

**OUTLINES OF THE FIRST
COURSE OF YALE
AGRICULTURAL LECTURES**

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Outlines of the First Course of Yale Agricultural Lectures by Henry S. Olcott & John A. Porter

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HENRY S. OLCOTT & JOHN A. PORTER

**OUTLINES OF THE FIRST
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AGRICULTURAL LECTURES**

OUTLINES
OF THE
FIRST COURSE
OF
YALE AGRICULTURAL LECTURES.

BY
HENRY S. OLCOTT.

WITH AN INTRODUCTION BY
JOHN A. PORTER,
PROFESSOR OF ORGANIC CHEMISTRY AT YALE COLLEGE.

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PUBLISHERS' PREFACE.

THESE sketches of the lectures which were given during the recent Convention at Yale College, were first printed in the columns of the New York Tribune. Occurring as it did when there was an unusual pressure upon the columns of the paper, the Convention would never have been reported at all if the editors had not regarded with great favor this attempt to improve the condition of our Agricultural science. Anxious to lend the powerful aid of the Tribune to further the object in view, they allotted a sufficient space daily for a succinct outline of the lectures throughout the entire course. So much valuable information was embraced in the several discourses, that to the reporter it was a matter of great difficulty to select as little as would fill the space at his disposal; and the readers of this pamphlet will not, therefore, wonder if he has not done full justice to either the topics or the lectures. When the course was almost completed frequent inquiries were made as to whether any complete report of it would be published; and by many a desire was expressed that if nothing more detailed and elaborate could be done, at least these Tribune sketches should be collected in book form, for convenience of preservation. It being established beyond doubt that no full publication could, for various reasons, be made, the publishers of this volume have made arrangements with Mr. Olcott to edit and correct his notes. To render them as nearly perfect as their brevity permits, they have been submitted for revision to the lecturers themselves, and may, therefore, be considered as at least fair summaries of the matter delivered by them from the lecture-desk.

LECTURES

GIVEN DURING THE

AGRICULTURAL CONVENTION AT NEW HAVEN,

FEBRUARY, 1860.

FIRST WEEK.—AGRICULTURAL CHEMISTRY, &c.

AGRICULTURAL CHEMISTRY,.....PROF. S. W. JOHNSON.

Lecture 1. Composition of the Plant. The Organic Elements—Oxygen, Nitrogen, Hydrogen, and Carbon. Lec. 2. Proximate Organic Principles of the Plant—Cellulose, Starch, Dextrine, Sugar, Gluten, Albumen, Casein, Vegetable Oils, and Acids. Lec. 3. Atmospheric Food of Plants—Water, Carbonic Acid, Ammonia, and Nitric Acid. Their sources and supply. Lec. 4. The Ash of Plants—Potash, Soda, Lime, Magnesia, Oxide of Iron, Oxide of Manganese, Chlorine, Sulphur, Phosphorus.

ENTOMOLOGY,.....DR. ASA FITCH.

Lecture 1. Great losses sustained from depredating insects—their classification, structure, metamorphoses, habits, and means of destruction. Lec. 2. Insects injurious to grain crops, with a particular account of the wheat midge and Hessian fly. Lec. 3. Insects injurious to fruit-trees, with a particular account of the Carculla and the Apple-Tree Borer.

VEGETABLE PHYSIOLOGY,.....DANIEL C. EATON, Esq.

Lecture 1. The vegetable cell—its form, size, structure, contents, origin, and mode of growth. Lec. 2. The seed, root, and stem. Nature and growth of seeds. Structure of roots. General structure and minute anatomy of stems. Lec. 3. Arrangement of leaves—their parts, forms, structure, and economy. Food of plants. Relations of the vegetable kingdom. Lec. 4. Flowers and Fruits. Arrangement of Flowers—their parts and offices of parts; development of fruit.

VEGETABLE PATHOLOGY,.....CHAUNCEY E. GOODRICH.

SECOND WEEK.—POMOLOGY, &c.

PEAR CULTURE,.....HON. MARSHALL P. WILDER.

American Pomology—the best method of promoting it; with practical suggestions on the cultivation of the pear.

GRAPES,.....DR. C. W. GRANT.

Lecture 1. Preparation of the soil, and propagation of the vine. Lec. 2. Culture of native varieties, with an account of different varieties and their qualities. Lec. 3. Foreign varieties; culture and treatment.

BERRIES ,.....	R. G. PARDEE, Esq.
Lectures 1. Strawberries, Raspberries, and Blackberries—soil, cultivation, varieties.	Lec.
2. Currants, Gooseberries, Cranberries, and Whortleberries—soil, cultivation, varieties.	
FRUIT-TREES ,.....	P. BARRY, Esq.
Lectures 1. Propagation and treatment of Fruit-Trees in the Nursery.	Lec. 2. Transplanting and management of Trees in the orchard and garden.
FRUITS ,.....	LEWIS F. ALLEN, Esq.
Lectures 1 and 2. The Apple.	Lec. 3. Uses of Fruits economically considered; profits as farm crops; their consumption as food for man; as food for stock; value for exportation.
ARBORICULTURE ,.....	GEO. B. EMERSON, Esq.
Lectures 1. Character of various Forest Trees, as found growing in the forests of Europe and America. Value for various purposes. Forest culture.	Lec. 2. Shade and Ornamental Trees: modes of cultivation.
THE HONEY-BEE ,.....	MR. QUINBY.
AGRICULTURAL CHEMISTRY , continued,.....	PROF. S. W. JOHNSON.
Lectures 4. The soil; its chemical and physical character.	Lec. 5. The mechanical improvement of the soil by tillage, fallow, and amendments.
Lec. 7. The Chemical and Mechanical improvement of the soil by manures.	Lec. 8. The conversion of Vegetable into Animal produce. The Chemistry and Physiology of Feeding.

THIRD WEEK.—AGRICULTURE PROPER.

DRAINAGE ,.....	HON. HENRY F. FRENCH.
Lecture 1. The sources of moisture. What lands require drainage. Drainage more necessary in America than in England.	Lec. 2. Various methods of Drainage. Direction, distance, depth, and arrangement of Drains.
Lec. 3. Effects of Drainage. Drainage promotes pulverization, warmth, absorption of fertilizing substances from the air.	Lec. 4. Over-drainage; obstruction of drains; remedies; effects of drainage on streams and rivers.
GRASSES ,.....	JOHN STANTON GOULD, Esq.
Lectures 1. Amount and value of the grass crop. The great increase practicable; destruction of the Grasses; obstacles to profitable culture.	Lec. 2. Classification and description of Grasses.
Lec. 3. On the principles of laying down and seeding meadows and pastures.	Lec. 4. On irrigation and drainage of meadows.
CEREALS ,.....	JOSEPH HARRIS, Esq.
On the cultivation of Wheat and Indian Corn.	
ROOT CROPS ,.....	T. S. GOLD, Esq.
The field Turnip, Ruta Baga, Beet, Carrot, Parsnip—varieties, soil, culture, composition, uses. Root culture essential to high farming. Preservation and feeding of roots.	
TOBACCO AND HOPS ,.....	PROF. WM. H. BREWER.
Lecture 1. Range of Cultivation; preparation of soil; care of plants; gathering and curing; advantages and disadvantages of cultivation.	Lec. 2. Hops, ditto.

- SANDY SOILS**,.....LEVI BARTLETT, Esq.
On the cultivation of Winter Wheat, and the management of sandy and other light soils
- ENGLISH AGRICULTURE**,.....LUTHER H. TUCKER, Esq.
LECTURE 1. Causes of its preëminence. An outline of the chief improvements accomplished. LEC. 2. Examples of English Farming; High Farming; visits to great Dairy establishments; remarkable results of Irrigation. LEC. 3. The Agricultural Shows of '56. Improvement of Stock. Lessons of English Agriculture.
- PROFITS OF AMERICAN FARMING**,.....HON. JOSIAH QUINCY, JR.

FOURTH WEEK—DOMESTIC ANIMALS.

- CATTLE**,.....CASSIUS M. CLAY, Esq.
LECTURE 1. On the five leading breeds, with notice of some other varieties. LEC. 2. Breeding as an Art.
- STOCK BREEDING IN THE UNITED STATES**,.....LEWIS F. ALLEN, Esq.
LECTURE 1. Cattle, Sheep, Pigs; their various breeds; adaptation to climate, soil, and purpose. LEC. 2. Best methods of breeding, physiologically considered. Present condition of stock breeding and rearing in the United States, as compared with some portions of Europe. LEC. 3. Poultry, economically and aesthetically considered; varieties, as adapted to climate and locality; utility and markets.
- THE DAIRY**,.....CHARLES L. FLINT, Esq.
LECTURE 1. Breeds and Breeding of Stock with special reference to the Dairy. LEC. 2. The management and economy of the Dairy.
- HORSES**,.....SANFORD HOWARD, Esq.
Characteristics of Breeds, and Breeding for special purposes.
- BREAKING AND TRAINING HORSES**,.....DR. DANIEL F. GULLIVER.
On the methods of subduing and educating the Horse. The Bancher and Rarey systems. Great enhancement of intrinsic and market value of Horses by these means.
- SHEEP**,.....T. S. GOLD, Esq.
LECTURE 1. History and description of the various breeds; localities and uses to which they are adapted. LEC. 2. Winter, Spring and Summer management of Sheep. Diseases. Adaptation of our country to Sheep raising. Comparative advantages of Sheep husbandry. Care and sale of wool.
- AGRICULTURAL ASSOCIATIONS**,.....MASON C. WELD, Esq.
Organization and uses of Agricultural Societies and Farmers' Clubs.

INTRODUCTION.

BY PROFESSOR JOHN A. PORTER.

THE views of Agricultural Education in which the Course of Lectures originated—reports of which are here presented to the public—were set forth in the *New Englander*, for November, 1859. From that article we make a few quotations, as introductory to a sketch of the course itself, and of the advantages which may be expected from a pursuance of this system of agricultural education :

“There is little question in the public mind as to the importance of new agencies for the diffusion of agricultural knowledge. A more difficult question is, how the lack of them shall be supplied. The Press does much, but by no means all that is required. The contact of man with man, and of mind with mind, is necessary to inspire the enthusiasm which is essential to rapid progress.

“The introduction of books on elementary science into our Common Schools, would be a great step in advance ; but here again there is the absence of that contact of the man of knowledge with the men who need it, which is essential to the highest success.

“Shall we wait for the establishment by Government of great agricultural institutions, similar to those of continental Europe ? Such institutions are among the most obvious and essential wants of our time, but a public and general opinion of their utility and necessity must be created before either our