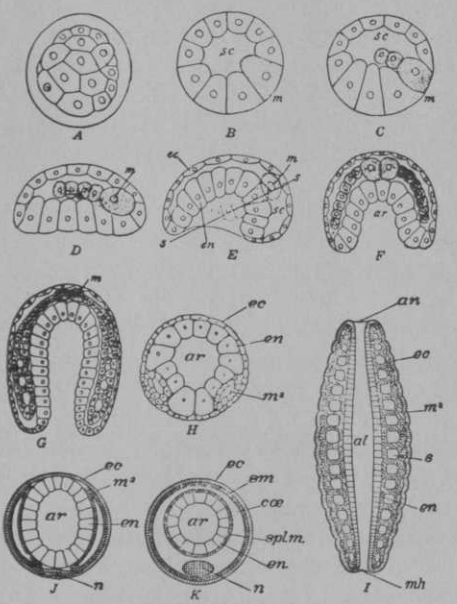

TURNING A PROBLEM INTO AN ASSET

RATHER THAN VIEW THE EXISTENCE OF EARTHWORMS ON HIS COURSE AS A PROBLEM, THE AUTHOR DECIDED TO INVESTIGATE THEIR POSSIBLE ADVANTAGES—AND FOUND MANY

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A casual remark by one of my members prompted me to investigate the relationship between earthworms and fairway turf. In the late summer of 1967 one of the crew members complained to me of "mud" building up on the rollers of the 30-inch mower units. A check of the fairways showed that the problem was occurring on the number nine fairway and that the mud was actually worm casts. I knew from past experience that 10 per cent granular chlordane at the rate of 100 pounds an acre (10 pounds actual) would control the earthworms. For budgetary reasons, I then planned to control the worms by doing half the fairways at once and the remaining half the following spring. I happened to mention this plan to a member who expressed surprise, because worms "make top soil."

I remembered reading at one time some estimates of the amount of soil brought up by worms, but I needed solid facts to work with. I found them in "Handbook on Soils" (Brooklyn Botanic Garden, 1000 Washington Ave., Brooklyn, N.Y.). The material in the handbook dealt mainly with gardens, but was easily converted to golf course application.

Worms do indeed benefit the soil through their digestive-digging action: by the material which is restructured as it passes through their bodies, by their network of channels (slime-coated to resist washing by rain or irrigation) that is in effect aeration, and by conserving nitrogen in their bodies as protein during the winter. This protein is released again as nitrogen in the spring when the old worms die and the new generation takes over. The N release is often deep in the soil where it is needed for good turf root structure. One study estimated the N at 40 pounds an acre, equal to one application of fairway fertilizer! This is organic fertilizer of the highest quality and at no cost.

Figuring at the low rate of three worms a square foot, an acre would contain over 130,000 worms. If each brought up one ounce of finely granulated organic-laden soil (and I think it is much more) a week, this means four tons an acre or 160 tons on the fairways of the average 18-hole course. Multiply that number by the weeks that the worms are active: roughly eight weeks in the spring and eight in the fall. It staggers the imagination!

Needless to say, I re-evaluated the problem and decided not to destroy

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these aids to better fairways. The casts were troublesome only in a few areas. We made an effort to mow the grass when it was dry and put scrapers on the rollers of the 30-inch units.

If these creatures are so beneficial what can be done to encourage them? It is recommended that mulches be applied to gardens during the winter to protect the worm population from deep freezing. This practice is hardly necessary, desirable or practical on fairways. The turf acts as a protection. Of course fairway watering promotes the moist conditions for maximum worm activity, and I have found that organic fertilizers (natural) seem to encourage them. Chemical fertilizers seem not to harm worms, but do not provide humus, which the organics do. In my experience neither 2, 4-D nor the MCPP products at normal rates have any effect on worms.

Sometimes it is recommended that worms be purchased and liberated as breeders, but this is seldom necessary. If the soil is suitable (sandy or gravelly soils will support worms less well), they will be present in suitable numbers. In short there is not much a golf course can do that they do not do now as normal maintenance, except withhold insecticides unless they are urgently needed.

A golf course seldom is a product of nature, but in the case of the lowly worm, it seems golf courses have everything to gain and nothing to lose by letting nature have her way. □

Editor's note: GOLFDOM realizes the controversial nature of the above article. One problem with earthworms raised by Dr. Fred Grau is that earthworm casts can be slicked down by traffic to the point where the grass is smothered under the mashed and compacted casts. The casts also make walking a chore and, obviously, do not help a golf shot. "There is quite a difference between the desirable agronomic effects of earthworms in turf and the undesirable effects of the casts on the playing quality of the turf," says Dr. Grau.

GOLFDOM welcomes any comments that our readers might have on this topic.