

President's Message

THE COLORS OF AUTUMN

I realize that the calendar tells us the season of summer ends on September 21, but I know better. For Wisconsin golf courses the summer season ends on Labor Day. September belongs to autumn just as surely as December belongs to winter. What a relief! Good season or bad, the really difficult days for us ended on September 3. We may yet have a day or two over 90 degrees, and we will be keeping up daily routines for a while, but no matter. Psychologically, autumn has arrived.

September, at last. This is the first of what I call the "ber" months of fall. If you say aloud the twelve months of the year, you'll find that the last four, which include fall, all end in "ber." They have the nicest, roundest and most melodious sounds of all — September, October, November and December. And isn't it curious that three of the four end in "ember," most appropriate, it seems to me, when the fires of the year are dying down.

Golf courses are beautiful places every season, indeed every day of the year. But they seem to be at their very finest in the fall. One of the reasons is obvious — the colorful foliage of the trees. When we reach this time of the year, the mystique of golf courses is amplified by the beauty fall color gives to the maples and oaks, the ash and aspen, the hickories and the hickories. The mystery of it all inspired me to sit down with a plant physiology book and a couple of plant biology books from my library a few days ago to remind myself of what is known about this marvelous change in color nature gives us each fall. Even though the books are fifteen years old, it was a good refresher course. An hour of reading helped bring back to my memory how the color and tintings of autumn come, grow in brilliance, tarnish and fade. I guess some of this miracle may never be completely understood. I really prefer it that way — science should not be able to explain everything in nature.

I found that the easiest autumn

color to explain and understand is yellow, the beautiful golden color of hickories and birch and aspen. Carotene, the pigment that most of us associate with carrots, and xanthophyll are present in leaves all summer. In fact, there is a greater amount of these two pigments in green leaves in the summer than there is in the fall. In the summer they are masked by the presence of chlorophyll — the source of green color. During the summer, tree leaves produce and use chlorophyll continually. When fall's cooler temperatures arrive, the production of chlorophyll is retarded more than is its use, and the chlorophyll is broken down into colorless compounds. The green color then disappears from the leaves and the yellow pigments are able to dominate. Xanthophyll is more plentiful in the leaves than is carotene, but the two together give us the golden leaves that are so spectacular against the green grass of our golf courses.

The red colors of autumn leaves are the result of new compounds that aren't present in green leaves in the summertime. They are called anthocyanins, which are cell sap pigments. The green of chlorophyll and the yellow of xanthophyll and carotene are contained in the protoplasm of the cell, whereas the anthocyanins are carried in the solution of the cell sap. Therefore, all of the shades of red and scarlet and rose, which for me are the most startling colors of fall, are the result of tinted sap within the leaves. These are the same materials that give red color to red cabbage and cranberries. They are responsible for the color of grapes, of radishes and of poinsettias. They are responsible for the purple tinge some bentgrass varieties take on during the cool months of fall. Some plants produce anthocyanins in great quantities, like those mentioned above. Other plants, like the hickory tree, don't produce any of it. A rather interesting and curious characteristic of anthocyanin is that it develops only when the sunshine strikes, which explains why the flaming colors of a sugar maple are brightest at the ends of its branches where the most sunlight is received.

There is another important factor involved in fall color — cold temperatures. When the

temperature drops to 45 degrees F. or cooler (which it did last night!), it interferes with the removal of sugars and other substances from the leaves. This favors the accumulation of pigments in the cell sap. A sudden drop in temperature just after sunset is especially productive of bright autumn leaves. So are crisp and sunny days. Mild and cloudy days produce duller foliage, mainly yellows and browns. Years ago it was thought that frost was necessary to give us good fall foliage. Now it is known that just the lowered temperatures will achieve this, with or without the frost. In fact, a hard frost or freeze early in the fall tends to destroy yellow pigments and prevents the formation of anthocyanins. In these kinds of autumns we tend to have trees that merely turn brownish without the reds and yellows in the quantities we need to have an awesome color display.

The exact process by which the tide of autumn color recedes and is overtaken by varying shades of browns isn't (or wasn't when my books were printed) perfectly understood. Knowing how this final process of fall foliage works seems to matter little to me — I'm usually so saddened to see the parade of colors end that it isn't very important, in my mind, what happens at the final ebbing.

There is no need to focus on late fall or early winter right now anyway. Take heart! The rough and enervating summer has ended; the best time of the year is here. Savor the relief after summer's demanding days on your golf course. We have two beautiful months before us, two months filled with exciting WGCSA happenings. The Symposium will be here before we know it, and the program for this year is outstanding. We have two monthly meetings with golf remaining. Many of us can hardly wait for our social gathering of the season at Devil's Head, a weekend of well deserved fun that Rod Johnson has worked on tirelessly for most of the year. Maybe some of you will be doing as Cheryl and I will be doing in a few weeks — taking an annual "leaf-peekers" trip to New England. Whatever your plans are, enjoy this autumn — it is the mellowest time of the year.



Monroe S. Miller, President