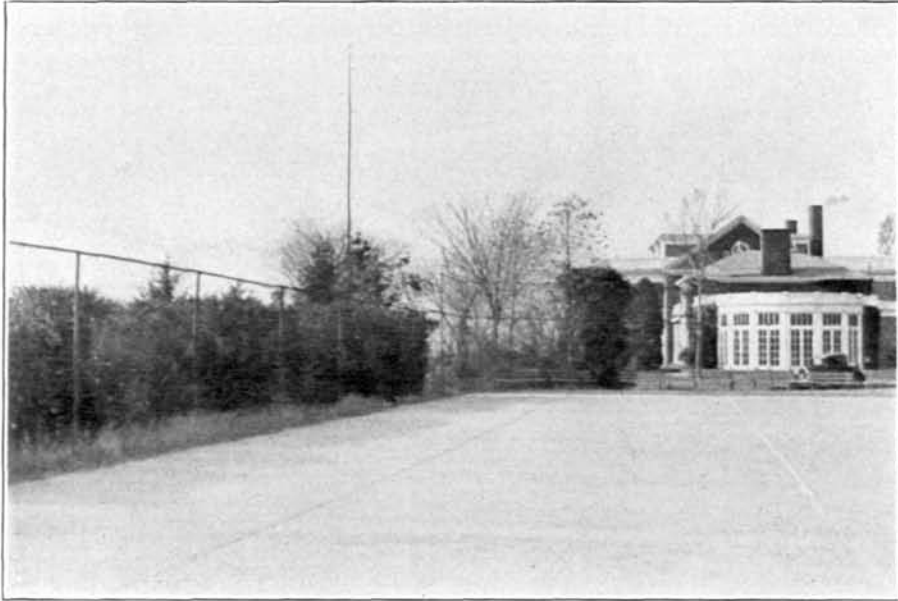


Building Clay Tennis Courts

By Kenneth Welton

The plan of a tennis court or series of courts is standard except that there may be variation in the extent of space between courts and at their sides and ends. As far as the playing surface of the courts is concerned the architecture is negligible. However there is ample scope for landscaping in planting or arranging a suitable setting for the courts. There are also certain factors controlled by the landscape which may either help or hinder the players.

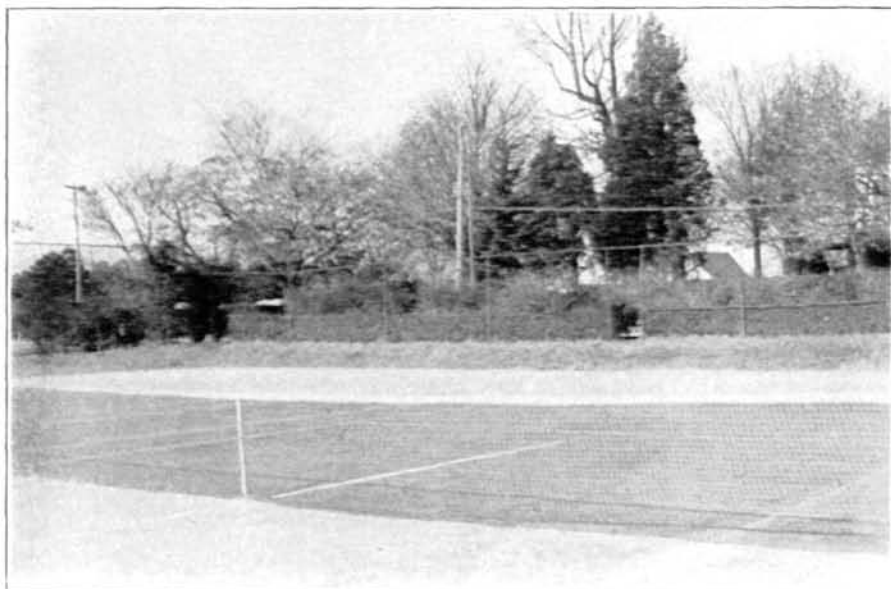


Tennis courts adjoining the club house of the Country Club of Virginia, at Richmond. The bank of shrubbery outside the fence at the left provides the players with a dark background and incidentally screens the parking area.

Tennis courts are usually enclosed with neat wire fences and are preciseness exemplified in their smooth surfaces and clean-cut angles and lines, but this very formality of appearance may jar decidedly with the natural beauty of some locations. A court set boldly on the landscape can be somewhat of an eyesore. Groups of trees at some distance from a court are pleasing while solid borders of low shrubs at either end and groups along the sides harmonize a court with its natural landscape.

Broken or flickering shadows, such as might be cast by leaves and branches, are disconcerting to tennis players. Visibility is reduced somewhat by spotty shadows, since the ball blends readily with them. Branches and shadows in motion also affect the player's vision by attracting his attention from the ball. Therefore large trees should be at sufficient distance as not to overshadow the courts. The more compact, low shrubs which may closely surround the courts do not have this disadvantage, and apart from their landscape value serve as a dark background against which the ball appears in bold relief.

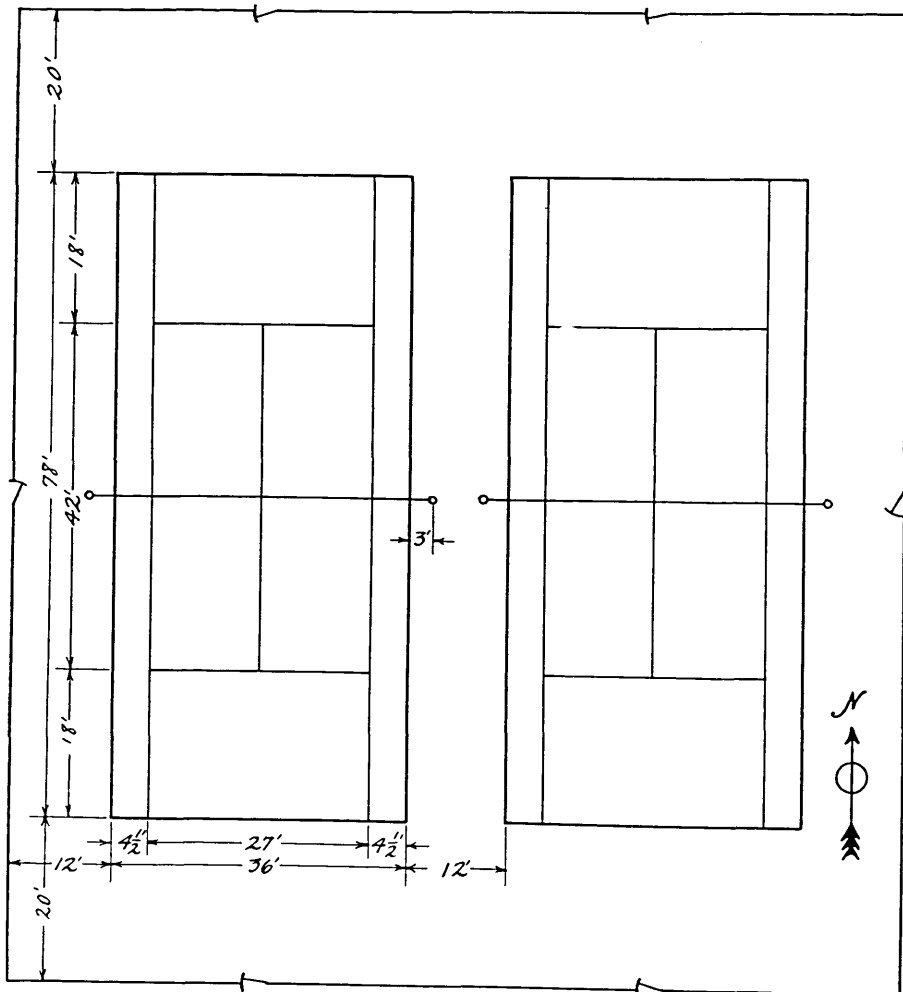
Tennis players may be subjected to great strain by the glare of the sun in their eyes. In building courts it is well to consider this fact and to lay out the courts so that the minimum amount of direct sunshine reaches the player's eyes at the time of day when most play may be expected. The trouble from the direct rays of the sun is worst in the early morning and late afternoon, when the sun is low; hence courts with the long axis running north and south are most satisfactory. However, where numerous courts can be constructed, they should be oriented so that one or more give ideal conditions, in so far as the sunshine is concerned, at all hours of the day. The exact orientation which is ideal for any place or period of the day can be readily computed. The factor of light shining directly into the players' eyes while facing the net should also be considered if electric lighting is installed for night play.



Trees and shrubbery about tennis courts greatly improve playing conditions and add to the beauty of the landscape. Their graceful outlines help to conceal the hold monotony of the courts and the artificiality of fence posts and electric wire poles.

Usually fairly level ground is selected as the site for tennis courts, and when the depth of the excavation for the foundation or base is planned allowance should be made so that the finished surface of the courts will be some inches above the elevation of the surrounding ground level. This elevation of the surface will assist in the drainage and will also prevent surface water from overflowing the courts. When courts are cut into sloping ground, a gentle swale or open ditch should be constructed on the hillside to protect the courts from surface water from higher elevations. Sometimes a stone or concrete wall is used for this purpose. In any case a line of tile should be buried on the upper part to a depth the elevation of which is not greater than the elevation of the courts. The tile trench should be filled with rubble or cinders to within 6 or 8 inches of the surface and the remainder finished with soil. Such a tiled trench will catch water

which might seep through the soil from higher elevations and which would tend to keep the soil in the courts saturated for some time after heavy rainfall. Dirt removed by grading work from the area to be occupied by the courts can be used to good advantage for filling low spots in the immediate vicinity of the courts and for filling outside of the fence line.

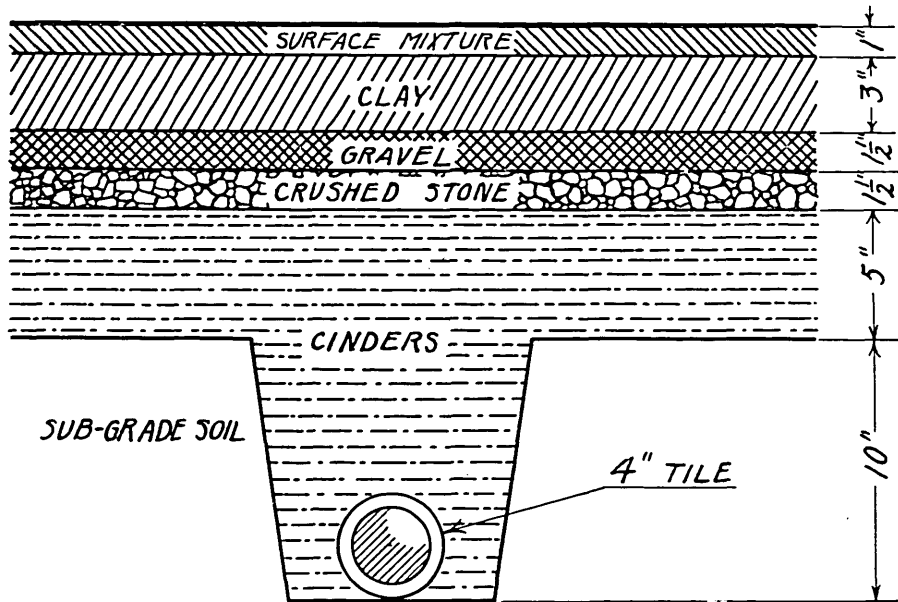


Dimensions and plan of tennis courts.

The most common surface grading of tennis courts is from end to end. The courts are level from side to side and drop 4 inches from one end. To have the courts level from side to side with a drop of 2 inches at either end from the center is also frequently considered desirable to provide surface drainage.

For localities having climates no more severe than that of Washington, D. C., where the thermometer seldom drops below 10 degrees Fahrenheit, a very deep or heavy foundation is not necessary; a simple cinder foundation 6 to 8 inches in depth is all that is required

if adequate drainage has been provided. However in more northerly locations where extreme winter conditions may be expected, it is wise to put in a much heavier base. Several inches of 1½-inch crushed stone should be laid over the cinders and finished off with a layer of washed gravel. It will take 8 inches of cinders to make a 6-inch fill after they have been wet down and rolled with an ordinary broad-wheeled tractor or heavy roller.



Cross-sectional diagram of the structure of a clay tennis court.

Tile drainage lines should be laid 10 feet apart in clay and silt soils but can be 15 feet apart in loam and sandy loam soils. The tile should be laid deep enough so that the top of the tile is at least 6 inches below the surface of the subgrade. Four-inch laterals should be used, which will require a 6-inch main. All laterals and main tile lines should have a drop of at least 1 inch in 5 feet. The joints of the tile should be covered on the upper side with strips of tar paper to keep the tile from filling with sediment during settling. The tile should be well packed with cinders and the trench filled to the sub-grade surface with the same material. The laterals should be of glazed tile, while vitrified sewer pipe should be used for the main. The joints of the main should be cemented, but the joints between the tile in the laterals should be left open.

No water outlets should be placed within the tennis enclosure. There is always considerable drip or spilling of water around these outlets. Apart from the untidiness of such damp areas they are of much annoyance to the player, since balls which inadvertently roll near the outlets become wet or covered with mud. When outlets are left outside the fence there is no need for water piping under the courts and hence a source of possible danger is eliminated. A broken pipe under the courts may cause considerable damage to the surface.

If hose connections are placed at either end of each court outside the fence almost any part of the court may be watered without un-

necessary dragging of hose over the playing surface. There should be at least one drinking fountain to every group of courts, and the fountain should be placed in a shady place in order to keep the water as cool as possible. Drinking fountains and hose connections should be placed near gates. No water pipes should be buried in the immediate vicinity of electric light wires.

Net posts should be set before the clay base is laid. The distance from the surface of the court to the top of the pulley through which the net cable runs must be exactly $3\frac{1}{2}$ feet, and the pulley should be so fixed that the top of the post is not more than $\frac{1}{4}$ inch higher than the top of the pulley. Posts should be anchored 3 feet deep in the soil by being set in concrete.

A base of 3 inches made from clay which will pass through a $\frac{3}{4}$ -inch mesh should be laid over the cinder or stone drainage base. Previous to laying the clay the drainage base should be well settled and rolled and should be true to grade. The clay soil used for this purpose should be about $\frac{1}{3}$ clay, $\frac{1}{3}$ silt, and $\frac{1}{3}$ sand, and a careful physical analysis should be obtained before using the soil. Clubs can experiment with different mixtures of clay and sand which they may have available, but it has been found that a mixture of $\frac{1}{3}$ of each of pure clay, silt, and fine sand makes the most lasting and satisfactory surface. The clay base should be wet down, settled, thoroughly tamped and rolled, and the grades checked, before the finish or surface coat is laid.

The surface layer should be of the same materials as the clay base. It should however be passed through a $\frac{1}{4}$ -inch mesh before being laid. The surface layer, as indicated in the accompanying diagram, should be 1 inch thick when rolled. This layer should be carefully spread, allowing 25 per cent more bulk for shrinkage after rolling. It should be sprayed with a fine spray and rolled until solid. Some sharp, fine sand may be dusted over the surface if it is somewhat sticky. Any small depressions that show up in the surface after a rain should be marked and gradually brought to grade by light top-dressings of the clay surface mixture. Tennis court surfaces are sometimes colored or tinted various shades to reduce the glare from reflected light. This treatment also aids visibility. It is always well to consult those having experience with colored courts as well as those handling the material before undertaking this treatment.

Dusting the courts with chloride of calcium helps to bind the surface material and make the courts wear better. This treatment also darkens the surface and prevents glare much as coloring does.

Fences should be at least 10 feet high entirely surrounding the courts. Posts of 2-inch wrought iron pipe 13 feet long extending 3 feet in the ground and set in concrete do very well for the framework. The fence should be galvanized wire of 1-inch mesh. If wire is used to hold the netting at the bottom it will soon become stretched from one cause or another and will allow balls to get under it. For this reason something solid, such as a 2-inch by 4-inch wooden sill or iron piping should hold the bottom of the netting between the posts; it should be placed sufficiently above the ground to allow surface water to escape readily, but close enough to the surface to prevent a ball from passing beneath. There should be gates in all sides of tennis enclosures for the convenience of the players. The fence should be painted some inconspicuous color, such as dark green.