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EQUIPMENT IN . . . AGRICULTURE, NATURE STUDY, and GEOGRAPHY.

OHIO STATE NORMAL COLLEGE
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This Bulletin is issued in order to acquaint practice teachers in the William Mc Guffey schools with materials available for use in the teaching of Nature Study, Elementary Agriculture, and Geography. In addition, information is given concerning certain collections that will be loaned to public schools upon application, provided all transportation charges are paid by the school to which the collection is sent. Following each item is the letter "A"-"E"-or "G." "A" indicates that the material is in the Department of Agricultural Education, in charge of Dr. Davis, "E" that it is in charge of Professor Heckert, in the Department of Education, and "G" that it is the Department of Geography in charge of Professor Hoke. Inquiries concerning loan collections should be sent to the Teachers Aid Bureau, Ohio State Normal College, Miami University Oxford Ohio.

Globes

One eighteen inch Jones relief model of the earth.	G
Two eighteen inch Nystrom swinging map globes.	G and E
One eighteen inch slate globe.	G
Five twelve inch map globes.	G
One twelve inch map globe with time chart.	G
Six twelve inch slate globes.	G
One system of globes suspended from ceiling to illustrate relations of earth, sun, and moon.	G

Models

One set Howell's relief models of the continents.
North America, South America, Eurasia, Africa,
Australia.	G
One Howell relief model of the United States, a section
of a globe sixteen feet in diameter.	G
One Howell relief model of the Henry Mountains, colored
geologically.	G
One Howell stereogram model of the Henry Mountains.	G
One Howell relief model of the Chattanooga district,
colored geologically.	G
One Howell relief model of New York State.	G
One set of three Harvard relief models.	G
One Keeler relief model to illustrate contours.	G

One dissectable manikin.	A
Models of eye, ear, and chest.	A

Maps

One set of Stanford's orographical wall maps of the continents, edited by Mackinder. North America, South America, Europe, Africa, Australasia.	E
One set Rand-McNally physical maps of the continents. North America, South America, Europe, Asia, Africa.	G
One Rand-McNally physical map of the United States.	G
The Oxford Wall maps, edited by Herbertson. Asia, one rainfall map. Africa, one rainfall and one vegetation map. South America, one rainfall and one vegetation map.	G
One set Rand-McNally political maps. North America, South America, Europe, Asia, Africa, United States, State of Ohio.	G
One Rand-McNally map of the world, Mercator projection.	G
Two sets Sydow-Habenicht physical maps of states of Europe, including British Isles, France, Spain, Italy, Germany, Balkan Peninsula, Austria-Hungary, Russia, Scandanavia.	G & E
One set Phillips relieve-test maps of states of Europe, including British Isles, France, Spain, Italy, Balkan Peninsula, Austria-Hungary, Switerland, Germany, Russia, Scandanavia.	G
One Kummerley contoured map of Switzerland.	G
One Noordhoff wall map of the Rhine.	G
One Gaebler map of Athens and environs.	G
One Holzel map of Oceanica, Mollwiede projection.	G
One Geological map of the British Isles.	G
One set Vidal-Lablache maps of France; Rivers, Canals, Railways, Cities, Industries, Agriculture and Colonies of Tunis and Algeria. One copy of each without names. One copy of each with names.	E G
Two Spruner-Bretschner historical wall maps; Europe at the time of Charlemagne, and the Roman Empire.	E

Two Kiepert wall maps of ancient history.	
Ancient Greece.	
Ancient Gaul and Germany.	E
An almost complete set of the U. S. G. S. contour maps of the United States with numerous duplicates for class use.	G
An almost complete set of the U. S. G. S. geological folios with many duplicates.	G
A large collection of hand maps of China, Japan, India, Persia, the Philippines, West Indies, etc.	G
Atlases	
Stieler—Hand-atlas.	G
Berghaus—Physical atlas.	G
Andree—Hand-atlas.	G
Debbes—Hand-atlas.	G
Bartholomew—Atlas of the World's Commerce.	G
Rand-McNally—Atlas of the World—two vols.	G
Spruner—Historical atlas.	G
Sydow—School atlas.	G
Charts	
Fourteen charts showing composition, function and use of foods.	A
Many charts, graphs, and diagrams have been prepared for teaching purposes to illustrate physical features, climate, and industries. These are too numerous to catalogue in detail and teachers desiring such material must consult the cases containing them.	G
Natural History Collections.	
Insects	
One demonstration case of economic insects.	A
Fifty life-history collections of common insects mounted in glass cases.	A
Beetles—the Siewer collection of more than four thousand specimens.	A
Weeds—a nearly complete collection of the seeds of local weeds	A
Birds—something more than a hundred mounted specimens of local birds.	A

Minerals and Rocks.

Eight sets Washington School Collection, each set consisting of forty minerals and forty rocks, with numerous duplicate fragments. G

A large collection of minerals, rocks, and fossils entirely too large to catalogue in detail, available for demonstration and study. G

Apparatus.

Bacteriology—a complete equipment, including Autoclave, Arnold sterilizer, two incubators, compound microscopes, etc. A

Study of soil—a complete equipment, including Hilgard's elutriator, soil cylinders, samplers, percolators, balances, etc. A

Note—a green house with modern appointments is connected with the soil laboratory.

One Babcock milk tester. A

Plant Study—abundant material and apparatus for conduction of experiments in plant physiology, plant propagation, examining and grading of grains, etc. Note—this equipment includes ten acres of ground for plot experiments and school gardens, with tool house and forty sets of gardening tools. A

Green standard U. S. Weather Bureau pattern meteorological instruments as follows:

Barometer

Exposed thermometer

Maximum and minimum thermometers

Wet and dry bulb thermometers

Rain gauge

Anemometer G

One Draper self recording thermometer G

One Goode Sun Board G

One Morse Heliodon G

Twelve seasonal twilight charts G

One 3a Graflex with Zeiss anastigmat and telephoto lens A

One 8x10 enlarging and reducing lantern slide camera G

One College Bench projection lantern with microscope attachment, and long and short focus lenses G

Two drawing tables with instruments, and one large table for map mounting. G

Several plane-tables for simple topographic surveying.	G
Eight Underwood Stereoscopes.	E
Pictures	
About one thousand pictures, 6 x 9 inches, of mammals birds, insects, econmic and flowering plants, etc.	A
About four hundred stereoscope views as follows:	
Industries—125	
Niagra—30	
Colorado—20	
Switzerland—45	
Astria—30	
England—30	
Miscellaneous—about 125	E
Fifteen framed views of typical landscapes, average 20 x 30 inches, and fifteen unframed ones.	G
About four hundred color photographs, mounted, 6 x 9 inches, distributed as follows:	
60—Turkey, mainly Constantinpole.	
50—Balkan Peninsula, mainly Bosnia and Dalmatia.	
50—Switzerland.	
50—Egypt and Atlas Lands.	
20—Syria and Palestine.	
50—Russia and Scandanavia.	
25—England and Ireland.	
100—Miscellaneous.	G
Atlas of Rohlfe's expedition in the Lybian Desert, 47 photographs.	G
Atlas of the Grand Canyon of the Colorado with many views, about 18 x 30 inches.	G
About fifty black and white views of London, aud forty views of Egypt.	G
Lantern Slides	
Birds—about 150—50 colored.	A
Insects—about 150—50 colored.	A
School Gardens—about 150.	A
School Yard Improvement—about 200—50 colored.	A
British Isles—about 150—25 colored.	G
Switzerland—about 150, many from original negatives, 30 colored.	G

Italy—about 60, 12 colored.	G
Germany—about 75, 12 colored.	G
Turkey, chiefly Constantinople—about 80.	G
Greece—about 60.	G
Niagara Falls—about 25.	G
Canyon of Colorado—about 25.	G
Canadian Rockies—about 40.	G
Great Industries etc.—about 50.	G
Physiographic features—about 100.	G
Climate—about 100.	G
Miscellaneous—including unclassified slides of India, Japan, etc, about 200.	G

Loan Collections

From the Department of Agricultural Education.

Any of the lantern slides listed under Department A.

Set of insect cases to illustrate methods of mounting.

Fifty mounted specimens of local birds.

A labeled collection of weed seeds.

A collection to illustrate leading field crops.

A labeled collection of about 25 of the more important economic insects.

From the Department of Geography.

Any of the unframed pictures listed under Department "G."

Any of the lantern slides listed under Department "G" and in certain cases the lantern, fitted for electricity or acetelyne.

A labeled collection of about 25 of the most common local minerals, rocks, and fossils, with notes.

Schools may secure the loan of any of the above collections upon the payment of transportation charges both ways, provided the material is not in use at the time of application. It is of course expected that all material will be returned promptly and in good condition at the specified time.

For information concerning any of the above loan collections address the teachers' Aid Bureau. Ohio State Normal College, Miami University Oxford Ohio.

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