

our grass diseases and parasites may be roughly drafted into three main classes. These are—

(1) The mildews and microscopical fungoid diseases which attack and destroy the actual tissue, or live as parasites on the grass plants.

(2) Disease or weakening of the grass leaves or roots that originate through a poisonous or toxic condition of the soil, caused by fungoid growth in the soil itself.

(3) Parasitic plants which attach themselves to grass stems and roots by means of haustoria, and rob the plant of food material or strangle it.

The first division contains the various rusts, mildews, etc., and possibly does the most harm to the whole order of graminæ. The rusts and *Takeall* of wheat, the *Black Mould* of sugar cane, *Ergots* of rye grass are all fungoid disease. The second division is composed of those cases in which the grass is killed by the fast-growing slime fungus, *Fairy Rings*, etc., whilst the third division of plant parasites causes the partial or total destruction of grass by such plants as *Yellow Rattle*, *Dodder*, *Bastard*, *Toad Flax*, and other parasites.

Of the parasitic fungi belonging to the first division, the *Smut* group is the most injurious, not only to corn but to grasses as well. Those *Smut*s known as *Tillitias* will often do a lot of harm to a crop of meadow hay, especially in a dry windy summer. For golfers *Smut* may be said to have some advantage, as one variety (*Tillitias decipiens*) makes *Agrostis* much dwarfer in habit, and it is said that *Agrostis pumila* is nothing more than *Agrostis vulgaris* dwarfed by this particular *Smut* disease.

There is, however, another class of *Smut*, or rather a sub-genus of *Ustilago*, known as *Cintractia Patagonica*, which, it is believed, was introduced into this country some years ago by an American, with some infected *Brome* plants. This particular *Smut* attacks various *Brome* grasses, *Couch*, *Brachypodium*, etc., and appears to be spreading, ac-

ording to the latest reports.

Dilophospora Graminis is another comparatively rare fungoid pest that usually attacks corn. It is also found on the flower panicles of *Dogstail*, *Fescues*, *Triticums*, etc.

Still another disease of the *Smut* group is that known as *Takeall* in wheat, which is a bad fungoid disease in Australia and France in the case of wheat crops. It is also found to a lesser degree to attack *Couch* grass and *Bromes*. *Fusiporium Lolii* is a fairly common fungoid growth found on *Holcus*, *Lolium*, *Paspalum*, etc., in the vicinity of rivers and marshes, the grass blades being covered with reddish plush-like spots. The *Hemibasieii* are another group of *Smut* fungi which attack grasses and cereals, especially on clay soils.

The second installment of Mr. Baldwin Pugh's lecture will appear in the October issue of THE GOLF COURSE.

Greenkeeping Notes

After the fall seeding is done, the seed should be carefully covered to a depth of not exceeding one-quarter of an inch. Many grasses will not grow at all if covered deeper than this, and so the point necessitates careful attention. The best way to cover the seed is with a brush harrow. After the seed is covered with soil, go over the surface with a light roller. Roll first east and west and then north and south. A light roller is far superior to a heavy one, and the latter should under no circumstances be used. A two hundred-pound roller is heavy enough. Go over the ground several times rather than use a heavy machine. A light roller used in both directions several times will make the soil of a very even firmness all over the green. Careful rolling is sometimes the making of a green, and quite frequently careless rolling is responsible for poor and erratic germination of the seed. This will be noticed if any spots are missed by the roller, as they will be quite bare. If the surface of the green is equally firm in all parts, the germination of the seed will be very even over the entire area.