Bulletin of the Green Section' of the U.S. Golf Association

'A MONTHLY PERIODICAL TO PROMOTE THE BETTERMENT OF GOLF COURSES

PUBLISHED BY THE GREEN COMMITTEE OF THE U. S. GOLF ASSOCIATION AT 4.56 LOUISIANA AVENUE. WASHINGTON, D. C.

Entered as second-class matter December 16, 1921, at the post office at Washington, D. C., under Act of March 3, 1879 EDITORIAL OFFICES: P. 0. Box 313, PENNSYLVANIA AVENUE STATION, WASHINGTON, D. C.

WASHINGTON, D. C., DECEMBER 31, 1922

Index to Volume II (1922)

A, B, C of golf course hydraulics, 216. Accounts, budgets, preparation of, 72. area needed for a. course, 278. hooks on, 107, 219. maintenance, cost distribution, 124. standard, 141, 203, 286. systems of standardized, remarks of E. landscape gardening, books on, 107, 218. nature, trying to beat, 177. nine and eighteen-hole courses, number J. Marshall, 68. at Fall River Country Club, 286. Acidity of soil, 58, 295. of, 303. principles of, 265. site, selection of, 38. Acid phosphate (see Fertilizers). traps, 232. Agriculture, Department of, cooperating, 51. Area needed for a golf course, 278. Are moles held in check by blacksnakes? 157. Agrostis canina (see Velvet bent, under Bent Army worm, bulletins on, 108. stolonifera (see Creeping bent. under Bent Arsenic, white (see Sodium arsenite). Arsenite of soda (see Sodium arsenite). Artesian well water, 251. grasses). tenuis (see Rhode Island brnt, under Bent Ashtabula Country Club, tractor and mower grasses). Alfalfa. Number of seeds per pound, and combination, illustration of, 18. rate of seeding, 91. Atlanta Bermuda grass, 99. Alkaline soils and bent grasses, 23. Automobiles, parking arrangements for, 7. grasses in general! 58. Back numbers' of 1921 Bulletin, 17, 82, 107. Amateur, championship for 1922, announce-326. ment of, 171, 202. Bacterial inoculation of soil, definition of the term, 27. Ammonium sulfate (see under Fertilizers). Bagworms, bulletins on, 108. Baking (see under Soil). Analyses, of soil, 221. Ball. Limiting the power of the golf ball, cost (see under Cost). Annual bluegrass (see Poa annua). Bannockburn 'Golf Club, leafhoppers at, 311. meeting, first, of Green Section, proceed-Bare places, grass for, 167. ings of, 49-80. Barnyard manure (see under Manure, under Green Section, January, 1923, notice of, 326. Fertilizers) . U. S. Golf Assn., January, 1923, Barrett, Frank B., remarks of on economizing notice of, 326. maintenance, on mowers, on tractors, etc., report of chairman of Green Committee **59**, 78. 79. Bed, soil. 116. turf, 333. Bee hills, 198. for 1921, 2. reports desired from clubs, 17, 30. Ants, Argentine, bulletins, on, 108. white bulletins on, 108. Appreciation of Green Section's work, 138. Beetle (see (Grubs). Bent grasses, alkaline adaptations of, 23.—California adaptations, 134, 215, 249. characteristics and uses of, 258. creeping (or "carpet") (Agrostis stolonifora), characteristics and uses of, 259. Approach areas, upkeep of, **240**. Architecture (see also **Meditations** of a **Peri**-

patetic Golfer, also Bunkers also Hazards,

also Trees).

in German mixed bent, 23. plugging with, 328. vegetative propagation of, 295 (see also <i>Vegetative propagation</i>).	Blasting stumps, bulletins on, 108. Blisters, pebble, on greens, 314. Bluegrass, annual (see Poa annua). Canada, brown-patch susceptibility in
where adapted for putting green use,	Florida, 309.
100. Colonial (Rhode Island bent, which also	fairways, ?21. rough, 133, 257.
see).	seeding rate, 257.
California adaptability, 249. characteristics and uses of, 259.	English, 222. Kentucky, adapted localities, 214, 256.
seed germination, 273.	brown-patch susceptibility in Flor
converting redtop into bent greens. 2%	ida. 309.
German, characteristics and uses of, 259. preference for, 23.	fairways, 234 250, 256, 279, 299. lime responsiveness, 58, 257.
seed, composition of, 23, 31.	seed, bulletin on, 109.
harvesting in Germany (illustration), 90.	germination, 162, 257, 273. number to the pound, 91.
importations of, 259.	price of, and 1921 crop, 29.
price of and 1921 crop , 29.	nurity. 162. 257.
source of, 31, 90. viability of, 40.	bulletin on, 109. weight per bushel, 257.
seeding, rate of, 92.	seeding rate, 91, 208, 235, 250. 257
turf resulting from, 31. localities adapted to, 215.	treatment of, 256.
Rhode Island (Agrostis tenuis), charac-	white clover mixture, 299.
teristics and uses of, 259.	rough-stalked (see Bird grass).
seed: price of, and 1921 crop, 29.	Bone meal (see under Fertilizers). Books and bulletins for reading and refer-
seeding, rate of, 92, 133, 141.	ence, 107, 218, 268, 345.
value of, 23. seed germination, 273.	Bordeaux mixture, in brown-patch treatment 109, 185, 206.
supply conservation, 255.	dusting the greens at Skokie, 269.
seeding rate, 92, 133, 141, 207. southern limit of its range, 134 , 215.	earthworms, effect on, 116. grass, effect on, 116.
vegetative propagation (see Vegetative	bulletins on, 108.
propagation).	corrosive sublimate added to, 135.
velvet bent (Agrostis canina), characteristics and uses (with illustration),	lime added to, 135. preparation of, 109.
171, 259.	Boy Scouts as caddies, 310.
German mixed bent content of, 23. New England adaptations, 100.	Broadmoor Golf Club concrete manure pit 327.
vegetative propagation, 295. Bermuda grass, characteristics and uses	Brome grass, number of seeds per pound and rate of seeding, 91.
(with illustration), 97, 289.	Brooks Bros., "A Box of Matches," 268.
distribution of, 97. fairways., use on. 297.	Brooks, Wm. F., remarks of on spike-toothed rollers, 56, 61.
localities adapted to, 215.	on tractors. 69.
putting greens, maintenance of, 209, 289. Atlanta , Ga., and Dallas, Tex.,	Brown-patch and the Bordeaux treatment 109, 185, 206.
151. • Danas, Tex.,	dusting the greens at Skokie, 269.
Richmond, Va., 289.	Florida experiments, 307.
mowing, 96. seed, number per pound, 92.	southern, 45, 57, 307. treatment of, 57, 59, 109, 185, 206.
seed. number per pound, 92. seeding rate, 92, 97, 164, 289.	Brown top, 22.
topdressing, 289. Betterment of heavy clay fairways, 281.	Budgets (see under Accounts). Building and maintain'ng an 18-hole course
Bichloride of mercury (see Corrosive sub-	on moderate fees and keeping out of debt
limate).	236.
Biltmore-Forest club, planting bent plugs, 328.	nine-hole course, 282. Bulletins, Green Section, back numbers of
Bird grass, description, illustration, uses, 210.	17, 82, 107, 326.
seeding rate, 258Birds, attracting by shrubbery, 338.	contributions solicited. 76. enlarged scope of, 326.
books on, 107.	reading and reference, 107. 218, 345.
Friendly birds on the golf course, 229.	reprint of 1921 volume, 326.
Blacksnakes and moles, 157.	Bunkers, architecture of, 266 (see also Archi

```
tecture).
                                                               slotted and grooved, discussion of their
      dont' lay out too soon, 159.
                                                                 use, by Mr. Howard F. Whitney, 28.
      heroic, 118.
                                                          Coatesville Country Club, course construc-
      raking, 159.
                                                            tion and maintenance, 236, 282.
                                                          College instruction at Cornell University, 302.
      whiskers (rough grass) on, 120.
 Burning from fertilizer applications, 46, 166,
                                                          Colonial bent (see under Bent grasses).
                                                          Committees and sub-committees of the U. S.
      the rough in fall, 306.
      grass burning for leafhopper control, 313.
                                                             Golf Association, 83:
 Burnt lime, 20.
                                                          Complaints by club members, 139.
 Business management, poor, 245 (see also
                                                          Compost, ammonium sulfate added to, 36,
   under Cost).
                                                             296.
 Buying seed for northern fairways, 279.
Byers, J. F., remarks of at annual meeting
of Green Section, 51.
                                                               forest litter, 189. grinding, 267, 268, 283, 307.
                                                               leaves, 166, 179.
                                                               lime added to, 347.
 Caddies, books and pamphlets on, 219.
Boy Scouts as, 310.
                                                               manure in, 160, 189, 221, 319.
                                                               mixer at Christiana Country Club, de-
      situation discussed by Mr. Howard F.
                                                                  scription and illustration, 307.
 Whitney, 28.
Calcium carbide for destroying land-crabs,
                                                               peat in, 319.
                                                               pine needles in, 189. preparation of, 20.
Canada bluegrass (see under Bluegrass).
                                                               screening, 155, 267, 268, 283, 307. sodium nitrate added to, 36, 167, 296.
   turf grasses for, 284.
Capriola dactylon (Bernuda grass, which see). Carbon bisulfide, bulletins on, 108.
                                                               top-dressing use, 20.
                                                          water, saturating with, 321.
Concrete, books on, 107, 218, 345.
manure pit, 321, 327.
Congestion on short holes, 255.
          grub control with at Essex County
             Country Club, 11.
           land-crab eradicating, 323.
      dioxide as a plant stimulant, 197.
                                                          Construction, area needed for a course, 278.
 Carpet bent (see under Bent grasses).
                                                               books on, 107, 218.
 grass, localities adapted to, 216.
Cart, motor, improvised by Kernwood Country Club, 236.
                                                               business management in, 245. cost average, 324.
                                                               at Coatesville Country Club, 282. economizing in, 236, 278, 324.
 Caterpillars, 43, 56.
 Caustic soda in weed control, 291.
                                                               hastening, inadvisability of, 177.
 Championship events for 1922, announce-
                                                               putting greens, 207, 246, 248, 315.
 ments of, 170, 202, 226.
Changing cups., 261, 328, 341.
Charcoal as a fertilizer, 296.
                                                          Contractors, care of machinery by, 317.
                                                          Control of gulf-playing instruments; discussion by Mr. Howard F. Whitney, 26.
 Check plqts, value of, 205.
                                                          Convenient way to plan hazards, 288.
 Chemical analyses of soil, 221.
                                                          Cooperative purchasing, 74.
      fertilizers for fairways, 321. weed killers, 291, 321.
                                                          Copper sulfate (Bordeaux mixture, which
                                                             see).
 Chemistry (agricultural), books on, 218.
                                                          Corneil University, course of instruction at,
 Chicken manure (see under Fertilizers).
 Chickweed (see under Weeds).
                                                          Corrosive sublimate, Bordeaux in mixture
 Chlorion (Ammobia) pennsylvanicum (digger
                                                             with, 135.
   wasp), 297.
                                                               soil as affected by, 42.
 Chocolate drop green, picture of, 145.
                                                               specifications for, 162.
 Christiana Country Club, compost mixer
                                                          Cost accounting cards, 287.
   used by, 307.
                                                                    distribution of, and standardizing
 Cinders in putting
                         green construction, 222.
                                                                       maintenance costs, 124, 138, 141,
 Clay (see under Soil).
                                                                       286.
 Clearing land, bulletins on, 108.
                                                               building and seeding a 9-hole course, 282.
 Clippings, removal of from putting greens,
                                                               construction, average, 324.
                                                                    economizing in, 236, 245, 278, 282.
 "Closed down for repairs," 37.
                                                               fees of courses, reducing. 62, 67, 74, 77. financing and organization, 142, 278.
 Clover seed, number per pound of various clovers, also seeding rate, 91.
                                                               financing and organization, 142,
                                                               maintenance economies, 146, 240.
Frank B. Barrett's remarks, 59, 78,
      potash fertilizers encouraging, 165.
      white (see White clover).
 Club members and the Green Committee. 139.
                                                                    A. J. Hood's remarks, m-74.
      Green Section member clubs, 190, 220, 248, 294, 319, 344.
                                                                    costs, distribution of, 124.
                                                                         Hillsdale Golf Club, 146.
      shafts, supply of 326, hickory for, 241.
```

Lebanon Golf Club, 146.

```
tecture).
                                                                 slotted and grooved, discussion of their
      dont' lay out too soon, 159.
                                                                   use, by Mr. Howard F. Whitney, 28.
      heroic, 118.
                                                            Coatesville Country Club, course construc-
                                                              tion and maintenance, 236, 282.
      raking, 159.
                                                            College instruction at Cornell University, 302.
      whiskers (rough grass) on, 120.
 Burning from fertilizer applications, 46, 166,
                                                            Colonial bent (see under Bent grasses).
   223. ž65.
                                                            Comminutoi (see Grinder).
      the rough in fall, 306. grass burning for leafhopper control, 313.
                                                            Committees and sub-committees of the U.S.
                                                               Golf Association, 83:
                                                            Complaints by club members, 139.
 Burnt lime, 20.
                                                            Compost, ammonium sulfate added to, 36,
 Business management, poor, 245 (see also
    under Cost).
                                                              296.
 Buying seed for northern fairways, 279. Byers, J. F., remarks of at annual meeting of Green Section, 51.
                                                                 forest litter, 189.
                                                                 grinding, 267, 268, 283, 307.
                                                                 leaves, 166, 179.
lime added to, 347.
manure in, 160, 189, 221, 319.
 Caddies, books and pamphlets on, 219. Boy Scouts as, 310.
                                                                 mixer at Christiana Country Club, de-
      situation discussed by Mr. Howard F.
                                                                    scription and illustration, 307.
         Whitney, 28.
                                                                 peat in, 319.
                                                                 prine needles in. 189.
preparation of, 20.
screening, 155, 267, 268, 283, 307.
sodium nitrate added to, 36, 167, 296.
 Calcium carbide for destroying land-crabs,
   159.
Canada bluegrass (see under Bluegrass).
   turf grasses for, 284.
 Capriola dactylon (Bermuda grass, which see).
                                                                 top-dressing use, 20
 Carbon bisulfide, bulletins on, 108.
                                                                 water, saturating with, 321.
           grub control with at Essex County
                                                            Concrete, books on, 107, 218, 345.
           Country Club, 11. land-crab eradicating, 323.
                                                                 manure pit, 321, 327.
                                                            Congestion on short holes, 255.
      dioxide as a plant stimulant, 197.
                                                            Construction, area needed for a course, 278. books on, 107, 218.
 Carpet bent (see under Bent grasses).
      grass, localities adapted to, 216.
                                                                 business management in, 245.
 Cart, motor, improvised by Kernwood Coun-
                                                                 cost average, 324.
   try Club, 236.
                                                                      at Coatesville Country Club, 282.
 Caterpillars, 43, 56.
                                                                 economizing in, 236, 278, 324.
                                                            hastening, inadvisability of, 177.
putting greens, 207, 246, 248, 315.
Contractors, care of machinery by, 317.
Control of gulf-playing instruments; discussion by Mr. Howard F. Whitney, 26.
 Caustic soda in weed control, 291.
 Championship events for 1922, announce-
 ments of, 170, 202, 226.
Changing cups, 261, 328, 341.
Charcoal as a fertilizer, 296.
 Check plqts, value of, 205.
                                                            Convenient way to plan hazards, 288.
 Chemical analyses of soil, 221.
                                                            Cooperative purchasing, 74.
      fertilizers for fairways, 321. weed killers, 291, 321.
                                                            Copper sulfate (Bordeaux mixture, which
                                                              see).
 Chemistry (agricultural), books on, 218.
                                                            Corneil University, course of instruction at,
 Chicken manure (see under Fertilizers).
                                                               302.
 Chickweed (see under Weeds).
                                                            Corrosive sublimate, Bordeaux in mixture
 Chlorion (Ammobia) pennsylvanicum (digger
                                                              with, 135.
    wasp),?97.
                                                                 soil as affected by, 42.
 Chocolate drop green, picture of, 145.
Christiana Country Club, compost mixer
                                                                 specifications for, 162.
                                                            Cost accounting cards, 287.
    used by, 307.
                                                                      distribution of, and standardizing
 Cinders in putting green construction, 222.
                                                                         maintenance costs, 124, 138, 141,
 Clay (see under Soil).
 Clearing land, bulletins on, 108.
                                                                 building and seeding a 9-hole course, 282.
 Clippings, removal of from putting greens,
                                                                 construction, average, 324.
                                                                      economizing in, 236, 245, 278, 282.
 "Closed down for repairs," 37.
Clover seed, number per pound of various clovers, also seeding rate, 91.
                                                                 fees of courses, reducing. 62, 67, 74, 77. financing and organization, 142, 278.
                                                                 financing and organization, 142,
                                                                 maintenance economies, 146, 240.
Frank B. Barrett's remarks, 59, 78,
      potash fertilizers encouraging, 165.
      white (see White clover).
 Club members and the Green Committee. 139.
                                                                      A. J. Hood's remarks, m-74.
      Green Section member clubs, 190,' 248, 294, 319, 344. shafts, supply of 326, hickory for, 241.
                                                                      costs, distribution of, 124.
                                                                           Hillsdale Golf Club, 146.
```

Lebanon Golf Club, 146.

INDEX TO VOL. II (1922)

Portsmouth Country Club, 142.	315, 324,
small clubs, 146. standard, 138, 141, 203, 286.	tile drainage, 315. Druid Hills Golf Club, Bermuda grass åt , 152.
management economies, 37, 77, 245, 278,	Dues (see <i>Fees</i>).
279.	Dust, iron, for oiled greens, 144.
seeding, 282. soil-bed construction economies, 11.6.	Dusting guns for Bordeaux powder, 114, 115,
Cottages, at Portsmouth Country Club, 142.	269.
Cotton seed meal, 321.	Early spring work on a golf course, 87.
Couch-grass (see Quack grass).	Earthworm extermination; 42, 116.
Course, area needed for, 278. increase of courses in the United States,	Economizing (see under <i>Cost</i>).
303.	Effect of trampling and rolling on turf, 148. Eighteen-hole courses , number of, 303.
instruction course at Cornell University, 302.	Ekwanok Country Club, Boy Scouts as cad-
number of courses in the United States	dies at, 310. England, number of golf courses in Great
and Great Britain, 303.	Britain, 304.
with limited means, 279.	English bluegrass, 222.
Courtesy of the game, 120.	rye-grass (see under Ryr-grasses).
Cow manure (see under <i>Fertilizers</i>). Crab-grass (see under Weeds).	Enlarged scope of the Bulletin, 326. Essentials of construction and maintenance
Crabs (see Crawfish).	of putting greens, 207.
Crawfish, extermination of, 36, 159, 323.	Essex County Country Club, success with
Creeping bent (see under <i>Bent grosses</i>). thyme on' fairways, description, uses,	carbon bisulphide in grub control, 11.
illustration of, 309.	European red fescue (see Fescue, red). Euscelis (A thysanus) exitiosus, 3 11.
Crested dog's-tail, 274.	Experience, value of opinions based on, 204.
Crop of grass seed and the wholesale mar-	with untested seed, 306.
ket, 29. Culti-packer, 234.	Experiments, check plot value, 205. grass garden, -preparations for, 21.
Cup, changing the, 261, 328, 341.	ooinions based on experience. value of,
Cutters, sod, 334.	204:
Cutting, (see <i>Mowing</i>). Cutworms, bulletins on, 108.	sense or nonsense in, 106.
Cyanide of soda (see Sodium cyanide).	see also under Cost).
Cynodon dactylon (Bermuda grass, which see).	Facts about our northern golf grasses, 256
Daisies (see under $Weeds$).	Fairways. clay. betterment of, 281.
Dallis grass, 346.	fertilizing. 321 (see also under <i>Fertilizers</i>).
Dandelions (see under Weeds).	moving (see under $Moving$).
Deltocephalus inimicus, 311.	northern. grasses for, 21. 22, 42, 44, 133,
Denver Country Club approach areas, up- keep of, 240.	161 , 164, 210. 214. 233, 234, 250. 256.
fairways, watering, 121.	279. 284, 298. 309. quack grass for 46 . 174.
Department of Agriculture, in cooperation	renovating, 101, 233.
with U. S. Golf Association, 51. Desmodium triflorum, 322.	rolling. 87 , 234, 249, 290.
Detroit District Golf Association, 70.	seed buying, 279. seeding. new, 234, 235. 279.
Digger wasps, 297.	preparation for. 54, 234.
Digitaria Serotina (Dixie grass), 13.	reseeding, 22. 233.
Disking, 56, 61, 234. Distribution of maintenance costs, 124 (see	spring vs. fall seeding, 119.
under Cost).	sheep's fescue, as a pest on, 316. southern. brown-patch troubles 307.
Distributor, fertilizer, success with, 265.	grasses for, 13, 46. 174. 214. 297, 307,
District Green Sections, Detroit, 70. Twin-City (Minneapolis-St. Paul), 31.	322.
Divots, replacement of, 175.	top-dressing, 233. watering (see <i>Watering</i>)
Dixie grass, 13.	Fairy rings, 180.
Dog's-tail, crested, 274.	Fallacy of sowing fine turf grasses in spring,
Double-section roller! 323. Draeculacephala mollipes, 311.	119.
Drag, spike-toothed, 234,	Fall burning of the rough, 306. fertilizing of putting greens. 320.
Drainage, books on, 107, 218.	rolling. 320.
improvement of: 22; 102. 165. 222, 246, ,315:	seeding, 119,
insufficient, troubles from, 35. 42, 246,	Fall River Country Club, cost analyses at, 286.

```
Farming unused golf land in the north, 41,
                                                          New Zealand (see Red below).
                                                         red, adapted localities, 134, 215.
                                                              brown-patch susceptibility, 309. fairway use, 250, 279, 298. general use, 43, 133, 260, 298.
Fees. green, what is the proper, and why?
    membership, Coatesville Country Club,
                                                              seed, indistinguishable from sheep's
         Hillsdale Golf Club, 147.
                                                                fescue, 160.
         Lebanon Golf Club, 147.
                                                                   number per pound, 92, 141. price of, and 1921 crop, 29.
         Portsmouth Country Club, 142.
                                                              viability of, 40, 261. seeding, 92, 207, 250, 279.
Fence posts, books on, 218.
Fertility of sod land, 178.
Fertilizers, ammonium sulfate, burning from,
                                                              southern range of, 134, 215
  46, 166, 223, 265.
                                                              vegetative propagation of, 251.
         composting use, 36, 2%. distributor, 265.
                                                         sheep's, fairway pest, 316.
                                                              use, 22, 221.
rough, use of in. 133, 173, 257,261.
seed production, 316.
         specifications for, 162. weed control, 166, 318.
    bone meal, 40, .321.
                                                                   substituted for red fescue, 160.
    books on, 107.
                                                              seeding rate, 257, 261.
    charcoal, 296.
                                                              poor soil use, 167.
    chemical, 321.
                                                     Field mice, bulletins on, 108.
    compost (see Compost).
                                                     Financial report of. chairman of Green Com-
    cottonseed meal, 321.
                                                       mittee of U. S. Golf Assn., 3.
    distributor, 265. effect on all grasses, 102.
                                                     Financing (see also Cost) Hillsdale Golf Club,
    fairway, 101, 164.
humus (see Humus).
                                                          Lebanon Golf Club, 146.
                                                          Portsmouth Country Club, 142.
                                                     Flags. changing of, 118.
    manure, artificially made, 36.
         chicken, 160, 250.
                                                         red unsatisfactory to mark holes, 212.
                                                     Flies, bulletins on, 108, 248.
         comparative values of, 160.
         cow. 160. 319.
                                                         house, in relation to manure heaps, 247.
                                                     Floriculture, books and bulletins on, 107, 218.
         excessive use of, 234.
         flies in, 247.
                                                     Florida, brown-patch in, 307.
                                                     Folly of trying to beat nature, 177.
         horse. 160.
         ice removal by, 163.
                                                     Foresight, 82.
         liquid, 164. 246, 327.
                                                     Forest litter in compost piles, 179, 189, '221.
         manure heaps and house flies, 247.
                                                     Forestry, books and bulletins on, 107, 218.
         pit for, 321. 327.
                                                     Forking greens, 43.
         relative value of manures, 160.
                                                     Formulas, sanctity of, 10,
                                                     Fort Leavenworth Officers' Club, words of
         sheep, 160, 165.
         weed seeds in, 320.
                                                       appreciation from, 138.
    marl, greensand, 15.
                                                     Friendly birds on the golf course, 229.
    muck (see Peat)
                                                     Fungus causing fairy rings, 182.
    necessity for use of, 178.
    nursery for bent. 321.
                                                     Gallon of water, weight, measurement, and
                                                       pressure computations of, 217.
    peat (see Peaf)
                                                     Garden, bent nursery (see Vegetative propa-
    phosphatic, 41, 347.
    potash encouraging clovers, 165. putting greens, 320, 345.
                                                       gation).
                                                       vegetable, at Hollywood Golf Club, 79.
    removal of by growing turf, determina-
                                                     Geography of fine turf grasses, 214.
                                                     German mixed bent (see under Bent grasses).
       tion of, 196.
                                                     Germination (see under Seeds).
    rock phosphate, 41.
                                                     Glen Echo Country Club, saving the trees
    sodium nitrate, compost pile use, 36, 167,
                                                     at, 228.
Golf ball and the law of trespass, 153.
         distributor, 265.
                                                         courses and their increase in the United
         use of, 198.
    tankage. 249.
                                                            States, 303.
    woods as a source of. 179, 189, 221.
                                                              number of in the United States and
Fertilizing putting greens in fall, 320.
                                                                Great Britain, 303.
    in winter. 345.
                                                              public (see Public).
Fescue, Chewings (see Red below).
                                                         origin of, 305.
    hard. 19.
                                                         service, new, to clubs, 317.
    meadow,' brown-patch susceptibility, 309.
                                                         spirit of the game, 27.
                                                     Golfers' register of professionals, 345.
         fairway use. 19, 133, 222.
         seed, number oer pound, 91.
                                                     Grass clippings, removal of, 250.
                                                         cultivated grasses, bulletin on, 219.
         seeding rate, 91.
```

geography of turf grasses, 214. sand top-dressings ineffective against, golf grasses, northern, some simple facts 19, on,, 274. white (Southern green June beetle, which **identification** of grasses, bulletins on, 109. see above). roots and deep rooting, 37. seed crop and the wholesale market, 29. worm, bulletins on, 108. Gullies, bulletins on control of, 108. Handling peat and compost, 283. plugs, 341. (See also under various grass names.) Harrowing, 56, 61, 234. Harvesting bent seed in Germany, 90. Hazards, architecture of, 266 (see also **Archi**-Grasshoppers, bulletins on, 108. Gravelly soil, grasses for, 22, 250. pebble blisters on greens, 314. Great Britain, number of golf courses, 304. tecture). planning of in a convenient way, 288. Green Committee, club members and the, Hellebore, use of in manure piles for con-139 trolling flies, 247. U. S. Golf Association, annual report of Hermitage Country Club, Bermuda greens chairman, 2, at. 289. financial report of, 3. Hickories and oaks on golf courses killed by members, geographical distribution insects, 32. of, 4. sections, local, Detroit, 70. organized in 1921, 4. Hickory and golf (available supplies for 241. shafts), Twin City, 31. Highland Country Club, eradicating white clover at, 318. U. S. Golf Association, appreciation Hillsdale Golf Club, maintenance costs at, of. 138. expenses, functions, influence, 146. Hog raising at Hollywood Golf Club, 80. growth, 2. growth, 2, 344. meeting, Drake Hotel, Chicago, Holes, flags for marking, 118, 212. longest, 167. Hollywood Golf Club, construction work and maintenance at, 78, 79. Pittsburgh Club, Pittsburgh, Hood, A. J., remarks of at annual meeting, 326. on budgets and maintenance costs, 71. Skokie Country Club, 228. member clubs of, 190, 220, 248, Detroit District Golf Association, 71. professionals, 77, 78. 273, 294, 319, 326. number of in December, Horticulture, books and bulletins on, 107, 218. 1922,. 344. House flies in relation to manure heaps, 247. How course construction and maintenance municipal courses and, 61. suffer from poor business management, Greenkeepers, notable, 14. 245. instruction and training of, 6, 302. often should putting greens be mowed? selection and importance of, 52. should receive The Bulletin, 106. Greens (see Putting greens). to keep crab grass from tees, 330. we controlled Poa annua at Old Elm?13 Greensand marl, 15. we saved the trees at Glen Echo., 228. Greenville Country Club, exterminating Humus (see also Muck, also Peat), commerchickweed at, 184. cial, value of, 162, 233, 249, 286, 303. Grinder, a new compost grinder, 267, 268, sifting and grinding, 155, 267, 268, 283. 283, 307 307. peat, 283. Hydrated lime, use of in compost, 20. Rockefeller's improved, 267. in earthworm extermination, 42. Grosse Ile Golf Club, soil beds at, 116. Hydraulics (see Watering). Growth of golf, 303.
Green Section, 2, 344. Ice remaining on turf, 84, 87, 101, 162. Grubs in the vicinity of Philadelphia, 34. Japanese beetle, feeding habits, 35. removal by means of manure, 163. Importance of proper treatment of the rough, quarantine against, 30. Improvised motor cart. 236.
Increase of golf courses in the United States, 303. treatment for. 34. May beetle, 34. Southern green June beetle, bulletins on, Inexpensive golf, 146 (see also under Cost). 108, 345 Information on tractors (Nebraska tractor controlling at Philadelphia, 34. by digger wasps, 297. tests), 156. Inoculating preparations for soil, 322. Insects. bee hills. 198. by carbon **bisulfide**, 11. ground oyster shells against, 19. ineffective bulletins on, 107, 108, 219. catching in tar pans, 314. lime ineffective against, 19.

Keeping up appearances, 37. Keep the men busy, 123. Kentucky bluegrass (see under Blugras-). Kernwood Country, Club, improvised motor cart at, 236. Killing weeds in tennis courts, 291. Kitchen waste, utilization of at Hollywood Golf Club, 80. Kollabifida, 311. Labor, keeping the men busy and not docking them, 123. Lake-bottom soil, 102. Land crabs (see Crawfish) Landscape gardening, books on, 107, 218 (see also Architecture). Lawn-mowers, care of by contractors, 317. Layers in putting-green construction, 102. 160, 222. Lealhopper infestation at Bannockburn Golf Club, 311. bulletin on, 345. Leaves in compost, 166, 179, 189, 221. Lebanon Golf Club, low maintenance cost at, 146. Leland Country Club, planning hazards at, 288. Letter regarding a compost mixer, 307. Let us take stock, 329. Library books and bulletins for reading and reference, 107, 218, 345. Litting sod, 334, 335. Lime, Bordeaux mixture use 135. b u r n t , 2 0 . cotipost use, 347. earthworm extermination, 42. useless for golf grasses, 19, 58. Limited means, course with, 279. Locusts, 220. May beetle (see under Grubs). Meadow fescue (see under Fescue). Meadow fescue (see under Grubs). Medditations of a peripateic golfer, 24, 104, 136, 168, 200, 224, 252, 276, 300, 348. Meetings of Green Section, Chicago, 2. Pittsburgh, announcement of, 326. Nebering Green Section member clubs, 190, 248, 273, 294, 319, 326. number of, December, 1922, 344. Membership changes in U. S. Golf Association, 326. fees at Coatesville Country Club, 147. Portsmouth Country Club, brown-patch at, 307 Miximes, seed (see under Grubs). Meadow fescue (see under Grubs). Meddiations of a peripateic golfer, 24, 104, 136, 168, 20	caterpillars, 56. grubs (see <i>Grubs</i>). hickories and oaks injured by, '32. leafhoppers at Bannockburn Golf Club, 311. locusts, 220. mosquitoes, bulletins on, 108. moths, bulletins on, 108. Instruction of greenkeepers, 302. Inverness Club, changing the cups at, 341. distribution of maintenance costs at, 124. handling plugs at. 341. sifting machine used at, 267. Iron dust for oiled sand greens, 144. Irrigation (see Watering). Italian bagpipers, 269. Italian rye-grass (see under <i>Rye-grasses</i>) Japanese beetle (see under Grubs). Joke, this is not a, 303. June beetle (see under Grubs).	repair of by contractors, 317. winter care of, 340. Magnetic iron-dust putting-surfaces, 144. Maintenance cost (see under Cost). eighteen-hole course on moderate fees alone, 236. essentials of construction and maintenance of greens, 207. expenditure of 9- and 18-hole courses in the United States, 306. poor business management on golf courses, 245. standard maintenance; what constitutes it? 141, 203. suggestions on, 331. Manure (see under Fertilizers). Market supplies of grass seed, 29. imported bent seed, 259. Marl, greensand, 15. Marshall, E. J., remarks of at annual meeting 25.
Labor, keeping the men busy and not docking them, 123. Lake-bottom soil, 102. Land crabs (see Crawfish) Landscape gardening, books on, 107, 218 (see also Architecture). Lawn-mowers, care of by contractors, 317. Lavers in putting-green construction, 102. 160, 222. Leaflopper infestation at Bannockburn Golf Club, 311. bulletin on, 345. Leaves in compost. 166. 179. 189. 221. Lebanon Golf Club, low maintenance cost at, 146. Leland Country Club, planning hazards 288. Letter regarding a compost mixer, 307. Let us take stock, 329. Librarv books and bulletins for reading and reference, 107, 218, 345. Lifting sod, 334, 335. Lime, Bordeaux mixture use 135. bur nt, 20 compost use, 347. earthworm extermination, 42. useless for golf grasses, 19. 58. Limited means, course with, 279. Locusts, 220. Members, club, and the green committee, 1 complaints from, 139. Green Section member clubs, 190, 2248, 273, 294, 319, 326. number of, December, 1922, 344. Membership changes in U. S. Golf Association, 326. Fees at Coatesville Country Club, 142. Green Section member clubs, 190, 2248, 273, 294, 319, 326. number of, December, 1922, 344. Membership changes in U. S. Golf Association, 326. Fees at Coatesville Country Club, 142. Berunders, club, and the green committee, 1 complaints from, 139. Green Section member clubs, 190, 248, 273, 294, 319, 326. number of, December, 1922, 344. Membership changes in U. S. Golf Association, 326. Fees at Coatesville Country Club, 142. Berundership changes in U. S. Golf Association, 326. Fees at Coatesville Country Club, 142. Mixer Green Section member clubs, 190, 248, 273, 294, 319, 326. Inumber of, December, 1922, 344. Membership changes in U. S. Golf Association, 326. Fees at Coatesville Country Club, brown-patch at, 307. Mixer for compost, peat, etc., 155, 267, 2283, 284, 307. Mixtures, seed (see under Seeds). Modified putting green, 145. Modes, bulletins on, 108. Modes, bulletins on, 108. Modes, bulletins on, 108. Modes, bulletins on, 108. Modes, bulletins o	Keeping up appearances, 37. Keep the men busy, 123. Kentucky bluegrass (see under Blugrass). Kernwood Country, Club, improvised motor cart at, 236. Killing weeds in tennis courts, 291. Kitchen waste, utilization of at Hollywood Golf Club, 80.	Meadow fescue (see under Fescue). Meadow grass (Bird grass , which see). Meditations of a peripatetic golfer, 24, 48, 104, 136, 168, 200, 224, 252, 276, 300, 324, 348. Meetings of Green Section, Chicago, 2. Pittsburgh, announcement of, 326.
Lebanon Golf Club, low maintenance cost at, 146. Leland Country Club, planning hazards at, 288. Letter regarding a compost mixer, 307. Let us take stock, 329. Library books and bulletins for reading and reference, 107, 218, 345. Lifting sod, 334, 335. Lime. Bordeaux mixture use. 135. b u r n t, 2 0. cotnpost use, 347. earthworm extermination, 42. useless for golf grasses, 19. 58. Limited means, course with, 279. Locusts, 220. Mercuric bichloride (see Corrosive sublim Miami Country Club, brown-patch at, 307 Mixer for compost, peat, etc., 155, 267, 2 283, 284, 307. Mixtures, seed (see under Secds). Modified putting green, 145. Moles, bulletins on, 108. Moss, treatment for, 101. Moss, treatment for, 101. Moths, bulletins on, 108. Motor cart, an improvised, 236. Mowers, adapting to tractor speed, 59, 60.	Labor, keeping the men busy and not docking them, 123. Lake-bottom soil, 102. Land crabs (see Crawfish) Landscape gardening, books on, 107, 218 (see also Architecture). Lawn-mowers, care of by contractors, 317. Layers in putting-green construction, 102. 160, 222. Leaîhopper infestation at Bannockburn Golf Club, 311. bulletin on, 345.	Meibomia triflora, 322. Members, club, and the green committee, 139. complaints from, 139. Green Section member clubs, 190, 220. 248, 273, 294, 319, 326. number of, December, 1922, 344. Membership changes in U. S. Golf Association, 326. fees at Coatesville Country Club, 236, 2 3 9 Hillsdale Golf Club, 147. Lebanon Golf Club, 147. Portsmouth Country Club, 142.
Limited means, course with, 279. Motor cart, an improvised, 236. Locusts, 220. Mowers, adapting to tractor speed, 59, 60.	Lebanon Golf Club, low maintenance cost at, 146. Leland Country Club, planning hazards at, 288. Letter regarding a compost mixer, 307. Let us take stock, 329. Library books and bulletins for reading and reference, 107, 218, 34.5. Lifting sod, 334, 335. Lime. Bordeaux mixture use. 135. b u r n t , 2 0 . cotnpost use, 347. earthworm extermination, 42.	Mercuric bichloride (see Corrosive sublimate) Miami Country Club, brown-patch at, 307. Mice, field! bulletins on, 108. Minneapolis district green section, 31. Mixer for compost, peat, etc., 155, 267, 268, 283, 284, 307. Mixtures, seed (see under Secds). Modified putting green, 145. Moles, bulletins on, 108. checked by blacksnakes, 157. extermination of, 47. Mosquitoes, bulletins on, 108. Moss, treatment for, 101. Moths, bulletins on, 108.
Lye in weed eradication, 291. Machinery (see also <i>Grinding. Lawn-mowers</i> , which is the seven-gang. attached to tractor, illustion of, 318.	Limited means, course with, 279. Locusts, 220. Longest golf hole, 167. Lye in weed eradication, 291. Machinery (see also <i>Grinding. Lawn-mowers</i>)	Mowers, adapting to tractor speed, 59, 60. care of by contractors, 317. oiling system. 60. seven-gang. attached to tractor, illustration of, 318. three-gang, attached to tractor, illustration.

```
seeding, 91.
Mowing approaches, 241.
                                                  Organization of Portsmouth Country Club,
    fairways, tractor combination, illustra-
                                                     142.
      tion of, 18, 318.
    nursery, 196.
                                                       sensible, 278.
                                                  Ownership of Bulletin of Green Section, 138,
    putting greens, Bermuda grass, 151.
                                                     302.
         frequency. of, 92.
                                                  Oyster shells, 19.
         newly-sown, 164, 250.
         removal of cuttings, 178, 250.
                                                   Pacey's rye grass (see under Rye-grasses).
         spring, 88.
                                                  Palm Beach Country Club, brown-patch at,
         summer, 54.
    tees, use of horses at Hollywood Golf
                                                  Paris green for, exterminating caterpillars, 56,
       Club, 78.
Muck (see also Humus, also Peat).
                                                  Parking arrangements for automobiles, 7.
                                                   Paspalum dilatatum, 346.
    compost use of, 20, 102, 299, 319, 347. fertilizer use of, in mixtures, 299.
                                                   Patching putting greens, 89.
    mixed in soil, use of, 102, 233.
                                                       bare places on poor soil, 167.
    mixing, screening, shredding, 102, 155, 267, 268, 283, 307.
                                                   Pearlwort (see under Weeds).
                                                   Peat (see also Humus, also Muck).
                                                       bulletins on, 109
    toxicity testing, 20, 299.
                                                       composting, 20, 223, 299, 319.
    value of, 303.
                                                       fertilizing with? 299.
Mulching putting greens in winter, 320.
Municipal courses (see Public courses).
                                                       mixing, screening, shredding, 155, 267,
                                                         268, 283, 307.
Mushroom growths, 180.
                                                       toxicity of, testing for, 20, 299.
                                                   Pebble blisters on greens, 314.
Nebraska tractor tests, 156.
                                                   Penalties, waiving of, 27
New courses of study at Cornell University,
  302.
                                                   Pennywort (see under Weeds).
                                                   Perennial rye grass (see under Rye-grasses).
    method of making putting greens, 144.
                                                   Phosphates (see under Fertilizers).
    service to golf clubs, 317.
                                                   Pine needles in compost piles, 189, 221.
Nine-hole course, building a, 282.
                                                       sawdust as soil admixture, 160.
    number of, 303.
                                                   Piping for fairway watering, 121.
Nitrate of soda (see Sodium nitrate under
                                                   Pit, concrete, manure, 321, 327.
  F. rtilizers)
                                                   Plantain (see Weeds).
Northern fairways, buying seed for, 279.
                                                   Plant food removed by growing turf, deter-
    fairways, grasses for,. 233.
                                                   mination of, 196.
    turf grasses, some simple facts about,
                                                       weed (see Weeds).
      256.
                                                   Plowing clay soils, 234.
     (See also under Fairways and under Put-
                                                       depth oi, 54.
      t&g Greens.)
                                                   Plugs, handling, 261, 328, 341.
Norwood Golf Club, cost of making soil
                                                  Poa annua, 165, 213.
  beds at, 118.
                                                   Poatrivialis (Bird grass, which see).
Notable greenkeepers, 14.
                                                   Poor business management . in course con-
Number of Green Section club members, 344.
                                                     struction and maintenance, 245 (see also
    seeds per pound, 91.
                                                     under Cost).
    shots on standard course, 324.
                                                       soils, grass for, 167.
    golf courses in the various states, 303.
Nursery (see Vegetative propagation).
                                                   Portsmouth Country Club, story of, 142.
                                                   Posts, fence, books on, 218.
                                                   Poultry manure (see under Fertilizers),
Oak-leaf compost, 166.
                                                   Preparations, bacterial inoculation, 322.
Oaks on golf courses killed by insects, 32.
Oat-grass (see Tall oat-grass).
                                                       sanctity of formulas, 10.
Observations on tile draining, 315. Officers of U. S. Golf Association, 83.
                                                   Price of seed, 29, 139.
                                                  Principles of golf architecture, 265.
                                                   Prize money and professionals,. 327.
Oiled greens, 144.
                                                   Proceedings, first annual meeting of Green
Old Elm, how we controlled Poa annua at,
                                                     Section, 49-80.
Oncometopia lateralis. 312.
                                                  Professionals, definition of, 27.
On handling peat and compost, 283. traps, 232.
                                                       duties and fees, 77.
                                                       Golfers' Association register, 345.
Open championship, announcement of. 170.
Opinions, value of based on experience, 204.
                                                       prize money and, 327.
                                                  Proprietary formulas, sanctity of, 10.
Orchard grass, brown-patch affectation of,
                                                  Public golf courses, increase of. 303.
                                                       Green Section relation to, 61.
                                                       list of, 271.
    fairways, undesirability of, 133.
                                                   Puddling and baking, 294 (see also Baking,
    in the rough, 133.
    number of seeds per pound, and rate of
                                                     under Soil).
```

```
Research, supporting by Green Section, 5.
Purchasing, cooperative, 74.
Purity tests, experiences with untested seeds,
                                                        Revolving screen, 79, 155, 267, 268, 283, 307.
                                                        Rhode Island bent (see under Bent grasses).
  306.
Putting greens, approaches to, 240.
                                                        River-bottom soil, 321.
     architecture (see Architecture)
                                                        Rivermead Golf Club, vegetative planting at,
     bent (see Bent grasses).
Bermuda grass, treatment of, 151, 289. constructing, 102, 160, 207, 222, 275, 315. drainage of (see Drainage).
                                                        Roads, construction and maintenance of,
                                                          books on, 107, 218.
                                                        Rockefeller, Wm. J., in Notable Greenkeepers,
     fertilizing (see Fertilizers).
                                                             improved comminutor of 267.
     maintenance, 207, 315.
                                                        Rock phosphate ( see under Fertilizers).
     mowing (see Mowing).
                                                        Rollers, 290, 322, 323.
Rolling fairways, 87, 234, 249, 290.
    northern, Canadian grasses, 284.
grasses for, 21, 23, 42, 43, 44, 45, 100,
102, 133, 134, 163, 171, 207, 210,
                                                             putting greens, clay-base greens, 294. fall rolling, 320.
            214, 248, 256, 284, 299.
                                                                  new. 250. 320.
     oiled, 144.
                                                                  spring rblling, 88.
          weeds in oiled greens, 103.
     patching, 89.
                                                                  trampling and rolling, views of Dr.
    remodelling, 21, 145, 222.
                                                                    Harbgn and Dr. Briggs, 148.
                                                                  when necessary, 54, 88, 250, 320, 323. winter rolling, 345.
     reseeding, 21, 22, 44.
     rolling (see Rolling).
     sand, 103, 144.
                                                        Roots, grass, and deep rooting, 37.
     seeding. fall, 21, 22, 44, 119-120.
spring, 21, 22, 44, 45, 88, 119-120.
                                                        Rothamsted experiments with sodium nitrate
                                                          and ammonium sulfate in compost, 36.
     sodding, 333.
                                                        Rough, fall burning of, 306.
                                                             grasses for, 133, 173, 257, 261. proper treatment of, 270.
     soil preparation, 102, 275.
     southern, brown-patch on, 45, 307.
     spring work on, 88.
                                                             suggestions for, 173.
          California, grasses for, 249.
                                                        Rough-stalked bluegrass, 210, 258.
    grasses for 13 21, 46 57, 97, 134, 151, 163, 209, 214, 249, 289, 322, 346. top-dressing (see Top-dressing).
                                                        Rubbish and leafhopper infestation resulting
                                                          therefrom, 313.
                                                        Rye-grass, English (see Perennial, below).
     undulating, drainage of, 42.
                                                             Italian as affected by brown-patch, 308.
     uniform grass on, 281, 292.
                                                                  number of seed per pound, and rate
     vegetative planting (see Veg tative propa-
                                                                    of seeding, 91.
       gation).
                                                             Pacey's, 133, 308.
     watering (see Watering).
                                                             Perennial, fairway use of, 44, 133, 221.
     winter treatment of (see Winter treat-
                                                                  seed, number per pound, and rate
       ment).
                                                                    of seeding, 91.
                                                             Wimmera, as affected by brown-patch,
'Quack grass for fairways, 46, 174.
                                                               308.
Rabbits, bulletins on, 108.
                                                        St. Louis Country Club. distribution of costs
Rakes for weeds, 56.
                                                          at, 124.
Rate of seeding fine grasses, 90-92 (see also
                                                             District Golf Association, distribution of
under various grass names).
Red flags as hole markers, 212.
                                                               costs at, 124.
                                                        St. Paul district green section, 31.
Redtop as affected by brown-patch, 308.
                                                        Salt in sea-shore sand, 42.
     eradication of, 298.
                                                             weed eradication, 103, 198.
     panicle of (illustration), 293.
                                                        Sanctity of formulas, 10
     seed, number per pound, 91.
                                                        Sand dunes, grasses for, 347.
          price of, and 1921 crop, 29.
                                                             grasses for sandy soil, 161. 174
          seeding rate, 44, 91, 102, 133, 161, 164, 235, 250, 258, 279. weight per bushel, 258.
                                                             greens, 103. 144.
                                                             sea-shore 42.
                                                             top-dressings, 199, 281.
     use of, north, 44, 45, 102, 133, 161, 163, 164, 235, 248, 250, 258, 279, 285.
                                                        Saturating compost with water, 321.
                                                        Sawdust as soil admixture, 160.
          south, 258, 289, 346.
                                                        Schools. ocurse of instruction at Cornell, 302.
     where adapted, 214.
                                                        Scolia dubia, 297.
                                                        Screen. revolving, 79, 155, 267, 268. 283, 307.
Reference books and bulletins, 107, 218, 345.
Register of professional golfers, 345.
                                                        Sea-shore sand for golf courses, 42.
Relieving congestion on short holes, 255.
                                                        Section rollers, 323.
Report. Green Section, annual, 2.
                                                        Seed bed. prenaration of, 234.
 financial. 3.
                                                             crop and the wholesale market, 29.
Reprint of 1921 volume of The Bulletin, 326.
                                                             economical use of, 140, 161, 238, 255.
```

germination tests, 134.	inoculations for, 322.
mixtures, analyses of, 140, 306.	lake-bottom, 102, 321.
number of various seeds per pound, 91.	poor soil, grasses for, 167.
prices of, 29, 140, 163, 279, 282.	preparation of for putting greens, 102,
purchasing, 140, 161, 163, 236, 255, 279.	275.
untested, experiences with, 306.	river-bottom, 102, 321.
weed seeds in manure, 320.	Some monument, 159.
Seeder, wheelbarrow, for Bordeaux powder,	observations on tile draining, 315.
115.	on velvet bent, 171.
tor seedlings, 238.	principles of golf architecture, 265.
Seeding apparatus, 133, 238.	simple facts about our northern golf
fairways in the northern states, 233.	grasses, 256.
rates (see under various grass names).	Sour soil, 58, 295.
Selecting a site for a golf course, 38.	South German mixed bent (see under Bent
Sense or nonsense in experiments, 106.	grasses).
Sensible golf, 278.	Speedwell, eradicating, 274.
Separators, 79, 155, 267, 268, 283, 307.	Spiked rollers, 56, 61, 323.
Service, new, to golf clubs, 317.	Spike-toothed drag, 234.
who is responsible? 339.	Splash-board irrigation, 159.
Seventeen-year locusts, 220.	Spring patching of putting-greens, 89.
Sewage disposal, books on, 107, 218.	seeding, fallacy of, 119.
Shade' grassies, 258, 261	work, 87.
Shading tees to restrain crab grass, 322, 330.	Sprinkling (see Watering).
Shafts, supply' of hickory for, 241.	Stable manure (see Fertilizers).
Sheep's fescue (see under Fescue).	Standard cost analysis for golf courses, 286
Short holes, relieving congestion on, 255.	(see also under Cost)
Shots, number of on standard golf course,	golf course, number of shots on, 323.
324.	maintenance, 138, 141, 203, 286.
Shredding peat and compost, 283.	Statement of ownership of The Bulletin, 138,
Shrubbery about golf courses, 338.	302.
Sifters, 79, 155, 267, 268, 283, 307.	States, number of courses in the different,
Simple facts about our northern golf grases, 256.	303.
	Stolon-planting vs. seeding for putting-
Site for golf course, selecting a, 38.	greens. 281, 292 (see also Vegetative propa-
Skokie Country Club, dusting the greens at,	gation). Story of the Portsmouth Country Club 142
269.	Story of the Portsmouth Country Club, 142.
fertilizer distributor used at, 26.5.	Straining at the gnat. 139.
Green Section meeting at, 228.	Straw, manure made from artificially. 36, 297.
lantern-slide views of, 64. Small clubs, economies for, 279. 331.	top-dressing with, 274, 320. Stumps, blasting, bulletins on. 108.
financing and organizing, 142, 278. maintenance costs for, 142, 146. 278,	Stymie problem, discussion of by Mr. Howard F. Whitney, 28.
279. 331.	Sub-irrigation (see Watering).
Snakes checking moles, 157.	Subscription rate to Bulletin, 39. 273.
Social features in connection with golf, 77.	Success in eradicating white clover, 318.
Sod cutting and lifting, 333.	with carbon bisulfide in controlling
Sodding, 333.	grubs, 11.
Sodium arsenite as a weed killer, 40, 184, 291.	with fertilizer distributor. 265.
Sodium cvanide in grub extermination, 34.	Suggestions for the rough, 173.
Sodivmnitrate (see under Fertilizers).	Sulfate of ammonia (see Ammonium sulfate,
Sod land. fertility of, 178.	under Fertilizers)
Soil, acidity of, 58, 295.	Sulfuric acid as a weed killer, 251, 321.
analyses of, 221.	Syntherisma serotina (Dixie grass, which see),
baking of, 56, 61, 160, 199, 294, 321.	
beds, 1.16	Tall oat-grass, adaptability of for the rough.
books on soils 107, 218.	133.
clay, disking, and spiking, 56, 61.	as affected by brown-patch, 308.
plowing of 34.	seeds, number of per pound, and rate of
rolling, 249, 294.	seeding, 91.
seeding rate on, 250.	<u>T</u> ankage, 249.
treatment of, 56, 102, 199. 249, 281,	Tannic acid in oak-leaf compost, 166.
294.	Tar pans for catching insects, 314.
corrosive sublimate effect on. 42.	Tee boxes, plenty of sand and water in. 179.
desirable for a golf course, 38.	construction of tees to permit traversing
gravelly, pebble blisters on, 314.	by horses, 78.
grasses for, 22.	grasses for tees, 19, 21, 42, 160, 161. 322.

markers, 36. officers, committees, and subcommowing tees (see under Mowing). mittees of, 83. shading tees to restrain crab grass, 322, Unwatered greens, treatment for, 209. Tennis courts, killing weeds in, 291. Upkeep of **aproach** areas, 240. Testing seeds for germination, 134. Value of a check plot, 205. This is not a joke, 303. of golf property in the United States, Thistles, eradication of, bulletins on, 108. Thomas, Ransom H., death of, 327. of opinions based on experience, 204. Thyme, (*Thymus serpyllum*), creeping, on fairways, 309. Vasey grass, 346. Vegetable garden at Hollywood Golf Club, Tile draining, some observations on, 315. trenching machinery, bulletins on, 108. Vegetative propagation, advantages of, 281, Time cards, 124, 287. 292, 295. Timothy, as affected by brown-patch, 308. Canadian, 28.5. seeds, number per pound, and 'rate of Chewings fescue, ,251. seeding,... 91. converting redtop into bent greens. 296. undesirability of for fairways. 221. undesirability of for tees, 160. methods of, 45, 100, 196, ,248, 295, 296. nursery, fertilizing, 321. Top-dressing, compost as, 20. mowing, 196. frequency of, 80. number of greens planted vegetatively practices at Hollywood Golf Club, 79. in 1922, 278. at Leland Country Club, 209. planting runners in greens construction, river-bottom soil as, 102, 321. 100, 248, 295. sand as, 19, 199. plugs from vegetative plantings, 328. screens for, 79, 155, 267, 268, 283, 307. stolon planting vs. seeding, 292. Velvet bent (see under *Bent* grasses). soil beds for preparing, 116. straw as, 274, 320. Veronica serpyllifolia, 274.
Viability of South German bent and red winter, 274, 320, 345. Topham, Major J. L., words of appreciation fescue seed, 40. from, 138. Views of a putting green before and after Toxicity of mucks and peats, 299. modification, 145. Tractors at Ashtabula Country Club (illustration), 18. Waipu brown-top, 22. books on, 107, 218, 219, 345. Wasps, digger, 297. catalogue of, 219. tests, Nebraska, 156, 220. winter care of, 340. Water, amount to apply to greens, 135, 185, 216. artesian well water, use of, 251. with a seven-mower gang (illustration), compost saturated with, 321. 318. Trampling, effect of, and rolling, on turf, hydraulics of, 217. 148, 330. measurements of gallon weight, gallon capacity, and pressure, 217. Traps, architecture of, 232. pressure, computation of, 217. roller, water-weight, 323. Treatment for unwatered greens, 209. Trees, arrangement of, 47. soft vs. hard water, 166, 221. Watering, books on, 108, 218. books and bulletins on, 108. 109, 218, 345. hickories and oaks dying, 32, how saved at Glen Echo, 228. fairways, at Denver Country Club, 121. Trenching machinery, bulletins on, 108.
Trespassing, the golf ball and the law of, splash-board irrigation, 159. hard vs. soft water, 166, 221, 251. hydraulics of, 216. putting greens, a discussion of watering, Turf bed, location and preparation of, 333. 186. grasses in Canada, 284. Twin City district green section, 31, amount of water to apply, 135, 186, Two-section roller, 323. Artesian well water, 251. Bermuda greens, 151. frequency of, 55, 135, 186. Uniform grass on all the greens, 281. United States Department of Agriculture, cooperation from, 51. soaking vs. sprinkling, 55. 135, 222. splash-board irrigation, 159. Golf Association, annual meeting of. 326. championship events, announcesub-irrigation vs. sprinkling, 58. unwatered greens, treatment for, 209. ments of, 170, 202, 226. soit water vs. hard water, 166, 221, 251. cooperating with Department of Agriculture, 51. splash-board irrigation, 159. growth of during 1921, 50. membership changes in, 326. Webworms, books and bulletins on, 107, 219.

```
Weeds, ammonium sulfate for eradicating,
  166, 318.
     Bermuda grass, 297.
    books on. 107. chemicals' for eradication, 291.
     chickweed, 184, 269.
     clover (see White clover).
    crab grass, 196, 297, 322, 330.
daisies, 197.
    dandelions, 251. fertilizing to control weeds, 178. in creeks, 55.
     Dallis grass, 346.
     in sand greens, 103.
     in sand pits, 40.
     in tennis courts, 291.
     manure and weed, seeds, 320.
     moss, 101.
     pearlwort, 269.
     pennywort, 198.
    plantain (plant weed), 321.
Poa annua, 165, 213.
rakes for, 56.
     redtop eradication, 298. salt, use of, 103, 198.
     seeds,' weed, in manure, 320.
     sheep's fescue, 316.
     speedwell, 274.
     Vasey grass, 346. white clover (see White clover).
     wire grass, 297;
yarrow, 299.
Well water, 166, 221, 251.
Western Golf Association, a commendable
  enterprise of, 265.
What constitutes standard maintenance? 141,
What is a proper green fee, and why? 123.
Wheelbarrow seeder, Bordeaux application,
  115.
     skeding with, 133, 238.
Whiskers on the bunkers, 120.
White arsenic (see, Sodium arsenite).
```

```
White clover, eradication of, 275, 318.
     localities to which it is adapted, 214.
     potash fertilizers encouraging it, 165.
     putting green value of, 275, 299.
seeding rate, 208.

White grub (see Southern green June beetle, u n d e r Grubs).
Whitney, Howard F., address of as retiring president of U. S. Golf Association, 26.
Wimmera rye-grass as affected by brown-
  patch, 308.
Windbreaks, bulletins on, 108.
Wire grass, 297.
Winter, brown-patch in the south, 307.
     covering and use of greens, 330.
     ice remaining on turf, ,101, 162.
          removing ice with manure, 163.
     killing, 84, 101, 162, 320.
     machinery, storage of in winter, 340.
     putting greens, brown-patch on in south.
       45, 307.
          fertilizing, 345. rolling, 345.
          seeding, 289, 307, 345, 346.
          southern, 289, 307, 346.
          top-dressing, 84, 87, 162, 274, 320,
             330, 345.
          treatment, 162, 320, 330, 345.
     r o l l i n g , 3 4 5 . seeding, 289, 307, 345, 346. storage of machinery, 340.
work at Hollywood Golf Club. 79.
Witch grass, 46, 174.
Women's championship for 1922, announcement of 171, 254.
Woodland Golf Club, winter treatment of
  greens at, 330.
Wood's Hole Golf Course, creeping thyme
  at. 309.
Word of thanks, 344.
```

%

Yarrow, 19. 56. 299, 319.

ERRATA. .

Page 85. Second line; 6th paragraph. For Not many, read Many not

Page 88. Seventh line in second paragraph should read, greens, the entrance or approach is called south, the back (which is usually.

Page 89. For whole (last word of first line of second paragraph) read hole.

Page 90. For 6,384,000 (in last line) read 653,400.

Page 313. Title to figure 2 should read. Adult of Euscelis (Athysanus) exitiosus.