# Col. Theodore Bank Named Head of The Athletic Institute, Inc.

★ At a meeting of the board of the directors of The Athletic Institute, Inc., in January, Col. Theodore (Ted) Bank was named president to succeed the late Major John L. Griffith, president of The Institute from 1940 until his death, Dec. 7, 1944.

Col. Bank, who has been in the Army since March, 1941, was released from the service Jan. 1, 1945, to take over his new position. A World War I veteran with



COL. THEO. BANK, Pres., The Athletic Institute.

the rank of 1st lieutenant, he was on the reserve officers list when recalled into service in 1941 as a major, being assigned to the work of organizing athletics and recreation for the Army in the United States and in all overseas theaters of war. He served in this capacity for three years and last year became assistant to Major Gen. Joseph W. Byron, head of the special services division, of which athletics and recreation is a branch.

In 1944, Col. Bank spent six months overseas studying the operation of the athletic and recreational program in the Antilles, Africa, Italy and France, returning to America in December. He had participated in the D-Day invasion of southern France, making the trip by glider. He reorganized the American

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army athletic program in England and France. He compiled army physical training circular 87, which is the basis of training of this type; collaborated with the federal Office of Education in preparing pamphlets on the same subject for use in high school and college programs. He is a member of the National Committee on Physical Fitness and the Committee on Living War Memorials.

Col. Bank played football under Fielding H. Yost at the University of Michigan from 1920 to 1922. After graduating, he joined the coaching staff of Tulane University as head coach in baseball and boxing and assistant to Bernie Bierman in football. From Tulane he went to the University of Idaho as athletic director and head football coach. It was from Idaho that he entered the Army during World War II.

## Eddie Williams Repeats As Pro Senior Champion

★ Dunedin, Fla.—Birdies on the last two holes gave Eddie Williams, Bryn Mawr CC, Chicago, 75-73—148 and a two stroke margin over Jock Hutchison, Glenview (III.) GC, for the PGA Senior championship. Jock had a pair of 75s over the par 72 course as his showing. The veteran Charley Mayo, Garden City, N. Y., with 78-73, was third. Williams was the defending champion.

The tournament was played over the course the PGA has been considering buying as a winter headquarters. A day's fishing preceded the two-day 36-hole tournament as a preview of another attraction of the Florida spot which is making a bid for pro residence during off-season on northern jobs.

Some excellent golf was shot by the elders at intervals but inability to get much play during the war years and added duties was reflected in the performances of the professionals of 50 years and older.

Among other finishers were:

James Cockburn, St. Louis, Mo76	79	155
Smiley Rowland, Ft. Worth, Texas80	75	155
Joe Donato, Norwich, Conn	75	158
E. W. Habert, Battle Creek, Mich	82	163
George Sergeant, Atlanta, Ga83	81	164
H. E. Williams, Reading, Pa84	82	166
B. Way, Cleveland, Ohio91	84	175
William Scott, Baltimore, Md	88	177
B. Cuthbert, Philadelphia, Pa90	87	177

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# TOUGH YEAR Shows Pro Problems Mounting

#### By WILLIE OGG

★ THE 1944 SEASON will go on the records as one of the toughest golf pros have ever had to weather. Scarcity of merchandise plus decline in number of lessons given, made serious inroads on pros' income, and danger signals are flying all over the land. Many pros augmented their income by taking jobs in war plants but there were also many who were unable to do this because of the extra jobs piled on to the pro either through lack of labor or insufficient club revenues.

Clubs as a general rule did not raise their dues to offset the decline in dollar values with the result that they were unable to compete for labor. This factor, combined with the classification of golf course labor as non-essential, created conditions which re-acted unfavorably on those left to carry on the work.

We hear of many clubs where the members pitched in to help the pros and greenkeepers to carry on but the general rule has been the opposite. Too often do we hear bellyaching because pre-war conditions have had to be sacrificed. An atmosphere of repugnance has thus been generated among those, who are trying so hard to keep things going until the war is over.

There are a few spots where pros got by this season, but these are few and far between and the question arises as to what to do about it. It is obvious that we cannot hope for pre-war conditions and it is also obvious that the pro shops must remain open until the big scrap is over.

I would suggest that the manufacturers co-operate by giving the pros all the merchandise possible and the creation of new lines to build up the gross volume with the salesmen helping out with suggestions on selling, d is p l a y and the amount of stock to keep on hand.

The PGA through its Educational committee must go into the various sections for enlightening pros as to the latest merchandising methods. The PGA Manufacturers committee needs to keep in constant touch with the manufacturers and iron out the kinks that arise from time to time. The pros themselves must, to keep an accurate record of each club members' purchases so that they will have the data necessary to present to club officials for the grand awakening to come. Even before the war the majority of pros were hanging on the financial ropcs. The reasons for this are varied and many. However, investigation will show that the per member purchases in the pro shops were away too low to permit of profitable operation.

The average club member believes sincerely that every pro shop is a bonanza and that whatever is bought there is nearly always at a premium. We know that the reverse is true but who is to spread the gospel? I believe that it calls for a joint effort of all concerned to get the truth before the powers that be and that an investigation be made and data prepared of all the pro shops, not only of the gross volume but also the per capita purchases.

It must be made possible for high grade men to stay in the profession. Unless a clear picture is presented to club officials of the true state of affairs I am afraid we will continue to work under the old set-up and that we will see a gradual shift of our best men into other lines.

Indications are that the high wage level will continue in the postwar period and this will call for a general revision upwards of operational costs and club dues. It is surprising how little has been done to meet the new conditions that will surely arise.

#### V Mail from New Guinea

It has been a long time since I have had any golf news, but I certainly hope that all of you have had a very successful season despite war conditions. As for myself, I am still in New Guinea which to me is the hell hole of creation. Dutch money is used here, but it might as well be coconuts for there's nothing you can buy. These jungles are really rugged and there are plenty of Japs in this neck of the woods, and at times some excitement. I have spent some time lately on the front lines and there are none of the comforts of a country club to be found in the fox holes. It has been a long while since I have had my hands on a golf club, and I am just aching to trade this rifle off for one.

#### (Signed) Bill Loefler

Bill is a nephew of Emil Loeffler, Green's Supt., Oakmont C.C., Pittsburgh. Last report on John, Bill's brother, told of him laying out a course in Africa for American troops.

# Yield and Chemical Composition of Clippings from a Green of Washington Bent Grass

#### By O. J. NOER

**C**ROPPING DATA DEALING with pasture herbage is voluminous. It includes innumerable analyses of grass and yields of dry matter on the acre basis. The information is of doubtful value for golf course and lawn use, because pastures contain many different species, including a large proportion of clover; fertilization is less generous, especially with respect. to nitrogen; pastures are not watered and grass is allowed to attain a growth of two to four inches, or more, between sampling for analysis.

Archibald and Bennett grew several species of forage plants. All but Dutch white clover are commonly used on golf courses. They were grown in pure stand on a sandy loam in Massachusetts, but without fertilizer of any kind. Plats were mowed when the grass was 3 to 4 inches high. Clippings were dried in an oven at 60 to 70 degrees C. The following results represent the average composition for three years. Yields were not given.

	Rhode Island Bent
Moisture in Fresh Grass Nitrogen (N) Phosphoric Acid (P <sub>2</sub> O <sub>5</sub> ) Potash (K <sub>2</sub> O) Calcium Oxide (CaO) Magnesium Oxide (MaO)	2.50 .87 2.69 1.05

The nitrogen of blue grass was very low, so 8-6-4 fertilizer was used at 500 pounds per acre on a part of one plat in the spring of the third year. The average nitrogen in the fertilized grass was 3.51 percent, as compared with a three-year average of 2.32 percent for the corresponding unfertilized turf.

Clippings from fertilized grass invariably contain more plant food than those from unfertilized areas. The effect of nitrogen is most striking in this respect.

The Green Section collected clippings from some of the better treated putting green plats at the Arlington turf garden in Washington, D. C., from June 1 to November 1, 1930. The clippings were

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dried, then weighed and analyzed. Findings were reported in the Bulletin, Volume 11, pp. 106-109 (1931), in this manner: "Results indicate that the amount of field dry material removed from eighteen greens totalling 90,000 square feet (5,000 square feet per green) would be about 4 tons, and contain the following equivalent amounts of plant food: Nitrogen as obtained in 2,000 pounds of 20 percent sulfate of ammonia, phosphoric acid as obtained in 200 pounds of 20 percent superphosphate, and potash as contained in 400 pounds of 50 percent muriate of potash."

These amounts correspond to the following rates per 1,000 square feet-4.44 pounds of nitrogen, 0.44 pounds of phosphoric acid, and 2.22 pounds of potash. The figure for phosphoric acid seems unusually low.

The quantities of fertilizer mentioned above for eighteen greens total 2,600

Red Top	Kentucky Blue Grass	Sheep Fescue	Dutch White Clover
71.99	68.59	65.26	83.21
2.49	2.32	2.09	4.46
.80	.87	.76	1.03
3.14	2.56	2.30	2.69
.87	.69	.67	2.25
.35	.30	.25	.42

pounds, or 145 pounds for each one. The analysis of the mixture is 15.3-1.5-7.6.

In the spring of 1944 arrangements were made to obtain similar data from the sixth green at the Brynwood CC in Milwaukee. Lester Verhalen weighed the clippings every time the green was mowed. Monthly composite samples were collected by taking exactly five pounds of clippings each week. These samples were analyzed in the Milwaukee Sewerage Commission laboratories under the supervision of H. M. Heisig, chief chemist.

Originally it was intended to determine calcium, magnesium, and other mineral elements in addition to nitrogen, phosphoric acid, and potash. The clippings were found to contain a few small pebbles and some sand from a trap alongside the green. The sand in this area is high in lime, so only the three principal fertilizer elements were determined.

The mowed area contained 6,360 square feet of Washington bent grass. The stolons used on the green came from the P. C. Leonard Nursery in Lake Geneva, Wis. His original planting stock was obtained direct from the Green Section in Washington. Phosphate and potash were applied in the spring, and again in September. It was intended to use an 0-14-14, but an 0-8-24 was the only mixture without nitrogen available in the spring. It was decided to use equal quantities of it and 20 percent superphosphate. The resulting mixture would be an 0-14-12. An 80-pound bag of 0-8-24 was applied April 15th, but, due to an oversight, the 80 pounds of superphosphate were not used until June 22nd. Two 80-pound bags of 0-12-12 were applied September 20th.

A 100-pound bag of Milorganite was used each month beginning April 15th and ending September 20th, making 600 pounds in all. The rate was 15.7 pounds, or approximately 1 pound of nitrogen per 1,000 square feet per month.

Both yield of clippings and percentage plant food content are influenced by the quantity and kind of fertilizer used, and by the amount of soil moisture. During the season the following quantities of plant food were applied per 1,000 square feet: 5.64 pounds of nitrogen, 9.37 pounds of phosphoric acid, and 6.04 pounds of potash. The fertilizer program is summarized in Table I.

There was one mild attack of brown patch in August. Dollar spot was never serious and was easily controlled. Drought prevailed during June, and from mid-September through October. Localized dry spots developed in June. They were forked and drenched with water, but 10 to 14 days elapsed before recovery occurred. The green got very little water after mid-Septem-ber. The lower yields in June may have resulted from localized dry spots, and were due to restricted supply of soil moisture in September and October.

The clippings were air dried and reduced to a dry basis in an oven. Contamination with sand from the trap did not materially affect the weight of dry matter. The increase due to it was found to be less than 3 percent. The fresh and dry weight of clippings and percentage moisture content of freshly clipped grass are reported by months in Table II. The dry matter produced from April 27 to November 4 was 96.7 pounds per 1,000 square feet, or 8,703 pounds for eighteen greens containing 90,000 square feet. The amount is about the same as the 4-ton figure reported by the Green Section.

The chemical analyses of the dry clippings and the corresponding amounts removed in clippings from 1,000 square feet are reported by months in Table III. The quantities of Milorganite, superphosphate, and muriate of potash that furnish the corresponding amounts of nitrogen, phosphoric acid, and potash removed in clippings from 1,000 and 90,000 square feet, or eighteen greens averaging 5,000 square feet each are given in Table IV.

The plant food in the clippings from eighteen greens is equivalent to 7,245 pounds of Milorganite, or 2,175 pounds sulfate of ammonia; 810 pounds of 20 percent superphosphate, and 584 pounds of 50 percent muriate of potash. An all chemical mixture (sulphate of ammonia, superphosphate, and muriate of potash) would total 3,569 pounds, or 198 pounds per green. The exact analysis of it would be 12.2-4.6-8.1, or with nitrogen expressed as 15, the ratio becomes 15-5.7-10. The relationship between nitrogen and phosphoric acid is 2.65 to 1, whereas the Green Section figure is 10 to 1, based on their ratio of 15.3-1.5-7.6.



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#### TABLE I.

Fertilizer Used o	n No. 6 Green at Brynwood, and Quantities of Plant Food Applied per
	1,000 Square Feet per Month and for the Season.
	(Mowed Area 6.360 Square Feet)

Date	Nona I and the second	Amount Used		Plant Food Applied per 1,000 Sq. Ft.		
Applied 1944	Material and Analysis	On Green Pounds	Per 1,000 Sq. Ft. Pounds	Nitrogen	Phs. Acid Pounds	
Apr. 15	Milorganite 6-3-0	100	15.7	0.94	0.47	
May 15	Milorganite 6-3-0	100	15.7	0.94	0.47	
June 15	Milorganite 6-3-0	100	15.7	0.94	0.47	
July 18	Milorganite 6-3-0	100	15.7	0.94	0.47 .	
Aug. 17	Milorganite 6-3-0	100	15.7	0.94	0.47	
Sept. 20	Milorganite 6-3-0	100	15.7	0.94	0.47	
	TOTALS	600	94.2		12/3/2	
Apr. 15	Commercial Mixture 0-8-24.	80	12.6		1.01	3.02
June 22	Superphosphate 0-20-0	80	12.6	1.2.2.3	2.52	0101
Sept. 20	Commercial Mixture 0-12-12	' 160	25.2		3.02	3.02
	TOTAL			5.64	9.37	6.04

#### TABLE II.

Weight of Fresh Clippings and Their Moisture Content. Yield of Dry Matter from the Green of 6,360 sq. ft. from 1,000 sq. ft., and from 18 Greens Averaging 500 sq. ft.

	Fresh Clippings		Dried Clippings		
Month, 1944	From No. 6 Green Pounds	Moisture Percent	From No. 6 Green Pounds	Weight per 1,000 sq. ft. Pounds	
April	70	74.43	17.9	2.8	252
May	395	74.51	100.7	15.8	1,422
June	383	77.46	86.3	13.6	1,224
July	461 3/4	77.53	103.7	16.3	1,467 1,845
August	443	70.61	130.2	20.5	1,845
September	325	76.43	76.6	12.0	1,080
October	1521/4	65.00	68.6	10.8	792
November	48	65.00	31.2	4.9	441
TOTAL	2,278		615.2	96.7	8,703

TABLE III.

Percent of Nitrogen, Phosphoric Acid, and Potash in Grass Clippings by Month and the Corresponding Amounts from 1,000 Square Feet.

Month	Nitrogen		Phosphoric Acid		Potash	
1944 -	Percent	Pounds	Percent	Pounds	Percent	Pounds
April May June July August September October November	3.88 3.88 4.75 5.30 5.55 5.01 5.47 5.47	$\begin{array}{c} 0.11\\ 0.61\\ 0.65\\ 0.86\\ 1.14\\ 0.60\\ 0.59\\ 0.27\end{array}$	$1.53 \\ 1.53 \\ 1.77 \\ 1.95 \\ 1.84 \\ 2.28 \\ 1.98 \\ 1.98 $	$\begin{array}{c} 0.04\\ 0.24\\ 0.24\\ 0.32\\ 0.38\\ 0.27\\ 0.21\\ 0.10\\ \end{array}$	$2.96 \\ 2.96 \\ 3.51 \\ 3.42 \\ 3.31 \\ 3.56 \\ 3.44 \\ 3.44$	$\begin{array}{c} 0.08\\ 0.47\\ 0.48\\ 0.56\\ 0.68\\ 0.43\\ 0.37\\ 0.17\end{array}$
TOTAL Average per Month		4.83	•	1.80 0.30		3.24 0.54

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Month 1944	Milorganite (Pounds)		Superphosphate (Pounds)		Muriate of Potash (Pounds)	
	1,000 Sq. Ft.	90,000 Sq. Ft.	1,000 Sq. Ft.	90,000 Sq. Ft.	1,000 Sq. Ft.	90,000 Sq. Ft.
April May	1.8 10.2	162 918	$0.20 \\ 1.20$	18 108	0.16 0.94	14.4 84.6
June July	10.8 14.4	972 1,296	$1.20 \\ 1.60$	108 144	0.96 1.12	86.4 100.8
August September	19.0 10.0	1,710 900	$1.90 \\ 1.35$	$\begin{array}{c} 171\\121.5\end{array}$	$1.36 \\ 0.86$	122.4 77.4
October November	9.8 4.5	882 405	$\begin{array}{c} 1.05\\ 0.50\end{array}$	94.5 $45$	$\begin{array}{c} 0.74\\ 0.34\end{array}$	66.6 30.6
TOTAL	80.5	7,245	9.00	810	6.48	583.2
Average per Month	13.4	100 10 10 10 10 10 10 10 10 10 10 10 10	1.50		1.08	

Quantities of Fertilizer Needed Each Month to Furnish the Plant Food Contained in the Clippings from 1,000 Square Feet and from 18 Greens.

A comparison of the plant food applied in the fertilizer and the amounts found in the dry clippings is interesting. The figures below are based on eighteen greens of 5,000 square feet each:

	Applied in Fertilizer Pounds	Amount in Clippings Pounds
Nitrogen	508	435
Phosphoric Acid	844	162
Potash	544	292

The clippings contained almost as much nitrogen as was applied in the fertilizer. There was five times more phosphoric acid, and two times more potash applied than was found in the clippings. An explanation for the unusually high figure for phosphoric acid lies in the fact that the 8,478 pounds of Milorganite applied during the season contained 254 pounds of phosphoric acid, or 92 pounds more

# Dutra Sees Quick Come-Back For Service Pros

In the opinion of Olin Dutra, Wilshire CC pro and former Open and PGA champion, excellent physical condition sparked by a burning desire to get back into the game will work wonders in speeding the readjustment of pro golfers now in the armed services. Dutra says: "I feel certain that most of the good golfers will make an outstanding comeback. And, what do I attribute it to? Simply this: In the first place the boys will be so anxious to get back to golf that they will have a club in their hands day and night. It will be quite a relief from the feel of a heavy old 'war club' they have been handling of late.

"Secondly, The boys will be in splendid

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than was recovered in the clippings. An additional 590 pounds was applied as superphosphate and in the phosphate-potash mixtures.

Since greens are not all of the same size, figures based on 1,000 square feet are the most interesting and useful ones. An application each month from April to September, inclusive, of 13 pounds Milorganite, or 4 pounds sulfate of ammonia,  $1\frac{1}{2}$  pounds 20 percent superphosphate, and a triffe over 1 pound of 50 per cent muriate of potash contain the same amount of plant food as was removed in the clippings. These figures make no allowances for plant food added in the topdressing; losses from leaching, or from fixation as phosphoric acid and potash into difficultly soluble forms by the soil itself. The significance of the results and their application in formulating a fertilizer program will be discussed in a subsequent article.

physical condition when they get back and that is quite essential to golf champions. The boys will delight in practicing in view of their strenuous Army or Navy training program, the discipline, and the regular and long hours they have been putting in.

"Yet, it may take the boys the biggest part of the first year to get the feel of things in view of the fact that they have lost the feel of the club, and that they have been coordinating a different set of muscles from what they have been accustomed to. However, it is my humble opinion that these drawbacks will be offset by the terrific, burning desire to get back to the game and hit the 'winning circle.' Add to these deductions the fact that the boys while in the service haven't exactly been on the gravy train and you will see what I mean." Even those who created the idea that has made Lord Calvert advertising the most talked about of the year must admit the following fact:

Steadily Increasing!

It has taken more than the power of advertising to create the steadily increasing consumer demand for Lord Calvert in the better clubs, hotels and restaurants throughout the country.

The quality of the product had to be superior—and be recognized as such—to make so many discriminating people change so fast from their former favored brands to this superlative whiskey—the most expensive ever blended in America.

When successful business and professional men...your most desirable clientele...voluntarily offer to pose for Lord Calvert advertising (as they are currently doing every month), you can be sure they are also voluntarily asking for Lord Calvert itself.

Knowing this, the finest hotels, clubs, res-

Lord Calvert's January advertisement, "Men of Progress," reaches 8,909,478 readers through Life, Esquire, Fortune, Argosy, Cosmopolitan, Cue, Gourmet, Newsweek, New Yorker, Promenade, Time, U.S. News.

> taurants and bars are not only pouring Lord Calvert, but also featuring it on their menus because:

> 1. The prestige of Lord Calvert is in keeping with their own quality standards and reputation.

> 2. Lord Calvert pays an extra profit on each drink.

3. Lord Calvert is destined to be America's leading whiskey... for those who can afford the finest.

LOBD CALVEBT

For those who want to SELL the Tinest

Blended whiskey, 86.8 proof, 65% grain neutral spirits. Calvert Distillers Corp., N.Y.C. February, 1945





• This is the season for armchair golf...dreams of "birdies" and gleaming white golf balls. Synthetic golf balls *are still* a pipe dream, so it'll be a good idea for your members to begin digging out last year's relics, for a swap with Spalding. You'll get back the same number—less rejects—reprocessed the grand and glorious Spalding way. A. G. SPALDING & BROS., *DIV. OF SPALDING SALES CORP.* 



AWARDED TO

**3 SPALDING PLANTS** 

### Longworth and Pupil Meet **Tough Challenge**

 $\star$  Dewey Longworth has a pupil he's dreaming of making one of golf's greatest.

Dewey has taught many of them who became very good, but this six-year-old now under the tutelage of the Claremont CC at Oakland, Calif., is one who may win the highest victory of any of the stars.

The youngster is Bobby Libby whose home adjoins the seventh fairway of the Claremont club. Bobby used to lie in bed and watch the golfers but there was no fun in it for him. He had polio.

Infantile paralysis had halted the development of the lad's right arm and hand. Day and night he wore a brace on his right arm.

A year and a half ago Bobby wandered to the practice tee at Claremont and



Dewey Longworth, pro at Claremont CC., and his stout hearted pupil, Bobby Libby.

watched Dewey giving lessons. When the tee was vacant he'd timidly essay a few swings himself with an old right-handed driver he'd acquired. Bobby was swinging lefthanded and trying to hit the ball with the back of his club.

has given \$20,000 Dewey probably worth of lesson time free to kids, having been in 1918 a pioneer in juvenile class lessons and always warmly enthusiastic in encouraging kid talent. Probably the cash estimate of Longworth's services in this field shouldn't be mentioned. He says he's had a million dollars worth of satisfaction introducing kids to golf and establishing their games on a sound basis.

When he saw the awkward swing of the Libby kid Dewey walked over to get the boy straightened out.

"Turn around and swing it this way," suggested Longworth, taking an easy slash at the grass. "I can't," the little redheaded boy said.

"Why not ?" asked Dewey.

"I got infantile," the youngster answered.

Dewey gulped but bounced back. "Well. let's see what we can do to get you hitting

the ball a mile," he said. The two of them went into Dewey's shop where Longworth cut down a lightweight lefthanded spoon. With that club they've been working together steadily. Bobby passes Dewey's shop walking to and from school. Each time he passes he takes some swing and Dewey adjusts and encourages the lad. This lesson procedure has become a major item in Longworth's schedule at Claremont and the club has become keenly interested in this determination of the doughty kid to beat the toughest challenge ever thrown at a sportsman with a fighting heart.

Now Bobby is able to swing without the brace. It took a lot of practice before he could discard the harness and step up to the ball and smack it 65 yards or so consistently down the middle. How many thousands of golfers Longworth has taught he won't even hazard a guess, but this Libby kid he says is going to be his prize exhibit and more than reward him for the headaches a fellow is bound to have in a long and lively career as a teaching and playing pro.

Longworth recalls that Frank Hixon, one of California's star amateurs, was a childhood polio victim and took up golf in conquering the blight of the dread affliction. Bobby Libby, Dewey is confident, someday will be one of the state's better golfers and then, as now, one of the swell-est kids of whom the game has valid license to boast.

### **Purdue Short Course Has More Experts**

★ INDIANA Greenkeepers short course to be held at Purdue university, West Lafayette, Ind., Feb. 26-27-28, will present on an excellent practical program some national authorities new to the Purdue short course. Dr. Fred Grau, Penn. State college; Dr. George Hoffer, American Potash Corp.; Dr. F. F. Davis, USGA Green section; Dr. George Decker, University of Illinois; Prof. F. L. Serviss, School of Chemical Engineering, Purdue, are newcomers scheduled on the Purdue program.

Drs. Scarseth, Mott, Noer, Lee, Lehker and Enfield, who previously have contributed greatly to the value of the Purdue short courses, again will appear.