TIMELY TURF TOPICS
from the USGA Green Section

THE TROPICAL EARTHWORM

The name "tropical earthworm" (Phere
tima hupeinsis Michaelson) describes a
pest of putting greens which previously has
been known as stinkworm, eelworm, Afri
can earthworm and exotic earthworm. Prof.
Gates of Rangoon, Burma, a world
authority, identified this insect in 1936.
Fleming and Hadley confirm the identifica
tion.

The tropical earthworm differs from the
common earthworm (Lumbricus terrestris
Linn) in that it usually is smaller. Each
body segment has minute bristles which
form a continuous ring, and the body is
more round and firm. It is extremely en
ergetic and often whips about like an eel.

When the worms are active during moist
warm weather, they throw casts on the
greens nearly continuously; this necessi
tates constant poling to break up or remove
the castings. The combination of the cast
ings and the continuous poling greatly im
pairs the putting surfaces' and greatly in
creases labor costs.

The tropical earthworm further is dis
tinguished from the common earthworm in
that it cannot be controlled with the treat
ments which have been successful against
the common earthworm.

Detailed Study Needed

Records of the introduction of this pest
into America are lacking. The Green Sec
tion called attention to it in the early 1930's.
Its presence is being felt along the Atlantic
seaboard from Connecticut to Virginia, and
it is suspected that the worms are dis
tributed as far south as Florida.

Preliminary work by the Green Section on
courses in the Middle Atlantic District
in 1946 indicated that detailed studies
would have to be made because of the ex
treme difficulty in effecting any measure of
control. Subsequent tests have confirmed
this observation, and mercury compounds,
lead arsenate, DDT, Chlordane, Toxophene,
Parathion and benzene hexachloride all
have been unavailing. The economic sig
ificance of the destruction and the inter
ruption of play caused by this pest demands
coordinated effort to find a control.

Following a rapid-fire correspondence
between H. Alfred Langben, of the Sleepy
Hollow Country Club, Scarborough, N. Y.,
who is a member of the USGA Green Sec
tion Committee, and the USGA Green Sec
tion office, the seriousness of the problem
was brought to the attention of Dr. John
C. Schread, Connecticut Agricultural Ex
periment Station, New Haven, Conn., and
Dr. G. H. Ahlgren, Rutgers University,
New Brunswick, N. J.

As a result, a meeting was held at the
Pelham Country Club, Pelham, N. Y., on
the afternoon and evening of July 13, 1948.
The meeting was arranged through the ef
forts of Mr. Langben and Warren E.
Lafkin, of the Golf and Lawn Supply Cor
poration, White Plains, N. Y., cooperating
with the New York-Connecticut Turf Im
provement Association and the Connecticut,
New Jersey and New York Experiment
Stations.

Following an examination of damage on
greens at the Pelham Country Club, with
Arthur Twombley, Superintendent, and a
thorough discussion of the problem, the
group decided to establish a fund to support
needed research on control measures and
the life history of the tropical earthworm.

There was initiated on that date the
"Tropical Earthworm Research Project,"
sponsored by the New York-Connecticut
Turf Improvement Association with the
cooperation of the USGA Green Section,
the Metropolitan Golf Association, the
New Jersey Golf Association and the New
York, New Jersey and Connecticut Agri
cultural Experiment Stations.

STEEL SPIKES v

A Report on

By FRED V.

Varying reports had reached the
Section office on the merits of
lug soles on golf shoes. The
writer decided to look into the
situation and make a study.

W. E. Kavenagh, Goodyear
Rubber Co., Inc., Windsor, Vt.,
contacted Mr. Watson, who
was able to get some
information on the subject.

Tests were conducted on an
two-year-old bent putting-green tur
ning on native soil (silty cl
And several other greens
did not have special preparation. The
Members of the Sponsoring Committee designated to raise the necessary funds are: H. Alfred Langben, Chairman, Sleepy Hollow Country Club, Scarborough, N. Y.; Glen H. Van Bureen, Siwanoy Country Club, Bronxville, N. Y.; David M. Goodstein, Quaker Ridge Golf Club, Scarsdale, N. Y.; and Harold LeFurgy, Treasurer, Winged Foot Golf Club, Mamaroneck, N. Y.

Members of the Research Committee designated to outline and direct the project are: Dr. G. H. Ahlgren, Chairman, Rutgers University, New Brunswick, N. J.; Dr. J. A. Adams, New York State Agricultural Experiment Station, Geneva, N. Y.; Dr. J. H. Schread, Connecticut Agricultural Experiment Station, New Haven, Conn.; and Dr. J. F. Corman, Cornell University, Ithaca, N. Y.

The greenkeeping profession is represented by Carlton Treat, Montclair Golf Club, Montclair, N. J.; Ben Zukosky, Links Club, Roslyn, N. Y., and Lloyd Scott, Woodway Country Club, Springdale, Conn.

Mr. LeFurgy is receiving contributions from golf clubs to defray the expenses of this research project. The USGA Green Section urges clubs to contribute to the program because of its importance and because sufficient funds are not available from the USGA or experiment stations. Contributions should be sent to Harold LeFurgy, Winged Foot Golf Club, Mamaroneck, N. Y.

Greenkeepers and superintendents who suspect the presence of the tropical earthworm are invited to send specimens to Dr. G. H. Ahlgren, Rutgers University, New Brunswick, N. J., who will have them identified by the Zoology Department. The worms may be mailed in a closed bottle containing moist soil. Dr. Ahlgren will welcome correspondence concerning observations on possible control measures or other pertinent information which may assist the Research Committee in its work.

(Acknowledgment: We acknowledge with thanks the material prepared by Ralph E. Engel and Gilbert H. Ahlgren of Rutgers University, which was drawn upon freely in the preparation of this report.)

STEEL SPIKES vs. LUG SOLES FOR GOLF SHOES

A Report on 1948 Trials by USGA Green Section

By FRED V. GRAU and MARVIN H. FERGUSON

Varying reports had reached the Green Section office on the merits and demerits of lug soles on golf shoes. The matter came to a head following a talk with Richard Watson, Superintendent at Chevy Chase Club in Washington, D. C., who reported that lug soles were being prohibited at some courses because of damage to the greens.

W. E. Kavenagh, Goodyear Tire and Rubber Co., Inc., Windsor, Vermont, was contacted by Mr. Watson, who approached the Green Section for an impartial test. Shoes were furnished by Mr. Kavenagh, one pair fitted with standard steel spikes, the other with lug soles.

Tests were conducted on an area of five-year-old bent putting-green turf which was growing on native soil (silty clay) and had had no special preparation. Tests were begun August 12, 1948. In order to simulate heavy foot traffic, single paths were laid out lengthwise on the turf area, which was 12 feet by 30 feet:

<table>
<thead>
<tr>
<th>PATH No.</th>
<th>Description</th>
<th>Average weight of man (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATH No. 1</td>
<td>Lug sole shoe</td>
<td>145</td>
</tr>
<tr>
<td>PATH No. 2</td>
<td>Steel spike shoe</td>
<td>170</td>
</tr>
<tr>
<td>PATH No. 3</td>
<td>Lug sole shoe</td>
<td>145</td>
</tr>
<tr>
<td>PATH No. 4</td>
<td>Steel spike shoe</td>
<td>170</td>
</tr>
</tbody>
</table>

Each path (two footprints wide) was walked for 25 round trips each day on August 12, 13, 16, 17, 18, 23, 24, 25, 26. On August 12 the walking was done by Mr. Kavenagh and Dr. Grau. Thereafter the walking was done by Charlie Wilson, James Wilfong and Alexander Radko of the USGA Green Section.

On August 12 the turf was soggy from