

IDENTIFY -- Then Get Busy

By George C. Decker, Entomologist

Iowa State College*

SUCCESSFUL control of turf infesting insects depends largely upon recognition of the infestation in its incipient stages and accurate identification of the insects involved. In view of this fact, it is important that greenkeepers and others charged with the responsibility of maintaining high quality turf be able to detect the first signs of insect activity, and whenever possible anticipate outbreaks and thereby prevent them.

For the sake of convenience, turf infesting insects may be divided into three groups: (1) those which feed upon leaves, including sod webworms and cutworms; (2) those subterranean forms which feed upon the roots, such as white grubs; and (3) those which, like the chinch bug, suck the juices from the plants. In general it may be said that the proper insecticide to use and the best method of applying it is more or less automatically determined when the insect pest is properly placed in one of the above mentioned categories.

Many Species of Sod Webworms

Although seventy or more species of moths belonging to the genus *crambus* spp (sod webworms), are known to occur in the United States the geographical distribution of the species is such that probably not more than 25 or 30 species occur in any one state and of this number not more than 5 or 6 species can be regarded as pests of economic importance. The others either feed upon weeds and comparatively valueless vegetation or are so suppressed by natural forces that they have never become sufficiently abundant to attract attention. The adult moths are particularly noticeable as they flit about the grass just at dusk.

When at rest these moths hold their wings very close to the body, in fact almost wrapped around them, and this characteristic is used to distinguish them from other moths and accounts for the name, "Close-Winged Moths," commonly applied to the group. For the most part they are gray, whitish, or yellowish with varied color markings. The species also vary in size. The smaller moths are approximately

one-half inch long and not quite as large in diameter as a common match whereas the larger moths are fully twice that size.

All of the species for which the life cycle is known spend the winter as partly grown larvae in small cocoons or hibernacula which are usually attached to the base of the plants. With the advent of spring the larvae emerge, resume feeding and when full grown they retreat into their burrows where they pupate in especially prepared cells. Two or three weeks later the adult moths emerge, mate, and deposit their eggs which are dropped indiscriminately to the ground or into the grass as the moths flit about or as they come to rest upon some plant.

Eggs Hatch Within 10 Days

Most of the eggs are deposited within the first one or two hours of activity in the evening and since the moths tend to remain quiet and more or less secluded in tall grass during the day, it is not uncommon to find increased oviposition in the rough, in low spots, around bunkers and near water hydrants. The eggs hatch in a week or ten days depending upon prevailing weather conditions. The newly hatched larva begins at once to feed upon the leaves of the first accessible grassplant it finds and also begins to spin a web about itself and the grass blade. As the larva grows it extends its web to the surface of the soil or deserts it and starts a new web. In time it constructs a rather extensive network of silken tunnels at, or in some cases, slightly below the surface of the soil. Once established in its subterranean home the larva feeds by advancing to the open end of the tunnel, cutting a leaf off near the base and then drawing it into the retreat where it can be consumed at leisure.

Annual dinner meeting of the service section committee of the Massachusetts Golf Assn. and the Greenkeepers Club of New England was held at the Brae Burn CC, West Newton, Mass., April 4.

Principal speaker was O. J. Noer, Milwaukee Sewerage Commission, who spoke on the trying conditions experienced by many courses last year. He illustrated his talk with colored slides. Chairman Harry Hood of the service section committee was toastmaster.

* G.S.A. Convention Address.

During its lifetime each larva consumes between 1,000 and 2,000 linear millimeters of bluegrass leaves and since they are small and eat so little at first, about two-thirds of this amount is eaten during the last week or so of larval life. This in part at least explains why many people erroneously feel that a webworm outbreak is something that comes on suddenly and leaves almost as abruptly.

During the summer months the time required for a larva to complete its development from the egg to the pupal stage varies from four weeks to over two months depending upon weather conditions and the species of webworm involved. Thus, the bluegrass webworm *Crambus teterrellus* Zn. frequently has three complete generations a year in Iowa, and *C. trisectus* Wk. and *C. mutibilis* Clem normally have two generations a year. The fact that the overwintering larvae of *C. vulgivagellus* Clem. and *C. ruricolellus* enter a resting stage when they reach maturity in early summer and do not pupate until August, results in these species having but one generation each year. This quirk of nature may be a rare bit of good fortune for the greenkeeper for when we consider the situation year after year these latter species are usually the most common of all the crambid moths to be seen on Iowa grass lands during August and September.

A rather wide variety of insecticides have been used in the control of sod webworms and each has had at least a temporary sponsor. All have their advantages and also their disadvantages.

Treat with Lead Arsenate

Lead arsenate was one of the first compounds used and it has undoubtedly gained more favorable recommendations than any other insecticide yet suggested, but it has also received its share of criticisms many of which appear to have been rather unfair and reflect erroneous use of the material rather than the inability of lead arsenate to destroy the worms. The author began using lead arsenate for the control of webworms in 1931 and since then, lead arsenate has been used with marked success whenever webworms were sufficiently abundant to warrant control measures, and a great deal of valuable information on the use of lead arsenate has been accumulated.

In the first place, successful control depends upon detection of the worms when they are still half grown or smaller. As already mentioned, once they have entered the last stage of larval development their

food requirements are greatly increased and damage to the turf progresses with such rapidity that a slow acting treatment must be abandoned in favor of a treatment which will show immediate results. Also in cases of very severe damage there is often insufficient green foliage left within reach of the worm to carry a lethal dose of the poison.

Tests for Webworm Presence

A week or more after crambid moths have been abundant, or when for any other reason the presence of webworms is suspected, the turf should be tested by treating small sample areas with pyrethrum solutions which will bring the webworms to the surface where they may be counted. Sometimes this is accomplished by temporary flooding. If several larvae emerge from each square foot of treated turf it is time to make an application of lead arsenate. Two pounds of lead arsenate in twenty gallons of water applied to each 1,000 square feet of turf with a spray machine maintaining at least 90 pounds pressure, has given the best results. In several instances, however, fair results have been obtained by using only 1 or 1½ pounds of lead arsenate. Also fair to good results have been obtained when the poison was applied dry with an efficient hand duster.

In all cases it is necessary that watering of the greens be delayed for at least 48 hours after the poison has been applied. Larvae discontinue feeding for a period of from 24 to 48 hours at moulting time and therefore an earlier sprinkling might wash the poison off the grass blades and into the soil before many of the worms have a chance to feed upon the poisoned foliage. Lead arsenate solutions applied with sprinkling cans, ejectors or other proportioning devices have invariably given very inferior results, partly because the large water drops strike the grass and run off carrying the poison with them.

Naturally the recommendation of washing the poison down into the turf is erroneous and this should never be followed, for although the worms dwell in tunnels in or near the soil, they feed on green leaves and to be effective the poison must remain on the leaves until it is eaten. The cost of materials is reasonably low, being approximately 25 or 30 cents per 1,000 sq. ft. of turf treated. Lead arsenate will not injure grass, and is not apt to react unfavorably with other chemicals subsequently used as fungicides or as fertilizers. Repeated applications also

tend to build the lead arsenate content of the soil up to a point where it acts as a prophylaxis or a control measure for grubs, earthworms and other subterranean pests.

When an infestation is not detected until damage is well advanced it is often desirable, if not absolutely necessary, to resort to some other treatment, using such insecticides as pyrethrum extracts or oil emulsions.

Pyrethrum for Advanced Cases

A number of pyrethrum sprays are on the market and these vary considerably in their pyrethrin content and in cost. The product selected should be used in accordance with the manufacturer's recommendations but it is well to check these recommendations with the pyrethrin content of the product and see that you are using approximately one gallon of solution containing 0.004 percent pyrethrin on each square yard of turf treated. These solutions may be applied with a sprayer or with an ordinary sprinkling can. Materials will probably cost between \$2.00 and \$3.00 per 1,000 sq. ft. of turf. Pyrethrum solutions are non-injurious to the grass and are not apt to have any effect whatever on subsequent treatment of the green. They show immediate results and a moment or two after treatment the worms can be seen wriggling their way to the surface where they soon die. The only objection to the extensive use of pyrethrum is its high cost.

Home-made kerosene emulsions diluted at the rate of 1 part to 50 parts of water and applied at the rate of 1 gallon to each sq. yd. of turf have given good control of sod webworms. Like pyrethrum the oil emulsion brings the worms to the surface in a very short time but the cost of materials is much lower, being about 25 cents per 1,000 sq. ft. of turf. The principal disadvantage in its use is the uncertainty of getting a good stable emulsion. Ordinarily a poor suspension is obtained in which case the free kerosene causes serious burning. In some cases this burning has proved more serious than the webworm outbreak. Since soap is used in making the emulsion, ammonium sulphate should not be used to stimulate the greens after treatment because of a chemical reaction which releases free ammonia with disastrous effects on the grass.

Several species of cutworms frequently infest lawns and golf greens and their work is very often confused with or mis-

The Goodall Company's round-robin tournament, which will be played at Fresh Meadow CC (N. Y. Met. district) June 1-4, has been getting a big publicity build-up. Fourteen leading pros will compete for the \$5,000 the makers of Palm Beach cloth put up. The event, inaugurated at Cincinnati last year, takes the place of Goodall's annual award to the best-dressed pro, a publicity stunt that had strong effect on men's summer apparel business.

taken for webworm injury. The mature worms are from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches long and about the diameter of an ordinary lead pencil. They are usually dirty-white, grayish or brown in color and nearly always marked with a series of stripes lengthwise of the body. Their more robust bodies and longitudinal stripes make even cutworms rather easy to distinguish from the slender and more conspicuously spotted webworms.

In Iowa the 2 lbs. of lead arsenate in 20 gals. of water recommended for webworms has given better than 90% control of cutworms in practically all cases but a few species are not easily controlled by lead arsenate and when these are encountered the use of the regular poison bran bait is recommended.

Formula for poison bran bait:

| | |
|----------------------|---------|
| Wheat Bran | 25 lbs. |
| White Arsenic* | 1 lb. |
| Molasses | 2 qts. |
| Water | 8 qts. |

*One pound of paris green or sodium fluosilicate may be substituted for the white arsenic.

The moist bait should be scattered thinly but uniformly over the infested grass at the rate of 2 lbs. of bait to each 5,000 sq. ft. of turf. To obtain the best results the bait should be scattered in the evening, preferably about sundown.

White grubs, which are the larvae of the common May beetle or June beetle, frequently seriously damage lawns, and recreational turf areas as well as agricultural grass land.

June Beetle Life Cycle

The winter is passed in the soil in both the larval and adult stages. About the time that trees put forth leaves in the spring the adults emerge. They leave the soil at dusk and fly to nearby trees where they spend the night feeding upon the tender leaves. At dawn the beetles suddenly leave the trees almost as if by a military command and return to the soil

where the females deposit their eggs. The eggs hatch in 2 or 3 weeks and the young grubs begin at once to feed upon the roots of grasses and other plants. In the fall the grubs, which are then about $\frac{1}{2}$ inch long, migrate to lower soil levels, usually below the frost line. The warmth of spring brings the grubs to the surface again and feeding on the grass roots is resumed.

Now with their increased size and proportionately increased appetites and a full growing season ahead, they are capable of doing serious damage. Very often by mid-summer the grubs have so completely destroyed the grass roots that large sections of the turf can be rolled up like carpet. Cold weather again sends the grubs to lower levels for the winter and in the spring of the third season they return to the surface where they feed for only a few weeks and then pupate. Later in the summer they change to the adult stage, but these adults do not leave the pupal cells until the following spring. Most of our common species follow this three year life cycle and as a rule grub damage is most severe the second year, i. e., the year following the season of heavy June beetle flights.

Don't Treat Unnecessarily

Efficient control of white grubs presupposes the early detection of the infestation, otherwise emergency methods and increased quantities of insecticides will be required. This, however, does not necessarily mean that all turf should be treated as a general precaution against a possible attack by grubs. Where grubs are a serious problem year after year such a practice is unquestionably commendable but in areas where grubs seldom if ever do appreciable damage to grass-lands wholesale treatment is unwarranted. In such areas the practice of sampling the turf and checking the grub population each year would seem to offer a more logical approach to the problem. The finding of a few stray grubs would serve as a warning, whereas the finding of several grubs per sq. ft. would be interpreted as a demand for immediate treatment of the turf.

Of all the insecticides that have been tested for grub control, acid lead arsenate repeatedly has given the most satisfactory results. When applied early as a preventative measure, 5 lbs. of lead arsenate per 1,000 sq. ft. of turf has given good control; but when an infestation is not detected until the grubs have attained considerable growth and injury is quite

conspicuous, applications as high as 10 pounds per 1,000 sq. ft. are frequently recommended. The manner of applying the poison is unimportant. It may be applied as a dry dust, a spray, or in combination with a topdressing or fertilizer. It is, however, important that the poison receive uniform distribution and that it be washed into the soil, preferably without flooding which might result in large accumulations of the poison in low spots.

Manufacturers Take Over Course at Ohio Equipment Show

GOLF course superintendents and club officials within a 300 mile radius of Columbus, Ohio, are expected to attend an outdoor equipment demonstration to be staged at the Brookside CC, Columbus, Monday, May 22.

This event, sponsored by the Ohio Golf Course Supt's Ass'n, will be handled differently than other outdoor exhibits, in that each manufacturer will be allotted a separate fairway from tee to green to demonstrate his product. Lots will be drawn for selection and the dealers must depend upon their own promotional ability to attract the spectators. Material dealers not handling moving equipment will be given locations suitable for their displays also.

Mack Burke, veteran greenkeeper at Brookside, will act as ring-master for this equipment circus and all manufacturers will be required to furnish their own "barkers" and "pitch-men".

Plans for the evening include a banquet at the clubhouse with Fritz Howell, state A.P. sports chief, acting as toastmaster. "Red" Troutman, president of the American Baseball Assn', is slated to speak, along with his honor, Governor of Ohio, John Bricker.

The Columbus contingent is secretly nourishing a plan to promote the national G.S.A. annual conference some time in the near future in conjunction with an outdoor show, and consequently is making every effort to make this event a gala success.

Lawrence Huber, Wyandot CC, Columbus, president of the O.G.S.A., and John McCoy, secretary-treasurer, greenkeeper at the University GC, Columbus, are assisting Mack Burke with his plans for this interstate event.



Glen Oak CC's new \$30,000 swimming pool provides 68% bathing or wadeable area, which study of bathing demands of other pools of this kind indicates is optimum regulation of depth.

Glen Oak Gets Model Pool

By Bob Worth

PEN REED, president, Glen Oak CC, Glen Ellyn, Ill., on Saturday, April 29, in colorful opening ceremonies, turned over the first shovelful of dirt on the site of the club's new swimming pool, thereby getting construction 'officially' under way. Actual work on the new pool began shortly after May 1st.

The pool has been designed to meet as nearly as possible the bathing demands that study has proved is true of other pools of this kind. Specifically, the demand imposed upon a country club swimming pool is found by experience to be largely in the bathing or wadeable end of the pool, and in this particular pool, 68% of the area is available for this demand. The entire pool, of course, will be swimmable, as the minimum depth at the shallow end is one meter.

Pool Capacity Is 287

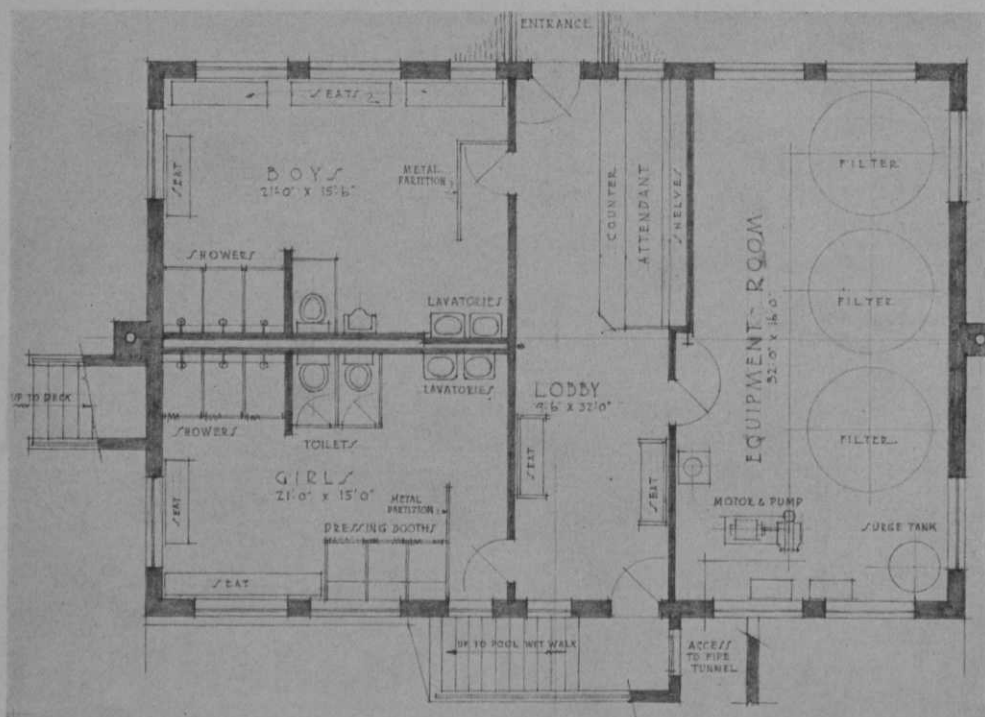
Plans for the new swimming pool call for a length of 75 ft., width at the shallow end of 74 ft., and width at diving end of 35 ft. The pool will have a theoretical capacity of 287 persons, with filtering equipment of sufficient capacity for a 6 hr.

turnover. Water volume will be 141,300 gallons, with a surface area of 3,518 sq. ft. There will be two diving boards, one at 1 meter and one at 3 meters, and depth at the diving basin will be 11 ft. 6 in. Five racing lanes are being provided at the deep end of the pool.

New Bathhouse for Children

A bathhouse for the members' children and guests of the kids, sunk to window level, will be built at the shallow end of the pool. Dressing booths, showers, and lavatories are provided for the boy and girl swimmers in one half of the building; space for counter, attendant and shelves is directly inside the entrance, and waiting lobby next to the girls' dressing section. Equipment room occupies remainder of structure, with motor, pump, surge tank, and three large filters. Stairs from boys section lead directly to upper deck at side of building, while steps from girls' section lead to pool edge in front of bathhouse. Men and women will, of course, dress in the regular club locker-rooms.

Outdoor dancing will now be available



Practicability is theme of new bathhouse to accommodate boy and girl swimmers at Glen Oak. Windows on all sides assure plenty of light and a cheerful atmosphere. Filtering equipment can handle complete water turnover in 6 hours. Roof of bathhouse will be made as outdoor dance floor.

as plans call for construction of dance floor on roof of bathhouse. Large towers at each end of the bathhouse provide ample lighting. Cost of the pool, equip-

ment, and bath facilities has been set at approximately \$30,000. Pool engineers are Battey & Childs, 231 S. LaSalle St., Chicago.

"Practical Lawn Craft" Is Outstanding Turf Text Book

A Review by John Monteith, Jr.

THIS new book on planting and care of turf, as is indicated by the title, is written primarily for those who are interested in lawns. Since the author is director of the Board of Greenkeeping Research, St. Ives Research Station, Bingley, Yorkshire, England, the book naturally shows the influence of golf course turf management. There are also chapters devoted to the care of turf for sport and other purposes.

The purpose of the book, as explained in the preface, is to examine the subject of turf upkeep from the scientific angle.

* By R. B. Dawson, Crosby Lockwood & Son, Ltd., London, England.

It is explained that the "wider interest shown today in turf culture and the desire for advice demand a treatise designed to supply factual information of a reliable nature. Further, recent advances in knowledge of turf grasses, pest and weed control, to mention but a few subjects, demand exposition."

The subject matter covers the whole range of turf management including discussions of grasses, fertilizers, planting, mowing and other maintenance practices. Chapters are devoted to descriptions of pests and the control of insects, diseases, earthworms and vermin. There are chapters also on special problems encountered in the care of turf in shade or in areas such as bowling greens, tennis courts, football and hockey fields, polo fields and race courses.

The material is primarily based on experiments and observations at the St. Ives Research Station since 1929. The abundant information contained in the book is well arranged and convenient for reference.

The book serves to further prove that many of the fundamentals of growing turf are the same in different parts of the world. It, however, also serves to indicate that the applications of those fundamental principles may be entirely different under varying conditions due to soil and climate as well as public demands.

The book is naturally written entirely from the English point of view in spite of the many references to foreign work. It is pointed out that turf growers in England "are blessed with a climate that is favorable to the production of grass" but advantage is not always taken of that "good fortune."

Traces Work of Turf Research

The history of turf investigational work is traced from the first experiments with turf grasses in the Olcott turf garden in Connecticut through to the present widespread activities in this field in various countries. In referring to such work in the United States the author expansively proclaims "experimental work and demonstration plots gradually increased until almost every State College of Agriculture had its demonstration turf garden." Would that this statement were even approximately correct! What a disappointment would be in store for him if he visited all of our State Colleges of Agriculture looking for those turf gardens. He also states that "it is probably true to say that in the United States of America nearly as much attention has been paid to lawns as to grass land" . . . which is also interesting news to us in America.

The grasses recognized as best for lawns are the bents and fescues. Kentucky bluegrass is not considered a desirable lawn grass. The relative ease with which these grasses can be maintained in England as compared with most of the United States naturally affects the application in this country of many of the principles of lawn care as brought out in this book. The seed mixture recommended for general lawn use, for instance, is 7 parts of Cheiving's fescue with 3 parts of colonial bent.

When Mr. Dawson discusses planting new lawns his recommendations, like those found in many books and pamphlets even in this country, stress thorough prepara-

tion of the soil. This preparation includes the raising of preliminary crops and fallowing to kill weeds. Such idealistic preparation is seldom practical in America where home-owners are inclined to think of the interval between finishing a new house and establishing a lawn in terms of days or even hours rather than months. At any rate it is unlikely that we will see here many lawns prepared according to "another method that is worthy of adoption is to grow a crop of early potatoes on the site, getting these off by early or mid-August in time to enable autumn sowing to be carried out."

In the discussion of mowing a comparison is made between a cut of $\frac{1}{8}$ inch and $\frac{3}{8}$ inch. English lawns are certainly cut much more closely than is practical in this country even where bent and fescue thrive. Emphasis is placed on frequent mowing which we also advise even at our much higher cutting.

The chapter devoted to preparation and use of topdressing indicates that lawns must be topdressed in England far more extensively than in America. The fertilizing recommendations are in general similar to those in this country but with greater emphasis on the desirability of acid soil than we recognize in this country.

British Like Sulphate of Iron

The weed problem is discussed in detail and apparently is largely handled by frequent use of sulphate of iron and sulphate of ammonia. Indeed, sulphate of iron would appear to be almost indispensable in British turf management. The author reports that in the United States "sulphate of ammonia and sulphate of iron are regularly used for topdressing to kill weeds" but actually the lawns that receive this combination treatment here are indeed rare.

In recent years the St. Ives Station has given much prominence to the control of "leather jackets" which are grubs that injure turf in much the same manner as do the larvae of the June or Japanese beetles in this country. The control method most extensively used has been applications of ortho-dichlorobenzene. Dawson reports that 400 acres of turf have been treated by this means since 1935. Apparently their injury by grubs is by no means as extensive as ours. It is interesting to note that the arsenate of lead treatment used effectively on so many hundreds of acres to control grubs in the United States is

Golf Club Owners' and Operators' Assn. of Chicago, which includes 41 daily fee courses of the district, is pushing a strong promotion campaign. Among items in the campaign are free group lessons, a golf league divided into several territorial divisions, and numerous tournaments. The association plans a big banquet for golfers at a downtown hotel during the season.

recognized as having some merit in England.

British turf likewise fortunately is not troubled with so many and such destructive diseases as ours. Their mild and relatively infrequent attacks of diseases apparently make it practical to use copper compounds and dilute solutions of malachite green for control. The compounds of mercury are obviously regarded as too dangerous for general recommendation in England, while in this country for many years thousands of pounds of mercury compounds have been used on turf without harm.

In the section devoted to "turf upkeep in some other countries" our American greenkeepers will undoubtedly be interested in the pages referring to the United States. Here we learn that "syringes, hypodermic needles, and oil cans are used for applying weed killers to the crowns of tap-rooted weeds." Also in reference to chinch bugs, "derris dust is the easiest method of control."

This book as a whole represents a distinct step forward in text books of turf management.

Raise \$28,000 in Ten Weeks for Retired Managers' Home

TEN weeks after the announcement of the plan for a resort home for retired club managers was made at the Denver convention of the Club Managers' Assn. of America, \$28,000 has been raised for the enterprise.

Quota is \$150,000, but establishment of the Club Managers Home, Inc., affiliated with the CMA, need not await raising of the entire quota. Officers of property and long term financing have been received from Florida, California, Arizona and Texas. Right now the plan has advanced to the point where facilities are available for caring for any incapacitated member of the CMA.

Chicago chapter of the CMA added an-

other substantial amount when the net proceeds of its annual stag, held at the Morrison Hotel, April 25, were turned over to the Home fund. The Chicago party, put on by a committee of which Jack Febel, Northmoor CC mgr., was chairman, drew about 500, and was a standout success in every respect. Other chapters probably will use the Chicago method of adding to the Home fund.

Organization expenses of the Home proposition are being kept virtually nil because of the appointment of Chicago managers as the organization committee. Barney O'Grady, former president of the CMA, and originator of the Home idea, is chairman of the committee. Other members are Irving Williams, Martin Whalen, Jack Febel, Otto Guenther, Frank Murray, Charles Bangs and Frank Bruenner.

St. John Promises 'Plenty to Do' at Canadian Open

AMERICAN golf professionals and leading amateurs who take part in the Canadian Open, to be held in St. John, New Brunswick, August 17-19, will not lack for something to do in the way of entertainment when they're not batting a golf ball around the Riverside G&CC, the course over which the tournament will be played. Eric Thomson, of St. John, who spends his winters in Pinehurst, is authority for the above statement; he paints a picture of St. John that should make any golfer 'go' for "one of the pleasantest vacation lands in the North, with mountain and seacoast scenery unsurpassed anywhere on the continent." Thomson concludes with the statement, "The fishing will be excellent at this time of the season."

The Riverside course is not so long as tournament courses go, but narrow fairways and trees are an added hazard and make the course a great test of accuracy. The fact that the holes were redesigned by Donald Ross, noted architect and pro golfer, provides sufficient evidence of this fact. Entries can be mailed to B. L. Anderson, secy., Royal Canadian Golf Assn., 357 Bay St., Toronto, Canada. The fee is \$5.00.

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Promotion Co-op Aids Pros

By Herb Graffis

Pros who criticize free class lessons should investigate successful results of 'missionary work' in other professions

IT IS becoming increasingly apparent to the brainy pro that his participation in golf promotion accounts for his earning power, reputation and job stability. Things are moving so swiftly in golf that the pro who does not protect himself by foresighted action in golf promotion, can blame only himself if he loses out during the dawning new era in golf.

There has been some criticism of pro participation in free group instruction. It must be admitted that sacrifices are made by pros engaged in this work, and that the return to the pro may not be 100%. A strange thing about some of this criticism is that it comes from competent professionals who complain that the golf professional does not enjoy professional status similar to that held by doctors, dentists and lawyers.

It would direct the thinking of these men were they to consider the free clinic work done by doctors and dentists who have annual incomes that run into six figures, or the legal "missionary" work done by lawyers who are richly paid. Because a doctor or dentist devotes a morning a week, or more, to a clinic doesn't lead the public to believe that it will get all its medical, surgical or dental work free. Because a high-powered lawyer applies himself to the case of some poor unfortunate doesn't tip off the public to a promise of legal work free.

Group Lessons Advertise Pro

Free group lessons for adults in newspaper golf schools, for high school children or club members' children, not only give the non-tournament pro the advertising he needs but doesn't get, but is a definite factor in building up the demand for private lessons.

In the high school and college instruction in golf there is a trend developing that will have a tremendous effect on pro golf within the next 15 years. Regardless of what pro attitude is, or may be, the school kids are going to be taught golf. The physical educators think highly of the value of golf as a long-term coeducational sport. If the pros don't get in there

now and assume leadership in school golf teaching, the greater part of the work—and the income—will go to physical educators who qualify themselves as golf instructors, just as they have qualified themselves as instructors in track and field sports, football, baseball, swimming, basketball, tennis, archery, and other sports.

It will come as a shock to some pros who are against the effort and inconvenience of sampling schools with a series of lessons for students, to learn that in several states they wouldn't be allowed to teach golf to the kids, even if they'd give 30 hours a week free. Several states demand that instructors have teacher's credentials. A pro could have won a dozen major championships, but lacking teaching credentials acceptable to state educational authorities, he's just another guy with some sticks and rates about even with Joe Louis as a member of the faculty.

Year-round Pro Jobs Seen

After some years pro golf will appreciate what an important job was done for it by the pros who have been volunteering their efforts in school instruction. Eventually there may be college jobs with star football coach salaries, and school jobs that will make the golf pros' job a well-paid 12-month field. If that day comes—and it probably will—the golf pro who isn't thoroughly qualified will be out of luck.

Just as an indication of what's happening, the studious pro might look at such magazines as the Scholastic Coach and the Journal of Health and Physical Education. He will see many instruction articles on other sports, many advertisements of coaching schools in which major sports are featured, but he will see only slight references to golf.

However, the minor references to golf are significant. They indicate that when the golf pros don't go strong after school instruction, the physical educators themselves begin to take the situation in hand. There always are enough alert and foresighted pros to be counted on to lend a hand. Generally, the pro has to start by