opinion of the above writer and not as a proof that arsenate of lead is a "kill-all" in fine turf. He presents no technical data or other substantiation of his stand on arsenate of lead.

I realize that the very thought of adding arsenate of lead to soil outrages all the theories and sacred ideas of the old school who consider such an action only as the violation of all so-called natural laws. I can remember not many years ago when the spraying of fruit and shade trees with arsenate of lead first came into vogue. All the wise men designated it as a "kill-all" and tried to get legislatures to make such spraying illegal. It would kill the trees, and would kill the persons who did the spraying, etc., etc., ad infinitum, but please take note that they are still spraying trees with arsenate of lead and will continue no doubt to do so until a better and easier method is found.

All new methods, inventions and innovations have to undergo this barrage of criticism but if they are sound they emerge unscathed and ultimately become an accepted, taken for granted part of our daily lives. So in the same way, I am entirely satisfied that the use of arsenate of lead in fine turf will be given a thorough trial by turf enthusiasts all over the world, and, if it is as sound a method as my six years of experimental work lead me to believe, it will take its proper place in the accepted system of turf maintenance.

I do not intend to take the space here to refute the argument for arsenate of lead as a "kill-all" because the value of arsenate of lead in fine turf is now under discussion by myself in a series of articles appearing in GOLFDOM. I would however suggest that the gentleman do a little bit of studying in elementary toxicology, plant physiology and the chemistry, physics, and biology of soils. It would certainly help him to form a revision of opinion on the interaction of arsenate of lead, soil and turf grasses.

Soil Action

The action of soil upon arsenate of lead is not a slow or long delayed process, in fact it begins at once and continues for some time before a chemical equilibrium is set up between the soil and the arsenate. At the end of this time some of the arsenate of lead has broken down forming basic arsenate of lead which is virtually insoluble in the soil solution and is non-toxic to grubs, worms and vegetation. Soluble arsenate in the form of arsenates or arsenites is also formed, this being toxic to the majority of weeds, to grubs and worms, but non-toxic to the majority of fine turf grasses. The remainder of the arsenate of lead originally added to the soil stays in the soil chemically unchanged for long periods of time, years in fact, and does not influence plant growth one way or the other. It simply acts as a grub or worm poison. Therefore if the grass is to die, or the soil to become barren, as a result of the application of arsenate of lead it should take place within a few weeks and not 5 years later as the gentleman, contends. I have turf at Riverton which has been arsenated for 6 years. It is still in first-class condition.

If arsenate of lead did not break down in soil until 2, 3, or 5 years had passed it would be valueless as a weed control agent because it is the soluble arsenate so formed which acts in this capacity. If arsenate of lead were so stable that it did not break down in soil it would be valueless as a worm and grub poison because it would then be too stable chemically to break down in the stomach of the worm or grub and would fail to liberate the soluble arsenic which poisons.

As far as earthworms are concerned you may have and welcome. I don't want them neither do I want anything else on a golf green which interferes with true and sure putting.

Worthington Mower in New Chicago Office

WORTHINGTON MOWER CO. now is occupying its new Chicago office at 517-21 South Laflin street. There is approximately 50 per cent greater space in the new office and warehouse than the company had previously in Chicago.

WINTER-KILL usually means the soil is water-logged. Remember this when you are making your spring check-up on the course's condition.