MICHIGAN MANDELA EFFECT.

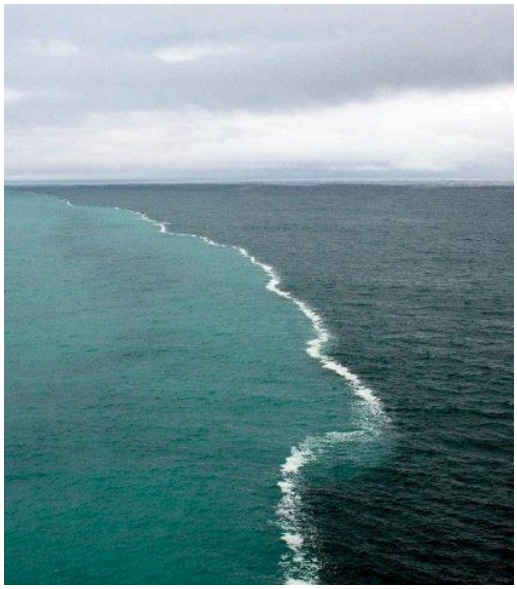
CIRCUITS IN THE BIBLE.

May 11, 2025

The Book of Psalms Chapter 19 verse 6:

“His going forth is from the end of the heaven, and his circuit unto the ends of it: and there is nothing hid from the heat thereof.”

The Book of Job Chapter 39 verse 10:



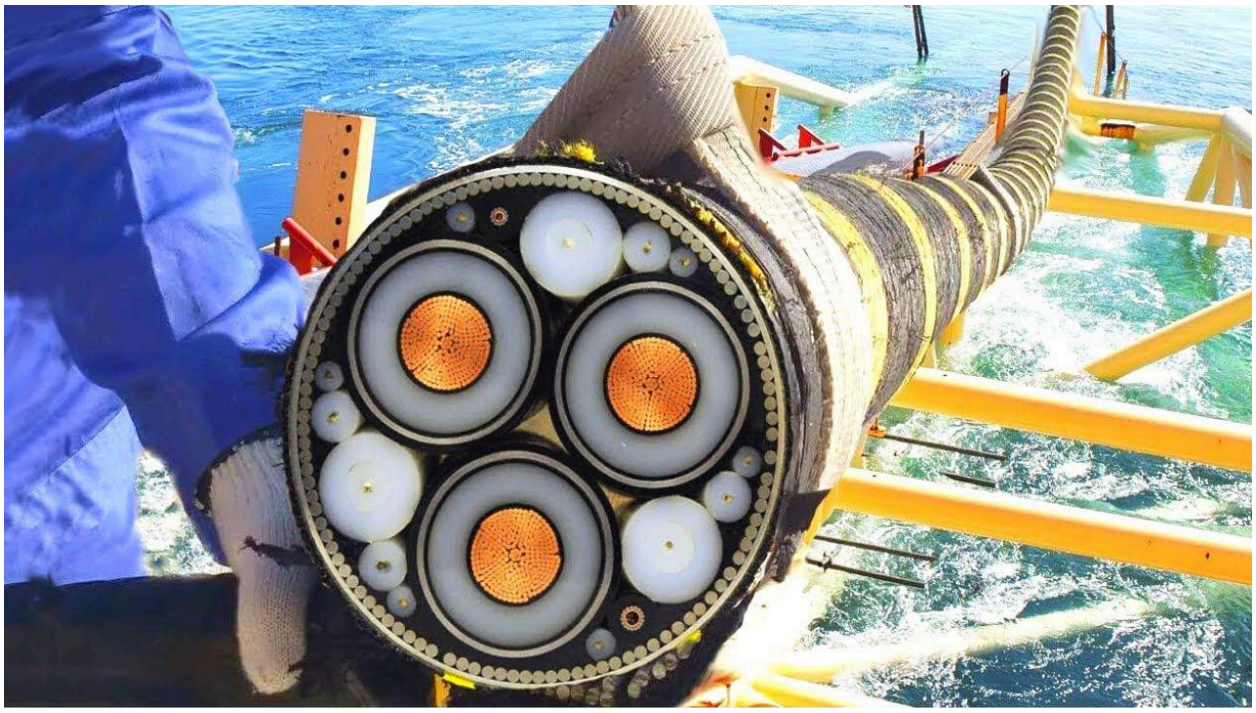
“Canst thou bind the unicorn with his band in the furrow? Or will he harrow the valleys after thee?”

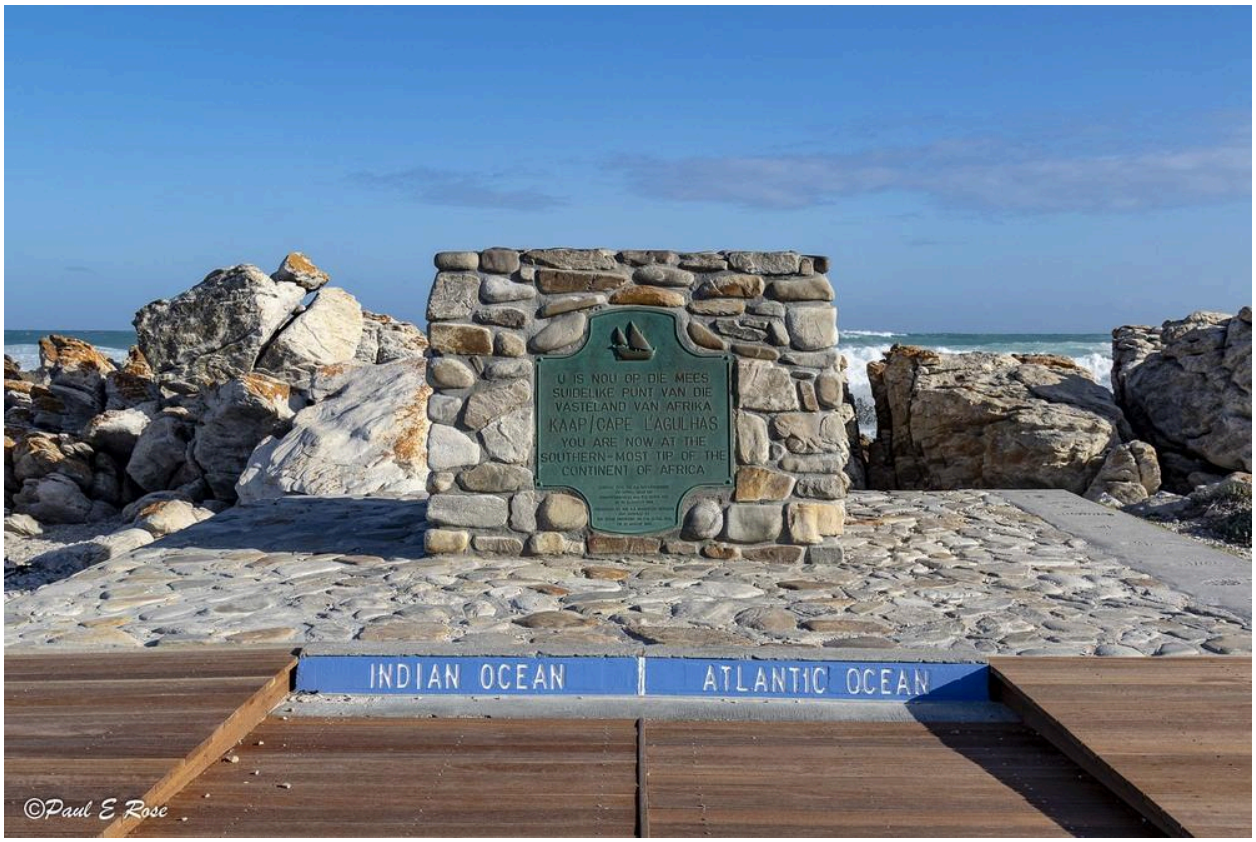
The Book of Psalms Chapter 19 verse 4:

“Their line is gone out through all the earth, and their words to the end of the world. In them hath he set a tabernacle for the sun,”

The Book of Deuteronomy Chapter 33 verse 23:

And of Nephtali he said, O Nephtali, satisfied with favor, and full with the blessing of the Lord: possesses thou the west and the south.




U IS NOU OP DIE MEES
SUIDELIKE PUNT VAN DIE
VASTELAND VAN AFRIKA
KAAP/CAPE L'AGULHAS
YOU ARE NOW AT THE
SOUTHERN-MOST TIP OF THE
CONTINENT OF AFRICA
INDIAN OCEAN
ATLANTIC OCEAN
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Pistons
PIS
TO


Nelson Mandela Dr
Atwater


SOUTHSIDE CREW
WHEELZ
SOUTHSIDE
CREW


Gospel Goes
CLASSICAL
Featuring
Juanita Bynum & Jonathan Butler
Recorded live with the Gospel Goes Classical Symphony Orchestra and Choir,
conducted by Dr. Henry Panion, III.

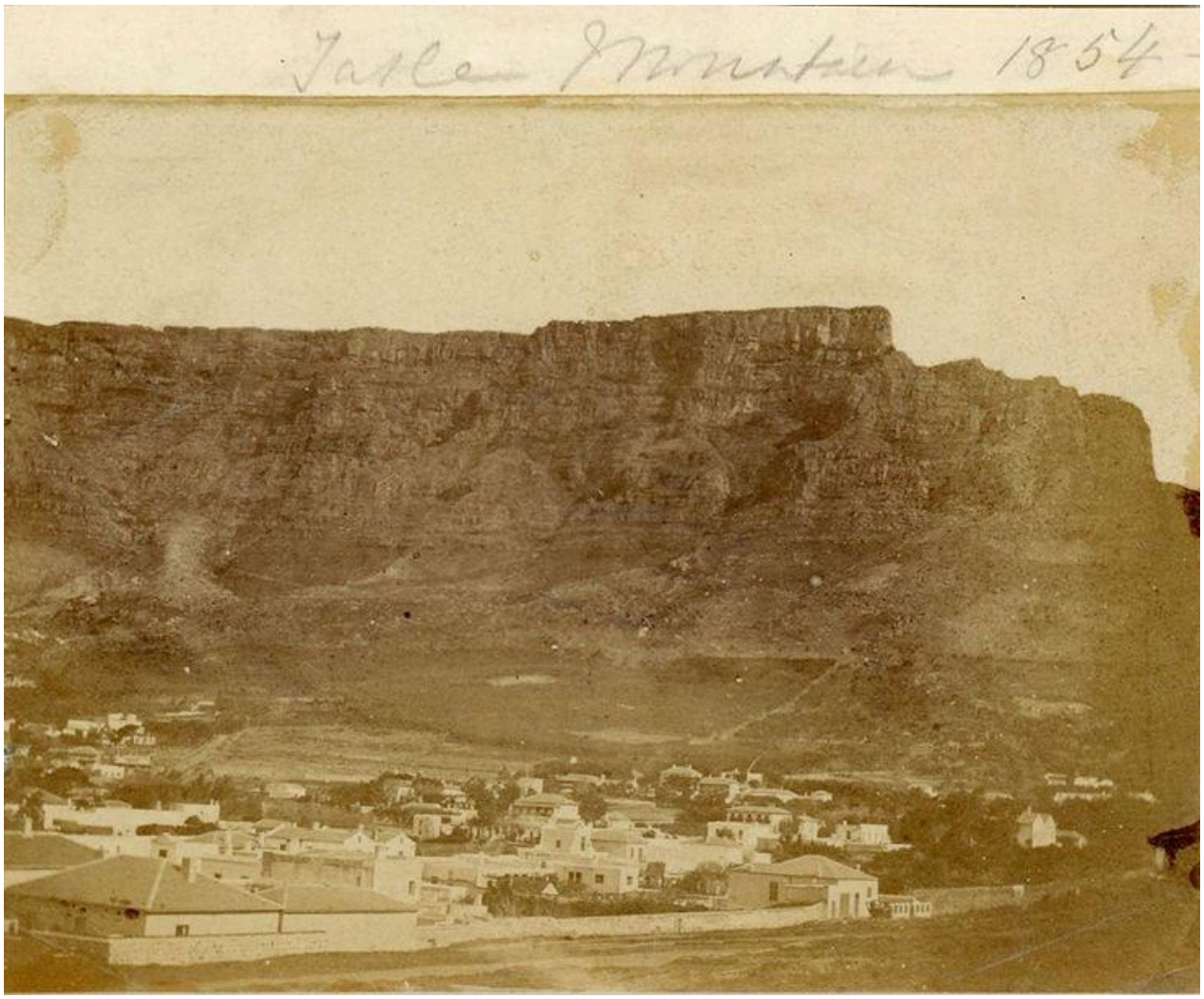
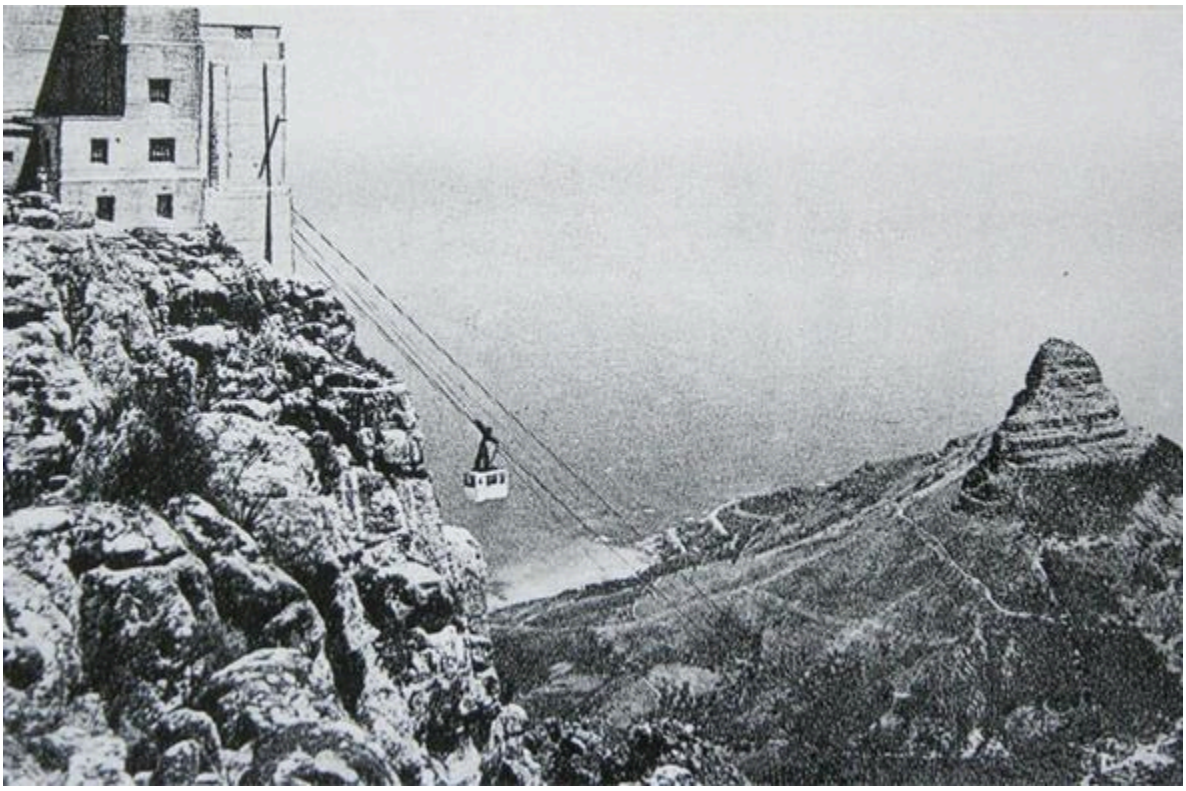
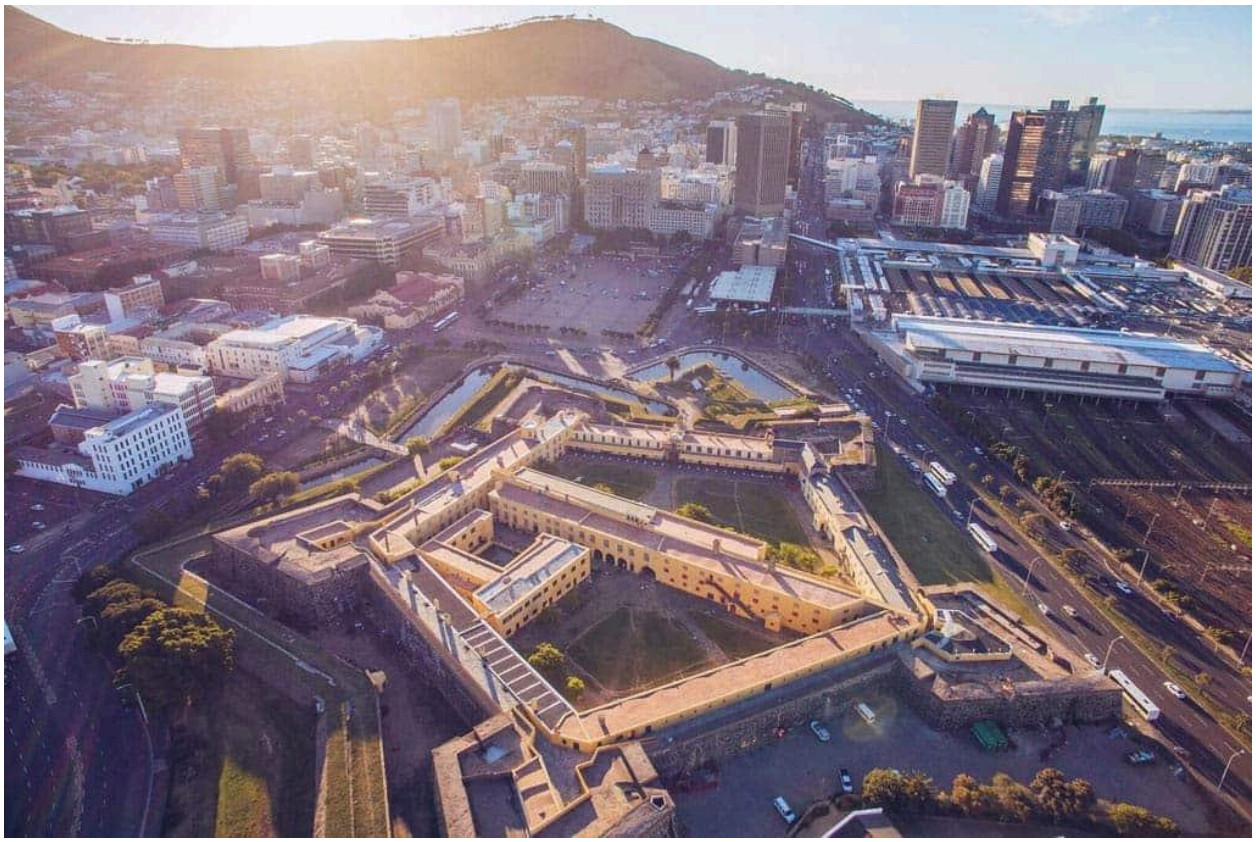


Table Mountain 1854



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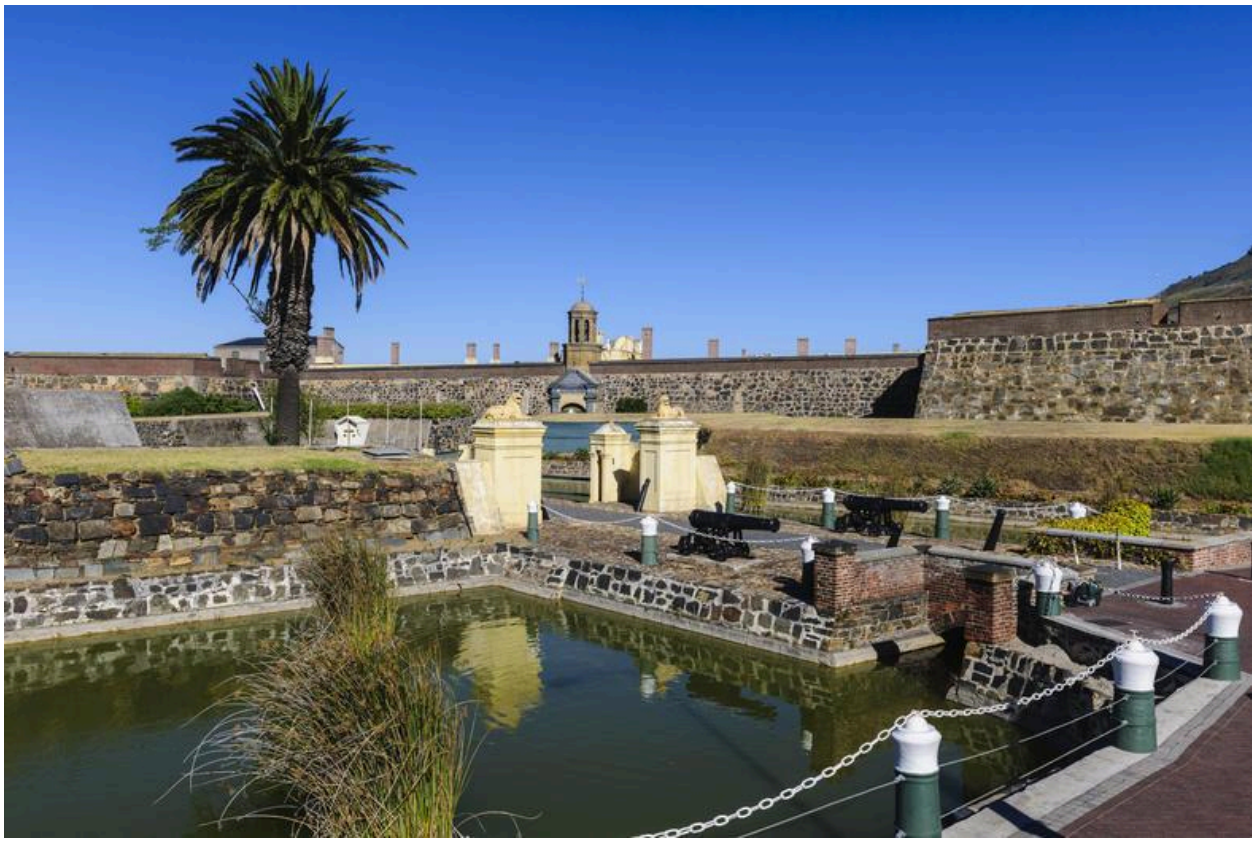
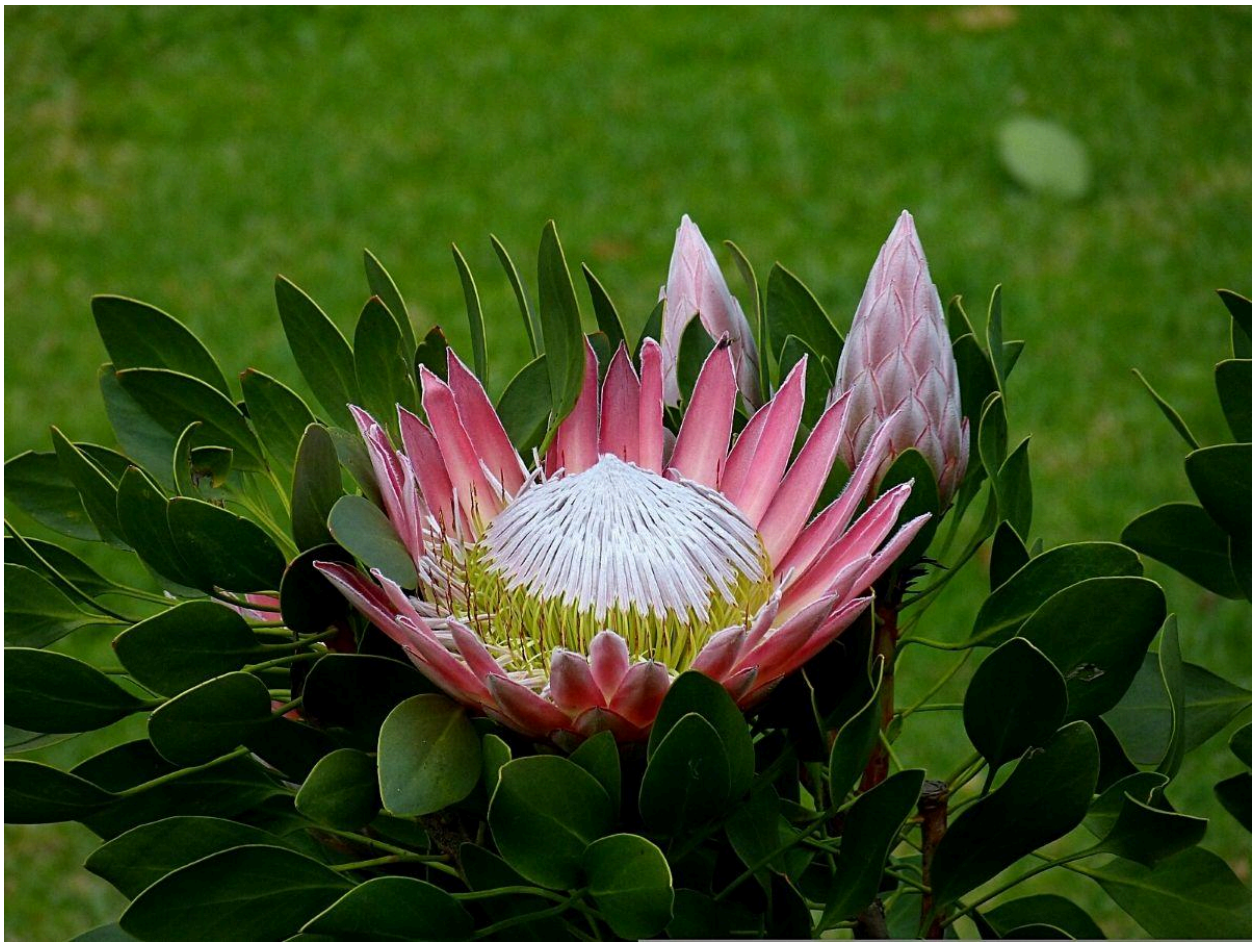
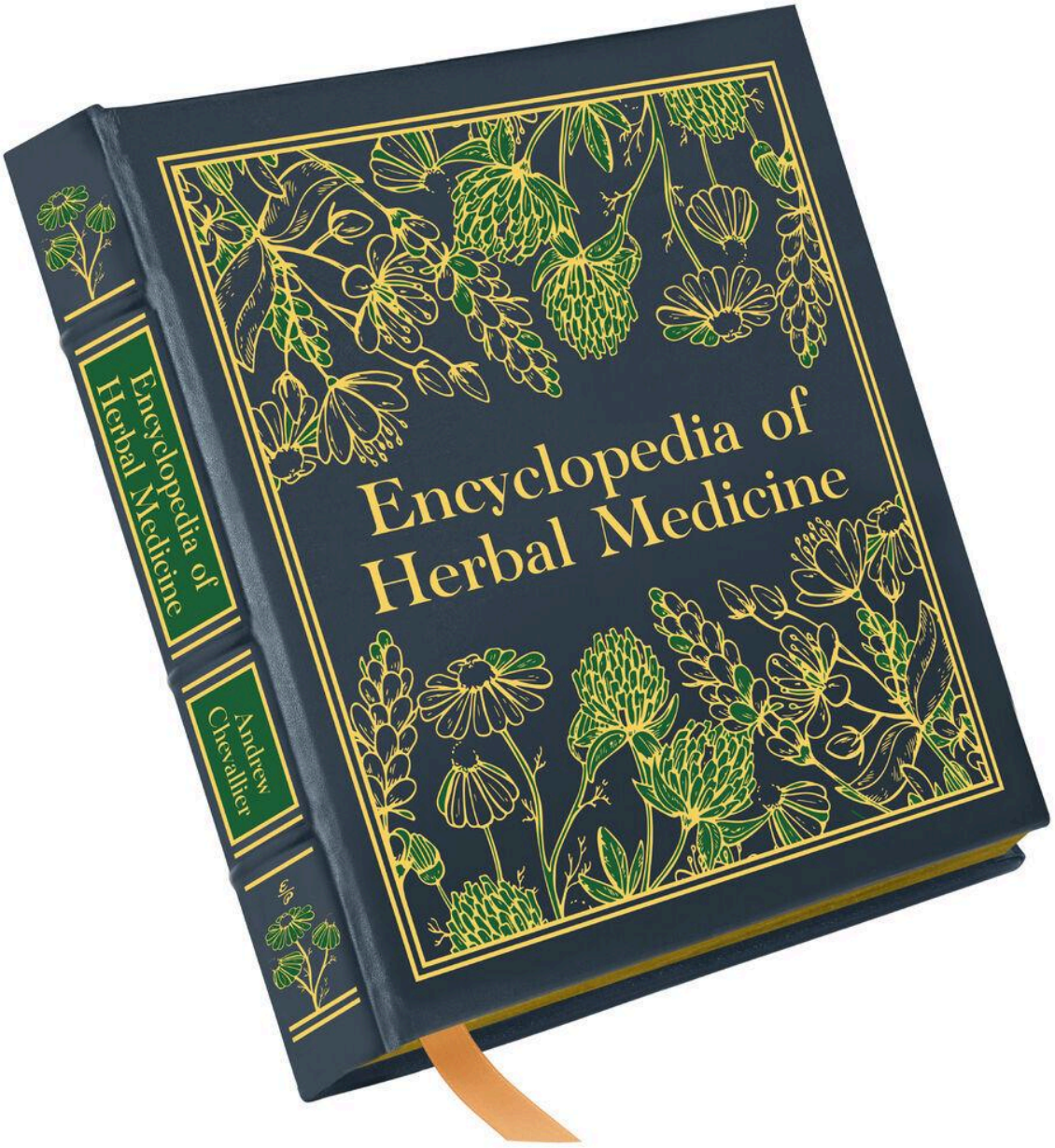
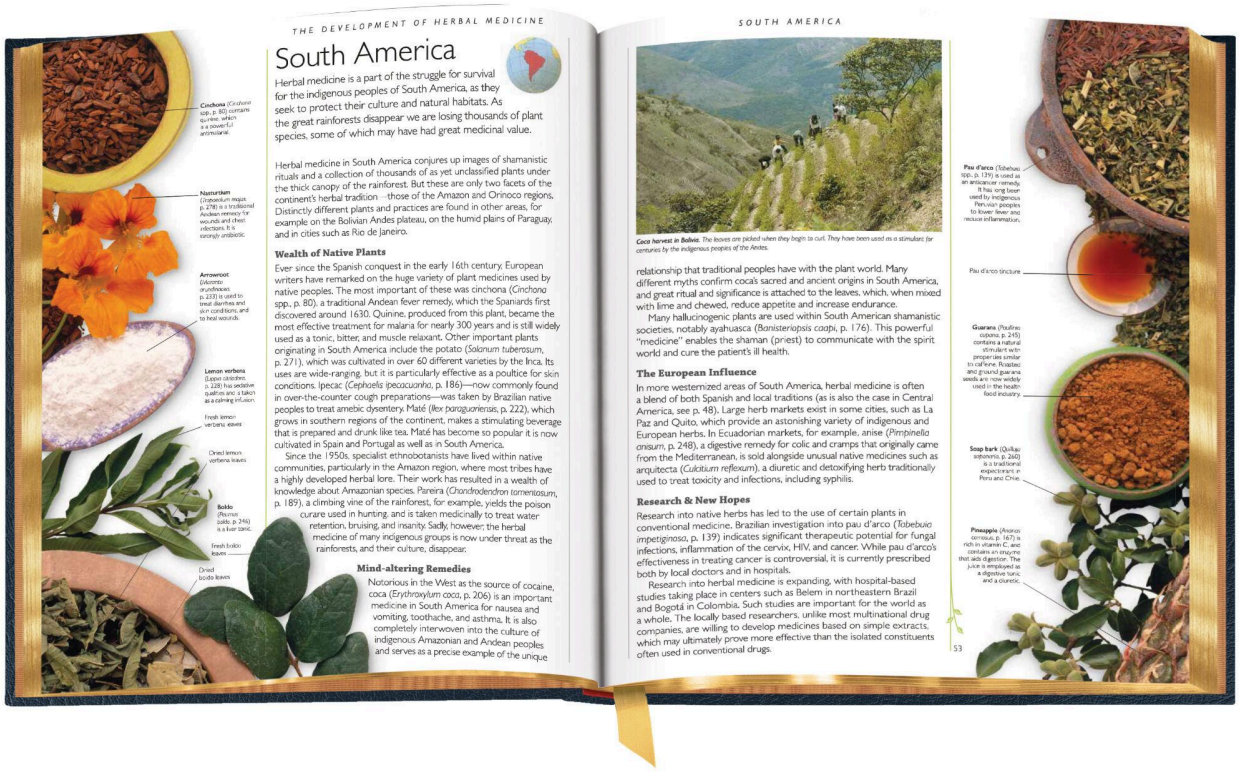





Encyclopedia of Herbal Medicine
Encyclopedia of Herbal Medicine
Andrew Chevallier


THE DEVELOPMENT OF HERBAL MEDICINE
South America
Herbal medicine is a part of the struggle for survival for the indigenous peoples of South America, as they seek to protect their culture and natural habitats. As the great rainforests disappear we are losing thousands of plant species, some of which may have had great medicinal value.
Herbal medicine in South America conjures up images of shamanistic rituals and a collection of thousands of as yet unclassified plants under the thick canopy of the rainforest. But these are only two facets of the continent's herbal tradition – those of the Amazon and Orinoco regions. Distinctly different plants and practices are found in other areas, for example on the Bolivian Andes plateau, on the humid plains of Paraguay, and in cities such as Rio de Janeiro.
Wealth of Native Plants
Ever since the Spanish conquest in the early 16th century, European writers have remarked on the huge variety of plant medicines used by native peoples. The most important of these was cinchona (Cinchona spp., p. 80), a traditional Andean fever remedy, which the Spaniards first discovered around 1630. Quinine, produced from this plant, became the most effective treatment for malaria for nearly 300 years and is still widely used as a tonic, bitter, and muscle relaxant. Other important plants originating in South America include the potato (Solanum tuberosum, p. 271), which was cultivated in over 60 different varieties by the Inca. Its uses are wide-ranging, but it is particularly effective as a poultice for skin conditions. Ipecac (Cephaelis ipecacuanha, p. 186)—now commonly found in over-the-counter cough preparations—was taken by Brazilian native peoples to treat amebic dysentery. Maté (Ilex paraguariensis, p. 222), which grows in southern regions of the continent, makes a stimulating beverage that is prepared and drunk like tea. Maté has become so popular it is now cultivated in Spain and Portugal as well as in South America.
Since the 1950s, specialist ethnobotanists have lived within native communities, particularly in the Amazon region, where most tribes have a highly developed herbal lore. Their work has resulted in a wealth of knowledge about Amazonian species. Pareira (Chondrodendron tomentosum, p. 189), a climbing vine of the rainforest, for example, yields the poison curare used in hunting, and is taken medicinally to treat water retention, bruising, and insanity. Sadly, however, the herbal medicine of many indigenous groups is now under threat as the rainforests, and their culture, disappear.
Mind-altering Remedies
Notorious in the West as the source of cocaine, coca (Erythroxylum coca, p. 206) is an important medicine in South America for nausea and vomiting, toothache, and asthma. It is also completely interwoven into the culture of indigenous Amazonian and Andean peoples and serves as a precise example of the unique
Cinchona (Cinchona spp., p. 80) contains quinine, which is a powerful antimalarial.
Nasturtium (Tropaeolum majus, p. 278) is a traditional Andean remedy for wounds and chest infections. It is strongly antibiotic.
Arrowroot (Maranta arundinacea, p. 233) is used to treat diarrhea and skin conditions, and to heal wounds.
Lemon verbena (Lippia citriodora, p. 228) has sedative qualities and is taken as a calming infusion.
Fresh lemon verbena leaves
Dried lemon verbena leaves
Boldo (Peumus boldo, p. 246) is a liver tonic.
Fresh boldo leaves
Dried boldo leaves
SOUTH AMERICA
Coca harvest in Bolivia. The leaves are picked when they begin to curl. They have been used as a stimulant for centuries by the indigenous peoples of the Andes.
relationship that traditional peoples have with the plant world. Many different myths confirm coca's sacred and ancient origins in South America, and great ritual and significance is attached to the leaves, which, when mixed with lime and chewed, reduce appetite and increase endurance.
Many hallucinogenic plants are used within South American shamanistic societies, notably ayahuasca (Banisteriopsis caapi, p. 176). This powerful "medicine" enables the shaman (priest) to communicate with the spirit world and cure the patient's ill health.
The European Influence
In more westernized areas of South America, herbal medicine is often a blend of both Spanish and local traditions (as is also the case in Central America, see p. 48). Large herb markets exist in some cities, such as La Paz and Quito, which provide an astonishing variety of indigenous and European herbs. In Ecuadorian markets, for example, anise (Pimpinella anisum, p. 248), a digestive remedy for colic and cramps that originally came from the Mediterranean, is sold alongside unusual native medicines such as arquitecta (Culcitium reflexum), a diuretic and detoxifying herb traditionally used to treat toxicity and infections, including syphilis.
Research & New Hopes
Research into native herbs has led to the use of certain plants in conventional medicine. Brazilian investigation into pau d'arco (Tabebuia impetiginosa, p. 139) indicates significant therapeutic potential for fungal infections, inflammation of the cervix, HIV, and cancer. While pau d'arco's effectiveness in treating cancer is controversial, it is currently prescribed both by local doctors and in hospitals.
Research into herbal medicine is expanding, with hospital-based studies taking place in centers such as Belem in northeastern Brazil and Bogotá in Colombia. Such studies are important for the world as a whole. The locally based researchers, unlike most multinational drug companies, are willing to develop medicines based on simple extracts, which may ultimately prove more effective than the isolated constituents often used in conventional drugs.
Pau d'arco (Tabebuia spp., p. 139) is used as an anticancer remedy. It has long been used by indigenous Peruvian peoples to lower fever and reduce inflammation.
Pau d'arco tincture
Guarana (Paullinia cupana, p. 245) contains a natural stimulant with properties similar to caffeine. Roasted and ground guarana seeds are now widely used in the health-food industry.
Soap bark (Quillaja saponaria, p. 260) is a traditional expectorant in Peru and Chile.
Pineapple (Ananas comosus, p. 167) is rich in vitamin C, and contains an enzyme that aids digestion. The juice is employed as a digestive tonic and a diuretic.
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Making Herbal Remedies

In the past, medicinal herbs have been made into an extraordinary variety of formulations—not only infusions, decoctions, and tinctures, but also preparations such as oxymels and elixirs. The following pages give simple step-by-step instructions on making common herbal preparations. Making most types of herbal medicine is not difficult, but it can be time-consuming—if you lack time or equipment, buy ready-made remedies from an herbal supplier (see *Buying Herbal Medicines*, p. 17).

Identification
Before using medicinal plants that have been collected from the wild, it is essential that they be correctly identified. If in doubt, do not use the herb. The wrong identification of herbs has led to many cases of poisoning. Foxglove leaves (*Digitalis purpurea*, p. 202), for example, are often mistaken for comfrey (*Symphytum officinale*, p. 138).

Utensils
Use glass, enamel, or stainless steel pots and pans, wooden or steel knives and spatulas, and plastic or nylon sieves. A wine press is useful for making tinctures. Do not use aluminium utensils, as this potentially toxic element is easily absorbed by herbs.

Sterilization
All utensils used to make herbal remedies should be sterilized for at least 30 minutes in a well-diluted sterilizing solution, such as the type used for a baby's bottle. After soaking, rinse thoroughly with boiled water and dry in a hot oven or wash in a dishwasher. Proper sterilization maintains hygiene and prevents remedies, especially creams and syrups, from becoming moldy.

Weights & Measures
For most purposes, ordinary kitchen scales are suitable, although electronic scales are more accurate. Metric measurements of grams and liters are generally much easier to use than imperial measures when making remedies. If it is difficult to weigh a small quantity, such as 10 g, on your scales, measure double the weight; i.e., 20 g, then halve the quantity. Liquids can be measured in a kitchen measuring jug, although conical or straight-sided glass measures are more accurate. Very small volumes of liquid can be measured in drops (see *Measuring Remedies*, right).

Storage
Different preparations may be kept for varying periods of time before they begin to lose their medicinal properties. Infusions should be made fresh each day and decoctions must be consumed within 48 hours. Store both in a refrigerator or cool place. Tinctures and other liquid preparations, such as syrups and essential oils, need to be stored in dark glass bottles in a cool environment away from sunlight, but can be kept for a number of months or years. Ointments, creams, and capsules are best kept in dark glass jars, although plastic containers are also acceptable. See also *Storing Herbs*, p. 288.

Measuring Remedies

1 ml = 20 drops
5 ml = 1 teaspoon
15 ml = 1 tablespoon
150 ml = 1 herbal cup
250 ml = 1 cup

Never exceed the quantity of herbs used or the recommended dosage. Although these measurements are approximate, they are accurate enough for most purposes and are used as standard throughout this book. The number of drops to 1 ml depends on the caliber of the pipette (or size of the dropper tip) being used. This can be checked by counting the number of drops required to fill a 5 ml measuring spoon (this book assumes that 100 drops is equal to 5 ml) and then adjusting the drop dosage as necessary.

The Basic First Aid Kit

Adding herbal remedies to the conventional first aid kit in your home increases the options available to you and your family when accidents happen or illness strikes. The 13 remedies in this first aid kit can generally be found in pharmacies, herbal stores, and health food stores. Alternatively, some can be made at home, as detailed on the following pages. Check any cautions for each herb before use.

Infusions

An infusion is the simplest way to prepare the more delicate aerial parts of plants, especially leaves and flowers, for use as a medicine or as a revitalizing or relaxing drink. It is made in a similar way to tea, using either a single herb or a combination of herbs, and may be drunk hot or cold.

The medicinal value of many herbs lies chiefly in their volatile oils, which will disperse into the air if a lid is not used. This is especially important in the case of German chamomile (*Chamomilla recutita*, p. 77). Use a teapot, or place a lid or saucer over a cup if making a small quantity. Use water that has just boiled. Popular herbal teas, such as German chamomile, are often taken as much for their refreshing taste as for their medicinal value and can be safely consumed in quantities of up to 5 or 6 cups a day. Some herbs, however, such as yarrow (*Achillea millefolium*, p. 36), are significantly stronger and must be taken in less frequent doses. Other herbs, such as feverfew (*Tanacetum parthenium*, p. 140), are so strong that they are not suitable for use in infusions. Always check the recommended dosage and quantity of herb to use, as infusions have medicinal actions and can produce unwanted effects at the wrong dosage.

1 *Place the herb in the strainer of the teacup and place a strainer in the cup. Fill the cup with freshly boiled water.*

2 *Cover the cup with the lid and infuse for 5–10 minutes before removing the tea strainer. Add a teaspoon of honey to sweeten, if desired.*

Standard Quantity
CUP 1 tsp (2–3 g) dried or 2 tsp (4–6 g) fresh herb (or mixture of herbs) to a cup of water (this makes 1 dose)
POT 20 g dried herb or 30 g fresh herb (or a mixture of different herbs) to 2 cups (500 ml) of water

Standard Dosage
Take 3–4 doses (2 cups/500 ml) each day.

Storage
Store in a covered jug in a refrigerator or cool place for up to 24 hours.

Pot Infusion
Warm the pot, then add the herb. Pour in water that has just boiled, replace the lid, and infuse for 10 minutes. Strain some of the infusion into a cup. A teaspoon of honey may be added if desired.

Decoctions

Roots, bark, twigs, and berries usually require a more forceful treatment than leaves or flowers to extract their medicinal constituents. A decoction involves simmering these tougher parts in boiling water. Fresh or dried plant material may be used and should be cut or broken into small pieces before decocting. Like infusions, decoctions can be taken hot or cold.

Decoctions are generally made using roots, bark, and berries, but sometimes leaves and flowers may be included. Add these more delicate parts of a plant once the heat is turned off and the decoction has finished simmering and is beginning to cool. Then strain and use as required.

Chinese Decoctions
In traditional Chinese medicine, decoctions are the main way in which herbal medicines are prepared. Large quantities of herb are often used to produce a highly concentrated liquid, or the decoction is further reduced so that there is only ¼ cup (200 ml) of liquid remaining. This increases the preparation's concentration. This process is useful for astringent barks such as babul (*Acacia nilotica*, p. 159) and common oak (*Quercus robur*, p. 260), which may be used externally to tighten gums or wash weeping skin rashes. (Do not take internally.)

1 *Place the herbs in a saucepan. Cover with cold water and bring to a boil. Simmer for about 20–30 minutes, until the liquid is reduced by about one-third.*

2 *Strain the liquid through a sieve into a jug. Pour the required amount into a cup, then cover the jug and store in a cool place.*

Standard Quantity
20 g dried or 40 g fresh herb (or mixture of herbs) to 3 cups (750 ml) cold water, reduced to about 2 cups (500 ml) after simmering (this makes 3–4 doses)

Standard Dosage
Take 3–4 doses (2 cups/500 ml) each day.

Storage
Store in a covered jug in a refrigerator or cool place for up to 48 hours.

North America

Many ancient herbal traditions in North and Central America not only withstood the influx of European settlers but helped to reinvigorate Western herbalism. In parts of Central America herbal medicine is widely practised, and in the US and Canada it is again enormously popular.

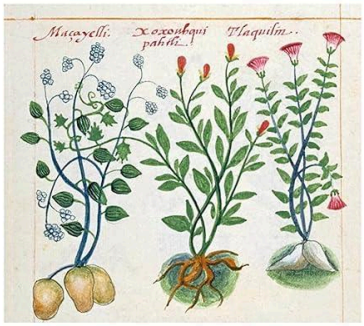
Stretching from the Arctic wilds of Canada and Alaska to the tropical regions of Panama, North and Central America covers diverse geographical regions and harbours an immense variety of medicinal plants. Most of them are native, but others – such as nutmeg, ginger and tamarind – were introduced from Europe, Asia and Africa from the 16th century onwards. Likewise, native American medicinal plants – such as corn, cocoa, cayenne and sunflower – were introduced to Europe, Asia and Africa. This trade of species was an important part of the interplay between the herbal traditions across the globe.

Herbal traditions in Central America

Herbal medicine is commonly practised in rural areas of Central America, especially in Guatemala and Mexico. In the Mexican tradition, loss of "balance" between hot and cold elements within the body is thought to be the underlying cause of illness, and the healer's art is to restore balance and vitality.

Mexican herbal medicine is not a static tradition, but has evolved from a shifting blend of indigenous pre-Hispanic and Spanish influences. Long before Hernándo Cortéz and his conquistadors came ashore in 1519, indigenous Mexican peoples, such as the Maya and Zapotec, had a profound understanding of plant medicines. The *Badianus Manuscript*, the first American herbal (written by an Aztec, Martin de la Cruz, in 1552), lists the medicinal uses of 251 Mexican species. They include damiana (*Turnera diffusa*, p. 148), taken by the Maya as an aphrodisiac, and mesquite (*Prosopis juliflora*), used by the Aztecs as an eye lotion. Both species are still used medicinally, alongside European herbs such as pennyroyal (*Mentha pulegium*, p. 241) and thyme (*Thymus vulgaris*, p. 147). It is thought that approximately 65 per cent of the plants used today by traditional Mexican herbalists originated in Europe.

In other Central American countries efforts are being made to encourage people to use herbal medicine as the first line of treatment for illness. Projects in the Dominican Republic and Nicaragua, for example, are teaching women how to use local herbs within their communities, while in Cuba doctors routinely prescribe medicinal herbs to make up for the scarcity of conventional medicines.



The Badianus Manuscript, the first American herbal, written by an Aztec, Martin de la Cruz, in 1552, lists the medicinal uses of 251 Mexican species.

Caribbean herbal medicine

Throughout the Caribbean, domestic herbal medicine remains popular. Some of the widely used herbs include fever grass or lemon grass (*Cymbopogon citratus*, p. 203), which, as its name suggests, is used to treat fevers, and kerala (*Momordica charantia*, p. 242), a creeping vine that is prized as a "cure-all" on many of the islands. Kerala has been shown to have an ability to lower blood sugar levels and may help to slow down the onset of diabetes, a relatively common illness among Afro-Caribbeans. The medical and religious customs on each Caribbean island vary, but on many they reflect the African traditions of transported slaves, especially of the Yoruba people shipped from West Africa, who carried on the practices of their homelands. In some of these traditions, herbs are valued for their magical power as well as for their medicinal properties. Tobacco (*Nicotiana tabacum*, p. 247) for example, is used for divination in many American cultures, including in Santeria and Voodoo religious rituals, as are other herbs, including garlic (*Allium sativum*, p. 63) and chilli (*Capsicum frutescens*, p. 79).

Shamanism

Moving north, indigenous American herbal medicine in what is now the United States was and is primarily shamanistic in nature, involving herbal lore, ritual and magic. Shamanistic societies from Siberia to the Amazon believe that, in serious illness, the soul of the sick person has been taken over by malign forces. The shaman's role is to heal both the physical *and* the spiritual dimension of the illness. The patient cannot be truly cured until his or her soul has been freed from evil spirits. Shamanistic ceremonies and rites to heal the sick person's spirit include dancing, chanting, drumming, playing games, and the stirring of ashes or sprinkling of water. By taking hallucinogens such as peyote (*Lophophora williamsii*, p. 235), a Mexican cactus, the shaman is able to reach out to the spirit world and heal both the individual and the community as a whole.

***Cardinal lobelia* (Lobelia cardinalis)** *has the ability to heal or harm, according to the Iroquois, and should be picked with respect, and stored and used with great care.*

Power of herbs

In all indigenous American cultures from Canada to Chile, herbs are thought to have spiritual energy and many of them are invested with great magical power. The Iroquois believe that cardinal lobelia (*Lobelia cardinalis*; see *L. inflata*, p. 114) and morning glory (*Ipomoea pandurata*) have the ability to heal or harm, and should be picked, stored and used with great care. Morning glory is considered so powerful that even touching it could cause harm. The Iroquois use the plant as a remedy for coughs, tuberculosis and other ailments, and also take it as a decoction with sunflower seeds (*Helianthus annuus*) as a sacrament in spring and autumn rituals.

Tobacco, now considered an addictive drug, was a sacred shamanistic herb for most indigenous American peoples. It was smoked in pipes and "thrown into fires as an offering, cast into the wind and water to abate storms, scattered about a fish weir to improve the catch and offered to the air in thanksgiving for escape from danger", according to Virgil Vogel's *American Indian Medicine* (1970).

Key herbs from this region

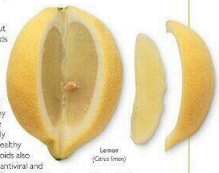
Cornsilk (*Zea mays*, p. 158)
Slippery elm (*Ulmus rubra*, p. 149)
Saw palmetto (*Serenoa repens*, p. 140)
Gravel root (*Eupatorium purpureum*, p. 214)
Prickly ash (*Zanthoxylum americanum*, p. 157)
Wild yam (*Dioscorea villosa*, p. 95)
Lobelia (*Lobelia inflata*, p. 114)
Goldenseal (*Hydrastis canadensis*, p. 109)
Poke root (*Phytolacca americana*, p. 255)
Skullcap (*Scutellaria lateriflora*, p. 138)
Cramp bark (*Viburnum opulus*, p. 154)
Pleurisy root (*Asclepias tuberosa*, p. 177)
Witch hazel (*Hamamelis virginiana*, p. 106)
Avocado (*Persea americana*, p. 126)
Slippery elm (*Ulmus rubra*, p. 149)
Californian poppy (*Eschscholzia californica*, p. 212)
Blue cohosh (*Caulophyllum thalictroides*, p. 188)
Damiana (*Turnera diffusa*, p. 148)
Chilli (*Capsicum frutescens*, p. 79)
Evening primrose (*Oenothera biennis*, p. 248)
Black cohosh (*Cimicifuga racemosa*, p. 61)
Helonias (*Chamaelirium luteum*, p. 190)

Active Constituents

The medicinal effects of certain plants are well known. German chamomile, for example, has been taken to soothe digestive problems for thousands of years, and aloe vera was known to Cleopatra as a healing skin remedy. It is only relatively recently, however, that active constituents responsible for the medicinal actions of plants have been isolated and observed. Knowing a little about the chemicals contained in plants helps you to understand how they work within the body.

Thyme (*Thymus vulgaris*)

Phenols
Phenols are a very varied group of plant constituents ranging from salicylic acid, a molecule similar to aspirin (acetylsalicylic acid), to complex sugar-containing phenolic glycosides. Phenols are often anti-inflammatory and antiseptic, and are thought to be produced by plants to protect against infection and feeding by insects. Phenolic acids, such as rosmarinic acid, are strongly antioxidant and anti-inflammatory, and can also have antiviral properties. Wintergreen (*Gaultheria procumbens*, p. 215) and white willow (*Salix alba*, p. 129) both contain salicylates. Many mint family members contain phenols – for example, the strongly antiseptic thymol, found in thyme (*Thymus vulgaris*, p. 143).

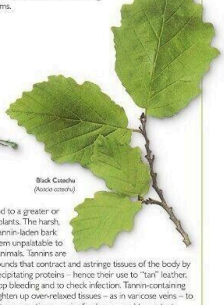


Lemon (*Citrus limon*)

Flavonoids
Found widely throughout the plant world, flavonoids are polyphenolic compounds that act as pigments, imparting colour, often yellow or white, to flowers and fruits. They have a wide range of actions and many medicinal uses. They are antioxidant and especially useful in maintaining a healthy circulation. Some flavonoids also have anti-inflammatory, antiviral and liver-protective activity. Flavonoids such as hesperidin and rutin, found in many plants, notably buckwheat (*Fagopyrum esculentum*, p. 210) and lemon (*Citrus limon*, p. 82), strengthen capillaries and prevent leakage into surrounding tissues. Isoflavones, found for example in red clover (*Trifolium pratense*, p. 277), are oestrogenic and valuable in treating menopausal symptoms.

Volatile Oils
Volatile oils – which are extracted from plants to produce essential oils – are some of the most important medicinally active plant constituents, and are also used widely in perfumery. They are complex mixtures often of 100 or more compounds, mostly made up of monoterpenes – molecules containing 10 carbon atoms. Essential oils have many uses. Tea tree oil (*Melaleuca alternifolia*, p. 112) is strongly antiseptic, while sweet gale oil (*Myrica gale*, p. 238) is an effective insect repellent. On distillation, some essential oils contain compounds not found in the volatile oil – chamazulene, found in German chamomile (*Chamomilla recutita*, p. 77) essential oil, is anti-inflammatory and anti-allergenic. Resins – sticky oily substances that seep from plants, for example from the bark of Scots pine (*Pinus sylvestris*, p. 249) – are often linked with essential oils (oleo-resins) and gums (see Polysaccharides), though they are non-volatile.

German Chamomile (*Chamomilla recutita*)



Black Catechu (*Acacia catechu*)

Tannins
Tannins are produced to a greater or lesser degree by all plants. The harsh, astringent taste of tannin-laden bark and leaves makes them unpalatable to insects and grazing animals. Tannins are polyphenolic compounds that contract and astringe tissues of the body by binding with and precipitating proteins – hence their use to "tan" leather. They also help to stop bleeding and to check infection. Tannin-containing herbs are used to tighten up over-relaxed tissues – as in varicose veins – to dry up excessive watery secretions – as in diarrhoea – and to protect damaged tissue – such as skin problems resulting from eczema or a burn. Oak bark (*Quercus robur*, p. 260) and black catechu (*Acacia catechu*, p. 158) are both high in tannins.

Proanthocyanins
Closely related to tannins and flavonoids, these polyphenolic compounds are pigments which give flowers and fruits a blue, purple or red hue. They are powerfully antioxidant and free-radical scavengers. They protect the circulation from damage, especially the circulation in the heart, hands, feet and eyes. Blackberry (*Rubus fruticosus*, p. 264), red grapes (*Vitis vinifera*, p. 283) and hawthorn (*Crataegus oxyacantha*, p. 87) all contain appreciable quantities of these proanthocyanins.

Blackberry (*Rubus fruticosus*)

Celery (*Apium graveolens*)

Coumarins
Coumarins of different kinds are found in many plant species and have widely divergent actions. The coumarins in melilot (*Melilotus officinalis*, p. 234) and horse chestnut (*Aesculus hippocastanum*, p. 58) help to keep the blood thin, while furanocoumarins such as bergapten, found in celery (*Apium graveolens*, p. 64), stimulate skin tanning, and khellin, found in visnaga (*Ammi visnaga*, p. 62), is a powerful smooth muscle relaxant.

Saponins
The main active constituents in many key medicinal plants, saponins gained their name because, like soap, they make a lather when placed in water. Saponins occur in two different forms – steroidal and triterpenoid. The chemical structure of steroidal saponins is similar to that of many of the body's hormones, for example oestrogen and cortisol, and many plants containing them have a marked hormonal activity. Wild yam (*Dioscorea villosa*, p. 91), from which the contraceptive pill was first developed, contains steroidal saponins. Triterpenoid saponins occur more commonly – for example in liquorice (*Glycyrrhiza glabra*, p. 101) and cowslip root (*Primula veris*, p. 256) – but have less hormonal activity. They are often expectorant and aid absorption of nutrients.

Liquorice (*Glycyrrhiza glabra*)

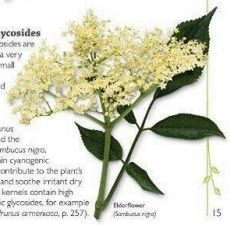
Anthraquinones
Anthraquinones are the main active constituents in herbs such as senna (*Cassia senna*, p. 75) and Chinese rhubarb (*Rheum palmatum*, p. 126), both of which are taken to relieve constipation. Anthraquinones have an irritant laxative effect on the large intestine, causing contractions of the intestinal walls and stimulating a bowel movement approximately 10 hours after being taken. They also make the stool more liquid, easing bowel movements.

Chinese Rhubarb (*Rheum palmatum*)

Cardiac Glycosides
Found in various medicinal plants, notably in foxgloves (see common foxglove, *Digitalis purpurea*, p. 202) and in lily of the valley (*Convallaria majalis*, p. 190), cardiac glycosides such as digitoxin, digoxin and convallatoxin have a strong, direct action on the heart, supporting its strength and rate of contraction when it is failing. Cardiac glycosides are also significantly diuretic. They help to stimulate urine production, thus increasing the removal of fluid from the tissues and circulatory system.

Common Foxglove (*Digitalis purpurea*)

Cyanogenic glycosides
Though these glycosides are based on cyanide, a very potent poison, in small doses they have a helpful sedative and relaxant effect on the heart and muscles. The bark of wild cherry (*Prunus serotina*, p. 257) and the leaves of elder (*Sambucus nigra*, p. 132) both contain cyanogenic glycosides, which contribute to the plant's ability to suppress and soothe irritant dry coughs. Many fruit kernels contain high levels of cyanogenic glycosides, for example those of apricot (*Prunus armeniaca*, p. 257).



Elderflower (*Sambucus nigra*)

Aesculus hippocastanum (Sapindaceae)

Horse Chestnut

Horse chestnut
A deciduous tree with divided leaves, white and pink flowers, and spiny green fruit. It grows to 80 ft (25 m).

Extracts of horse chestnut seed—the shiny brown "conkers" collected by British children in autumn—have a scientifically established ability to relieve the symptoms of varicose veins, and promote their repair. Taken by mouth, or applied as a lotion, horse chestnut will help to tighten up the tissues and reduce the pain and swelling of varicose veins. It is also useful in helping to reduce fluid retention.

Horse chestnut *seeds are the main herbal medicine for venous disorders.*

Habitat & Cultivation

Native to mountain woods from the Balkans through western Asia to the Himalayas, horse chestnut is now cultivated as an ornamental and shade tree in temperate regions around the world, especially in northern and western Europe. It is propagated from seed in autumn or spring. Leaves are harvested in summer, the bark and seeds in autumn.

Related Species

Do not use Ohio Buckeye (*A. glabra*) as it is toxic if taken internally.

Key Constituents

- Triterpenoid saponins, including about 5% aescin, a complex mixture of glycosides
- Polysaccharides (about 50%)
- Coumarins, including aesculin
- Flavonoids
- Tannins, including proanthocyanidins
- Fixed oil (2–3%)

Key Actions

- Venous tonic
- Astringent
- Anti-inflammatory
- Antioxidant
- Reduces fluid retention

Research

■ **Clinical trials** Numerous trials have confirmed horse chestnut's value as a medicine in venous problems such as varicose veins, venous ulcers, hemorrhoids, and frostbite. In one London-based study, published in 1996, horsechestnut extract was shown to be as effective in treating varicose veins as compression stockings. In Germany, horse chestnut extracts and aescin are now routinely used to treat varicose veins.

■ **Venous insufficiency** A 2006 review of clinical trials by the Cochrane Database assessed the use of horse chestnut extract for chronic venous insufficiency—a condition that includes leg swelling and spider and varicose veins. The review concluded that horse chestnut extract was a safe and effective short-term treatment for this problem.

Traditional & Current Uses

■ **Circulatory system** Although horse chestnut has a beneficial effect on the heart and arteries, it is primarily a remedy for the veins. It helps improve the tone of the vein walls, which when slack or distended result in varicose veins, piles, and similar problems. It also reduces edema (fluid retention) caused by fluid leaking from distended veins, and increases the permeability of the capillaries, allowing excess fluid to drain back into the circulatory system. Horse chestnut is taken internally for leg ulcers, varicose veins, piles, and frostbite, and applied locally as a lotion, gel, or ointment. A decoction of the bark or leaf can be used as an astringent lotion for varicose veins.

■ **Rheumatism** In France, an oil extracted from the seeds has been used as a topical application for rheumatism.

■ **Chest remedy** Horse chestnut makes a serviceable chest remedy and in Turkey has been used to treat chest complaints in horses. In the U.S. a decoction of the leaves has been considered useful for whooping cough.

Parts Used

Leaves can be used to make a lotion for varicose veins and hemorrhoids.

Seeds are an excellent remedy for varicose veins and associated fluid retention.

Bark is much more astringent than the seeds.

Key Preparations & Their Uses

Cautions Best taken with professional advice. Horse chestnut can cause gastrointestinal upset at normal dosage (discontinue if symptoms develop) and is toxic at excess dosage. Not suitable for children. Do not apply to broken or ulcerated skin. May interact with blood-thinning drugs.

Tablets may have a higher aescin content than other preparations.

Lotion (to make, p. 296). Apply twice daily to varicose veins.

Capsules are convenient for long-term use.

Acorus calamus (Araceae)

Sweet Flag, Calamus, Bacc (Hindi)

Sweet flag
An herbaceous, aquatic reedlike plant with tall, sword-shaped leaves. It grows to 3 ft (1 m).

Sweet flag has a long-standing reputation as a tonic and stimulant. An important herb in Ayurvedic medicine, it is also widely used in Europe and the U.S. The rhizome is a valuable remedy for digestion, and is a tonic for the nervous system. It stimulates the appetite and soothes digestion, relieving gas and calming indigestion and colic. Sweet flag has a strongly aromatic, bitter taste.

Sweet flag *is an aquatic plant, similar in appearance to the iris. It has yellow flowers in summer.*

Habitat & Cultivation

Sweet flag, believed to originate from India, now grows in many parts of the world. It prefers wet soil and is found in ditches, beside lakes and rivers, and in marshy places. Propagation is carried out in autumn or early spring by dividing the clumps of rhizomes and replanting them in shallow water. The rhizomes are harvested as needed.

Related Species

A. gramineus (*shi chang pu*) is a Chinese herb and a close relative that is used medicinally for much the same range of conditions as *A. calamus*.

Key Constituents

- Volatile oil—sesquiterpenes (*A. calamus* var. *americanus* only); asarone (except *A. calamus* var. *americanus*)
- Saponins
- Bitter principle (acorin)
- Mucilage

Key Actions

- Carminative
- Relieves muscle spasm
- Antioxidant
- Anti-inflammatory
- Tonic

Research

- **Beta-asarone** Research attention has focused on the constituent beta-asarone in the volatile oil, which has a carcinogenic action when isolated. The American variety of sweet flag (*A. calamus* var. *americanus*), commonly available in Europe, does not contain beta-asarone, and only preparations made from this should be used.
- **Whole herb** In India, sweet flag powder has been taken for thousands of years with no reports of cancer arising from its use. This suggests that use of the whole herb may be safe, but more research is needed.

Traditional & Current Uses

- **Early uses** Sweet flag has been regarded as an aphrodisiac in India and Egypt for at least 2,500 years. In Europe, it was valued as a stimulant, bitter herb for the appetite (if not for the appetites) and as an aid to digestion. In North America, the decoction was used for fevers, stomach cramps, and colic; the rhizome was chewed for toothache, and powdered rhizome was inhaled for congestion.
- **Ayurvedic medicine** Sweet flag is an important herb in Ayurvedic medicine, and is valued as a "rejuvenator" for the brain and nervous system, and as a remedy for digestive disorders.
- **Western herbalism** In Western herbal medicine, the herb is chiefly used for digestive problems such as bloating, gas, colic, and poor digestive function. Sweet flag, particularly *A. calamus* var. *americanus*, which is the most effective antispasmodic, relieves spasm of the intestines. It helps uncomfortable and distended stomachs, and headaches associated with weak digestion. Small amounts are thought to reduce stomach acidity, while larger doses increase deficient acid production—a good example of how different doses of the same herb can produce different results.

Parts Used

Rhizomes grow to about 1¼ in (3 cm) thick. They are harvested as needed.

Dried rhizome

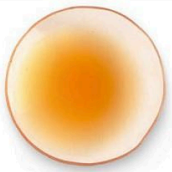
Rhizomes have an aromatic, spicy fragrance

Fresh rhizome

Key Preparations & Their Uses

Cautions Take only under professional supervision. Do not take for more than 1 month. Restricted in some countries.

Decoction is given to relieve indigestion and gas and to increase appetite.



Tincture is prescribed by herbalists and doctors for digestive ailments.

Powder is taken as a tonic in Ayurvedic medicine.

Salvia miltiorrhiza (Lamiaceae)

Dan Shen, Chinese Sage

Dan shen
A hardy perennial growing to 32 in (80 cm), with toothed oval leaves and clusters of purple flowers.

Recent scientific research supports *dan shen's* traditional usage as a remedy for heart and circulatory problems such as angina and palpitations. *The Divine Husbandman's Classic* (*Shen'nong Bencaojing*), the earliest of all Chinese herbal texts, listed *dan shen* as an herb that "invigorates the blood," and it is still used as a circulatory remedy. In particular, it is taken for period pain and other conditions resulting from circulatory congestion.

Dan shen *is an important circulatory stimulant. It is sold in herbal markets across China for use in medicinal formulas.*

Habitat & Cultivation

Native to China, *dan shen* is now cultivated in northeastern China and Inner Mongolia. It requires moist, sandy soil and is propagated by root division in spring. The root is harvested from late autumn through early spring.

Related Species

Sage (*S. officinalis*, p. 131) is closely related, but is used for an entirely different range of medical problems. In Mexico, the related species *S. divinorum* is used as a hallucinogen.

Key Constituents

- Diterpenes (tanshinones)
- Phenolic compounds
- Volatile oil
- Vitamin E

Key Actions

- Tonic to heart and circulation
- Anticoagulant
- Dilates the blood vessels
- Sedative
- Antibacterial

Research

■ **Tanshinones** There has been extensive research into *dan shen* in China, and the tanshinones have been shown to have a profound effect on coronary circulation, reducing the symptoms of angina and improving heart function.

■ **Heart attack** The whole herb (rather than isolated constituents) has been used in China to assist patients who are recovering from a heart attack, and it appears to support heart function at this critical time. Clinical trials in China, however, have shown that *dan shen* is most effective when taken as a preventative, rather than as a remedy after the heart attack has taken place.

■ **Other research** Many recent clinical trials involving *dan shen* have used Chinese herbal combinations, rather than *dan shen* alone, so it is hard to draw conclusions. However, they do provide further evidence of *dan shen's* usefulness in cardiovascular problems such as high blood pressure, angina, and heart disease. Unusually, two clinical trials in China (2012) found that injected extracts of *dan shen* were helpful in pre-eclampsia, a serious condition during pregnancy which involves fluid retention and high blood pressure.

Traditional & Current Uses

■ **Circulatory stimulant** *Dan shen* has been esteemed by the Chinese for thousands of years as a circulatory stimulant. Like hawthorn (*Crataegus oxyacantha*, p. 87), it is a safe, effective remedy for many circulatory problems. It particularly benefits coronary circulation, opening up the arteries and improving blood flow to the heart, and is therefore helpful in treating coronary heart disease. Though it does not lower blood pressure, *dan shen* relaxes the blood vessels and improves circulation throughout the body.

■ **Circulatory congestion** *Dan shen* is used traditionally to treat conditions caused by blood stagnation, primarily those affecting the lower abdomen, such as absent or painful periods and fibroids.

■ **Sedative** The sedative action of *dan shen* helps to calm the nerves, and it is therefore helpful in treating angina, a condition made worse by anxiety and worry. Palpitations, insomnia, and irritability also benefit from *dan shen's* sedative properties.

Self-help Use

■ **Palpitations**, p. 302.

Parts Used

Root is an ancient Chinese remedy for circulatory disorders.

Dried chopped root

Dried root

Key Preparations & Their Uses

Cautions For serious circulatory or heart problems, take only under professional supervision. The tincture may produce digestive and skin reactions. Avoid in pregnancy.

Tincture is used by herbalists to treat angina and other circulatory problems.

Decoction (to make, p. 291). For painful periods, take ½ cup (75 ml) up to 3 times a day.

"Slash-and-burn" farming *in the rainforest of Brazil results in the eradication of native medicinal plants. Efforts are now under way to provide local farmers with alternative means of profiting from the land.*

People began to realize that a serious cost could accompany the benefits of treatment with modern pharmaceutical drugs. This, and the factors described below, have brought about a sea change in public perceptions of the value of herbal medicine.

The Chinese Example

Herbal medicine experienced a major gain in fortune in 1949 in China, when Mao Zedong and the Communist Red Army gained control of the country.

Traditional Western medicine by that time was well established in China, but most of the population had little hope of access to modern hospitals, let alone to new drugs. Out of necessity, traditional Chinese medicine—essentially herbal medicine and acupuncture—once more began to be used alongside Western conventional medicine. The authorities aimed to provide the best of both worlds. Five teaching hospitals for traditional Chinese medicine (TCM) were established, where it was taught on a scientific basis. In addition, great efforts were made to improve the quality of plant medicines.

Contrary to the trend in conventional Western medicine that makes the patient ever more dependent upon the doctor and high-tech machinery, TCM, like other forms of complementary medicine, stresses the patient's personal responsibility for his or her own cure, encouraging a holistic approach to treatment.

In the 1960s, China also established a system of "barefoot doctors." After a period of basic medical instruction that blended herbal medicine, acupuncture, and Western practices, these practitioners were sent out to provide health care for the millions of rural Chinese too remote from cities to benefit from the facilities available there. The barefoot doctors in the late 1960s became a model for the World Health Organization, which created a strategy of including traditional herbal practitioners in planning for the health care needs of developing countries.

Western Medicine & Herbal Practices

Further to the initiative by the World Health Organization, experience has shown that traditional (usually herbal) and Western medicine can indeed work well in tandem, although the relationship is often quite complex. J. M. Janzen's *The Quest for Therapy in Lower Zaïre* (University of California Press, 1978) describes one such interaction in Africa:

> "The people of Zaïre recognize the advantages of Western medicine and seek its surgery, drugs, and hospital care, but contrary to what might have been expected, native doctors, prophets, and traditional consultations among kinsmen do not disappear with the adoption of Western medicine. Rather a [working relationship] has developed in which different forms of therapy play complementary rather than competitive roles in the thoughts and lives of the people."

The high cost of Western medical treatment is another factor that has encouraged people and governments to re-examine traditional healing. In China, Mexico, Cuba, Egypt, Ghana, India, and Mongolia, to give but a few examples, herbal medicines are being cultivated in greater quantities, and are being used to some degree by conventional as well as traditional practitioners.

Likewise, different types of treatment have evolved to meet the variety of needs within a population. India offers an extraordinary example of the kind of choices available in types of medical care. Alongside physicians trained in conventional Western medicine, there are medically trained Ayurvedic practitioners, traditional Ayurvedic practitioners, local healers, and homeopaths.

Changing Attitudes

Perhaps the most important factor behind the growing interest in complementary medicine is the poor state of health in Western societies. Conventional medicine has by and large brought serious infectious diseases under control, although there are worrying signs that infectious organisms are becoming resistant to antibiotic treatment, largely as a result of their indiscriminate use. Chronic illness, however, seems to be on the increase. Probably around 50 percent of people in Western countries daily take one or more conventional medicines—for conditions as diverse as high blood pressure, asthma, arthritis, and depression. Many Western countries such as the U.S. and France spend astronomical sums on health care, yet despite this massive investment, much of the population remains demonstrably unhealthy. Even the significant increase in life expectancy in developed countries is starting to go into reverse, perhaps a result of environmental pollutants and toxic accumulation within the body.

Scutellaria baicalensis syn. *S. macrantha* (Lamiaceae)

Baical Skullcap, Huang Quin

Baical skullcap
A perennial growing to 1–4 ft (30–120 cm) high, with lance-shaped leaves and purplish-blue flowers.

In 1973, 92 wooden tablets were discovered in a 2nd-century CE tomb in northwestern China. Among other herbs listed in prescriptions for decoctions, tinctures, pills, and ointments was Baical skullcap. The herb has had an established role in Chinese herbal medicine at least from that time, and is one of the main remedies for "hot and damp" conditions, such as dysentery and diarrhea.

Baical skullcap *is an important medicinal plant in China and is also cultivated as an ornamental.*

Habitat & Cultivation

Baical skullcap is found in China, Japan, Korea, Mongolia, and Russia. It thrives on sunny, grassy slopes and open areas between 330 ft (100 m) and 5,900 ft (1,800 m) above sea level. Baical skullcap is propagated from seed sown in autumn or spring. The roots of 3- to 4-year-old plants are harvested in autumn or spring.

Related Species

Skullcap (*S. lateriflora*, p. 135) is a close relation. It is a Native North American remedy for anxiety and stress.

Key Constituents

- Flavonoids (about 12%)—baicalin, wogoniside
- Sterols
- Benzoic acid

Key Actions

- Sedative
- Antiallergenic
- Antibacterial
- Anti-inflammatory

Research

- **Flavonoids** Baical skullcap has been quite widely researched in China, and it is clear that it has marked anti-inflammatory, anti-allergy, and antioxidant effects, all 3 actions mostly being due to the flavonoids.
- **Clinical evidence** Clinical studies investigating different applications of Baical skullcap show the herb has promise in the treatment of infections, including bronchitis, and dysentery, high blood pressure, chronic hepatitis, and allergic rhinitis (hay fever). The root has anticancer activity, with studies showing small-scale positive results in patients with lung and prostate cancer.
- **Diabetes** The herb may be useful for problems arising from diabetes, including cataracts.
- **Weight-loss aid** A South Korean clinical trial in 2011 looked at the effectiveness of a baical skullcap and platycodon (*Platycodon grandiflorum*) combination in treating obesity. After 2 months, the group taking the herbs had lost significantly more weight than the placebo group.

Traditional & Current Uses

- **Cold & bitter herb** In traditional Chinese medicine, Baical skullcap is "cold" and "bitter" (see p. 42). It is prescribed in China for hot and thirsty conditions such as high fevers, coughs with thick yellow phlegm, and gastrointestinal infections that cause diarrhea, such as dysentery. It is also given to people suffering from painful urinary conditions.
- **Circulatory remedy** Baical skullcap is a valuable remedy for circulation. In combination with other herbs, it is used to treat high blood pressure, arteriosclerosis, varicose veins, and easy bruising.
- **Other uses** Applied to the skin, Baical skullcap treats sores, swelling, and boils. It is also given for circulatory problems that arise from diabetes.
- **Allergic conditions** The herb is useful for treating allergic conditions such as asthma, hay fever, eczema, and hives. The flavonoids in particular inhibit the inflammatory processes in the body that lead to allergic reactions.

Self-help Uses

- Allergic rhinitis including hay fever, p. 300.
- Wheezing, p. 301.

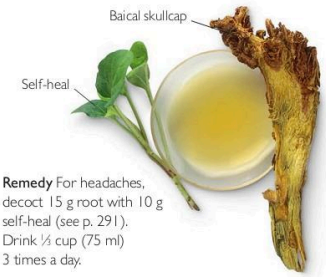
Parts Used

Root is harvested when the plant is 3–4 years old in autumn or spring.

Key Preparations & Their Uses

Cautions Best taken under professional supervision.

Decoction (to make, p. 291). For feverish chest colds, drink ½ cup (75 ml) 3 times a day.



Remedy For headaches, decoct 15 g root with 10 g self-heal (see p. 291). Drink ½ cup (75 ml) 3 times a day.

Tincture (to make, p. 292). For hay fever, take 40 drops with water 3 times a day.