

Aloe vera, Plant Symbolism and the Threshing Floor: Light, Life and Good in Our Heritage

With Special Reference to the Akkadians, Akhenaton, Moses, Alexander the Great, Dioscorides and Pliny

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For the last 200 years *Aloe vera* has been used as both the scientific name and common name for the medicinal Aloe of the Mediterranean. Nowadays botanists prefer the scientific name *Aloe barbadensis* for the plant while retaining *Aloe vera* as the common name. In commerce now only the name *Aloe vera* is in usage and is the standard designation for the species adopted by the Aloe Vera Growers Association headquartered in Harlingen, Texas.

Introduction

Aloe vera figured prominently in the medicine of ancient Egypt and Mesopotamia. We think that the early medical practitioners were very skillful and knowledgeable but understandably tight-lipped concerning the sources of their cures, which were also the sources of their livelihood. In these early civilizations, proprietary societies were formed around the cultivation and use of certain plants. There was an extremely precarious period before the invention of writing when specific knowledge was vested only in the minds of a few scholars in specific societies. When warriors from one city sacked another city, important knowledge was lost if the scholars were killed. In other instances knowledge was diffused at the point of the sword!

In order to preserve secrets, key plants used by a society could be grown in a clandestine location. It would have been difficult, but certainly not impossible, to have hidden the huge fields of *Aloe* which must have been required by the practitioners. We suspect that the populations of *Aloe* on warm islands such as Socotra, and later the Canary Islands, Madeira, and the Cape Verdes might have been introduced by man. The Egyptians, Persians, Greeks and Romans all had fleets of ships which slipped silently through the waters with precious cargoes from mysterious places. Phoenicians in the employ of one of the pharaohs even circumnavigated Africa! We do know that Alexander the Great in the Fourth Century B.C. was exhorted by Aristotle to conquer the island of Socotra to obtain the *Aloe* (see below). Notwithstanding this, long before Alexander, the true yellow-flowered *Aloe vera* was a domestic cultigen in Mesopotamia.

The effect of Alexander the Great on the civilized world was great. As a youth Alexander's teacher had been none other than Aristotle himself! An appreciation of knowledge was instilled into the youth by the great Aristotle with the result that Alexander sought out and preserved knowledge when he conquered each new land. Although Alexander died young, by the First Century A.D., Dioscorides, a surgeon in Nero's army, was harvesting the accumulated knowledge (again at the point of the sword) and finally writing it down. From the writings of Dioscorides, from the clay tablets of Mesopotamia, and from other sources, we are finally able to reconstruct a smattering of the "secrets of the ancients" to put forward a previously unpublished holistic theory for *Aloe vera*. Perhaps we can be forgiven for using circumstantial evidence if through it we can gain a closer insight into the beliefs of those who actually helped shape the foundations of our western thought.

Scope of Treatment, Geography, Taxonomy and Flower Color Considerations

The genus *Aloe* contains 324 or more species (Reynolds, 1966), most of which are African, but with some on nearby Madagascar and the Arabian peninsula. Gilbert Westacott Reynolds, who travelled over 40,000 miles through *Aloe* habitats to study the many species, and who conducted a massive literature and herbarium study, reported 132 species from South Africa, 133 species from tropical (mostly east) Africa north of South Africa, 46 species from Madagascar, 17 from Arabia, and 3 from Socotra, a small island off the coast of the Arabian peninsula.

The present article is meant to deal only with the classical medical *Aloe* of the ancient Mediterranean civilizations. This seems to have basically been the plant known almost universally today as "*Aloe vera*" (= *Aloe barbadensis*, see italicized note at left), but apparently to some extent included *Aloe perryi* of Socotra. The latter species was considered by Aristotle to have been of



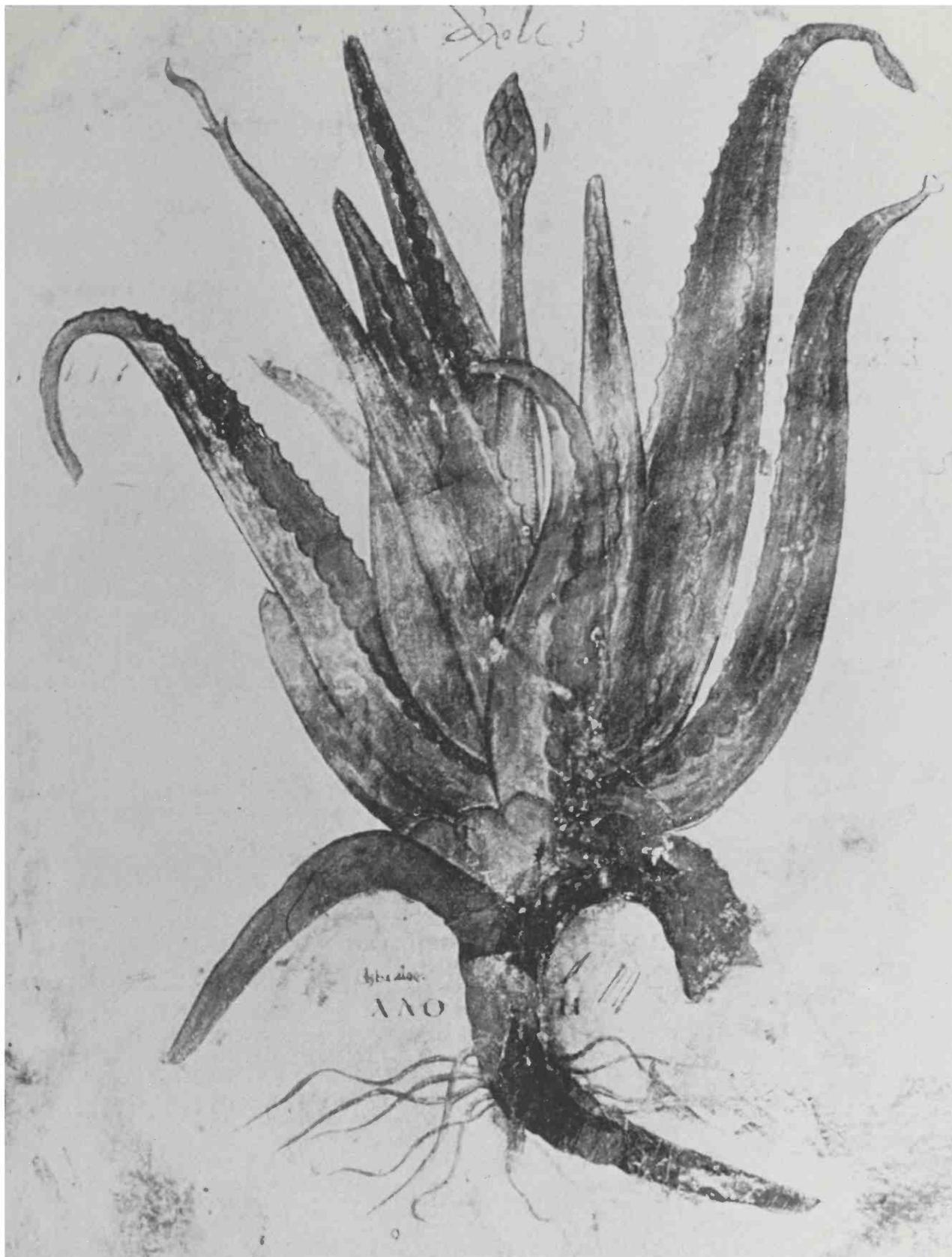
True yellow-flowered *Aloe vera* growing on the University of Arizona campus, Tucson.



Pedanius Dioscorides (left), served as a medical doctor in Nero's army. According to Margotta (1968) he joined the Roman legions to visit as many countries as possible in order to learn about their medicinal plants. From his writings we know of the uses of *Aloe vera* in the First Century A.D. In this painting, from Codex Aniciae Iulianae, Dioscorides receives a drug plant from Eurasia.

sufficient medical importance for him to have asked Alexander the Great to reconquer Socotra specifically to gain possession of "the plant famous for healing qualities." The purest form of *Aloe vera* has yellow flowers, although a red-flowered form of the species does exist. *Aloe perryi*, on the other hand, is basically red-flowered but becomes rather yellowish when flowers are at full anthesis. Although *Aloe* species are notorious for hybridizing one with the other when grown in gardens, we have no proof for hybridization or selection by man which might have affected the morphology or chemistry of *Aloe vera* or *Aloe perryi* as known to the classical civilizations. However, to exactly which country *Aloe vera* was originally native is not known. It grows wild today in practically all countries bordering the Mediterranean and on the Atlantic islands off the north African coast (Canary Islands, Madeira, Cape Verdes). At all of these locations it appears to have been introduced by man. Species most closely related to *Aloe vera* appear to be native to the Arabian peninsula or the adjacent coast of Africa (Somalia, Ethiopia, Eritrea). Socotra, the island famous for the red-flowered *Aloe perryi* mentioned above, lies in this exact same area between the Arabian peninsula and Somalia.

This is the source of the Socotrine *Aloe* drug of commerce which is apparently of such great antiquity. Balfour (1888) reported from his personal observations on Socotra how the drug was slowly dried from a watery *tâyef rhiho* through a *tâyef gesheeshah*, finally to a hard solid mass, *tâyef kasahul*, which was exported. Since Balfour reported the Arabic name of the plant on Socotra to be *Sobr*, we find it impossible to distinguish it in old writing from the true *Aloe vera* (known variously as *Si-ba-ru*, *Sabhra*, *Sabr*, *Saber*, or *Sabbara*, see below). This vagueness does not allow us, for example, to distinguish between true yellow-flowered *Aloe vera*



The oldest known illustration of Aloe is this very clear representation of Aloe vera in the Codex Aniciae Juliana. This parchment herbal was made at Constantinople about 512 A.D. and preserves for us the medical plant writings of Dioscorides in the First Century A.D. The original of this "Codex Vindobonensis" is preserved in the Osterreichische Nationalbibliothek, Vienna.

and red-flowered *Aloe perryi* when we are told that Queen Neferiti bathed in *Aloe* juice. Therefore, whenever the name *Aloe vera* is used in the present article, there is a possibility that some of the plants were actually the red-flowered *Aloe perryi* unless specifically designated true *Aloe vera* or yellow-flowered *Aloe vera* in the passage concerned.

To complicate matters further, Moldenke (1954) in treating economic plants of the Bible, used the name *Aloe succotrina* for the red-flowered Socotra *Aloe* and identified it as the *Aloe* brought by Nicodemus together with Myrrh for preserving the body of Christ (John 19:39). Actually, *Aloe succotrina* has been shown to be a species from South Africa, so that Nicodemus would have had to have brought either *Aloe vera* or *Aloe perryi*. Since there is no evidence that "Cape Aloes" (from South Africa) were ever used by the ancients in the Mediterranean region, they are specifically excluded from the present article. Most authorities agree that the *Aloe* of Nicodemus was indeed translated correctly as *Aloe*, but that the supposed "aloes" of the Old Testament represented mistranslations of the Hebrew *ahalim*, *a'haloth*, or *a'halot*, plants that were not in the genus *Aloe*.

Although Moldenke (1954) believed that the *Aloe* of Nicodemus came from a red-flowered plant, we really do not know this from the literature. A peculiar custom in ancient Egypt might relate to flower color. Whereas it is known that *Aloe* extract was used as a constituent of the "glue" holding the bandaging on mummies, and *Aloe* fiber was even used for weaving the bandaging covering the mummy of Ramses II, it eventually became customary for Egyptians to dye the [non-*Aloe*-fiber] covering around a male mummy red and that around a female mummy yellow (Baumann, 1960: pg. 86). If such dyeing symbolically substituted for *Aloe* or re-inforced the symbolism of *Aloe*, it would relate to the two kinds of *Aloe* (red and yellow) which were used in the Mediterranean. Does the yellow-flowered plant have any significance for women? Well, *Aloe vera* was indeed long used for treating amenorrhea, and by several reports quite effectively. Needless to say, countering of this disorder would transform a reproductively sterile woman into one capable of bearing children. Here would be a strong link of *Aloe* with renewed life! Could it be possible that yellow-flowered *Aloe vera* was cultivated at home by women to use as a fresh gel in the household, and the red-flowered *Aloe perryi* used as a dried drug often away from home by men, perhaps for battle wounds?

Some Details of History, Folklore and Medicine

According to Coats (1979), ancient Egyptians referred to *Aloe vera* as "The Plant of Immortality." Calligraphic representations of it occur on temple walls and tombs of ancient Egypt. Living plants of *Aloe vera* are said to have been traditional gifts brought to funerals of pharaohs "to see them off to their final resting place." It is thought that "Aloes were planted around the pyramids to mark the pharaohs' paths to the Land of the Dead" (Coats, 1979). The Egyptian queens Nefertiti and Cleopatra are said to have taken frequent baths in *Aloe vera* juice.

Use of *Aloe vera* by man appears to be very ancient. References to it many thousands of years old were uncovered by R. Campbell Thompson when he studied the cuneiform writings on hundreds of clay tablets in the library of ancient King Assurbanipal of Assyria. It should be remembered that the dawn of recorded history occurred five millenia ago (3000 B.C.) when the Sumerian civilization (in the region of present-day Iraq) developed a means of marking on moist clay tablets with a reed stylus to produce such cuneiform writings. In Thomp-

son's (1949) *Dictionary of Assyrian Botany* we learn that the ancient Akkadian texts, fully four millenia old, referred to *Aloe vera* by the name *Si-ba-ru* speaking of it as the plant "for adornment of the door." Clearly from *Si-ba-ru* must have come the Syrian and Arabic names for the plant, *Sabhra* and *Sabr*, respectively.

Reynolds (1966) passes on the information that the modern Egyptian name is *Saber*, *Sabr*, or *Sabbara*, translated as meaning "endurance" or "bitter medicine," and that it is a "common custom in Cairo . . . to hang an aloe plant over the door of a house, particularly that of a new house. This is regarded as a charm to ensure long and flourishing lives for the inmates. The aloe plant thus hung will live for some years and even flower." How fascinating that *Aloe* has continued to be used as a door plant for a minimum of 4,000 years! Today, of course, through the warmer countries of the world, *Aloe vera* is grown directly by the door closest to the kitchen so that in case of burns while cooking or injuries due to spattering grease, a leaf can be broken off to be split open and rubbed on the injured spot! We naturally wonder if the Akkadians didn't make similar concrete use of their "symbolic" door plant!

From the writings of Pedianos Dioscorides we have an excellent account of the medicinal use of *Aloe vera* in the First Century A.D. Dioscorides was a Cilician surgeon who accompanied Roman armies in the Mediterranean and Asia Minor, collecting drug plants and becoming the foremost authority on pharmacognosy for the entire 1,500 year period following the birth of Christ. His own *Materia Medica* in five books was written about 65 A.D. but was copied and re-copied in various versions all the way to the Seventeenth Century. From the English translation by Goodyer in 1655 (cf. Gunther, 1934) it is clear that Dioscorides knew of using *Aloe* for "conglutinating of wounds," countering or "binding" dysentery, cleansing the stomach, stopping the spitting of blood, and curing jaundice. He noted that although a strong dose could be used to purge the bowels, when "mixed [in lesser dosage] with other purging medicines it makes them less hurtful to the stomach." He recommended it particularly for healing genital sores and condyloma, "chapping of the seat," and hemorrhoids. Furthermore he claimed that it took away "blacks and blues," assuaged itching, prevented hair from falling out, and was good for the tonsils, gums and "all griefs in the mouth."

Today *Aloe vera* is used around the world internally and externally for many of the same complaints listed by Dioscorides. Although we may not be as sure as Dioscorides that it can be used to prevent the loss of hair, its effectiveness in "stopping the spitting of blood" jibes with what we know about its present popularity for alleviating bleeding ulcers. Just as Dioscorides knew of its use for helping the stomach, today we know that it does this by coacervating pepsin. In its coacervated form pepsin remains inert if the stomach contains no food. Upon eating, however, and particularly on introduction of protein into the stomach, coacervation reverses so that proteolytic activity begins. *Aloe vera* gel contains mannuronic and glucuronic units which act like the natural glucuronic units of the gastric mucin to detoxify and heal. It has been likened to a "bandage" for the stomach lining. Activity of *Aloe vera* in "conglutinating of wounds," although perhaps not expressed in our present-day best medical terminology, relates directly to the tissue-culture findings by Winters et al. (1981) that an *Aloe vera* extract promoted "attachment and growth of human normal, but not tumor, cells" and enhanced healing of wounded cell monolayers. Classical use of the plant for heal-

ing of sores, chapping, dermatitis and black and blue areas, correlates nicely with its topical (surface) use today for similar skin problems. It apparently has been effectively used for Herpes infection (Coats, 1979).

In its medicinal uses it is necessary to distinguish between fresh gel and dried drug. Since the drug was exported from the Mediterranean or Gulf of Aden by sea, it was necessary to concentrate it for ease of shipment. The common practice was often to let cut leaves drip into a goat-skin in the sun, evaporation taking place as the drug accumulated in the skin [see Hodge (1953) for a South African parallel for "Cape Aloes" and also the discussion above on the Socotrine *Aloe*]. Gathercoal and Wirth (1947) illustrated three typical containers used in shipping the dehydrated drug in recent times. One is a round gourd. The other two are hideous sewed-up monkey skins. The primary use of the dried drug has been as a laxative since many of its other properties have been lost or weakened in the desiccation process.

Coats (1979) referred to the dried drug as a "black viscous cathartic." It has survived chiefly today in veterinary medicine to cleanse horses of parasitic worms or to make poultices for hobbled animals. Hodge (1953) thoroughly reviewed collection and processing to produce the dried drug and its refined pentoside "aloin." Persons familiar with the dried product have questioned the effectiveness of *Aloe vera* for many of the uses described by the ancients. The reason for the disagreement is that the ancient practitioners used fresh gel for many complaints, a quite different drug, as clear as water and only slightly bitter to the taste.

A rebirth of interest in qualities of the fresh gel came earlier this century when it was discovered that it could be used to alleviate and heal radiation burns from X-rays or nuclear accidents. It soon became apparent to modern medical researchers that fresh gel had healing properties based on a chemistry not seen at all in the dried drug. Eventually chemists learned how to stabilize the gel so it could be bottled with a reasonably long shelf life.

Registered Pharmacist Bill Coats (1979) published the book *The Silent Healer: A Modern Study of Aloe Vera*. It contains numerous medical reports by doctors with M.D. degrees recounting the effective treatment of both internal and external conditions using fresh or chemically stabilized *Aloe vera* gel. The gel is characterized as a demulcent compound of mannuronic and glucuronic units combined to form a polymer of high molecular weight. Gel used medicinally should come from old mature leaves three or four years old. Such gel has been shown to have antibiotic, astringent, coagulating, pain inhibiting, and growth stimulating properties.

There has been considerable recent research into bactericidal and antiprostaglandin effects (Cera et al., 1980), cathartic effects (Ishii et al., 1981), analgesic effects (Gupta et al., 1981), and bradykininase activity (Fujita et al., 1976). Saito et al. (1982) found that a glycoprotein or "lectin" in *Aloe* (alocin A) markedly inhibited adjuvant arthritis and carrageenan-induced edema in rats. Winters et al. (1981) centrifuged *Aloe* extract to obtain fractions high in *Aloe* lectin. These fractions inhibited human tumor cell growth in tissue culture but promoted growth of human normal cells in tissue culture!

Aside from use by the ancients as a door plant, as an external unguent, and as an internal medicine, *Aloe vera* was also used in embalming (although this has been questioned, see below), as a cemetery plant, and as a boundary marker. According to Reynolds (1966) *Aloe* is grown in Egypt "especially as a ceme-

tery plant, and sometimes as boundary marks demarcating fields." In addition it is said to be a common practice to plant *Aloe* on graves in Somalia, Ethiopia, and Eritrea.

The insatiable curiosity of the famous Roman scholar Caius Plinius (= "Pliny") led to his discovery that *Aloe* was one of the ingredients used for embalming by the ancient Egyptians. Although he duly recorded this fact, it has been repeatedly questioned by historians and Egyptologists who note that it is absent from the recipe which the early Egyptians were supposed to have used. Coats (1979) intimated that the embalmers had a motive for being vague or misleading in revealing trade secrets. Since modern researchers have failed to duplicate the results of the ancients using their supposed recipes for embalming, Pharmacist Bill Coats (1979) believed that their "secret" was the very *Aloe* plant "whose drawings adorn the sides of sarcophagi." If anyone had the zeal and curiosity to have discovered an embalming secret in the First Century A.D., it would have been Pliny. The degree to which he searched for knowledge to satisfy his insatiable curiosity is seen in the manner of his death: On hearing that Mt. Vesuvius was beginning to erupt (in the year 79 A.D.) he rushed there to study it. Curiosity killed the famous Pliny. He died in the eruption.

Confirmation that *Aloe* was indeed used in embalming comes from the New Testament. In John 19:39 we learn that after Christ was crucified, Nicodemus brought a mixture of myrrh and *Aloe*, about a hundred pounds, so that the body might be preserved. Baumann (1960) has uncovered some other interesting details. Since a common technique for applying *Aloe vera* to wounds and burns has been to split a leaf longitudinally and tie it (pulp side inward) over the afflicted part, any covering of a corpse with *Aloe* leaves would be extremely symbolic, signifying a rebirth, a veritable healing of death into life. In this regard, we find that the wrappings covering the mummy of Rameses II consist of cloth bandages made from fine woven *Aloe* fibers (Baumann, 1960: pg. 87). Dyeing of wrappings over male mummies red and female mummies yellow could possibly have some tie-in with flower colors of the two types of medicinal *Aloe* used in the Mediterranean region (see discussion in section above).

Plant Symbolism and a Holistic Theory for *Aloe vera*

Should we search for a connection among the seemingly divergent uses of *Aloe vera* for medicine, embalming, hanging over the door, planting on graves and marking boundaries? What common thread or symbolism is present? Throughout history man has chosen to express himself by means of plants. For example, an olive branch was long ago chosen as a symbol of peace, most likely because a victorious army once came home to Rome bearing cuttings for propagating and establishing the olive in Italy, heralding an outlook for peace and prosperity. (The tree had not grown in Italy until after the reign of Tarquinius Priscus according to Pliny!). Laurel leaves signify victory because, being aromatic, they were used by the Romans for purification after battle as if their perfume would not only cleanse the air but would remove the taint of killing as well.

Bearing such symbolic plant associations in mind, we can work backward to reconstruct a holistic theory for *Aloe vera* based on observations of its use. At an early date in the Mediterranean, *Aloe* was chosen to represent "enduring life" because it has the characteristic of continuing to live, and even bloom, after being completely separated from the soil.

This characteristic surely parallels and symbolizes man's religious belief and desire to live on after his physical body has terminated its earthly existence! No small wonder indeed that ancient Akkadians hung the plant over their doorways and Egyptians wanted it to be planted on their graves!

The very word "aloe" in ancient Greece meant "a threshing floor." At such a place man's staff of life (food) was separated from the bodies of crop plants which had been bound to the soil and now were dying in order to sustain life! Indeed, the *Aloidae* (a plural form of "aloe") in Greek mythology were the twin sons of Aloeus or Poseidon, representing the spirits of the fertile earth and agriculture!

The threshing floor is the place where the "good" instilled in plants is secured for man! Plants rooted in the soil function to intercept heaven-sent energy from beyond the earth (sunlight) and link it with two of the most abundant earthly materials (air and water) to produce sugar through photosynthesis. Later, plants convert the simple sugar into protein, starch, oil, wood, fiber, —indeed either directly or indirectly into the complete spectrum of good products or "goods" which man is provided on earth! But one "good" from *Aloe* stands out. Scientists now believe that the curative power of *Aloe* as a medicine or unguent is based on a different concept than that of common drugs. *Aloe* is a living drug! In simple language, the gel contains highly reactive living sugar-based molecules which injured tissues in our bodies can accept and use for cleansing and making repairs! Thus, tissues on the verge of death might literally be resurrected and restored to health. Of particular significance is the finding by Winters et al. (1981) that lectins from *Aloe* promote growth of normal human cells but inhibit growth of human cancer cells!

Just as plants have figured prominently in the symbolism of life and death in the Greek and Roman civilizations, so too were they important in religious symbolism of ancient Egypt and later Israel. For example, the concentric spheres of heaven, earth and hell were represented in Egyptian religious belief by the symbolism of concentric layers in the common onion (*Allium cepa*). Numerous authors point out that when Moses led the Israelites out of Egypt he took with him a certain amount of Egyptian heritage (he was raised in the daughter of Pharaoh's household, after all!) which may have been incorporated to varying degrees in his teachings. Perhaps it is no coincidence that monotheism, universalism, tolerance, a belief in the goodness of nature, and a desire to live in truth, were characteristic not only of the Desert Amarna Age under the Egyptian Pharaoh Akhenaton beginning in 1380 B.C., but also of the beliefs and teachings of Moses a hundred years later during the Exodus beginning in 1280 B.C.! All authorities agree that intervening between the Amarna Age and the Age of Moses was a repression period during which the beliefs of Akhenaton were repudiated by the rulers of Egypt, particularly the priests of Amun who believed in multiple gods. Even Akhenaton's son-in-law Tutankhaton expunged the name of the God of light (Aton) from the end of his own name when he changed it to Tutankhamun.

Moldenke (1954) pointed out that the use of *Aloe* by Hebrews for preparing a body for burial came from "their long captivity in Egypt" where they learned of its qualities. We are often reminded by scholars that Akhenaton's "Hymn to Aton" bears a striking resemblance to the 104th Psalm of the Bible. In it Aton is characterized as the one supreme God who gave life to the creatures of the earth and who is embodied in the

sunlight which gives energy to continue life! Akhenaton's wife Nefertiti is said to have frequently bathed in *Aloe* juice (Coats, 1979) and we believe that Akhenaton himself had a very good appreciation of the plant's qualities and symbolism.

Of particular interest to readers of *Desert Plants* journal is the fact that scholars consistently link monotheism of the Desert Amarna Age and the Age of Moses with deserts, sunlight and desert plants. Akhenaton is said to have been the first monotheist (Breasted, 1929) and to have arrived at his belief by appreciating the relation of light to life and good. Akhenaton abruptly severed himself from traditions of earlier pharaohs by acknowledging only one true God and by frequently appending to his own name a phrase signifying "living in truth," indicating a scientific approach not seen in the other pharaohs before or after his reign. In each new verse of the Aton hymns, we find reference to concepts which we know today as "photosynthesis," or "sexual reproduction," etc. In one, we read how the flowers are "drunken" in the intoxicating radiance of Aton, and in another how Aton's light extends even into the "midst of the great green sea." If Akhenaton's beliefs had little permanent effect in Egypt, where the priests of Amun regained control, perhaps they did enjoy some acceptance among people whom the priests of Amun could not control!

Just as Akhenaton spoke of flowers "intoxicated" with the radiance of Aton, so too did Moses soon speak of a bush burning with the presence of Yahweh in the desert at Mt. Sinai. And as Akhenaton had the names of the other gods erased from the temple walls, so too did Moses bring down from Mt. Sinai the First Commandment "Thou shalt have no other gods . . ." Certainly the God of Moses was the God of light! From the above discussion of Akhenaton and Moses we see a common belief in the goodness of light, plants, photosynthesis, and a bountiful earth and agriculture, — a belief which jibes well with the concept of the *Aloidae* and the threshing floor discussed previously, but rather at odds with religions which worshipped images of animals or people. According to Breasted (1929) the concepts of Akhenaton and the goodness of nature are recapitulated not only in the Hebrew *Psalms* and Christ's *Sermon on the Mount* ("Consider the lilies . . ."), but also in the writings of Wordsworth and later poets.

Although the ancients were not able to explain phenomena such as photosynthesis or the pharmacological mode of action of *Aloe* in the same terms which we use today, we think that some of the ancients who "lived in truth" did indeed comprehend such concepts. We believe that they knew that plants draw energy from the heavens (light) and transfer good to man. With regard to *Aloe vera* they observed that it quickly coagulated at the site of injury and healed very rapidly. From such observations it must have been a simple matter to have rubbed *Aloe* gel on cuts and burns to promote healing. Companies selling *Aloe vera* products today claim that the plant was taken directly from the Garden of Eden (Coats, 1979) and slowly planted around the world as mankind multiplied. Interestingly, our present knowledge of *Aloe vera*, beginning in Mesopotamia, spreading through the Mediterranean, and then around the world, is really not at odds with this colorful "Garden of Eden" claim! When Columbus set sail toward America, he wrote in his diary "All is well, *Aloe* is on board." In the New World, *Aloe*, because of its usefulness and probably because of its symbolism, was one of the first plants to be cultivated at each of the Spanish missions. The permanence of *Aloe* plants at such sites today is striking and their mass

flowering at Easter quite beautiful. Over the years people have taken innumerable offsets from these for planting.

Succulent plants in general have been involved with the concept of resurrection and everlasting life. Taxonomically quite unrelated to *Aloe* but with a similar succulent physiognomy is the genus *Sempervivum*, a name which means "live forever," or the species *Lewisia rediviva*, meaning "the *Lewisia* which resurrected." The latter succulent, collected in America on the Lewis and Clark expedition, "came back to life" after having been made into a herbarium specimen. It actually bloomed while botanists were studying its presumed corpse on a herbarium sheet!

Desert plants (such as succulents) must be tenacious of life because of their mode of living. As desert plants survive in a struggle against the hardships of aridity, they symbolize an overcoming of adversity on a broader scale. Rugged and hardy desert plants represent a beautiful marriage between the solitude of the desert and an irrepressible vegetative life force. No wonder indeed that world religions were born in desert places conducive to meditation and reflection, conducive to decision-making, conducive to strengthening, bronzing and maturation, — places where the innocence and passiveness of plant life could be assimilated and opposite qualities inferred, — where simple values relating to human earthly existence could be extrapolated.

The use of *Aloe vera* to mark the boundaries of Egyptian fields, mentioned in a section above, may have been utilitarian but also seems symbolic. Once established, these boundary lines would be rather permanent due to the tenaciously long life and clonal growth of *Aloe*. There would have been little chance of the plants dying for lack of watering or insufficient care by man. But perhaps also we should remember that *Aloe vera*, the threshing floor, and the cemetery each represent important boundaries. In this case, boundaries between the physical body and a subsequent existence. Also, *Aloe* gel has stood at the boundary between sickness and health. If *Aloe* plants were indeed planted "to mark the pharaoh's path to the Land of the Dead," they were indeed being used as boundary plants between two worlds: the physical world and the hereafter.

Interestingly, it is crassulacean acid metabolism (see *Desert Plants* 5:192) which not only is ultimately the source for "repair molecules" in *Aloe*, but also dictates that the outer covering of the plants must always maintain a healthy integrity to prevent desiccation and death of the plant! In other words, it is indeed the same quality in *Aloe* which causes it to have an enduring life when injured or subjected to adverse conditions, that also can be used by man to stay healthy, to prolong life, to maintain the integrity of a buried body, and to envision death as a harvest of good to be perpetuated in everlasting life. Death is the threshing floor, a boundary, and perhaps ironically to some, the symbol of renewed life. The symbolism of *Aloe* very beautifully embodies all aspects of this concept.

Postscript

After writing the above article, we wondered if we might have overstated the significance of the "threshing floor" and/or cultural connections relating to Egypt, Moses, the Burning Bush, monotheism, and the Israelites. To check on this we reviewed some of the many fragments of history recorded in

biblical scripture. We were amazed at how closely this history seemed to verify our previous correlations.

Jacob (also known as "Israel"), who was the father of the 12 tribes of Israelites, died in Egypt. The embalming process took 40 days with a period of national mourning of 70 days (Genesis 50: 2-3). Israel's son, Joseph, who had promised to bury his father in Canaan, the father's former homeland, received Pharaoh's approval to take a funeral caravan all the way across the Jordan River to Atad ("the threshing place") where a great and solemn funeral service was held, with all of Pharaoh's senior officers of the land in attendance (Genesis 50: 7-9). The local residents, the Canaanites, were so impressed that they renamed this threshing floor "Abel-mizraim" (= "Place of the Egyptian Mourners").

Israel's son Joseph married an Egyptian girl, Asenath, daughter of Potiphera, the priest of the Sun God at Heliopolis (Genesis 41: 45-50). According to Genesis 48: 4-5, the two sons of Joseph and Asenath were accepted by Israel as equal to his own, so that their descendants (tribes) were bequeathed (and eventually occupied) two of the 12 parts of the Promised Land!

Moses was descended from Joseph's brother Levi (Exodus 2: 1). Pharaoh's daughter adopted him as her own son after drawing him as a baby out of the Nile where he was floating in a little reed boat. His name was actually Egyptian, his adopted mother using the word *moses* (also seen in the name of Pharaoh Thutmose) to indicate "drawn out [of the water]." Since Moses was 83 years old when he led the Israelites out of Egypt in 1280 B.C., he would have been born during the reign of Tutankhamun. We can probably equate Tutankhamun with the Pharaoh mentioned in Exodus 1:8 who felt no obligation to Joseph after the previous Pharaoh had died and Rameses II as the Pharaoh of the Exodus who pursued the Israelites into the sea. When Moses was born, Tutankhamun was too young to have had a daughter old enough to become Moses' adopted mother. His adopted mother must have been, therefore, one of the six daughters of the previous pharaoh, Akhenaton! Just as Akhenaton's monotheistic glimpse of a one true God had been unique in ancient Egypt, so too was Moses' revelation considered by his people to be unique. Moses was the only prophet of the Israelites of whom they said that God talked to face to face (Deuteronomy 34: 10). We believe that his characterization of God's presence as a desert plant burning in the wilderness ("the Burning Bush") was equivalent to Akhenaton's characterization of the same phenomenon using a symbol of the sun with sunrays terminating in hands touching the earth (energy, photosynthesis, etc.) and that neither Moses nor Akhenaton intended to worship the objects themselves as gods. Regardless of interpretations, Moses was truly the one who introduced the Israelites to Yahweh, the one true God. From Joshua 24: 14 it appears that the Israelites were not truly monotheistic until they left Egypt: "Put away forever the idols which your ancestors worshipped when they lived beyond the Euphrates River and in Egypt. Worship the Lord alone."

We are further convinced of the symbolic importance of "the threshing floor" as a boundary between previous earthly life and future life by 1 Chronicles 21: 14-16, where we read that God decided to call back an angel he had sent to destroy Jerusalem. The angel was standing on the threshing floor of Ornan, "standing between heaven and earth with his sword drawn, pointing toward Jerusalem. King David bought the threshing floor from Ornan. On this holiest spot, where Jerusalem had been spared, David vowed "Right here at

Ornan's threshing floor is the place where I'll build the Temple of the Lord..."

Actually, it was not until the next generation that the great temple was built by King Solomon (who happened to be married to Pharaoh's daughter). It reportedly took 153,600 workers to build the temple, the center of which was the 30 ft. x 30 ft. spot to be known as the "Holy of Holies," the threshing floor at the top of Mount Moriah in Jerusalem where the Ark of the Covenant would be placed enclosing the tablets of Moses upon which the Ten Commandments were written!

This holy spot was an important cornerstone of western civilization, where laws of good were enshrined. It was destined to be the place of judgement where a person accused would be found guilty or not guilty just as at the threshing floor the good was separated from the chaff! It was a forerunner of our present court system.

Thus, we see that the *Aloe*, symbol of the threshing floor, is not only a strong symbol of good, but a powerful reminder of the agricultural goodness which through photosynthesis secures for man the benefits of energy from beyond our earth, and furthermore that the agency (threshing floor) by which good is separated or defined, is itself quite holy.

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