DOC'S DUGOUT - An Inning From Our Past

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How Did Some of Today's Ideas, Technology & Products Originate?

Great Depression /Post World War II Years

The state of affairs in turfgrass management in the year 1935 was somewhat bleak as the "Great Depression" lasted nearly 15 years. Professor H.B. Musser was in charge of turfgrass research at Penn State. Dr. Fred Grau received his Ph.D. from the University of Maryland and was hired as Penn State's first extension agronomist in turf. His responsibilities as turf extension specialist were to evaluate problems in the field and discuss them with research personnel who would then try to solve them. Musser and Grau addressed a meeting of Pennsylvania and Ohio turfgrass managers on the subject of developing classes at Penn State for young men who would like to become turf managers, they were repulsed by the curt statement, "we don't want young college-trained whippersnappers coming in to take our jobs."

During this time many turfgrass managers were sowing seed on hard-packed soils with a wheelbarrow seeder. Very little of the seed grew because there was no soil cultivating equipment and the maintenance of grasses consisted of more "secrets than science." Fertilizers for the most part, were high-phosphorus farm grades, sulfate of ammonia, and activated sewage sludge. In Philadelphia, Charles Hallowell was the county agent involved with turf, while in Pittsburgh, Henry Eby had the same interest and function. The use of sodium arsenite for weed control in turf was a popular topic for discussion at meetings and for demonstrations on athletic fields and golf courses. Leo Previti from Municipal Stadium was among the early leaders in the use of sodium arsenite.

World War II

The war effort took nearly all of the turfgrass people for service in several branches of the military. Dr. Howard Sprague and Professor Musser were liaison men with the air force. Dr. Fred Grau worked with Dr. John Monteith, Office Chief of Engineers, on dust and erosion control. STMA's Dr. James Watson served as a bombardier in the air force during the War. Throughout the country turfgrass areas suffered from neglect, lack of personnel, not enough fertilizer, no parts for equipment and gas rationing. Finally, when people got back to their civilian duties, they found weeds, thatch, insects, disease and rusted equipment. The situation was deplorable, but not hopeless.

The Arlington Turf Gardens were abandoned in the early 1940's to make room for the construction of the Pentagon. All promising grasses and research studies were moved to the Plant Industries Station at Beltsville, Maryland.

Post War Years

Recovery was underway by 1945 and Dr. Fanny Fern Davis, who had been acting Director of the USGA, Green Section, along with Drs. Mitchell and Marth, USDA, were working on the early stages of 2,4-D for broadleaf weed control. Its discovery and development was to have a tremendous impact on all kinds of turf for broadleaf weed control. Dandelions and plantain could be eliminated, with certain exceptions, without harm to the grasses.

The turf plots, which had been transferred from the Arlington Turf Gardens now located in Washington D.C., were in need of updating. The next eight years saw the greatest "explosion"of advancement in turfgrass science, technology and professionalism the world has ever known. The major focus of the work was for the benefit of golf courses and their personnel, but it also benefitted other phases of turf culture, including athletic fields.

With Charles Hallowell's assistance, Dr. Grau received a visit one fall day from brothers Tom and Tony Mascaro from West Point, PA. Grau (in personal papers) recalled the Mascaro brothers had in mind building something for turf---perhaps a leaf baler. Compacted soil was on Grau's mind and, as a result, the Mascaro brothers went home with some crude sketches of a device to aerate or cultivate turfgrass soils without destroying the sod.

Grau (personal papers) later saw their shop and the chief feature he remembered was a hand saw run off the left rear wheel of a model-T Ford. At any rate, the brothers succeeded in building the FG Aerifier, which was demonstrated at a Beltsville Field Day and a field day at Penn State in 1947. This development was destined to be a great one for all turf, but particularly for golf courses and athletic fields where there was the greatest need. Tom Mascaro hauled the machine to Pittsburgh and Chicago and even to North Carolina where one-inch spoons on a tractor-drawn machine did a job on turf areas. Horrible as it looked, the grass

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always recovered and was greatly improved. Now the water, lime, fertilizer and air could reach the grass roots through the perforations. Yes, it was a minor miracle.

At the same time something else was going on at Beltsville that was to have a tremendous impact on turf of all kinds everywhere. Dr. K.G. Clark had succeeded in making a fertilizer from urea and formaldehyde, which came to be known as ureaform. In 1947 the ureaform (38-0-0) was first applied to test plots on the front lawn of tall fescue at the Plant Industry Station at Beltsville. It was a historic event as the turf world now had a safe, non-burning, slow-release, long-lasting nitrogen source which has been used in nearly every specialty turf fertilizer from that day forward.

In 1946, Dr. Grau was asked to seek out the possibility of turf investigations in the south. He made the trip by car and went all the way to Miami, FL. On his return trip he spent some time in Tifton, GA, with Dr. Glenn Burton, who was USDA's geneticist in charge of pasture and pearl millet research. Among Burton's bermudagrass selections for pasture and forage there were a few isolated low-growing, fine-bladed types which seemed to have promise for turf. On the way back to Beltsville, Grau assessed his findings and made the resources available (initially $500) to finance Dr. Burton's initial work in the field of warm season grasses.

Turf managers everywhere know of the benefits that have been derived from this early work at Tifton. Tifgreen, Tifway and tifdwarf were the first of the hybrid bermudagrasses which have been followed by many recent introductions. These early accomplishments in plant selection were highlighted at the 30th Southeast Turfgrass Conference at Tifton, GA, in April of 1976.

At the National Turfgrass Field Days at Beltsville in the early 1950s, one of the features was a demonstration of the playability of properly maintained U-3 bermudagrass turf. First, several professional golfers were asked to hit various shots from a natural lie.

Then the University of Maryland football players were invited to try to tear up the turf with their cleats during sharp turns and sudden stops. All concurred that the U-3 bermudagrass turf was about the best for both golf and strenuous athletics. In the years to follow, this warm season grass was widely distributed. Its popularity waned in 1963 when an early warm spell started active growth only to be killed by a late heavy freeze.

Grau (personal papers) fondly recalled that while attending the first turf conference in Texas in 1946 he met a turf student by the name of James R. Watson. Jim was about to graduate and was interested in post-graduate studies. Grau phoned Professor Musser at Penn State and learned that they could accommodate a graduate student. It was three years later that Jim received his Ph.D. degree working on problems of irrigation on turf. Jim was the first person in the United States to receive a Ph.D. in turfgrass science rather than in pasture or forage grass management. From this time forward others have followed in Jim's footsteps with their academic endeavors.

A project that was destined to have great significance for golf clubs and athletic turf areas everywhere was conducted at Beltsville by the USGA Green Section with the assistance of Dr. Roger Humbert, soil scientist, USDA. Cup-cutter plugs, full depth, were collected from golf courses scattered all over the United States. It was requested that turf managers send in two plugs, one from a green that was hardest to maintain and one from a green that was easiest to keep. Physical analysis of sands, silt, and clay were run together with photomicrographs of thin sections of representative plugs. The findings were that the "easy-to-keep" greens were always characterized by higher sand content and much lower silt and clay fractions. This work paved the way for future work with sand. Sand was recognized as one of the most important factors in building turf that would be easier to maintain.

Many of the aforementioned ideas, technologies and products paved the way for today's turfgrass industry and particularly the STMA. At the recent STMA conference in Las Vegas it was exciting to see so many students scattered among the new comers and old timers. It was most satisfying to see the number of women in attendance and to know they are finding equitable positions commensurate with their education and abilities. We are indeed grateful to the pioneers in our industry who throughout the years paved the way for a better life for all of us. Thanks.