



Supts. Joe Butler and Homer Whitson (r) are seen with their wives at the Hospitality Hour get-together. Mrs. Whitson is at left and Mrs. Butler in the center. Mrs. John O'Connor also appears in the photo.

so that hours, and even days, aren't completely lost when the regular routine is disrupted.

Finally, he suggested that the green-masters give no little thought to preparing detailed reasons why certain jobs aren't completed on time. "These should be foreseen and prepared in advance," he concluded. "Nothing beats them for getting people off your back."

Dance of the Tractors

The Milwaukee Sewerage film, shown and narrated by Charlie Wilson, encompassed the best of no less than six photographers. The entire sweep of course maintenance was covered in the 30-minute epic, and such idyllic spots as Quail Hollow in Charlotte, S.C., Saucon Valley and Bob O'Link in Chicago were visited by the cameramen. The viewer saw such disheartening sights as the ravages of winterkill and the effect that an overdose of chemicals can have on turf, and he was asked to sit through mundane showings of turf plots, the laying on of topdressing and the assault on the sod webworm.



Kids attended the convention, too, although there was no explanation of how they managed to duck out of school. Maybe photo was taken on Sunday.

But he was rewarded, too, and his heart was lifted up by a tractor-mower ballet that was performed at Westchester CC. In this, four pirouetting tractors, trailing agile seven-gang mowers, danced beguilingly across the broad savannahs to music, as it always is with a Sewerage Commission movie, that was exhilarating. If Charlie Wilson, who spliced the film and arranged the music ever deserts agronomy he should have a job waiting for him. He's a combination of Disney and Stokowski.

Third Session

The Agronomists Agree: Balance is Basic

The technical aspects of turf management were discussed for the first time in the third meeting. Chairman Beryl S. Taylor, Iowa State U. course supt., introduced Dr. Roy E. Blaser, Virginia Polytechnic agronomist, Dr. Marvin S. Ferguson, national research coordinator for the USGA, and Dr. James R. Love, who is carrying on a research project at the U. of Wisconsin with the aid of Noer Foundation funds.

Caution in Application

Discussing the ecology of nitrogen breakdown, Roy Blaser emphasized that the application of fertilizer is not to be taken lightly, but is a continuing study of timing and effect. Perhaps because soil reaction is not fully understood, even constant application rates from year to year and in different seasons, may give rise to widely disparate results. It is because of this that the supt. is wise to practice some caution in his fertilizer program and not go to extremes at any time.

Overstimulation of turf, Blaser declared, undoubtedly is the chief cause of



Here's the Kansas delegation — Mr. and Mrs. Henry J. (Bud) Elmer, Mr. and Mrs. L. E. (Red) Lambert, Mr. and Mrs. Paul H. Beer, and Mr. and Mrs. Everett L. Queen. Lambert is a former GCSA president.

wilt, even if it may be an indirect one. This condition goes back to the formation of thatch which, to a great degree, is a product of overfeeding. What happens is that when thatch builds up, roots become more shallow because infiltration of water and air circulation are reduced. In mid-summer, with the onset of the wilting season, the thatch layer may be so heavy that the depleted turf roots aren't capable of supplying sufficient moisture to compensate for the water that the grass blades lose through transpiration.

Contrast in Grasses

Contrasting cool season grasses with Bermuda, Blaser said the reason that the latter can survive comparatively high nutrition rates during periods of extreme heat, while bluegrasses either perish or fade out, is that it is capable of reducing its starch reserve, but not to the dangerous extent that cool grasses do. The respiration rate of Bermuda also is lower in periods of extreme heat than is that of bluegrass.

Apparently even strong strains shouldn't be exploited by any forced feeding program. Balance, after all, Blaser stated, is the desirable thing. Cool grasses can withstand heavy fertilizer doses in the spring, but it should be remembered that these only encourage heavier incursions of poa annua.

Neglect P and K?

Since many agronomists, like everyone else, are impressed by the spectacular, or products that are well publicized, they are inclined to overlook the need for phosphorus and potassium and probably put too much dependence in nitrogen, said Marv Ferguson in discussing the major elements. "There is a chance," he added, "that these same agronomists are

lucky that the soil is provident enough to supply its own P and K.

"Calcium, magnesium and sulphur are other elements that the soil needs in rather large quantities," the USGA man continued, "but these, too, and particularly calcium, are somewhat neglected. The soil and turf, like man, need a well balanced diet and if it isn't supplied, weaknesses are bound to show up. It has been well established that turf that has been fed all the elements survives either heavy acid or heavy alkali conditions and withstands disease, insect attacks and other setbacks more readily than those that are deficient in one or more of the elements."

These Elements Are Enigmas

Ferguson pointed out that at one time fertilizers contained a higher phosphate content than they do today because it was believed this element produced stronger root growth. Eventually, this

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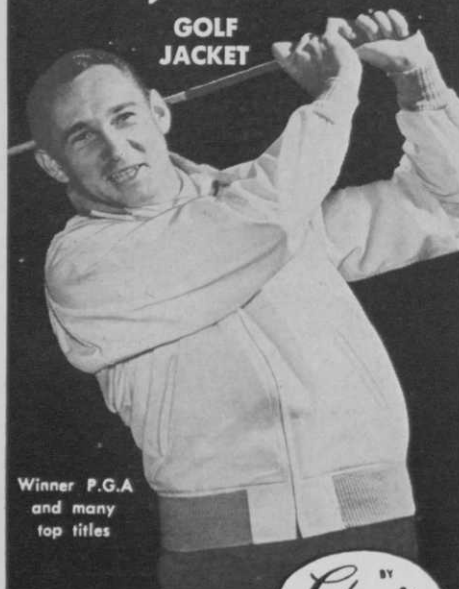


Something seems to be amusing these fellows. Lawrence T. (Ted) Cox of Chillicothe, O. is at left and Lewis Payson, Rolling Green CC, Media, Pa. is in the center. Man at right is unidentified.

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GCSA Convention

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thinking fell out of favor to the extent that the element has become somewhat neglected. Potassium, too, has long been something of an enigma. Some people argue that although plants readily absorb it, it is in reality a luxury product. Others, though, say that since potassium stimulates the production of necessary carbohydrates, it fortifies the plant against several types of disease, plus winterkill.

Ferguson's conclusion: No element can be totally neglected. A few veteran turfmen can detect when one or more elements are lacking. For those who can't, the soil test is the only reliable guide.

Nutrient Deficiency Effect

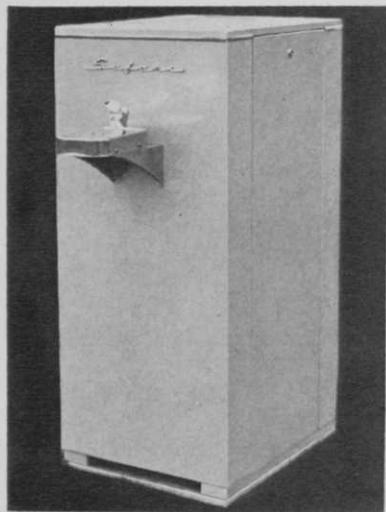
According to Jim Love of the University of Wisconsin, a good deal of work has been done in detecting nutrient deficiencies and their effects in plants other than turfgrass, but it has only been in recent years that grasses have been studied in this light. Early investigations made by Love covered the effects of withholding the major elements, nitrogen, phosphorus and potassium, in addition to calcium, magnesium and sulfur. A report of these studies appeared in the Sept., 1962, issue of *Golfdom*.

Research Being Continued

More recently, Love has expanded his investigations to take in such elements as iron, manganese, sulfur and zinc. Plants originally are grown in a complete nutrient solution and then each of the elements mentioned above is withdrawn, one at a time. The experiment is repeated so that the chance of making incorrect observations is minimized. When an iron deficiency shows up, the blade at first turns yellowish-green and then lapses into a dead white. Lack of manganese also produces a yellowish-green effect, which is similar to that when potassium is withheld, and eventually the blade begins to fold and then becomes limp. When zinc is withdrawn, the blade takes on a metallic sheen, and when the plant is taken off sulfur, it develops a powdery mildew effect.

Other conclusions that were reached as the result of Love's studies: In untreated areas such as roughs, iron is the most plentiful of the minor elements, its content being 25 times greater than such as magnesium and almost infinitely more

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abundant than copper and zinc. Potassium content of untreated soil is ten times that of nitrogen and 20 times greater than phosphorus.

Fourth Session

It Was Mike O'Grady's Finest Hour

The Thursday morning session was dedicated to turf management students, several of whom came from nearby Penn State and a few from the U. of Massachusetts, to witness the GCSA proceedings. It was fitting that scholarly **Fred Grau**, Hercules Powder Co. consultant, was in charge of the program. His speakers' roster included **Michael J. O'Grady**, supt. of the CC of New Bedford, Mass.; **Prof. Joseph Troll** of the Stockbridge School of Agriculture of the U. of Massachusetts; **Dr. Joe Duich** of Penn State; **Sheldon R. Betterly**, supt. of Chantilly National G & CC, Centreville, Va.; and **Sherwood Moore**, past GCSA president and Winged Foot's supt.

Mike Gets A Shock

There isn't much doubt that Mike O'Grady made off with this year's GCSA show. Upon being introduced, Mike was billed as a native of County Cork, but he quickly disavowed this, saying he was born dangerously close to Northern Ireland and, as a consequence, damn near became disqualified for the Irish Republican Army. At this, Mike momentarily buried his intertwining shock of gray-red hair in his hands, quivered, quailed and emitted a banshee cry but then manfully recovered. To show you that a man can forgive and forget, three minutes later Mike was allowing that the present Queen of England is a charming lady, indeed, and that he has no immediate quarrel with the Duke of Edinburgh.

O'Grady's stint for the day was to dis-course, with the aid of slides, on the history of turf maintenance and equipment. He went back to near medieval times, picked up the Pennsylvania side-winder, the Wellington mower and the worm rake and came forward to an era approaching the horse and haycutter. Then he digressed to call down blessings from all the heavenly quadrants upon Morley, MacGregor, Piper and a half