinese as a tonic and remedy is well known. Its roots are notably anthropomorphic. Dr. Edmund Bulkley writes me: "I have seen it growing in Japan and learned it was mostly for export to China, but have also bought specimens from Japanese drug stores. Lieut. G. C.

\* Cf. Arabic *Ya-bruh*.

† Minakata, l. c.

Fouk, late of the U. S. Navy, and sometime representative of the United States at the Korean Court in Seoul, showed me a specimen more like a man than I should hope to whittle a stick, and informed me that mandrake forms a chief means of paying Korean tribute to China; that its value varied in ratio to its resemblance to the male figure, and that it was used as a panacea in Chinese." Chinese ginseng can be bought at the stores of Chinese merchants in all our larger cities now, and fairly anthropomorphic specimens are not rare.

The superstitions connected with the plant *Ngam ngai*\* in Cochin China are probably the faint and distorted echoes of our Persian mandrake ideas. When, however, we find superstitious notions associated with the man-shaped roots of *Himeranthus* † among Brazilian Indians we are probably justified in considering them an independent growth.

But my real excuse for discussing an already well-worn theme remains to be presented. Perhaps the oldest and certainly the best known reference to the mandrake which we have is in the Bible. In Genesis XXX, 14-17 we read:

And Reuben went in the days of wheat harvest, and found mandrakes in the field, and brought them unto his mother Leah. Then Rachel said to Leah, "Give me, I pray thee, of thy son's mandrakes." And she said unto her, "Is it a small thing that thou hast taken away my husband? and wouldst thou taken away my son's mandrakes also?" And Rachel said, "Therefore shall he lie with thee tonight for thy son's mandrakes." And Jacob came from the field in the evening, and Leah went out to meet him and said, "Thou must come in unto me; for I have surely hired thee with my son's mandrakes."

Abundant passages in Josephus and various Talmudic and Rabbinical writers show that the Jews have held other notions regarding the powers of mandrakes. The idea, however, that they were helpful to barren women, the oldest on record, is also the most persistent in practice. Here, in Chicago, is a man of wealth and influence among the Orthodox Jews; he mourns the fact that no child perpetuates his line; he has been interested in the return of the Jews to Palestine and has given largely to the cause; the Jews of Jerusalem, knowing of his family sorrow and appreciative of his sympathy, sent him a mandrake with their best wishes. At first this merely indicated to me that the mandrake superstitions still live in Syria, a fact already well known. But questioning soon showed that mandrakes imported from the Orient are still in demand here among Orthodox Jews. They are rarely sold for less than four dollars and one young man whose wife is barren recently paid ten dollars for a specimen. They are still thought to be male and female; they are used remedially, a bit being scraped into water and taken internally; they are valued talismans; and they insure fertility to barren women.

\* *Revue des traditions populaires*, 1897, p. 275.

† Von Martins, *Flora Brasiliensis*, X, p. 160, quoted by Ascherson.

**In closing** may we present a list of the mandrake's powers? The anthropomorphic roots of mandragora, bryonia, alluim, etc., possess sex, are phosphorescent, cry out and groan; they have medicinal properties, are somniferic, anæsthetic, and aphrodisiac; they exorcise demons, possess guardian powers and give luck; they remove barrenness and serve as love amulets; they possess the power of speech and serve as oracles; they give power to become invisible; they can, of themselves, return to their owner; they can be ill and can impart illness; they grow on dead men's graves and under gallows; they must be dug with magical precautions.

Paper read at the annual meeting of the International Folklore Association, Chicago, May 25, 1901. Specimens of mandragora from the Orient, one of them secured from Jews in Chicago, and roots of Chinese ginseng were exhibited in illustration of the paper.

#### DOMESTIC ANIMALS OF THE LAKE DWELLERS.

BY ALEXANDER F. CHAMBERLAIN.

DOMESTIC ANIMALS OF THE SWISS LAKE-DWELLERS. From a study of the collection of animal remains in the Bern Museum of Natural History, Dr. Studer (Mitth. d. anthrop. Ges. in Wien, 1900, Sitzgb., 106-108) has arranged chronologically the domesticated animals of the prehistoric people of the lakes of western Switzerland and their descendants and successors. The evolution of the domestication of animals thus indicated is in brief as follows:

I. OLDEST STONE AGE (Bielersee and Moosseedorfee)  
*a) Dog.* The characteristic representative of the canine species (*Canis f. palustris, Rütim*) is a small, Spitz-like creature, widespread during the stone age, being found from Lake Ladoga to the crannoges of Ireland. An almost identical species occurs among the Tungus, in the Bismarck Archipelago (Pacific), and among the Battaks of Sumatra. *b) Pig.* The skull of the species here occurring (*Sus scrofa palustris, Rütim*) shows signs of not very advanced domestication, and the characteristics of the species are very marked. *c) Sheep.* The characteristic species (*Ovis aries palustris, Rütim.*) is a small race, with somewhat goat-like horns. *d) Goat.* A small species with well-developed upright horns. *e) Cattle.* (*Bos taur. brachyceros, Rütim.*) All the remains of cattle from the oldest period belong to the small "Torfküh," represented here in its purest form.

At this period remains of domesticated animals and of the wild animals of the chase are found in about the same proportions. Besides the small species of domesticated cattle remains of the huge wild *Bos primigenius* are found, also of a large species of wild hog. Even in this early age the physical differences between wild and domesticated animals are clearly present