### INDEX TO VOL. XVIII, RESEARCH BULLETINS 202-209

#### A

**Acetymethylcarbinol.** See "Oxidation of acetymethylcarbinol to diacetyl in butter cultures, the" .................................................. 201

Also "Classification of organisms important in dairy products" .......................................................... 217

**Acid-proteolytic streptococci.**

- **Action on milk** .................................................. 228
- **Description of** .................................................. 229
- **Biochemical features** .............................................. 230
- **Cultural characteristics** ........................................ 229
- **Growth condition** ................................................ 230
- **Morphology** ...................................................... 229

**Isolation from dairy products** ...................................... 229

**Agricultural Economics Subsection, bulletin from** .......... 337

**Agricultural Engineering Section, bulletin from** .......... 253

**Agricultural land.** See "Economics of agricultural land use adjustments" ........................................ 337

**Alfalfa.** See "Relation of reserves to cold resistance in alfalfa" ........................................ 301

**Analysis of soils.** See "Chemical analyses of Iowa soils" ........................................ 57

**Animal Breeding Subsection, bulletin from** .................. 105

#### B

**Barn design** ...................................................... 257

**Barns.** See "Masonry barn design and construction" ........ 253

**Barre, H. J.** Joint author of "Masonry barn design and construction" .................................................. 253

**Botany and Plant Pathology Section, bulletin from** .......... 301

**Bottomland soils** .................................................. 85

- **Comparison of soils of uniform texture** ....................... 91
- **Comparison of upland and terrace and bottomland soils** .... 91
- **Relation of texture to composition** ................................ 85

**Brown, P. E.** Joint author of "Chemical analyses of Iowa soils for phosphorus, nitrogen and carbon: a statistical study" ........................................ 57

**Butter cultures.** See "Oxidation of acetymethylcarbinol to diacetyl in butter cultures" ....................... 201

#### C

**Carbon-nitrogen ratio of Iowa soils** .......................................... 93


**Carbon-nitrogen ratio** ........................................... 93

**Discussion** ....................................................... 100

- **Factors affecting the phosphorus, nitrogen and carbon content of Iowa soils** ...................... 100
- **Literature cited** ................................................ 103
- **Methods** ......................................................... 62

**Results for the drift soils** ....................................... 66

- **Comparison of soils of uniform texture** ....................... 77
- **Comparison of surface and subsoils** ........................... 71
- **The influence of texture** ....................................... 72

**Results for the loess soils** ....................................... 79

- **Comparison of loess silt loams** ................................. 84
- **Relation of soil composition to soil color** ................... 82

**Results for the terrace and bottomland soils** .................. 85

- **Comparison of soils of uniform texture** ....................... 91
Farming conditions in Iowa .................................................. 350
Animal units and livestock systems .................................. 358
Commercial movements of feed grains ............................... 357
Feed unit productivity of crops and pastures .......................... 353
Present land use patterns and crop systems .............................. 351
Farm land use, adjustments of. See "Economics of agricultural
land use adjustments" ............................................................ 337

"Genetic aspects of the Danish system of progeny-testing swine,”
by Jay L. Lush ................................................................. 105
Changes which have occurred in the swine population, 1907
to 1935 ................................................................. 130
Age and weight at slaughter .............................................. 133
Changes in average classification of bacon sides ..................... 145
Changes in body length ................................................. 139
Changes in dressing percent and in yield of export bacon .......... 143
Changes in scores for various characteristics .......................... 146
Changes in thickness of back fat and in thickness of
belly ............................................................................. 142
Number and representativeness of material ............................... 130
Summary of changes in average characteristics of the
swine population ........................................................... 156
Trends in daily gain .................................................. 134
Trends in economy of gain ............................................ 136
Trends in health ........................................... 132
Visible changes in the conformation of the swine ................. 151
Correlation between full brothers and sisters which were not
litter mates ............................................................ 176
Correlation between maternal half-sib litters ......................... 172
Correlation between progeny test of sire and progeny test
of son ........................................................................ 178
Correlation between six characteristics of the same litter ......... 188
General discussion ....................................................... 192
History of the swine breeding and testing system ...................... 112
Breeding centers and their supervision ............................... 116
Breeds used and breeding policies .................................. 114
Feeding plan ................................................... 127
Markets for Danish swine ........................................... 112
Procedure of testing .................................................. 124
Progeny testing stations .............................................. 119
Publication and use of data from the testing stations ............. 120
Introduction .................................................................. 109
Numerical evidence as to the selection practiced ..................... 184
References .................................................................. 195
Resembiamces and differences between litter mates ............... 157
Resembiamces between paternal half brothers and sisters ...... 168
Summary .................................................................. 108
Summary of evidence on heritability ..................................... 182
Giese, Henry, joint author of "Masonry barn design and construc-
tion" ................................................................. 253

Hammer, B. W., joint author of “Classification of organisms
important in dairy products” ............................................. 217
Hammer, B. W., joint author of “Oxidation of acetylmethylcar-
binol to diacetyl in butter cultures” ................................... 201
| Heritability, summary of evidence on                      | 182 |
| Hogs. See “Swine.”                                      |     |
| **I**                                                     |     |
| “Inbreeding in the white leghorn fowl,” by N. F. Waters and W. V. Lambert | 1 |
| Description of families                                  | 33  |
| The effect of inbreeding on age at first egg in families 1 to 6 | 44  |
| The effect of inbreeding on egg production in families 1 to 6 | 47  |
| The effect of inbreeding on egg weight in families 1 to 6 | 49  |
| The effect of inbreeding on fertility in families 1 to 6   | 40  |
| The effect of inbreeding on hatchability in families 1 to 6| 42  |
| Discussion                                              | 50  |
| General effects of inbreeding and crossbreeding          | 8   |
| History and purpose                                      | 10  |
| Inbreeding in mammals and birds                          | 5   |
| Literature cited                                         | 54  |
| Methods                                                 | 11  |
| The effect of inbreeding on days to first egg            | 13  |
| The effect of inbreeding on egg production               | 21  |
| The effect of inbreeding on egg size                     | 24  |
| The effect of inbreeding on fertility                    | 13  |
| The effect of inbreeding on hatchability                 | 15  |
| The effect of inbreeding on rate of growth and on mature body weight | 27  |
| The effect of inbreeding on viability                    | 30  |
| Summary                                                 | 3   |
| The problem                                              | 10  |
| **L**                                                    |     |
| Lactic acid. See “Classification of organisms important in dairy products” | 217 |
| Lambert W. V., joint author of “Inbreeding in the white leghorn fowl” | 1 |
| Land use. See “Economics of agricultural land use adjustments” | 337 |
| Loess soils                                              |     |
| Comparison of loess silt loams                          | 84  |
| Relation of soil composition to soil color               | 82  |
| Long, H. F., joint author of “Classification of organisms important in dairy products” | 217 |
| Lush, Jay L., author of “Genetic aspects of the Danish system of progeny-testing swine” | 105 |
| **M**                                                    |     |
| Mark, J. J., author of “Relation of reserves to cold resistance in alfalfa, the” | 301 |
| “Masonry barn design and construction,” by Henry Giese, H. J. Barre and J. B. Davidson | 253 |
| Barn design                                              |     |
| Preliminary considerations                               | 257 |
| Shape of roof                                            | 257 |
| Size of barn                                             | 257 |
| Wind loads                                               | 281 |
| Structural design                                        | 266 |
| Construction problems                                    | 279 |
| Experimental barn                                        | 286 |
| Full sized arch                                          | 284 |
Model arch ........................................ 283
Roof forms ....................................... 279
Cost of materials for the roof .................... 294
Literature cited .................................. 296
Summary and conclusions ........................... 255
Waterproofing problems ............................ 290
Mickaelian, M. B., joint author of “Oxidation of acetylmethycarbinol to diacetyl in butter cultures, the” ............... 201

N
Nitrogen. See “Chemical analyses of Iowa soils” .................. 57

O
“Oxidation of acetylmethycarbinol to diacetyl in butter cultures, the,” by M. B. Michaelian and B. W. Hammer .......... 201
Conclusions .................................. 202
Discussion of results ............................. 213
Experimental .................................. 204
Introduction .................................... 203
Literature cited ................................. 214
Methods ....................................... 203

P
Phosphorus. See “Chemical analyses of Iowa soils” ............... 57
Poultry Husbandry Subsection, bulletin from ...................... 1
Poultry, inbreeding ................................ 1
Progeny-testing. See “Genetic aspects of the Danish system of progeny-testing swine” ............................. 105
“Proteins of alfalfa, tests of the stability of” ...................... 326

R
“Relation of reserves to cold resistance in alfalfa, the,” by J. J. Mark ............ 301
Discussion of results ................................ 320
Experimental results ................................ 310
Effect of fall cutting upon the growth of Grimm alfalfa .... 310
Effect of fall cutting on cold resistance of Grimm alfalfa ....... 312
Effect of fall cutting upon the growth of Grimm alfalfa ....... 310
Effect of fall cutting upon the root reserves of Grimm alfalfa .... 314
Seasonal changes in the root reserves of cut and uncut Grimm alfalfa .............. 316
Seasonal changes in the root reserves of a hardy and a tender alfalfa variety ........ 323
Studies of hardy and tender alfalfa varieties .................. 320
The root reserves of hardy and non-hardy varieties of alfalfa .... 320
Insoluble carbohydrates ................................ 321
Nitrogen ........................................ 322
Studies of protoplasmic differentiation in cold resistance .......... 325
Tests of the stability of the proteins of alfalfa .............. 326
The relation of certain water soluble substances to cold resistance in alfalfa .... 327
Pectins ........................................ 328
Substances precipitated from the dextrin extract by neutral lead acetate ...... 327
Literature cited .................................................. 333
Materials and methods ............................................ 308
Materials .......................................................... 308
Methods for analyses of root reserves. ......................... 309
Sampling and preserving .......................................... 309
Reserves, alfalfa. See “Relation of reserves to cold resistance
in alfalfa, the” .................................................. 301
Root reserves
Analysis .......................................................... 309
Methods for analysis ................................................ 309
Sampling and preserving ........................................... 309
Effect of fall cutting on root reserves. ......................... 323
Seasonal changes in root reserves ............................... 323

S
Schickele, Rainer, author of “Economics of agricultural land use
adjustments” ...................................................... 337
Soil conservation and farm income ................................ 376
Soil conservation, economic problems of ....................... 362
Soil conservation, emphasis on ................................... 369
Soil conservation methods .......................................... 374
Soil conservation, regional allocation of ....................... 369
Soil erosion and depletion, characteristics of .................. 363
Soil fertility, levels of ............................................ 364
“Breaking point” of natural fertility ................................. 365
Soils. See “Chemical analyses of Iowa soils” ..................... 57
Soils Subsection, bulletin from .................................... 57
Streptococcus liquefaciens. See “Classification of organisms im-
portant in dairy products” ........................................ 217
Swine. See “Genetic aspects of the Danish system of progeny-
testing swine” ..................................................... 105

T
Terrace soils ....................................................... 85
Comparison of soils of uniform texture .......................... 91
Comparison of upland and terrace and bottomland soil ....... 91
Relation of texture to composition ................................ 85

U
Upland soils, comparison with terrace and bottomland soil .... 91

W
Walker, R. H., joint author of “Chemical analyses of Iowa soils
for phosphorus, nitrogen and carbon: a statistical study” ...... 57
Waters, N. F., joint author of “Inbreeding in the white leghorn
fowl” .................................................................. 1
Waterproofing the barn .............................................. 290
White leghorn. See “Inbreeding in the white leghorn fowl” ..... 1