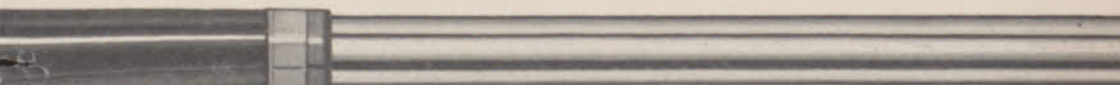




Wilson
Harmonized
DYNA-WEIGHT IRONS

Pre-tested and endorsed exclusively
by winners of the FIVE Major Golf Championships in 1952



● Not since the revolutionary Dyna-Weight principle was originated by Wilson, more than 25 years ago, have any golfing irons created such a sensation as Wilson's latest 1953 *Harmonized* Dyna-Weight line.

Each club is *harmonized* with the others for uniform, coordinated swing-feel. The *entire face* is a solid, power-hitting area. With Wilson Dyna-Weights and Professional guidance *any* player can make his best possible scores.

The big 1953 Wilson advertising drive is creating nationwide interest in these great new Dyna-Weight irons. Your customers will want these. Stock them in a full assortment of shafts and swingweights. Feature them for increased sales.

IT'S **Wilson**

TODAY IN SPORTS EQUIPMENT

Yearbook Entertains and Informs Members

By **LENY CALDERWOOD**

Professional, St. Joseph (Mo.) Country Club

THE idea of a country club yearbook first came to the attention of Bill Myers and Wayne Hadley of Myers & Co. of Topeka, Ks. and myself during the late spring of last year.

The entire 18 holes of the course was a scenic beauty with its well groomed fairways, sand traps, trees, flowers, and even hazards. We all thought that it would be wonderful, if these scenes were put into print and every member be able to obtain a copy.

Why not a yearbook for a country club? As far as we knew it had never been done before, but the popular school yearbook has always brought back to memory many pictures and happy hours spent with old friends. That was the answer, and it would not only record the beauty of the golf course, but would provide a permanent record of the many activities of the club and its members.

We could do it. Myers & Co. are a publishing company and I had had some experience with yearbooks in school.

Later I talked to our club manager and course superintendent. They both liked the idea and offered to give me their cooperation and help which they did, and without their support I could not have put the book out. I talked to a number of members. All not only encouraged me, but wanted to sign up for a copy.

In the next few days, the more I thought about it the more enthusiastic I became to put out a Yearbook for the St. Joseph CC. During the past number of years I had been asked many times about the course record, who the club champion was in some particular year, or was there ever an ace scored on this hole or that.

Job of Getting Records

There were no records of this sort when I first came to the club, and none of the members were sure of most of these events. I was able to pick up quite a bit of information from a veteran golfer of the club who was our present champ, Nelson Thomas, but even with his good memory most of these records were uncertain.

With the help of Mr. Thomas, we started



Leny Calderwood (L) and Wayne Hadley, checking over the yearbook upon publication, are amused by picture in comic section.

to rummage over old scrap books of individual members and the sports pages of many years of the local newspapers on file. It took many hours, but a great deal of the material we were after was dug up.

I didn't have to start entirely from scratch, however, as over the past few years I had acquired a good many very good pictures of the golf course, the clubhouse, the swimming pool, and pictures of members participating in the various functions of the club. In fact some of these pictures had gotten away as I had loaned pictures to members who were going out of town and wanted to show friends some views of their home club. The Yearbook would serve this purpose well.

During the months to follow, I rounded up many pictures — pictures of the club and its activities that members had on hand as well as having pictures taken of the various occasions during the year. I snapped many pictures myself of golfers in action on the golf course. The idea, of course, was to try to get at least one picture of every member of the club.

But the big problem that concerned me most was how to defray the expense.

PERSONALIZED

First Flight

PANCHROMATIC WOODS

are the **BIG NEWS**

IN CLUB SALES TODAY!

Says Chandler Harper

*former National P. G. A. Champion,
Winner of the 1953 El Paso Open,
Runner-up in the 1953 Tucson Open
and currently one of the leading
tournament money winners.*

"From 18 years of successful operation of a pro shop, I know that properly fitted personalized clubs give the player new confidence and lower scores. Personally fitted First Flight Clubs are the sweetest playing clubs any golfer ever had. The brilliant color of the Cardinal Red, Royal Orchid and Emerald Green Panchromatic Woods have a lot of sales appeal and instantly identify these superior clubs."

Like Harper, all professionals realize that, just as in shoes and wearing apparel, the most important thing in golf clubs is correct fit. For more than twenty years we have maintained a pro-only policy because we know that only the pro is qualified to fit the individual with personalized irons and woods.



Chandler Harper displays
his Personally Fitted
First Flight Golf clubs.

Pros! Send for free fitting charts and folder showing
new Panchromatic First Flight Woods in color.

**PROFESSIONAL GOLF
COMPANY of AMERICA, Inc.
CHATTANOOGA, TENNESSEE**

West Coast Sales Representative:
E. R. FREDERICKS CO.
416 State St., Santa Barbara, Calif.

Our club, as does most country clubs, forbids any advertising. I finally settled upon the plan of making a charge of \$5 per copy which would cover the cost of printing as well as that spent to get taken the pictures that I would need. But I still would have to be sure before going to press just how many members would want the book or I might come out in the hole although the idea was not to make money. So I sent out a letter explaining just what the book would be and what it would include, and asked every member to get his subscription in before we went to press. I got a very good quick response.

Because of a heavy golf season, I had little time to do any actual work on the book itself until the latter part of September. In October I gathered all my material and headed for Myers & Co. For three days Hadley and myself worked to get the book set up. Its very good arrangement was due a great deal to Hadley's expert advice.

It came off the press a few hours before New Year's Eve, and we distributed it to the members at the annual New Year Eve party at the club.

The book's 58 pages are bound with a beautiful plastic padded cover. All the activities of the club are included, golf,

social, tennis, swimming, the gun club, and a membership roster. It is much the same as that of the school yearbook with the exception that most pictures are in action rather than posed.

It was enthusiastically accepted by the members. On the president's page, H. N. Stevenson wrote, "Best of all and most important to you and me are our friends, the members and their families whom we meet and play with, and our staff who work at their jobs and work together to make a good club and to keep us all happy. To remember all this and to enjoy over and over again the good times of the past is the purpose of this book. I am sure we all welcome it as another good feature of our club."

It will certainly serve as a permanent record, which alone, is an asset to any country club. Should any one be interested in putting out a similar book, I would suggest they contact Wayne Hadley, P. O. Box 795, Topeka, Ks., for further information as to just how to go about it over.

Although I spent quite a bit of time on the book myself, it could be put out very easy without much work from any one person. It could be done entirely by the club membership through various committees, each taking one phase.

Time for Change in Maintenance Policy

By HARRY MEUSEL

Supt., Yale Golf Course, New Haven, Conn.

In setting a policy for golf course maintenance work and solving our problems in the order of their importance we first have to consider the game of golf, the increasing number of golfers and the high costs we all are bucking.

Can we meet the demands of all the golfers, have a hacker's haven and a golfer's paradise at the same time? To me this is the biggest problem — to have a course where the good golfer finds a test, the high handicap golfer a haven, and yet be able to keep such a course within a budget.

The only way I can see of accomplishing this is to remodel and to reconstruct. This need not be a large scale operation. We must get rid of the many nooks and the like which have to be maintained by hand. The days of hand labor seem to be gone. Since this is a machine age, geared to the speed and economy of ma-

chines, how can golf courses keep up with the times and golfers' demands without this efficiency?

A prerequisite, naturally, is a course where machines can be used. Old hard-packed greens and the problems they present need not be tolerated. The sod can be lifted, and the soil and sub-soil rebuilt to the proper texture and specifications. For that matter, why can't new grasses be brought to the golf course — the show place of grass?

All rebuilding and reconstruction should be done with a thought for pleasant playing conditions for the golfer and speedy maintenance. It costs less to purchase one practical machine than to pay two men to do the same job and machines are not subject to the ebb and flow of the labor supply.

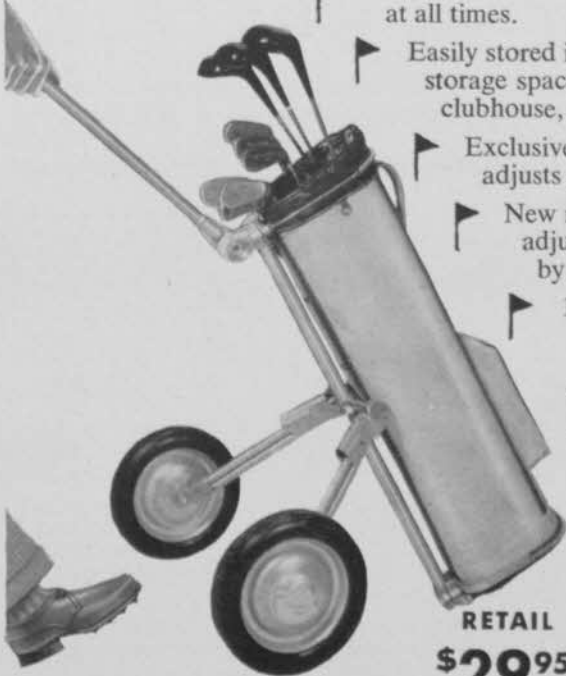
All this isn't done in short order. It takes time and money; but if one will compare the costs of innovations to long-term maintenance with hand labor he will see that it is time for a change. It will take study and time for the individual course but it will be time well spent.

NEW!

Con-Voy

BAG MASTER GOLF CART

The Golfer's Favorite

- 
- ▶ Exclusive, quick, positive hand-release lock action.
 - ▶ Folded or unfolded, you can wheel the cart at all times.
 - ▶ Easily stored in upright position in 11"x11" storage space. Conveniently stored in clubhouse, locker or car.
 - ▶ Exclusive "snug-fit" bag brackets... adjusts easily to your golf bag.
 - ▶ New ratchet handle with 24 positions... adjustable to any angle desired by golfer.
 - ▶ 10" ball bearing wheels with wide-tread semi-pneumatic tires for easy rolling.
 - ▶ Guaranteed for one year against defects in workmanship and materials.

OTHER FEATURES

- Will not soil or damage bag.
- Durable, lightweight airplane type metal alloys.
- Rustproof and non-corrosive.
- Weighs less than 13 pounds.
- Tip-resisting tripod running gear.
- Curved grip handle.

RETAIL
\$29⁹⁵

Note: New Con-Voy Bag Master Deluxe with special and exclusive features:

- Big 12" ball bearing wheels.
- Chrome-plated hand release with safety type hand lock.
- Cigarette and tee holder for golfer's convenience.
- Stores in 11" x 12" storage space.

IN ADDITION... All other features of the Con-Voy Bag Master.

\$34⁵⁰
RETAIL

LESS SPACE NEEDED FOR STORAGE

Stands in upright position and rolls easily when folded.

Write for complete details and name of your nearest CON-VOY BAG MASTER distributor.



PRODUCT ENGINEERING CO.

4707 S. E. 17TH AVENUE • PORTLAND 2, OREGON

Relations of Micro-organisms to Control of Thatch*

By ROBERT L. STARKEY

The problem of thatch control is one that is seldom encountered in agricultural soils. In agriculture, attempts are made to retain soil organic matter and to increase it if possible, because its disappearance is much too rapid under cultivated crops. In agriculture, therefore, one resorts to addition of organic materials to soils. Substances such as animal manures, green manures, and cover crops are used, or there is crop rotation involving growth of grasses which are particularly effective for adding organic matter and improving soil structure.

The development of thatch is similar in some respects to the use of organic mulches, in that the organic matter accumulates on the soil surface. The problem appears to be primarily, that of accumulation of organic matter in which bent grass is the principal offender but in which Bermuda grass may also be concerned. Troublesome thatch is seldom formed by other grasses. This suggests that in the effects brought about by bent grass there is something unique that is responsible for its resistance to decomposition. The fact that bent grass grows rapidly and makes extensive top growth probably is part of the explanation for thatch formation with this grass. The persistence of the organic matter results in the formation of an undesirable surface cushion, which fails to absorb water, resulting in dry spots and uneven growth of turf. Furthermore, there are frequently serious disease problems on thatched areas.

FACTORS AFFECTING DECOMPOSITION OF ORGANIC MATTER

Chemical Composition of Plant

Microorganisms, like other living things, are continuously searching for food for growth. Different microorganisms can use different organic materials for food. Some use sugars, whereas others use amino acids, cellulose, or other com-

pounds. A great variety of substance is contained in plants, and as a consequence many different microorganisms are involved in the breakdown of residues of bent grass or of those of other plants.

Data on the composition of the rye plant, included in Table 1, indicate two things: 1. plants are complex in composition; 2. plants vary in composition with age. The young plant has a high

TABLE 1
Composition of young and mature
rye plants

Per cent of dry material in stems and leaves	Young plants	Mature plants
	10"-14" high	
Fats and waxes	3	1
Water-soluble materials	29	14
Hemicelluloses	17	23
Cellulose	18	36
Lignin	10	20
Protein	15	2
Ash	8	4

content of water-soluble materials, which consist principally of sugars, amino acids, and other simple readily decomposable substances, and also has a high protein content. In contrast, these constituents are relatively scarce in the mature plant. The content of structural materials — hemicelluloses, cellulose, and lignins — is lower in the young plant than in the mature plant, 45% and 79% respectively. This affects the decomposability of the plant. In general, the water-soluble materials and proteins decompose rapidly, the hemicelluloses more slowly, the cellulose still more slowly, and the lignins the most slowly of all. There is thus a decrease in the readily decomposable substances and an increase in the more resistant ones as the plant grows older. Lignin not only resists decomposition but becomes associated with the other structural materials, the hemicelluloses and

*Presented at 24th National Turf Conference and Show. Atlantic City, N. J., February 12, 1953.
Journal Series Paper, New Jersey Agricultural Experiment Station, Rutgers University of New Jersey, Department of Microbiology.

cellulose, "incrusting" them and thus causing them to resist decomposition. Therefore, the residues of young plants decompose more readily than do those of mature plants of the same type. Among the outstanding differences in composition of different kinds of plants is the high nitrogen content of young plants compared to mature plants, the high cellulose content of woody tissues and straw, and the high lignin content of tree products. These are reflected in the rates at which they decompose and in the amounts of residual organic matter that accumulate.

Fertilizer Material and Decomposition

In order to grow, microorganisms require not only organic materials as sources of energy but also various nutrient elements such as nitrogen, phosphorus, potassium, and sulfur. In case these elements are not available in the organic matter undergoing decomposition, they must be provided by the soil in which the decomposition takes place. Nitrogen is required in much greater quantities than any of the other nutrient elements, followed by phosphorus, potassium, and sulfur. For decomposition of one ton of fresh plant material with 20 per cent dry weight, about 9 pounds of nitrogen would be required. Part of this would be supplied by the organic matter itself, but if half of that needed was thus available, there would still be required an amount of nitrogen equivalent to that supplied by 90 pounds of a 5-10-5 fertilizer. This is the reason that fertilizer materials are added to substances being composted. It is also possible that nitrogen and some other elements are deficient in the grass residues and that addition of fertilizer salts would accelerate decomposition.

Environmental Factors

Among the environmental factors affecting decomposition are temperature, reaction (pH), aeration, and moisture.

Temperature. The higher the temperature the more rapid the decomposition. There is virtually no decomposition at the freezing temperature of water, but rapid breakdown at summer temperatures of 60° to 80°F.

Reaction. Reaction is readily controlled. There is abundant evidence that decomposition of organic matter in the acid soils of the eastern seaboard is increased by liming. It is possible that liming

would serve a useful process in accelerating the breakdown of thatch.

Aeration. Well-aerated soil is the most favorable for breakdown of organic matter, whereas under conditions of deficient aeration or where oxygen is excluded, organic matter persists. The outstanding evidence of the latter is formation of peat, which develops in soils continuously covered with water. Aeration is unlikely to be a common factor in thatch formation; at least, thatch develops on the soil surface and is encountered on the surface of well-aerated soils.

Moisture. Moisture is required for decomposition, and this is one of the principal factors limiting decomposition of mulches. It may indeed be one of the most important factors in thatch formation. Moist organic matter may contain two to four times as much water as dry material. Decomposition is more rapid when the organic matter is moist; when dry, it resists decomposition. A mulch tends to decompose where it makes contact with the soil, but persists at the top where it is dry most of the time. Whereas most organic materials used as mulches persist on the soil surface, they decompose when mixed with the soil. Even clippings of bluegrass and fescues serve reasonably well as mulches, but they decompose exceedingly rapidly in the soil. This is due principally to the low moisture content of the mulch but, in addition, the mulch loses considerable of its nutrients and readily decomposable constituents through leaching by rain. When the organic matter is mixed with the soil, the microorganisms that attack it can obtain mineral nutrients from the soil to make up for deficiencies of these nutrients in the plant residue.

The decomposition of organic matter mixed with soil is a more continuous process than that of organic matter on the soil surface. There are less frequent and rapid changes in moisture content. Once the microbial population has become established on the organic matter within the soil, the organisms continue to grow and multiply at the expense of the plant materials at rates determined by the amount and kind of organic matter. On the soil surface there may be intervals when the organic matter is moist or wet such as following rains or watering or after heavy dews. When moisture is the limiting factor, these will be periods favoring microbial development, but as growth becomes established in these in-



BALTIMORE'S MOUNT PLEASANT CHARMING TEST

Baltimore's Mount Pleasant public course where the Eastern Open is held each year and where the National Public Links championship was played in 1939 is rated by many tourney stars as the nation's most beautiful municipal course.

Above illustration shows the 140 yd. 6th hole and to the right on the tee is C. A. (Gus) Hook, supt. of Baltimore parks who started to build the course in 1932, using WPA labor. Gus was a sharpshooting amateur who'd made a study of golf architecture. He began park work with the Forestry division of the Baltimore park board in 1913. That background shows in the 4500 trees planted to combine beauty and golf architecture on the course.

The Mount Pleasant course reflects excellent construction advice from members of the Mid-Atlantic Golf Course Supts.' Assn. Gus got much help from his fellow members when the job was under construction and during its maintenance. Bob Scott, veteran supt. of Baltimore CC courses, has been Gus' particular buddy and consulting genius.

Baltimore Sun's Sunday magazine section ran a big illustrated feature on the course telling of its history and features and referring to effective use Gus made of his turf colleagues' cooperation in providing Baltimore with a prize exhibit among municipal courses.

tervals it is interrupted by desiccation during warm daytime periods. Desiccation results in destruction of most of the microorganisms, leaving relatively small numbers of survivors. When the organic matter becomes wet again there is a lag period of reestablishment of the microorganisms before decomposition again becomes active. The appearance of the cottony webs of fungi causing brown patch and other evidences of fungus attack of grass in period of high humidity and their disappearance in dry weather illustrate the effects of moisture on the cyclic development of microorganisms.

Conditions Favorable for Decomposition

The conditions favoring rapid decomposition of organic matter can be briefly summarized as follows: The organic matter should be inherently readily decomposable; there should be an abun-

dance of nitrogen and other elements required by the microorganisms either in the organic matter or added as fertilizer salts; the reaction should be close to neutrality; there should be good aeration and high temperature, and the moisture content should be continuously high. Most of these factors can be controlled somewhat in turf.

FACTORS CONCERNED IN THE CONTROL OF THATCH

One may be inclined to search for a simple means of eliminating thatch, such as inoculation with microorganisms able to rapidly decompose the plant residues, or the use of chemicals that would destroy the thatch. There is no reason, however, to believe that the problem can be solved in either of these ways. It is unlikely that inoculation with microorganisms of any kind will accelerate decomposition.

Tees-it

The *NEW, Automatic* **GOLF TEE***

**REQUIRES
NO ELECTRICITY
OR OTHER
OUTSIDE POWER**

Fully automatic



Here's the revolutionary new automatic teeing machine that puts extra dollars in your till! Amazingly low priced with no installation or operating costs, Tees-it pays for itself within a very short time. Steps up your range play . . . attracts more people. Investigate Tees-it Automatic Teeing Machines today.

- Machine is fully automatic, no motor, no electricity required, no pedals or levers to move. Ball may be hit as slow or fast as desired.

- Weather proof construction—not affected by rain or snow, heat or cold.

- Every machine covered by a bonded guarantee to operate trouble free for one year.

- Obtainable either as a coin-operated machine or in conventional style where a suit-

able number of balls are placed in hopper by attendant.

- Tees-it machines are for *sale* on reasonable terms, lease if desired.

- New radically improved automatic dispensers and tee.

- Pays for itself in short time.

- For further information write:

Tees-it

INC. Box 148, Palisades Park, N. J.

Telephone LEonia 4-2221

*Patent Applied For

Microorganisms develop in response to a particular set of conditions, and if conditions are favorable for their growth they will develop from the great diversity of microorganisms that inhabit the soil. There are chemical substances that will decompose organic matter, but these would destroy the plants and also produce unfavorable soil conditions.

Relatively little can be done to control the temperature, and there is no need to consider the factor of aeration. It is possible, however, to provide additional nutrient substances as fertilizer salts and to modify the reaction with lime. Fertilizer materials may exert their effects not only on the decomposition of organic matter but also on growth of the grass itself. Addition of fertilizer salts would increase growth of the grass and might result in an aggravated thatch condition. High rates of application of nitrogen, such as 6 to 8 pounds of nitrogen per 1000 square feet per season, are often associated with thatch accumulation. The effects of fertilizer both on thatch decomposition and on increased growth of the grass should be evaluated before this procedure is adopted for thatch control.

The problem could be solved by substituting for bent grass another grass that does not produce thatch, but it is unlikely that such a change would be made until some new grass became available. If the type of plant is fixed, it is not possible to affect the composition of the organic material appreciably.

Physical treatment of thatch provided a considerable degree of control. The turf is spiked, scratched, cut, and torn. All of these treatments solve the primary problem, that of getting water into the soil. In all cases the thatch is broken and openings are provided through which water can move to the soil beneath. Other things are also accomplished. By scratching and tearing, a considerable amount of the plant residues is lifted, cut, and then taken away, thus physically removing part of the thatch. Spiking not only breaks holes in the turf, but also brings a considerable amount of soil to the surface of the thatch. Top dressing with soil brought in from another area or added by spiking has effects similar in some respects to those produced by mixing plant residues with soil; as mentioned previously, the organic matter is kept moist through contact with the moist soil, nutrient materials are provided by the soil,

and conditions are favorable for more nearly continuous microbial development than where the plant residues rest on the soil surface. Top dressing without disturbance of the thatch would be less effective than top dressing after scratching and removal of part of the plant material, because there would be more intimate mingling of the soil and plant residues in the latter case. Furthermore, the addition of soil on top of the thatch would leave an undesirable layer of organic matter.

The persistence of residues of bent grass and thatch formation may be due principally to the repelling action on water; the surfaces shed water instead of absorbing it. Some of the treatments are based on this assumption. A direct approach that appears to have been given little or no consideration is the use of wetting agents. There are many different wetting agents, and some will doubtless be toxic. This was true of some trial tests carried out by Dr. Ralph Engel at the New Jersey Agricultural Experiment Station. Undesirable rather than desirable effects resulted from these tests. Problems will also arise regarding dosage and method of application, but the possibilities of wetting agents for control of thatch have not been thoroughly investigated.

Turf Maintenance of N. Y. Courses, \$5,000,000

New York State Turf Assn. Bulletin No. 44 says:

There are about 150 eighteen-hole and 280 nine-hole golf courses in New York State. Conservative estimates indicate that a golf course has 4 acres of turf per hole, 1/9 acre of putting green turf per hole, and maintenance costs about \$1,000 per hole. On this basis:

Annual turf maintenance costs	
of New York Golf Courses=	\$5,220,000
Total turf acreage on New York Golf Courses	2,088

No accurate data are yet available as to the amount of play received by golf courses, but some indication can be drawn from the records of the New York City Park System. In 1947 the 10 city-owned courses registered 469,467 rounds of golf. Golf is not necessarily a rich man's game. This play is admittedly very heavy. Even if play were only half as heavy on the average this indicates nearly 10 million rounds in the State per year.