ONE YEARS' COURSE IN SECONDARY AGRICULTURE.

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For many years to come most of the high schools teaching agriculture will be able to give only a one year's course. The problem arises as to what subject-matter to choose and what sequence to follow in presenting such a course. The idea of the seasonal sequence so well discussed in Brieker's *Teaching Agriculture in the High School*, seems to be the best principle to guide in the selection and presentation of the work in agriculture for a one year's course. The work falls into six large topics, and should be given in the order named: *Plant Studies* (matured plants), *Animal Studies*, *Farm Business and Life*, *Machine Studies*, *Soil Studies*, and *Studies in Conditions of Plant Growth*. Whatever the text chosen may be, the teacher should follow the above sequence, a detailed outline of which is here given.

FIRST SEMESTER'S WORK.

I. Plant Studies

1. Cereals

a. Wheat and oats

Varieties

Grading—Market standards

Proper seed-bed and planting-time

Place in rotation. Insect Enemies

Food values

b. Plant needs and how they are obtained,—have growing wheat plants to use for illustration of principles.

c. Corn

Some varieties

Selecting seed corn

Corn judging by score card

Storing seed corn

Food values

2. Meadows and pastures

a. Essentials of each

b. Some grasses

c. Improving

3. Legumes

a. Clover. How to grow and use

b. Alfalfa

c. Cow peas

d. Soy beans

4. Roots and Tubers

a. Beets

b. Potatoes

5. Weeds

a. Nature of injury

b. Identify common weeds of community

- c. Collect and learn to identify at least the commonest impurities in clover and alfalfa seed
 - d. Some methods of eradication
 - 6. Insect friends and enemies of plants
 - a. Stages of insect life
 - b. How insects injure plants
 - c. Some principles in combating insects
 - d. Some harmful farm insects
 - e. Some beneficial farm insects
 - f. Insects and human health
 - 7. Plant diseases
 - a. Molds
 - b. Mildews
 - c. Smuts
 - d. Rusts
 - e. How injury is done
 - f. Some methods of control
 - g. Bacteria
 - 8. Fruit studies
 - a. Encourage fruit-growing on farm
 - b. Types of fruit
 - c. Grading and judging apples
 - d. Selecting trees to plant
 - e. Laying out orchard and planting trees
 - 9. Forestry
 - a. Importance of the wood resource
 - b. Agencies controlling forests
 - c. Farmer's wood lot
- II. Animal Studies
- 1. Value of animals in agriculture
 - 2. Animal products and their use
 - a. Milk, butter, cheese
 - b. Eggs, meat, etc.
 - c. Wool, hides, etc.
 - d. Energy for workLab. work—Babcock test
 - 3. Animal types and breeds
 - a. The horse
 - Breeds of draft horses
 - Draft and driving horses contrasted
 - Anatomy of horse studied from chart or life
 - Care and feeding of the horse
 - Improving farm horses
 - Exercise—judging horses
 - b. Cattle
 - Beef and dairy cattle contrasted
 - Breeds of each type
 - Name of external parts, and elementary judging of market grades
 - Some rations for feeding cattle
 - Exercises—judging cattle; problem in feeding rations
 - c. Swine
 - Identification of breeds of swine
 - Practice in judging market types
 - Feeding and housing swine
 - Cholera and other hog ills

- d. Sheep
 - Coarse and fine woolled breeds, contrasted for mutton and for wool
 - Elementary judging exercises
 - Some points in care and handling of sheep
 - c. Poultry
 - Common breeds of poultry, their identification and points of excellence
 - Improving the strain of farm chickens
 - Housing and feeding poultry
 - Exercises—incubator hatch
 - 4. General census of farm animals of the neighborhood
 - 5. Relation of farm animals to soil fertility
- III. Farm Business and Life
- 1. Systems of farm accounts and bookkeeping
 - a. Cost of production of an acre of each of common farm crops
 - b. Cost of keeping a team of work horses
 - c. Records of expenses and receipts from certain fields, or farm animals
 - 2. Mapping home farms and showing plans of crop rotation
 - 3. Studies in designs for farm buildings
 - 4. Landscape designs for farmstead grounds and some suggested plantings
 - 5. Farm life conveniences
 - 6. Country life institutions and their improvement.
- Practical work—Each pupil do some of the work as suggested above.

SECOND SEMESTER'S WORK.

- IV. Machine Studies
- 1. Make a list of the common farm machinery with names of good types of each
 - 2. Using plow as type, consider construction, relation and function of parts
 - 3. Take down and set up one cultivating and one harvesting machine, if possible.
 - 4. The gas engine
 - 5. Points in the proper care of machinery
 - 6. Cement construction on the farm
 - 7. Students make reports on special topics relating to farm machinery
- V. Soil Studies
- 1. Origin, types, and composition of soil
 - 2. Physical relations of soil to water, air, temperature
 - a. Drainage, its value
 - b. Effects of lime
 - c. Organic matter
 - d. Tillage
 - 3. Soil fertility and permanency
 - a. Elements of plant food
 - b. Sources and uses of each
 - c. The limiting elements, and sources of each
 - d. Use of fertilizers and manures
 - e. The principles and practices for permanency
 - 4. Critical study of the yields and farm practices of the neighborhood
- VI. Conditions of plant growth
- 1. The developing plant is the central feature of these studies

2. Plant propagation
 - a. Seeds
 - b. Grafts
 - c. Layering
 - d. Cuttings
3. Relations of growing plants to
 - a. Soil
 - b. Moisture
 - c. Temperature
 - d. Light
 - e. Plant food
 - f. Cultivation
 - g. Insect pests and diseases

Note.—In connection with the one year's course a series of home projects should be carried on by the students of the class as a part of the requirements of the course. For details of this work send to the Extension Department of the College of Agriculture, at Urbana, Illinois, for the circular on Home Projects for School Agriculture.

VOCATIONAL ASPECT OF REGIONAL GEOGRAPHY.¹

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Social progress is determined largely by physical environment. Usually, backward and indolent people inhabit the less productive regions of the world. Rich areas support progressive, enterprising people. Ignorant people often remain in backward conditions because of their inability to select those pursuits which can be used most advantageously for the betterment of their conditions. Education performs a very distinct function in guiding people in their selection and best use of the elements of their environment.

The "new geography" is quite fond of speaking of *controls* and *responses*. Certain it is that man cannot re-create his physical surroundings. The best he can do is to modify, in a small way, certain selected phases of his environment. He may add lime to acid soils, he may irrigate arid lands and make them productive; but even here it is plainly apparent that his physical environment is determining his *individual* activities. His labor is not from choice, but from necessity. The man who has to irrigate is handicapped in the race for prosperity.

The physiographic regions of any country furnish a most interesting study inasmuch as the physical conditions combine to give each region a personality and character that is often unique.

¹ Read before the Earth Science Section of the Central Association of Science and Mathematics Teachers, Des Moines meeting.