NEWS LETTER

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WHEN DUTY COMES A-KNOCKING AT YOUR GATE,
WELCOME HIM IN; FOR IF YOU BID HIM WAIT,
HE WILL DEPART ONLY TO COME ONCE MORE
AND BRING SEVEN OTHER DUTIES TO YOUR DOOR.

—Edwin Markham.

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AUGUST

1940

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The ideas and opinions expressed in the subject matter of this NEWSLETTER are not necessarily those of the Editor or the members of the club as a whole.

AUGUST MEETING

The well-known hospitality of the Highland Country Club of Attleboro, Mass. was very much in evidence on August 5th when the G.C.N.E. and the R. I. Greenkeepers Association met together there.

The Bayer-Semesan Company demonstrated their methods of applying Special Semesan.

Following lunch, the usual golf tournament was held, and many of the boys found the course to their liking, as was shown by the many low net scores. Prizes, donated by members of the Highland Club, were won as follows:

1st net, Guy West, 81-64.
2nd net, tie, Henry Mitchell, 91-65
N. J. Sperandio, 75-65.
4th net, Sam Mitchell, 91-67.
Most fives, Al Barney
Most sixes, A. Fontaine
Most birdies, Tom Clark

In the blind bogie tournament for R.I.G.A. members, Oscar Chapman won with net of 79, closest to hidden par of 77. Dr. T. E. Odland won high gross.

Annual Greenkeepers Field Day at the Rhode Island State College and Experiment Station on September 23rd. Keep this date open for a trip to Kingston!

The following information is taken from the latest issue of "Timely Turf Topics", issued by the Green Section. Clubs that belong to the U.S.G.A. get such timely information free. Your club should belong!

Pythium Disease: Turf frequently suffers in hot weather from a disease-producing fungus known as Pythium. So far, no satisfactory fungicide has been developed to control this fungus. However, it is encouraged by abundant water and excessive heat and is, therefore, more severe in wet than dry summers. Excessive watering of turf should be avoided in hot weather to minimize the injury from attacks of this fungus.

Sampling Soil: In turf the surface 1 or 2 inches are most significant so far as chemical analyses are concerned. To represent the area in question, 5 or more plugs of the surface 1 or 2 inches of soil should be removed from an area of 1,000 square feet. These can be cut approximately 1 inch square with a knife or with any other device you care to use. It is well to wrap each plug separately in waxed paper to preserve it intact in its original condition and to prevent crumbling. If the tests are to be an aid to a general fertilizing or liming program it is not necessary to test every green and fairway, but only representative ones for each type of soil.

Samples of soil are of no value unless properly labeled. When you send them to the Green Section or to your State Agricultural Experiment Station they should be accompanied by certain information to aid the laboratory man in interpreting the results of the tests and in formulating recommendations for you. This should include:

1. Location—green, fairway or lawn.
2. Kind of grass growing on area.
3. Reasons for wanting soil tests made, such as for instance thin stand of grass; excess of clover; excessive drying in spots; yellow, unthrifty growth; etc.
4. Account of fertilizing or liming program and arsenical treatments if any, followed the last few years.
5. Drainage—natural or artificial and how satisfactory.
6. Length of time area has been under turf.
7. Amount of humus, if any, incorporated in the soil.
8. Amount of sunshine or shade the area receives.
9. Tendency of soil either to dry out in spots or to remain soggy.

New Seeding: Now is the time to grade and prepare the soil on all areas which are to be seeded this fall, in order that the seed may be sown promptly in late August or early September. At this time the summer annuals are no longer germinating and the seedling grass when it appears will be able to take full advantage of the favorable growing conditions during the fall months.

Ants in Turf: Many species of ants are troublesome in turf because they make mounds and also damage the grass by destroying the blades near the openings of the hills as well as the roots. The Argentine ant, which is by far the most troublesome species is found only in certain parts of California and in the Southern states, south of the area between central Texas and North Carolina.

Ants live in subterranean colonies or hills with a social organization comparable to that of the honey bee. In each colony there are the workers which are the ones seen above ground and which carry the food to the queen and larvae remaining underground in the hill. Any method of control, to be effective, must kill the queen or she will continue to lay eggs and perpetuate the colony.

Control methods depend either on the injection of chemicals such as pyrethrum extract directly into the ant hill, thereby killing the entire colony at once, or on the distribution of poisoned bait. When the latter is used, it must be so dilute that the worker ants, which are the ones to gather the food, will live long enough to carry it into the colony and thus destroy the queen and larvae.

Not all poisons which are ordinarily effective against ants can be used because they may kill the grass as well as the ants. For instance, carbon bisulfide, kerosene, etc. which are often used to exterminate entire colonies are not recommended for use in turf because of the danger to the grass. Also, thallium sulfate, the active ingredient in many proprietary poisoned baits for ants, is extremely toxic to grass and must be used with care. Borax which is used in other baits for ants may injure grass and should be avoided, particularly in excess, on grass.

Species of ants vary in their feeding habits. Some prefer sweets, whereas others are attracted only by fatty foods. Moreover, they seem at times to get wise to certain baits so that what will work at one time may not work, even with the same species, at another time. Hence, various control methods are suggested here. If one does not work under your conditions, try others until you find an effective method.

Where it is practicable to treat individual colonies, a solution of pyrethum extract can be injected into each colony by means of a spring-bottom oil can, without fear of injuring the grass. For this purpose, the commercial extract is diluted 1 part to 100 of water, a few drops injected into each hill, and the hole through which the injection was made at once plugged with dirt. Where large ant nests are formed, it may sometimes be necessary to use 2 or 3 ounces of solution in each hill and to cover the area with a wet blanket or heavy cloth for a time. Or, a dilution of 1 part of commercial extract in only 50 parts of water may be tried.

Several simple baits which have been found effective for ants in turf are given below. To use the baits, pieces of sponge, absorbent cotton, or cloth may be dipped into the solutions and then placed in low metal cans, bottle caps, salve boxes, or heavily paraffined pasteboard in which small openings have been made through which the ants can readily enter and leave. Where turf is in use during the day, as on the golf green, the bait can be put out in the evening and lifted in the morning.

Bait A. Dissolve 4 ounces of sugar in 1 quart of hot water and add ½ ounce of tartar emetic.

Bait B. Dissolve 1 pound of sugar in 1 quart of hot water, add 8 grams of sodium arsenate and boil.

Bait C. This is recommended only for the control of the Argentine ant. To 4½ quarts of water add 9 pounds of granulated sugar, 6 grams of crystallized tartaric acid, and 8.4 grams of benzoate of soda. Boil slowly for 30 minutes and cool. Then dissolve 15 grams of sodium arsenite (C.P.) in ½ pint of hot water and cool. Add this poison solution to the syrup, stir well, add 1½ pounds of strained honey and mix thoroughly.

Another method for using these poisons is to mix the sugar and chemicals dry with an equal volume of bran or cornmeal and add enough weak solution of honey in water to make a crumbly mixture which can be scattered about the ant hills.

Another method is to mix 1 ounce of Paris green with 1 pound of brown sugar and sprinkle the crumbly mixture around the ant hills.

Fall Fertilizing: Plans should be made now for fall fertilizing programs and orders placed, if fertilizers are to be purchased. Fertilizers should be purchased and applied on the basis of content of plant food, particularly nitrogen, since all experimental work with turf to date has shown that nitrogen is the element in the soil which is most important for the growth of grasses for turf purposes. As discussed in the December, 1939, issue of **Turf Culture,** phosphorus and particularly potassium which are necessary in the successful culture of many agricultural crops are less important than nitrogen for turf grasses.

A good complete fertilizer for turf contains about one-half as much phosphoric acid as nitrogen and still less potash, as for instance a 12-6-4, a 10-5-3 or some similar grade. This should be applied to established turf about the middle of September at the rate of about 1 or 2 pounds of nitrogen to 1,000 square feet, depending on the condition of the turf and soil. Applications of such fertilizers at that time will encourage the turf grasses to fill in the bare spots left by the annual weeds, such as crabgrass, which die with the first light frosts unless they have been killed earlier with chemicals.

Green Scum on Turf: During July and August, minute plants known as algae may form a green scum on turf in spots where the grass is thin, particularly in areas where it has been thinned out by disease. The scum is likely to develop during exceptionally rainy seasons or in low, heavily watered areas where there is an abundance of plant food and some dead grass. Its growth can usually be controlled by an application of corrosive sublimate at the rate of 1 to 3 ounces to 1,000 sq. ft. If it persists in being troublesome, it would be wise to permit the scum to dry out and form a paper-like crust and then break this up by spiking or raking with an iron rake. This operation should be followed by the application of a light topdressing or reseeding, depending on the extent of the trouble.

The Annual Turf Meeting sponsored jointly by the U.S.G.A. Green Section and the Green-keeping Superintendents Association will be held at the Arlington Turf Garden on Monday and Tuesday, September 16 and 17.

SOILS, SUB-SOILS AND GRASSES

By Wm. B. Lindsay

Present-day greenkeepers are expected, as things are to-day, to produce a healthy growth of grass to withstand the ravages of the golfers' footwear throughout the year.

In many cases the soil on golf courses is of a heavy clayey nature more suitable for producing bricks than growing a first-class turf. In other cases it consists of sand that will not retain either fertilizer or moisture in any shape or form. Between these two extremes we find golf courses laid out on peat, gravel, chalk and loam.

Now a greenkeeper, to be successful, must have a working knowledge of all these soils. In a word, he must have an elementary idea of the origin, composition and general classification of soils—in short, a slight understanding of geology. Let me explain right here.

The actual surface of the earth as we see it to-day in the cultivated parts of the country consists of mould or vegetable soil. In other parts we see large tracts of barren rocks which vary in character. Some are brimstone, sand-

stone, granite, slate, etc. The most common of these must have originally been formed by and with the help of water, others formed by fire.

Now, bearing these simple facts in mind, it is well to remember that rocks are the mineral constituents of the earth. Beneath any mould or soil that may have accumulated upon these rocks—and most of the soils that we find on our golf courses are originally derived from rocks—many of the important properties of the soil can be traced to the rocks beneath them.

It is well known from the best authorities that every kind of vegetable soil was once rock which the repeated action of heat, cold, air and water, has broken down to a fine state of dust, mud and sand. This breaking down process is known as weathering, but vegetation has a good deal to do with this—doubtless you have noticed small lichens growing on the face of rocks exposed on the cliff or quarry.

We wonder how any plant can live in such a position, but the secret of it is that lichens draw a good deal of their nourishment from the atmosphere. All this is called weathering and illustrates how soils are formed.

Having said so much with regard to the origin of soils, I want to bring your attention to the distinction between subsoils and top soils. This is easy to detect; the sub-soil acquires its richness in humus, mainly through the decaying of deeper roots and the work of earthworms. Top soils are generally rich in humus and the elements of plant life.

Fortunate indeed is the greenkeeper whose course is laid out on loam, the richest soil, well supplied with humus and the other elements of plant foods. These soils are usually deep and not compact, thus admitting the percolation of water; consequently very little drainage is necessary. At the same time they retain moisture during the summer months and do not dry up too rapidly.

The first necessity for a good soil on a golf green I consider to be one that will hold moisture and, second, one that has power to suck up water from lower levels by capillary attraction. Of these requirements, sand has the least water-retaining or absorbent power, clay has four times, and humus six times the capacity of sand to hold moisture. When water drains away from loam or clay, the drainage is never complete, for these soils, after being watered again, retain

some little moisture, but on very sandy soil you will lose even that little amount of moisture.

The moral of this is to change that soil, either by fertilizer or top dressings of good loam. With regard to great cohesion, I am convinced that this is sometimes brought about by over-rolling with a heavy roller, thus causing bad drainage, sourness and coldness.

I think that you will readily agree that the ideal soil for producing a suitable turf for golfing purposes the whole year through, having due regard to climatc conditions, is a medium loam. For such a soil is fine grained in texture, and has the power to lift water easily by capillary attraction during dry summers; at the same time it is sufficiently open for air to enter freely and water to percolate during wet weather, and in such a soil you do not get the faults of a clayey or sandy soil.

Taking it for granted that you want to plant seed on the soil I have described, I will try to illustrate how grass seed germinates.

When grass seeds are moistened with water, the shell begins to absorb moisture and becomes soft. When this moisture reaches the food material within the husk it begins to change gradually and germination begins—provided that the three necessary conditions are fulfilled for essential growth—namely, air, moisture and warmth.

Now, some of the carbon in the food reserve begins to burn with the assistance of the oxygen which the seeds absorb from the air. Warmth and the giving off of charcoal fumes or carbonic acids are the outward results, thus causing the seedling to be made liquid and ready for immediate use. Nourished by the stimulating food, this inward embryo begins to grow and eventually breaks forth from the shell a perfect little stem capable and strong and likely to increase in strength if given the proper after treatment.

When growing grass seeds always aim at a damp or porous soil or seed bed—but not too wet. The prevalent idea seems to be that you must keep flooding it with water, which, in my opinion, actually drowns or chokes to death any little life that may be there. For if you get a too-wet seed bed it will dry into a hard brick, thus refusing to let the young seedlings come through.

The last piece of advice I would give is— always buy the best seed you can get. Cheap seed does not pay. If it is worth trying to sow out a plot of ground it is worth doing well. Always insist on a purity guarantee—any reliable seedsman will be glad to give it to you.

—Address presented at Annual Meeting of Conn. Assoc. G.C.S. Mar. 4, 1940.

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