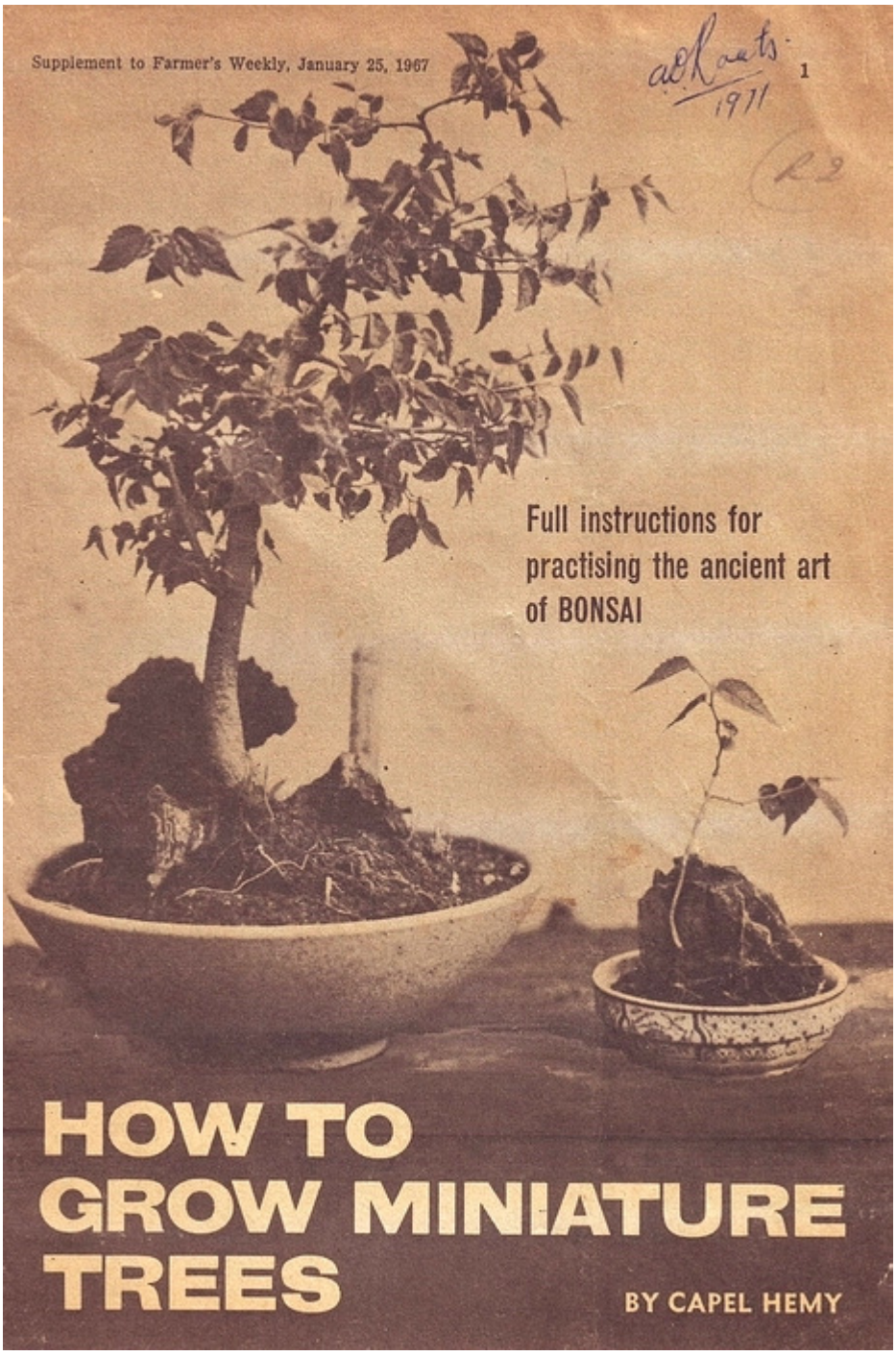
Supplement to Farmer's Weekly, January 25, 1967



Full instructions for practising the ancient art of BONSAI

HOW TO GROW MINIATURE TREES

BY CAPEL HEMY

Supplement to Farmer's Weekly, January 25, 1967

WHAT IS BONSAI?

A known in gardening circles in many countries of the world is Bonsai. It is prounounced bonesigh and literally means traytree.

It refers to the age-old Japanese art of cultivating miniature trees and shrubs, and in this country interest has been aroused through the formation of a Bonsai Society.

The average height of bonsai, the word can mean one or more trees, is 12-18in. Although the art is generally associated with Japan, it originated with the Chinese who brought dwarfed trees with them when they invaded Japan more than 2,000 years ago.

The first authenticated record of Bonsai was painted on a scroll in 1309 A.D. The twisted types lost their popularity as the art developed, and now all trees are kept, with few exceptions, as they would grow naturally.

Enthusiasts still hunt the slopes of mountains, fields and forests for trees that grow in rocky crevices or places where they are naturally dwarfed but nowadays the culture is mainly developed from seedlings and cuttings and by grafting and budding.

The material which can used is almost unlimited in variety. Plants can be hard which has become well wood or herbaceous, and dwarfing can be done while still retaining the basic shape and nature of the tree or shrub.

There is a misconception that bonsai must be cruelly stunted. But the fact that the tree is healthy and looks beautiful belies the `cruelty' factor. Indeed bonsai are given very careful attention, much better than they would receive in their natural habitat. In Japan there are bonsai three to five hundred years old in wonderful condition.

COVER PICTURE: White Stinkwood; - Celtis africana, three years old with a self-sown seedling less , than six months old.

A WIDE RANGE

In South Africa there are few bonsai more than 50 years old, but some growers have many trees over 20 years old in a wide range of species.

South Africa has many indigenous trees and shrubs which make excellent and interesting subjects for bonsai. Perhaps the most popular are those which grow in arid areas, although there are really few limitations. Many of the exotic trees and shrubs are being grown with considerable success.

Several members of the society are concentrating on the- indigenous trees and shrubs and in their opinion, they make an even more interesting study than the more commonly-grown bonsai, because of the greater interest in the plants of this part of the continent.

Bonsai is normally classified in three groups.

- Naturally dwarfed plants.
- Artificially dwarfed plants.
- Dwarfed plants raised from seed and cuttings or by grafting and budding.

There are many areas in South will find the name of the plant Africa where naturally dwarfed trees caan be found after a little diligent searching.

Some trees have been growing from 10 to 100 years under adverse conditions and may be fully formed although having grown only to a height of a few feet.

Trees taken from such places must be carefully lifted, ensuring that the roots are not damaged They should preferably be taken bare-root and planted with care in specially prepared beds. During the re-habilitation period, which may last for anything up to two years, a start should be made to train the tree to the desired shape.

If there is excessive foliage, thinning should be done. Many indigenous trees are protected by law and before lifting, a check should be made that no law is being violated.

When newly planted trees are well rooted, and the trained branches are established, they may then be placed in bonsai pots.

Perhaps the best way for the beginner to start is by artificially dwarfing trees as he can then see results within a reasonably short period.

Alternatively, young, well-shaped trees with a maximum height of 3ft. may be selected. The nurseryman will probably suggest what shape to buy when he knows the purpose for which the trees are required. Some of the general nursery lines suitable for dwarfing which can easily be grown by the beginner are: quercus oak, ilex oak, thuya, pines, plum, apricot, apple, peach, lemon, orange, cherry and laurel.

Without doubt, the best place to find bonsai plants is among accidentally broken, potbound and untrained stock in nurseries.

GREATEST INTEREST

Misshapen plants with low horizontal growth, thick, stocky branches and gnarled stems will provide the greatest interest. These plants are not difficult to find if the nurseryman is cooperative and will allow you to browse around the stock.

Another advantage is that you will find the name of the plant and also obtain an idea of its from the nurseryman, whereas with plants growing to wild, identification is often diffi cult and it is necessary to hazard a guess at the plant's age.

Bonzai gives the illusion, age, even when young, and to find plants which have these characteristics as early as possible makes it even more. interesting for the beginner.

Most South African shrubs and trees are suitable for bonsai and in the Cape several Australian trees offer good bonsai subjects.

If the tree is from open ground the root-ball should be wrapped in a cloth before it is taken from the nursery and then planted in a container which is large enough to take the root ball without any disturbance.

The container may be a clay pot or a wooden box 6-8in. tall, which should be wide enough for the plant to fit in with plenty of space around. Soil should be firmed around the rootball and 1in. should be allowed at the top for watering.

Care should be taken when selecting the container to have it as shallow as possible as the results will be better when the roots have a restricted area in which to grow.

SELECTING TREES

MOST probably the selected tree will be between 2 and 3ft high. which is too tall for bonsai. It shoud be cut at about 18in. if possible, but in any case above a side branch that can later be wired into position. The tree is then ready for shaping.

The actual shape decided upon is an individual choice, but the general opinion is that it should be as natural as possible. The grotesque shapes which are often attributed to bonsai are not recommended. In fact a number of bonsai growers in this country wire trees only when absolutely essential.

A tree should grow naturally and look natural. This is the secret of bonsai, and it is sometimes necessary to use wire to attain this when working with stock which is too big for natural adaptation.

Trees raised from seedlings or cuttings provide the most fascinating method of growing bonsai, but it takes a long time and considerable patience is required.

Seed is sown in shallow containers, and if allowed to grow for several years undisturbed appears like a miniature forest.

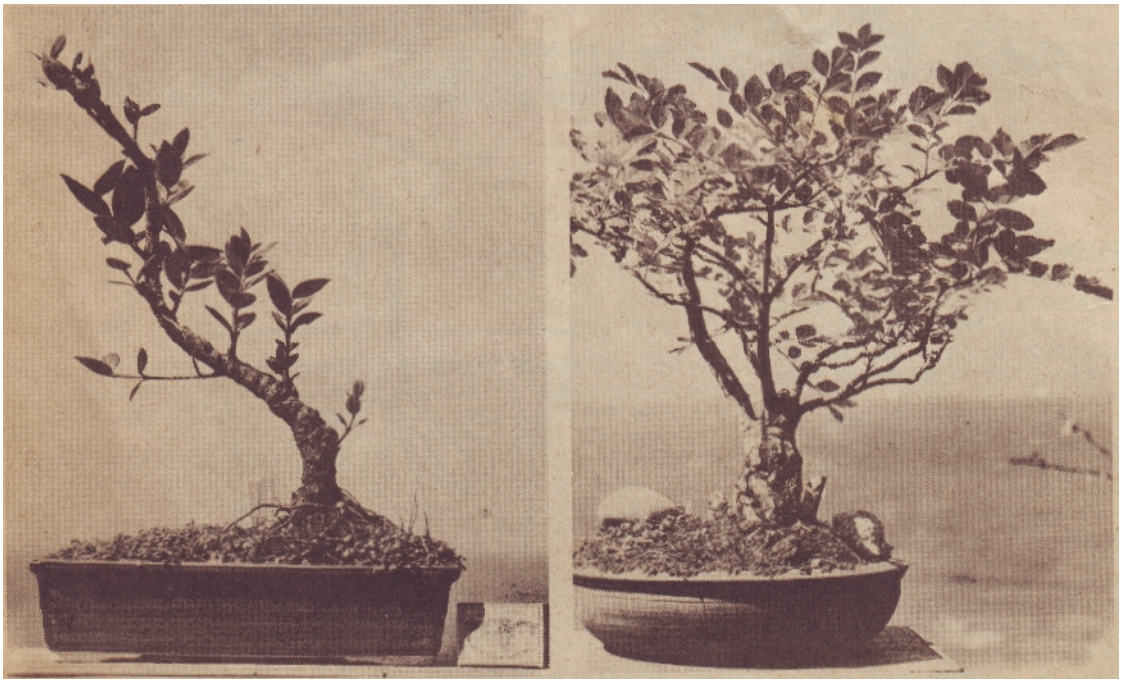
Seedlings or cuttings can be planted individually in thumbsized pots or in groups of three in containers of about 4in. depth and 2jin. diameter.

Plants in thumb pots should be transplanted into slightly larger pots every two or three years, and two plantings are usually sufficient before planting the dwarfed tree into its permanent container.

Trees recommended for growing from seedlings or cuttings are: Japanese maple, beeches, birches, yeddo spruce, pines, and all conifers, pomegranates and many South African indigenous species.

Whichever method of raising bonsai is used the culture is easy and particularly rewarding as the grower develops a responsibility towards a tree to a degree greater than he can to any other plant he grows.

Glasshouses are not necessary. All that is required is shade and shelter from high wind. Flowering and



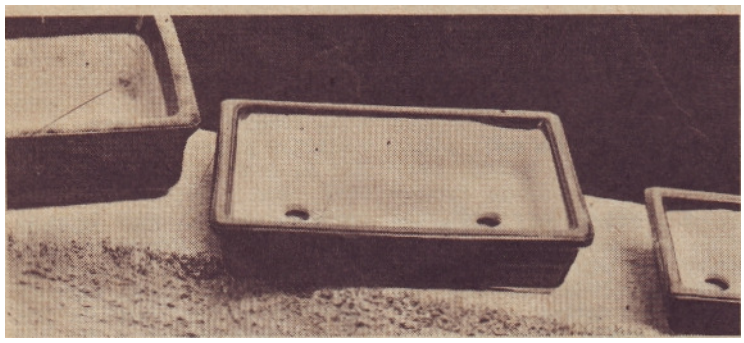
Metrosideros (New Zealand Christmas tree), 10 An American ash, 11 years old. years old.

fruit trees can be grown successfully, and nothing gives a bonsai enthusiast greater joy than seeing a fruit

tree with a crop of miniature fruits.

It is also possible to cultivate bonsai in flats, provided the dwarf trees are given some sunshine and are not exposed to full sun or wind. They can be grown just as successfully on a the veranda as in a shaded part of the garden.

CONTAINERS



Japanese tray for miniature trees.

GOOD bonsai pots are usually imported from Japan and are expensive. They are available in a wide range of sizes and the perfectionist may prefer to spend quite a bit of money to have the right pot for a particular bonsai.

The beginner is more likely to use the inexpensive locally made pots. The range is increasing as interest grows and there are all sorts of different containers which can be used to enhance bonsai.

The important point to remember is that the container should barely be large enough to hold the plant.

The container must not detract from the bonsai. The dwarfed tree must be immediately apparent in its own right. A too large container will dwarf the tree but at the same time the effects of the natural dwarfing will be lost.

CONSERVATIVE

Size, shape and colour are important. The shape should be conservative. If it is too decorative the tree will lose character. A compact tree will often look better in a round or oval container.

Pot size is relative to the size of the tree. Bonsai with spreading surface roots will require a fairly large container, not only to hold the roots, but to show them off to the best advantage.

Colours should preferably be neutral and, for flowering bonsai, care should be taken to avoid any clash of colours.

Pottery containers are most commonly used. The outer surface may be glazed or unglazed, but the inner surface must always be unglazed.

Small pots need only one hole, but the largest containers may have anything up to four holes. Very often suitable containers may be found at sales and adapted for bonsai.

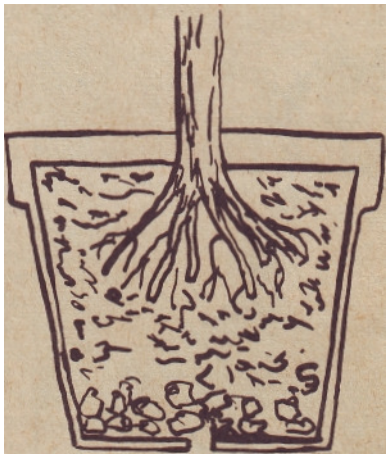
PLANTING

BONSAI is best started in autumn and winter when vegetative growth is slow, or in early spring just as new buds are beginning to swell and the sap is rising, but before leaves begin to appear.

During this period plants may be handled with little danger of injury, and flowering plants will still bloom.

Periodically it is necessary to re-pot and to trim the roots. The root systems of bonsai become pot-bound in the same way as any plant grown in a confined _root area. Re-potting improves soil aeration and drainage and also provides new soil on which the roots can feed.

By cutting the larger roots,



After the roots have been trimmed the pot should be watered and the trunk shaken to ensure that the new soil is in contact with all the roots and no air-gaps are left.

growth of fine roots is encouraged which ensures that the root system of the dwarf tree will always remain young. This is particularly important for trees which are kept for many years and live in a confined area.

As a general guide, deciduous trees should be re-potted every two or three years, and the evergreen trees, pines conifers and so on every three or four years.

If the tree is not pot-bound repotting may be delayed for a further year. This is easily checked as most trees can be taken out of their container fairly easily without causing any disturbance to the root system. New soil should always be available on the outer edges of the root ball as it is into this that the new roots establish themselves.

For trees which are repotted into another pot without disturbing the root system the time factor is unimportant. This operation may be done at any time of the year.

Although experts differ on how often a tree should be repotted, one authority in South Africa says it should be done only when the tree lifts in the pot.

Transplanting should be done on an overcast day in a sheltered position away from wind. This step-by-step system applies to both small bonsai being transplanted to larger pots, and large plants being transferred to smaller pots.

- The tree should be taken outof the container without disturbing the soil around the roots. The soil should be dry - and remember the original position of the tree in its old container.
- The new container should be perfectly clean - preferably scrubbed, sterilised with hot water and dried.
- The roots should be untangled from the root ball by using a pointed stick. Gently pick away the soil from the roots on the sides and bottom of the ball. About one-third of the soil from the ball should be removed but great care should be taken not to disturb the soil around the tree trunk.
- After the soil has been removed the side and bottom roots will be exposed. These should be trimmed with a pair of large, sharp scissors, leaving about an inch of each root protruding from the soil ball. A small tree should not be repotted if it does not have a tightly packed root system.
- For larger trees being transplanted the clean container should have wire mesh placed over the

drainage holes and covered with 1/4" gravel. The tree should then be put back in its same position and the container filled with dry soil level with the rim.

- The new soil should be worked into the roots with a stick (not hand) to ensure that no gaps are left between the soil and the exposed roots. The depth of working in the soil should vary, so should the angle. As the soil works in, more should be added until the whole area is compact.
- It may be necessary to tie the tree to the container. This can be done by tying heavy cord around the main stem several inches above the soil level and drawing it tightly under the pot. This will not only ensure the tree will be secure but also keep it in the correct position.
- Excess soil should be removed if higher than the rim of the container, and 1/4 to 1/2in. should be allowed inside the container for watering. If any of the fine roots are exposed after repotting they should be pushed under the soil surface with a stick, or be cut off.
- A fine layer of sifted top soil or dried, powdered moss may be added to the soil surface if required to give a better appearance.
- The container should then be saturated with water. One method is to place the bonsai container in a tub of water with the water level the same as the soil surface, and at the same time give a fine overhead watering.

The newly planted bonsai should be placed in a sheltered corner of the garden, on the veranda or patio out of the bright sun, wind and cold.

To prevent excessive evaporation during the time the tree is being rehabilitated the pot can be plunged into peatmoss to shade the roots and the container surface.

The important factor in handling newly transplanted bonsai is to keep the soil and air around the plant evenly humid. A fine spray over the plants two or three times a day is beneficial, and very important in the hotter, dryer areas when the atmosphere is very dry.

Right: In the fourth year the tree is in an interesting stage of development and begins to look like an old tree.

Above:
When repotting and rootpruning the roots must be carefully trimmed.

Care should be taken to avoid extremes in temperatures which often occur in spring and autumn when re-potting is normally done.

When the roots become active the tree will need less attention. But it should never be exposed to full sun and wind because the small amount of soil in which the roots thrive makes drying out a considerable hazard.

Several growers plant Coriea or Malta moss in the soil which helps to reduce moisture evaporation of the soil. The bonsai should not be kept in a greenhouse or conservatory as this is inclined to force growth and spoil the general effect of the dwarfed tree and it should not be grown in a room where there is too little light and humidity. The ideal situation is where the trees have broken sunlight and where regular watering is no problem.

The trees should not be fertilised until a month after transplanting as this can impair the root system and possibly cause the trees to die.

TRANSPLANTING

TOOLS

- Three sieves. 1/4in.; 1/8in., and 1/l6in.
- Pointed sticks for removing the soil from the root ball and later for firming the new soil around the roots.
- Pruning shears, a knife, brush, trowel, and a fine-rosed watering can.

SOIL

- 1/8in. to 1/4in. washed gravel.
- A good well-balanced soil, preferably sterilised, although this is not absolutely necessary.
- Manure or compost -- or if not available - a balanced fertilizer together with peat moss as an alternative.
- Washed river-sand. (All items conifers should be completely dry).

OTHER MATERIALS

- Heavy cord for securing the plant after re-potting.
- Wire mesh for covering the drainage holes.
- Dried and powdered moss if to be used on the soil surface.
- Containers.
- Peat moss, it the plant is to be submerged after planting.
- The sieves should be nested in each other with the coarser on the top.
- Any loam passing through the 1/16in. screen should be discarded.
- If fertiliser is to be used, this should be incorporated before sieving, otherwise manure or compost should be worked through the sieves and then mixed with the soil and the washed river-sand.

PLANTING MIXTURES - PARTS BY VOLUME

Tree	Soil	Sand	Compost/Manure
Pines, conifers and other evergreens	3	3	1
Flowering and fruiting	2	1	2
Other deciduous	3	1	2

WATER AND FEEDING

BONSA1 must have sufficient water. Too much is harmful, too little may result in the death of the tree.

Bonsai should not be watered constantly, because saturated soil is just as dangerous as dry soil. As a general rule bonsai should be kept drier than ornamental pot plants, but the mistake should not be made to deprive

them of water in order to dwarf trees, or keep them dwarf, as this will only result in stunted and unhealthy trees which will never become good bonsai.

As a general rule, bonsai should be watered liberally, but at the same time there should be very good drainage. This will keep the soil moist without any risk of saturation.

There is also a difference between spraying the foliage and watering the roots. The root ball must he soaked when watering. It is growing in limited soil and must have sufficient water to help transfer the soil nutrients.

For this reason, bonsai grown in the Transvaal, Free State and other dry areas require more regular watering than trees at the coast where humidity is higher and the trees can take in atmospheric moisture.

Bonsai growers in hot, dry areas are kept busy watering. Even if bonsai is subjected to the heavy downpours that occur in summer (other than hail) little damage will be done as the drainage will take , off the surplus.

Bonsai is not for the gardener who has little time. If the tree dries out, the roots can be damaged and years of work are lost within a few hours. Bonsai gardeners have to make careful arrangements for their trees before going on leave, and it is important that servants should be well acquainted with the procedure. This may be difficult as they obviously do not have the same interest as you, but it should be pointed out that the trees are old and of importance.

In the cities where smog, dust and soot are prevalent the leaves on the trees will need washing or whipping every one or two days, especially in the winter months when the atmosphere has more smog.

Bonsai should be fed sparingly, and can be fed from the time of transplanting, but in many cases feeding does not commence until a year after the tree has been transplanted, but a tree cannot live without food.

Too much feeding results in a too vigorous growth, which will destroy the aim of dwarfing. Too much fertiliser may result in excess quantities building up in the limited amount' of soil burning the young roots and killing the tree.

The golden rule when fertilising is not to overfeed. A number of growers use organic manures when available but there are several liquid manures on the market which are very suitable for bonsai.

IN SPRING

Liquid fertilisers should be applied every three months, depending on watering, starting as the buds burst in spring and then every three to four weeks until mid or late summer. For pines and similar evergreens the fertiliser application may be reduced.

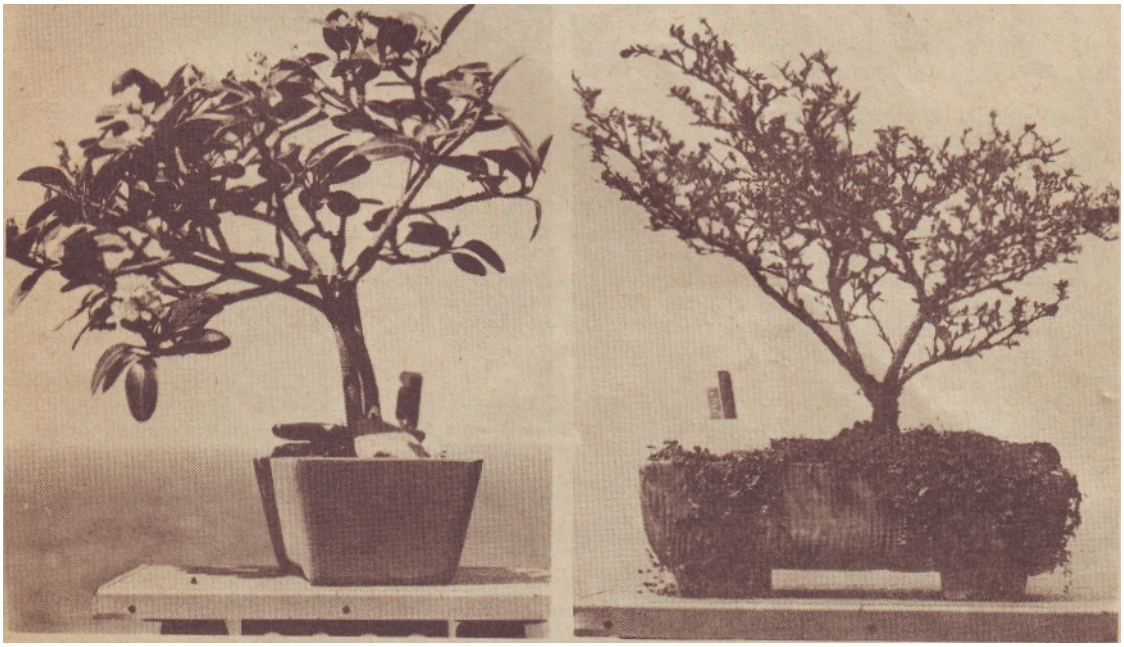
The best way to give bonsai more food is to repot but this should not be done until absolutely necessary. If the plant has poor leaf formation or dries out too quickly because of excessive rooting or poor repotting then it should be done without delay. The same container can be used after being scrubbed or a slightly larger container. Fresh soil should always be used.

The trees will not need feeding during the winter months when they are dormant. Feeding should be done only during the peak growing period and autumn. Watering in summer should be done as often as three times a day when temperature reaches the 90s and humidity is low. In winter, watering every other day is usually sufficient.

In areas where winter frost is common the trees should be protected from severe damage although it is not necessary to take too many precautions.

The soil should not be allowed to freeze, and should be kept moist throughout the winter.

In areas where summer heat is high - this applies to most areas in this country - trees must never be placed in the direct rays of the sun.



This Raphiolepsis"is 11 years old.

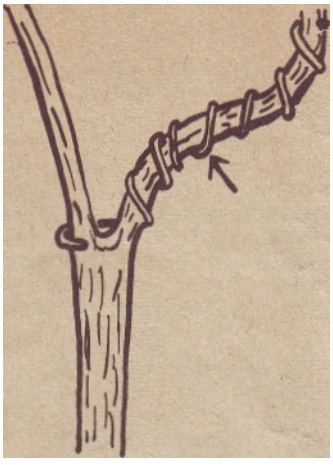
This Serisa foetesa, which flowers nearly all the year round,' is 14 years old.

TRAINING

GROTESQUE shapes in bonsai went out of fashion many years ago. The method commonly used now by bonsai enthusiasts is to follow Nature but to give some guidance. Bonsai are, in the words of a famous Japanese grower, Zeko Nakamura, "Miniatures of nature's giants". A miniature bonsai of a large growing tree is trimmed to the mature shape of the normal tree.

If the normal habit of the tree is to have a straight trunk the bonsai should also have a straight trunk. A number of our indigenous trees are misshapen, however, and a good way to build up bonsai on similar lines is to sketch or photograph the tree in the veld and shape the dwarfed tree on similar lines.

A tree which has a large num- ber of rambling surface roots may be obtained in bonsai by cutting off the tap



Tree shaping can be done by using copper-wire coiled arounda branch to hold it in the desired position.

This one-year-old bonsai seedling is ready for pruning to shape the trunk.

The upright shoot of the two year-old tree is removed and the lateral branch is allowed to develop for a further year's growth.

The lateral branch of the tree is further pruned in the third year, and the lead is angled back.

root which will force the lateral roots to take over the work and give the effect of gnarled surface roots.

The trunk is trained with copper wire and pruning. The copper wire is usually burnt in fire which makes it more manageable, but very young trees cannot be trained with wire and must be pruned.

A one- or two-year-old tree should be cut off at a dormant bud and after another one or two years should be cut again. This should be repeated for another four to five years. By that time the trunk is becoming interesting, and is looking like an old, dwarfed tree.

The small branches which are formed low on the trunk should be retained and the higher branches should either be pinched off with the fingers or cut off when they are very young. This method of training a tree is illustrated in the drawings and can be achieved after only four years from planting.

The training of seedlings should commence when the plant reaches a height of Sin. when the growing tip should be pinched off. During the growing season young shoots will branch out from the stem and should he pinched off when they are lin. long, leaving only one or two leaves on any one branch.

In the case of conifers and pines, pinching should be done as the soft, new branches elon gate and begin to show their needles. Every new twig should be pinched back, except the ones desired to improve form or fill a gap, and only a section of elongated shoot should remain from which new buds are formed.

Unsightly or malformed bonsai are usually the result of wrong pinching or neglect of pinching. Densely twigged trees such as elm, maple and pomegranate should be pinched whenever twigs reach 1 to 2in, in length.

In the case of flowering shrubs such as azaleas, roses, quince and jasmine, pinching should not be done at all as it removes the flower buds and prevents flowering. As the plants grow older they are shaped as shown in the diagram.

If drooping f o r m s are required they may be had by coiling copper wire around the branches, bending them downwards and hanging weights on the tips to keep them in a set position.

When wiring a tree, watering should be reduced for two or three days before the process begins. This ensures the tree is rather more limp and pliable and damage is negligible. Care should be taken not to burn the copper wire for too long otherwise it becomes dry and brittle and difficult to coil. Tempered wire is more flexible than wire which has not been heated.

One end of the copper wire is placed in the soil, near the base of the trunk and is then coiled upwards. Care should be taken to avoid firm contact with the trunk or branches otherwise the wire may damage the bark and leave marks which will become exaggerated as the tree grows. For very delicate trees and shrubs the wire should be covered with cloth or paper.

When the coiling is finished,, the bending begins. The base of the trunk should be held in the left hand and the top of the wire in the right and at the same time the trunk or branch should be bent into the desired position.. Further adjustments may be made to other branches to obtain the effect envisaged.

This method should be applied only to supple trunks and branches. If used on firm ones there is a chance they may snap. Firm members should be bent by hand before wiring. Considerable patience is needed to achieve the desired shape and wire coiling may then be done.

The shoots of flowering trees and shrubs should be pinched back in October or November when the young shoots are hardening. Only two or three buds should be left on each shoot. From these, new branches will grow towards the end of summer. These should not be touched until March when they should be shortened, leaving some of the flower buds which will have formed.

Pruning and trimming can be commenced when the plant is first potted. Any branches which conflict with the form you have in mind should be removed but it is necessary to have a predetermined idea of the desired shape, otherwise you may spoil the tree shape in its initial stages.

Pruning in the early stages helps to balance the loss of roots which have been trimmed during repotting. The plants should then be left to become firmly established before more pruning is done.

When pruning, do not leave cuts which, after healing still look as though they have been artificially made.

Wires should be twisted about ½ to lin. apart and should be left in position for anything up to a year. By that time the branch or trunk will be permanently bent.

The essential style in shaping bonsai is to make the best of the trunk and the twigs. Excess branches should be removed in order to clearly outline the general shape of the tree. In the case of trees which have largish leaves these should be picked off from time to time to keep a balance and to retain the youngest leaves as they develop.

It is essential to keep in mind the picture that the tree should make and to work on this through the formative years. When once it is achieved it should be retained by careful pruning. By the time that-stage is reached wiring will no longer be necessary.

Bonsai is intended to simulate nature. This is achieved by carefully shaping the tree to the desired design and the effectiveness of this illusion is added to by using stones, moss and so on.

Evergreen trees are perhaps less exciting in spring than the deciduous trees, especially those which flower and bear fruit. But they all have their particular appeal. In winter, the evergreen still has its leaves when the deciduous trees are bare and stark.

When the tree is at its best, bring it into the home to be admired by your guests. It is, after all, a conversation piece. There are few people who are not fascinated by bonsai. But do not leave it in the room for more than one or two days.

NURSERIES OFFER A SHORT CUT

THE short cut to bonsai is undoubtedly through the nursery. Plants having the characteristic bonsai potential can be found in most nurseries, even those where bonsai has not become an established item. Another method is to go into the veld and find dwarfed trees, but this must be done with care as a heavy fine may result if one is tempted to lift protected plants.

In the Transvaal and the Cape this can be overcome by reading literature on protected trees. A recently published by%k on Transvaal trees is very useful for bonsai enthusiasts.

SOCIETY'S AIMS

One feature that the Bonsai Society in the Transvaal wishes to avoid is competitiveness. The art in this country is still very new and the aims are to encourage it without bringing in the fierce forms of competition existing with other established species.

It is necessary, therefore, to find nature's short-cuts to building up stocks with the least possible delay so that the beginner can have bonsai to display to friends and other interested people and be able to explain how a tree which may look many years old is, in fact, only a matter of a few years old.

Bonsai should be regarded as a fine art. It is like a painting which is never completed.

Chinese maple, 21 years old.

CUTTINGS

MOST trees including pines long cut at a 45 degree angle may be rooted from cuttings. They are easy to handle and grow well. Cutting should be taken in either the autumn or spring when the buds are just the top three or four leaves about to open or the past season's growth has begun to harden. By using cuttings you are assured that the bonsai will eventually have the same form as the tree from which it is taken.

As a general guide, side shoots should be taken which are healthy and vigorous. Trees showing signs of abnormal stunting should be avoided as the stunting may have been caused by disease.

When a stem snaps the branch is ready for a cutting to be taken. When it bends or crushes the branch is either too young or too old.

Cuttings should be 2 to 5in. long cut at a 45 degree angle with a sharp knife just below the node but without cutting into to the immature bud. The lower leaves should be trimmed, but the top three or four leaves should be retained to provide food for the cutting until it has formed roots.

A number of evergreens should have cuttings taken with a heel, which means that a certain part of the old branch should be cut with the branch which forms the main part of the cutting. The heel should also be cut cleanly to avoid rough edges.

Cuttings should be rooted in clean, sterilized river sand, and for a better take, the cutting should be dipped in a hormone solution which aids rooting. Cuttings should then be planted in the sand, leaving three nodes below the surface, and firmed.

The sand should be kept damp, but not waterlogged or the cuttings may rot. They should be kept in the shade for one or two weeks until rooting commences. After the roots have become established they should be transferred to a potting compost and left undisturbed for at least a year.

After they are established in compost and are ready for transplanting they should be transferred to a pot after the roots have been trimmed, or if the growth is not sufficient they should be repotted for more rapid growth without root trimming.

When a cutting is taken, better rooting can often be obtained by placing a jam-jar over the cutting but remember to lift this fairly frequently to prevent overheating and mould forming.

A Quercus robur (oak) 22 years old

Gardenia Thunbergia, 26 years old.

LAYERING

LAYERING is a system by which branches are rooted while still attached to the plants. Many bonsai subjects may be propagated by this means and a tree can be firmly established in a short period with the added benefit of having a pre-determined form and branch structure.

Air layering gives quick results. It is especially useful when a parent plant has outlived its usefulness but still has characteristics that are required.

The equipment needed for air layering is: some plastic sheet, string, a knife and some peat or sphagnum moss.

In spring when there is no longer any danger of late frosts a branch should be selected with a diameter approximately 1/4 to 1in. thick.

By air layering the top portion of the tree the shape will be fairly well established.

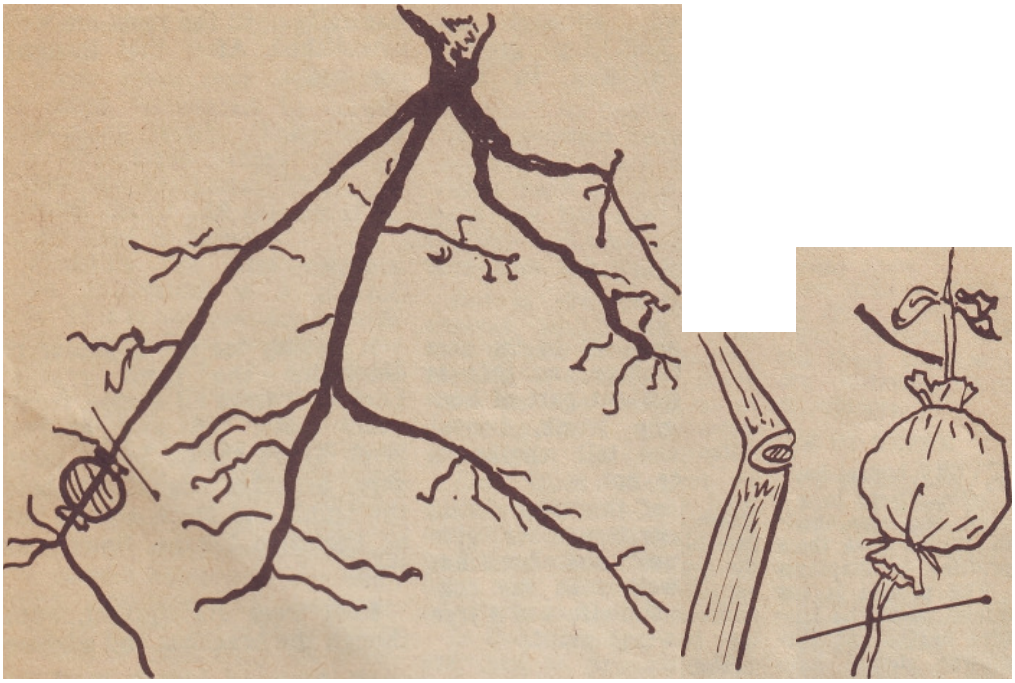
A slanting cut should be made below a node about one third through the stem. A small stone should then be inserted in the cut to keep it open. The cut area can be treated with a hormone preparation which will help promote rooting, and then the cut area should be wrapped with damp sphagnum or peat moss, about the size of a cricket ball. This should be covered with plastic film and secured at the top and bottom with string or wire.

After four to six weeks roots should be showing through the peat, and the newly rooted plant may then be separated from the parent plant and either planted in a box or the permanent bonsai tray.

EARTH LAYERING

Branches which are to be earth layered should be split on the underside, held open with a small stone and planted in a potting compost of soil, sand and peat moss. The upright shoot should be supported with a stake and the bent portion of the branch which is to be rooted needs to be anchored in the rooting medium.

Rooting of softwood plants will take place within four to seven weeks, and when the roots are visible the new plant should be severed from the parent plant. New buds should be removed until the root system is well established. Hardwood cuttings take considerably longer to root, but should be treated in the same way as softwood plants.



Air layering bonsai.

GRAFTING

GRAFTING is another method of propagating, but is more difficult than layering or budding.

One of the main advantages of grafting is that a good fast-growing tree can be used as a rootstock and another of the same species which has typical bonsai features - dwarf habit, leaves or flowers - can be grafted on.

Care should be taken to graft as low as possible as a scar is left *nd can detract from the general appearance of the tree. The graft union must always be kept above soil level, otherwise the rootstock will produce its own growth.

Grafting should be done in the winter or early spring, just as the sap is beginning to flow. The two recommended methods for bonsai are whip and cleft grafts.

WHIP GRAFTS

The stock and scion should be cut on the slant at approximately the same angle. A second cut should be made on each section, and then the stock and scion should be joined together, taped and covered with grafting wax.

CLEFT GRAFTS

The stock should be cut off squarely and a cut should be made across the stock with a sharp knife about 1/2in. deep. If more than one scion is to be used they should both be in contact with the tissue between the bark and the wood, ensuring that the layers match.

When only one scion is used this too must match the cambium layers on the stock. The scions should be tapered before inserting to give a good tight fit. All cut surfaces should be covered with grafting wax at the end of the operation.

Grafts should take after four to six months and should not be exposed to strong sunlight.

DIVISION

PROPAGATING by separating the roots is comparatively simple. A number of trees and shrubs can be split. The roots should be lifted and cut with a sharp knife and before planting treated with a rooting hormone.

The new roots should be kept well watered, although not naturally until the roots are well excessively and top growths established. After that training should be allowed to grow can begin.

TREE PROFILE

EVERY bonsai has its best profile. There is a front and a back, and care should be taken to ensure that the front (best profile) is displayed.

The profile is usually determined when the training of the tree begins. At that stage the grower should have in mind what he wants from the tree and train it accordingly from the front. It is essential that the trunk is shown off to its best possible advantage, as this is the most important part of bonsai. From the trunk, bonsai enthusiasts can tell whether a tree is old or not.

The front of the tree should be well proportioned to give adequate trunk and branches and fit in well with the container to give the effect of a tree rather than a pot plant.

It is easy for the beginner to determine the front profile. Look at it from all angles, front, rear, sides, top and ground, level. There should be no large gaps, branches should not hide the trunk and there should not be excessive foliage, flowers or fruit.

Most trees are upright, even though the branches and surface roots may be twisted and gnarled.

Other trees may lean. This is often influenced by strong prevailing winds. Then there are the trees which cascade below the horizontal. These are natural forms and can be effectively used in bonsai.


A Deodar 34 years old.

Probably the most common type of bonsai is a slanted, tree. This is because many plants which come from nurseries are naturally slanted, and this form can easily be retained.

A vertical tree can also be slanted by planting the tree at an angle and if necessary tying it down to the required angle.

If a vertical tree is angled, care should be taken to preserve the correct balance of the base, trunk, branches and container.

A cascading tree is rather more difficult to train. Only low growing trees should be used. The tree should be wired down into position, and when the tree is growing well the branches should be trained by wiring to give a cascade effect.

FULL EFFECT

When a bonsai is cascading well the container should be placed on a stand so that the full effect can be seen. Here too the container is most important in order to have the best effect.

Before planting, decide where the trees will look best. Also give thought to the base, whether the tree will be planted in soil only or whether there will be rocks, bare roots, moss or other plants.

Bonsai, given proper care and management, can be grown in varying conditions. They are trees and therefore enjoy an outdoor life, although they must not be subjected to weather extremes. In South Africa most bonsai growers have their trees in a sheltered part of the garden, where there is little wind, shade from the hot sun for most of the day and where the temperature does not fluctuate greatly.

Bonsai are usually kept on shelves, which can serve both as a display area and a working surface. It is better to have the trees in one central place as watering is a time-consuming operation.

The trees should not be crowded. One to two feet should be left between the containers and the taller trees should not hide the shorter forms. Good air circulation is essential.

In this country, overhead slats are used to provide shade and this can also have the effect of providing a separate bonsai garden if the shelves are against a wall and side wall.

As well as providing good ventilation ensure there is good drainage below the pots. Also turn the pots every five or six weeks to give the foliage equal light and water. Unless the pots are turned the roots are inclined to concentrate in one section of the container.

Generally bonsai are outdoor plants and should not be kept in the house for more than two or three days. There are a few of the sub-tropical plants that can be grown in the home, and also a few hardy plants. But most flats in this country have balconies and bonsai-growing presents few problems.

Some suitable for indoor cultivation are azalea, gardenia rosemary, Malpighia coccigera, Malpighia glabra and serrisa foetida, and many more.

Bonsai grown indoors should be kept away from direct sun, draughts, fire, heaters and radiators, and these trees will require more watering than those grown outdoors.

A GROVE OF TREES

One of the popular forms of bonsai is a grove of trees. This can be planted with individual trees or made from a single tree.

Individual trees should not be too uniform. Some variation presents a very pleasing effect and also gives good balance. The tallest trees should be in the centre of the grove.

To make a grove from a single tree is not as difficult as it sounds. The tree should have a well-developed trunk with several horizontal branches. On one side of the tree a11 the branches should be removed, leaving the better ones along the other side.

The tree should then be laid on its side with the branches in a perpendicular position. Soil should cover most of the trunk leaving a small amount exposed.

The root ball should be flattened and covered with soil. Both the roots and the trunks may require wiring down to hold them in position until the tree has become established in its new environment.

After some time the branches will develop into main trunks giving the grove effect. Firs and conifers are most popular subjects for this system.

Cupressus horizontalis 18 years old.

SOUTH AFRICAN BONSAI

THE indigenous trees of South Africa provide an unending source of bonsai. Many of the bi-pinnate acacias lend themselves to bonsai. They have small foliage which is one of the main pre-requisites. Other suitable indigenous trees are Schotia transvaalensis, Schotia afra, Fagare magalismontana (lemonthorn), Celtis africana (white stinkwood), Acacia karoo (sweet thorn) Doyvalis zedheri (suurbessie) and cussonia paniculata (kiepersol) as well as many others which grow well in the particular part of the country where the bonsai enthusiast lives.

PLANTS SUITABLE FOR BONSAI

EVERGREEN CONIFERS

Cedrus atlantica (Atlas cedar), Picea abies Maxwelli (Dwarf Norway spruce), Cedrus deodara (Deodar), Picea jezoensis (Yeddo spruce), and Pinus parviflora (Japanese white pine).

All conifers can be grown and also all cypresses which make ideal subjects for bonsai beginners.

CASCADING CONIFERS

Juniperus horizontalis Bar Harbour, Juniperus horizontalis Wiltoni, Juniperus squamata prostrata, (Prostrate juniper), Taxus cuspidata nana (Dwarf Japanese Yew).

DECIDUOUS CONIFERS

Larix decidua (European larch), Metasequoia glyptostroboides (Dawn Redwood), Taxo• dium distichum (Bald cypress).

FLOWERING TREES ANDSHRUBS

Azalea, Berberis verruculosa (Warty barberry), Cotoneaster horizontalis, Cotoneaster microphylla thymfolia Malus sargenti (Sargent crab apple), Prunus subhirtel·la pendula (Japanese weeping cherry), Pyracantha coccinea (Scarlet firethorn), Pyracantha koidzumi `Low Dense' (Firethorn), Punica granatum nana (Dwarf pomegranate).

DECIDUOUS TREES AND SHRUBS

Acer beurgeranium (Trident maple), Acer palmatum (Japanese maple, small varieties), Carpinus Japonica (Japanese hornbeam), Ilex serrata (Japa• nese holly, Zelkova serrata (Grey-bark elm).

EVERGREEN SHRUBS

Bruxus microphylla compacta (Kingville dwarf box), Ilex crenata helleri (Heller Japanese holly), Ilex crenata mycrophylla (small leaved Japanese holly), Rhodendron racemosum (May flower rhododendron).

VINES

Hedara helix conglomerata (Bunchleaf English Ivy), Hedara helix `Glacier', Wistaria floribunda.

INDOOR PLANTS

Gardenia Jasminoides, Rosemarinus officinalis (Rosemary). Cuphea hyssopifolia, Malphiga coccigera, Serissa foetida, Siphonosmanthus delavayi (small-leaved osmanthus).

SOUTH AFRICAN PLANTS

Schotia afra (Karoo Boerboon), Ficus ingens (Wild fig). Celsis Africana (White stinkwood), Accacia karoo (Sweet thorn), Cussonia paniculata (Kiepersol), Acacia nigrescens (Knobthorn), Acacia galpinii (Apiesdoring), Acacia Burkea (Swartapiesdoring), Schotia brachypetala, Fagara Magalismontana (lemonthorn), Dovyalis zeyheri (Suurbessie), Doryalis caffra (Kei-apple). Acacia caffra (Kaffir-thorn or Wag 'n bietjie).

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A 33-year-old Camelia japonica with Corsica or Malta moss.

Mrs Becky Lucas tending part of her bonsai collection.

A collection of miniature trees at the home of Mrs Becky Lucas, chairman of the Bonsai Society of South Africa (Cape).

A Macracapa juniperis 24 years old

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