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Lantern Slides for Engineering Instruction in the Early 20th Century

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Lantern Slides for Engineering Instruction in the Early 20th Century

Upstate New York Science Librarians Meeting, Oct 20, 2023

Jill H. Powell, Cornell University

guides.library.cornell.edu/
engineering_lantern_slides

Samples uploaded to Box

Cornell University Library

What are Lantern Slides?

- Approx 360 Lantern slides 4” x 3.25”, 6 canisters of microfilm, 21 smaller slides with equations, lecture notes
- Slides were likely purchased to aid in teaching students during 1920, 30s.
- Slides include pictures of machines, people operating machinery, factories, automobiles, equations, plant design, hiring practices

Lantern Slides for Engineering Instruction in the Early 20th Century

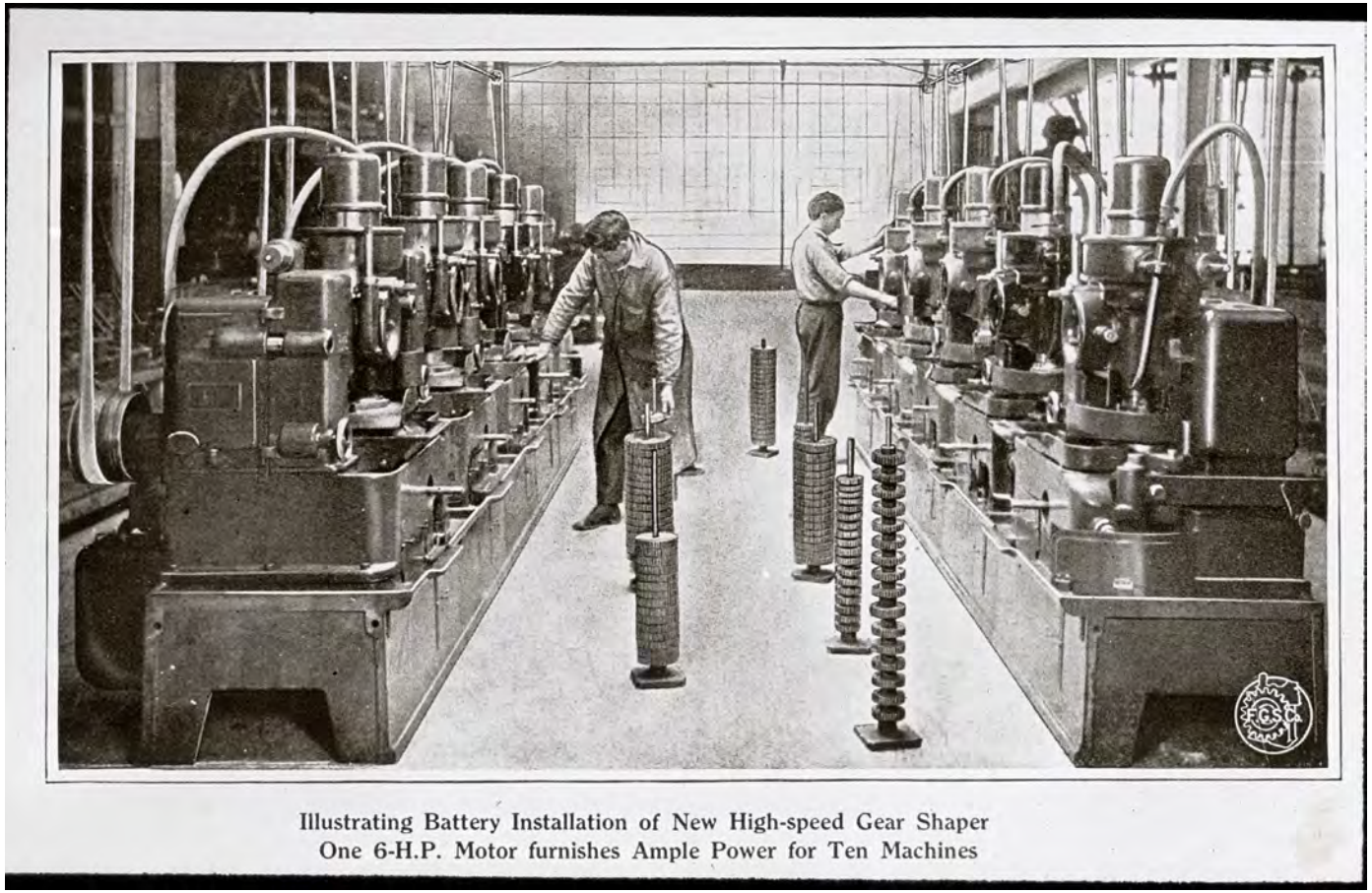
- Precursor to 35 mm slides, digital images
- Lantern slides, called hyalotypes, invented and patented by brothers Ernst Wilhelm and Friedrich Langenheim in 1850 in Philadelphia.
- Prominent in medicine (X-rays), astronomy, physics
- Some glass plates were painted with various colors, see at right.
- Samples uploaded at
  - guides.library.cornell.edu/engineering_lantern_slides

Frammuseum.no/shop/product/the-south-pole-framed-photo

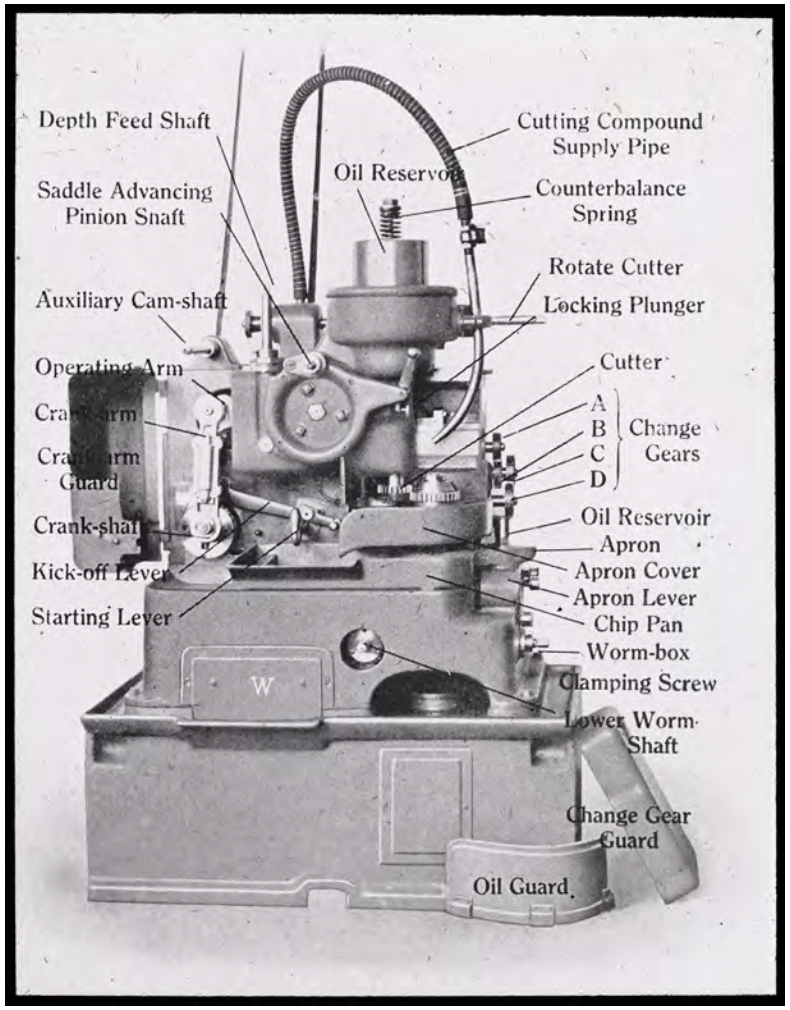
Lantern Slide Makers

Jones & Larson, 2 Spindle Flat Turret, J.P. Troy
Lantern Slide Maker, Cornell University, Ithaca, NY

Lantern Slides for Engineering Instruction, 1920s, 1930s



Illustrating Battery Installation of New High-speed Gear Shaper
One 6-H.P. Motor furnishes Ample Power for Ten Machines



Categories

1. Machines and people operating machines
2. Organized Recreation (Industrial relations)
3. Automobile assembly
4. Hiring practices (discrimination)

THE TRAVELING LIBRARY IN THE TOOL ROOM. TO MAKE THE FACTORY LIBRARY ACCESSIBLE TO ALL WORKMEN, BOOKS ARE DELIVERED TO THE DEPARTMENTS DURING THE NOON HOUR

People, Machines


Strange-looking object being ground below is a "broach." It is a cutter to be used in a broaching machine (see page 16). The operator is here removing the last fraction of an inch

Manual Saw Mill, Mechanical Plow

Copyright, 1905, by Underwood & Underwood.

A FILIPINO SAW MILL, IN THE ISLAND OF CEBU.

Photograph by P. E. Holt.

Replowing with steam outfit in the Great Valley of California.

Calisthenics, National Cash Register

RELAXATION CALISTHENICS IN THE MIDDLE OF A WORK PERIOD.
National Cash Register Co.

Reader in a Cigar Factory

Courtesy of Schwab Bros. and Baer

FIG. 33 A CIGAR FACTORY READER

About 250 Cuban cigar makers are employed who speak little English. The reader reads in Spanish for about 4 hr. per day. In the morning he reads from a daily newspaper and perhaps a magazine. In the afternoon he reads from some book which has been selected by majority vote.

Automobile Assembly

MONDAY 8 A. M.

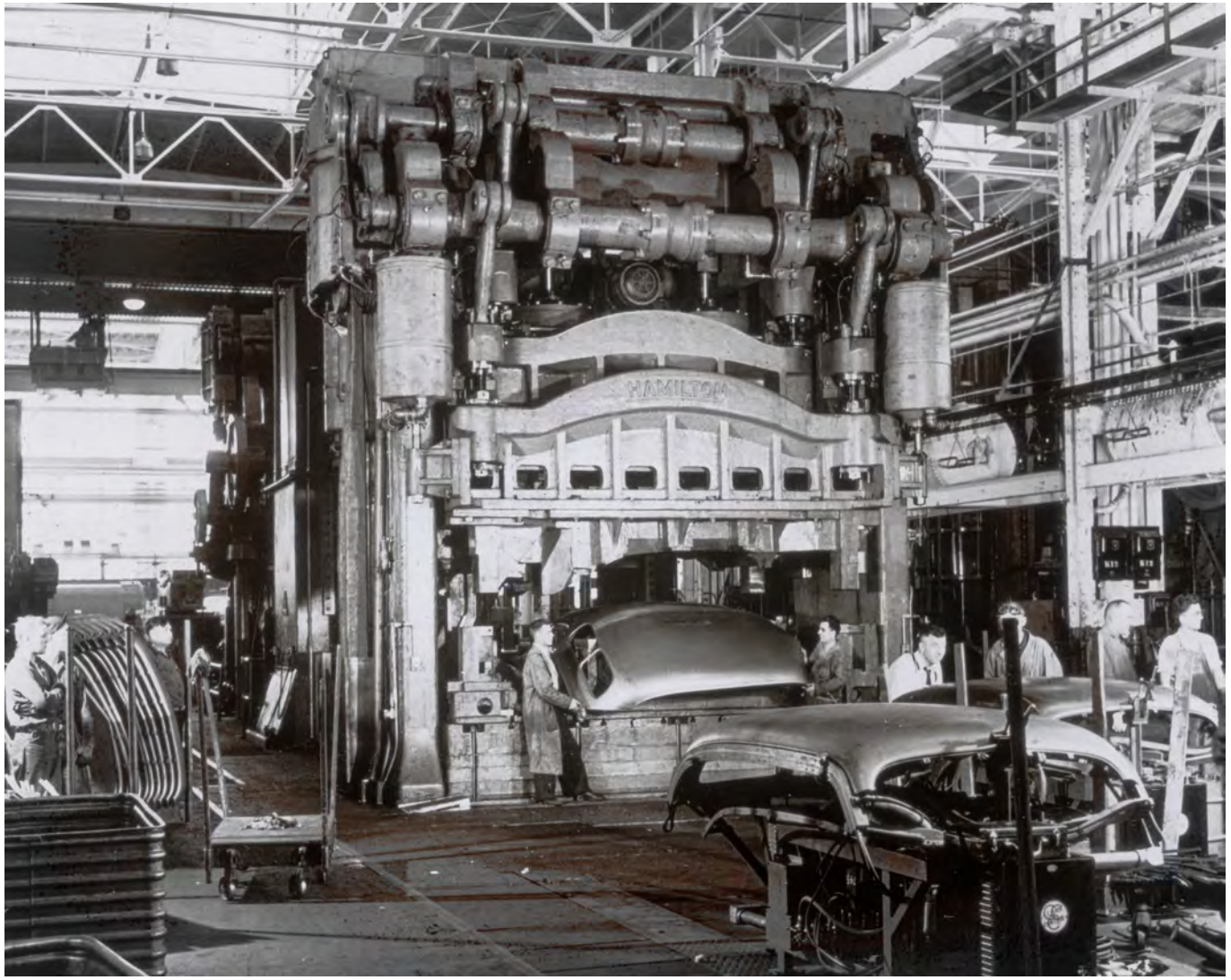
1 After a trip of approximately 48 hours from Marquette the ore boat docks at the Fordson Plant. Hulett unloaders start removing the cargo, which is transferred to the High Line, and from there to the skip car which charges the blast furnace. By continuous process this takes 10 minutes.

1

2

TUESDAY 12:10 A. M.

2 Sixteen hours later the ore has been reduced to foundry iron. It is then cast into pigs and sent to the foundry, where, mixed with certain proportions of scrap, it is remelted. This takes about four hours in all.



Automobile Factories

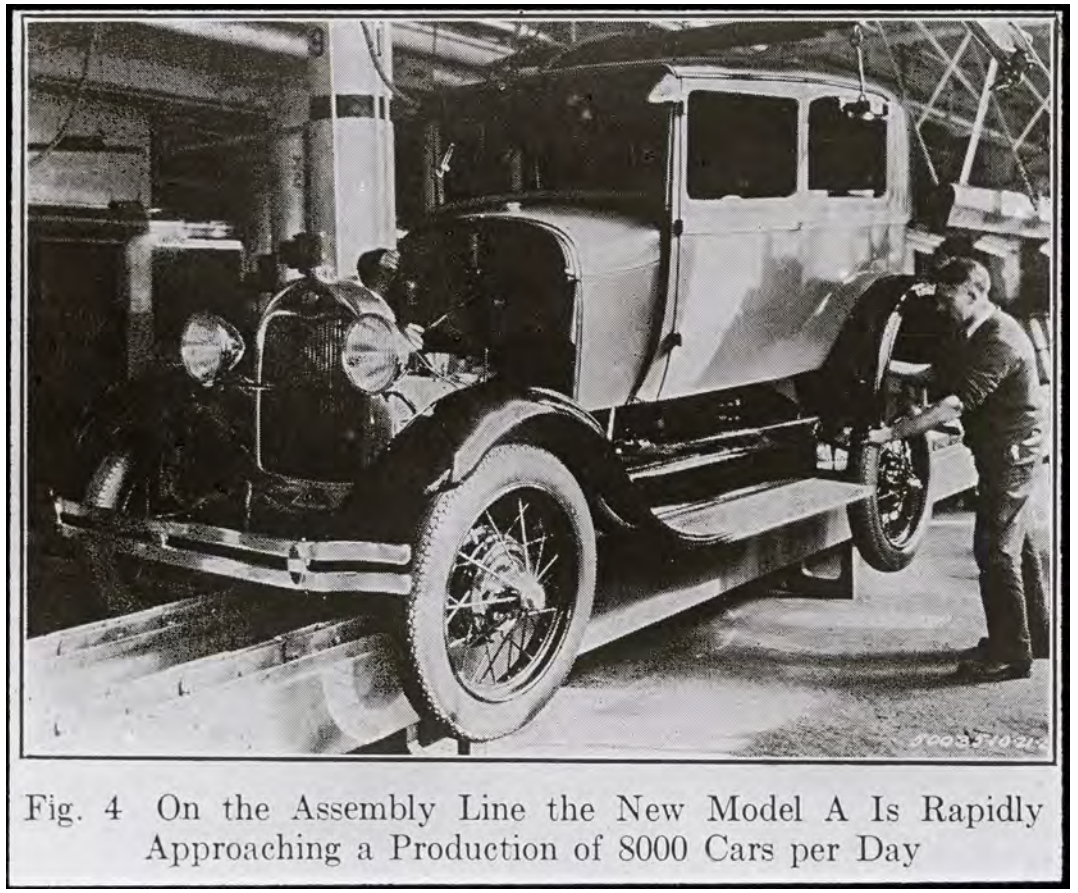
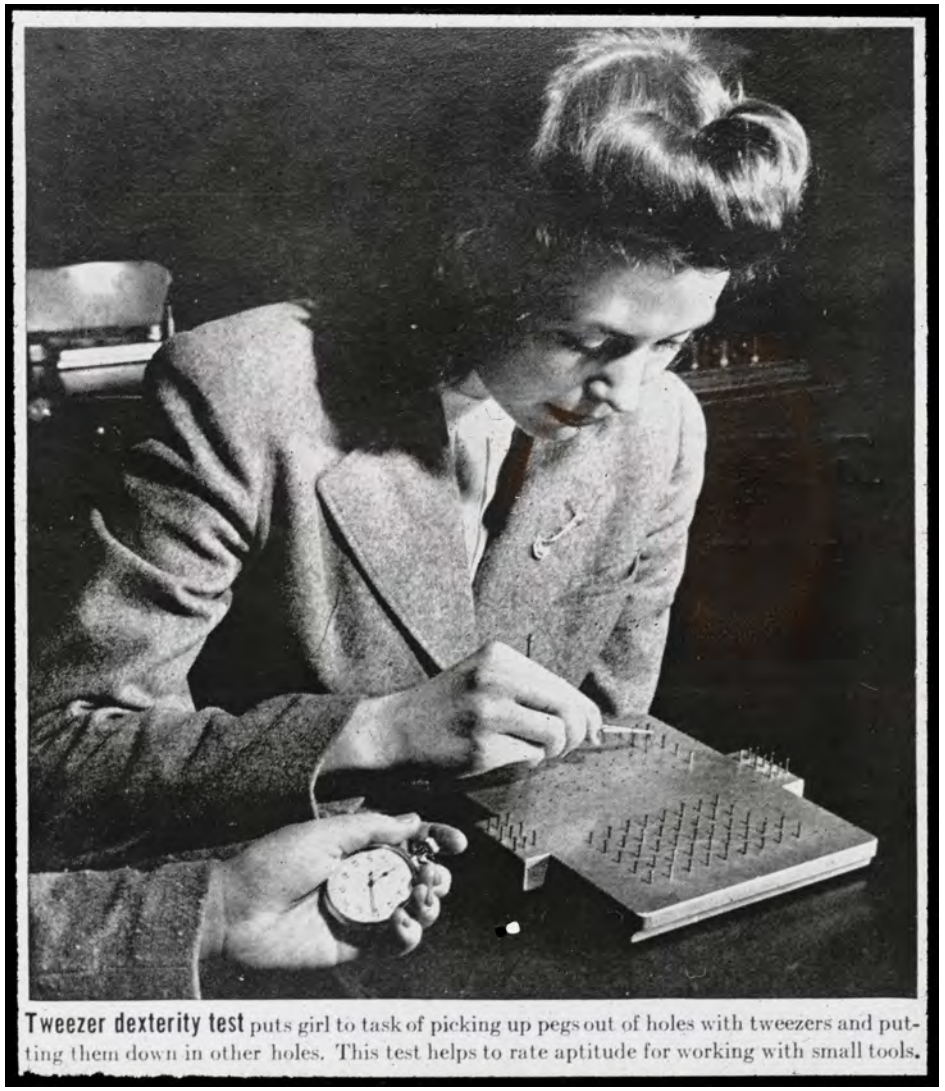
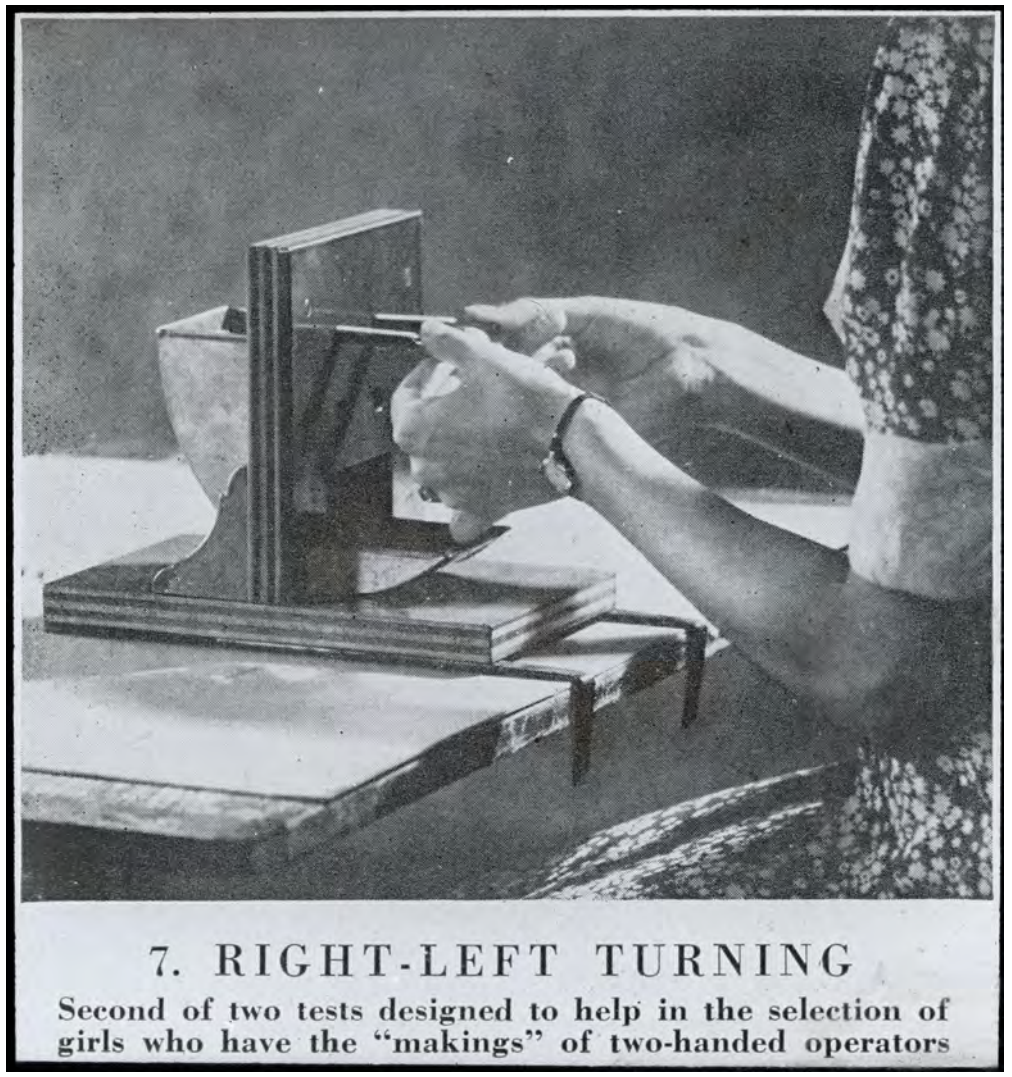


Fig. 4 On the Assembly Line the New Model A Is Rapidly Approaching a Production of 8000 Cars per Day

Hiring Practices - Aptitude Tests



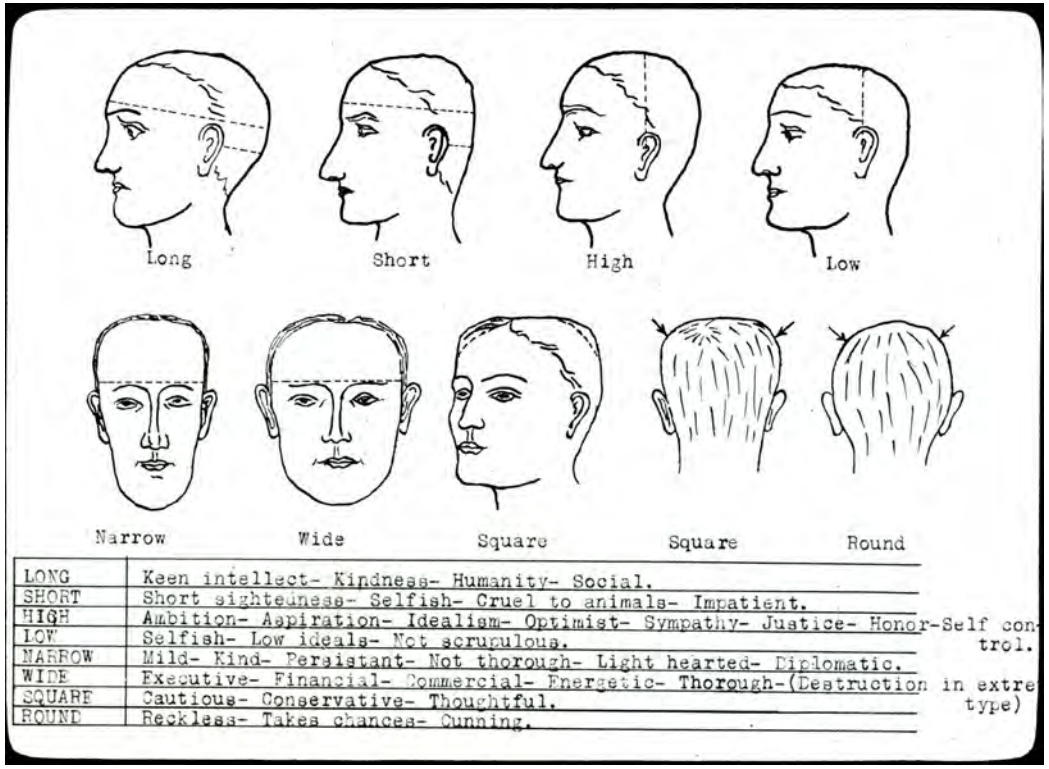
Tweezer dexterity test puts girl to task of picking up pegs out of holes with tweezers and putting them down in other holes. This test helps to rate aptitude for working with small tools.



7. RIGHT-LEFT TURNING

Second of two tests designed to help in the selection of girls who have the "makings" of two-handed operators

Discrimination



LONG	Keen intellect- Kindness- Humanity- Social.
SHORT	Short sighteuness- Selfish- Cruel to animals- Impatient.
HIGH	Ambition- Aspiration- Idealism- Optimist- Sympathy- Justice- Honor-Self control.
LOW	Selfish- Low ideals- Not scrupulous.
NARROW	Mild- Kind- Persistant- Not thorough- Light hearted- Diplomatic.
WIDE	Executive- Financial- Commercial- Energetic- Thorough-(Destruction in extre type)
SQUARE	Cautious- Conservative- Thoughtful.
ROUND	Reckless- Takes chances- Cunning.

Smaller slide 2” x 2” showing equations

Who is Associated with these Slides?

Myron A. Lee, Professor of Industrial Engineering, Cornell University.
His books include *Motion and Time Study, Motion Economy, and Wage Payments (pictured below at right) from Cornell Alumni News, April 1976, p. 8.*

Morris Simon Viteles, Professor of Industrial Engineering, University of Pennsylvania
His books, *Motivation and Morale in Industry*, and *Industrial Psychology*, 1932, first major textbooks in field.

View of an early 1900s student carnival, sent by reader Mrs. Stewart. From left are a city policeman, Anah Houghton, Alice Warren, and Myron Lee '09.

Morris S. Viteles

Announcements of the Cornell Engineering 1931-32,

Myron A. Lee, MME, Prof. of Industrial Engineering,
https://hdl.handle.net/1813/42128

INDUSTRIAL ENGINEERING

380. **Industrial Organization.** Required of all juniors in Mechanical and in Electrical Engineering. Either term. Credit two hours. Open only to upperclassmen except by special arrangement. A course of lectures on modern industrial tendencies and the principles that underlie modern methods of production. The treatment includes not only the reasons for our changed methods of production but also discussion of the principal features of such industrial factors as factory legislation, factory welfare work, and modern methods of administration. Professor KIMBALL.

382a, b. **Industrial Engineering.** Two lectures or recitations a week throughout the first term, one lecture or recitation second term. Credit two hours first term, one hour second term. Prerequisite course 380. A discussion of modern time-keeping and cost-finding systems, methods of planning work and of insuring production, administrative reports, time and motion study, purchasing, etc.; plant location and arrangement; heating, lighting, and powering of plants, safety engineering, fire protection, and workmen's compensation laws. Must be accompanied by 383a, b. Professor LEE and Assistant Professor KIMBALL.

383a, b. **Industrial Engineering Problems.** Six hours of drawing, computing or time study a week throughout the first term, three hours throughout the second term. Credit two hours first term, one hour second term. Must be accompanied by 382a, b. Prerequisite courses 318 and 319. Design and layout of a plant, including the selection and location of the machinery necessary to manufacture some small assembly such as an automobile transmission. A rather detailed solution of problems in costing, planning, routing, scheduling, etc., in connection with this plant, including the development of organization charts and administrative and other forms. The work also includes a detailed study of the use of the machine rate method of distributing overhead expense and a thorough practice in the making and using of time studies and rate tables. Professor LEE and Assistant Professor KIMBALL.

386. **Industrial Relations.** Two lectures or recitations a week during the first term. Credit two hours. Prerequisite course 380. A discussion of the more important problems which arise from the relation of employer and employee under present conditions of industry. Such features are considered as the effect of organized labor, employment methods, methods of wage payment, committee systems, industrial education and personnel service activities in general. Professor LEE and Assistant Professor KIMBALL.

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Collections

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Grant Proposal Questions

- Describe proposal, copyright concerns
- Significance of collection for teaching and program goals
- How it benefits underrepresented groups
- Project's impact on field and scholarship
- Value of digital accessibility (metadata) for scholars and community

Grant Proposal

- Consult with administrator, receive useful feedback before final deadline.
- Found faculty to co-sponsor in ILR and Science & Technology Studies
- Failed first time in 2022, resubmitting for 2023
- Feedback from panel suggested we needed more research listed, not just instructional uses of slides
- Classes mentioned included:
  - US Labor History, Immigration & Labor in US, Psychology of Work, Sociology of Work and Labor and Organizations, Foundations of Diversity Dynamics, Ten Technologies that Shook the World, Gender Studies

Filtered Search

Collection Type

Cornell University Collections (38663)

Geography

- South America (2217)
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- Europe (21279)
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- Central America and the Caribbean (2180)
- South-East Asia (135)
- East Asia (248)
- Central Asia (222)
- North America (7770)
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- South Asia (890)

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1 of 105

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Pianta della Necro...
Unknown

INSTITUTIONAL

Kero
Unknown
circa 1550-1599

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Colourhthm 40
Otero, Alejandro
1959 (creation)

INSTITUTIONAL

Nesting Boxes
Unknown
before 1622

INSTITUTIONAL

Kaliya Mardan
Phalke, Dhundiraj ...
1919 (creation)

INSTITUTIONAL

Bust of a Man Full ...
Leonardo da Vinci
circa 1505-1510

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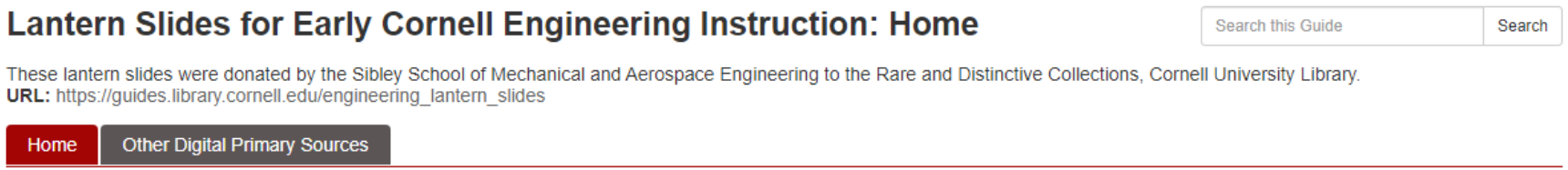

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- Slides were purchased to aid in teaching students industrial engineering during the 1920s,1930s.
- Faculty mentioned include Myron A. Lee, Professor of Industrial Engineering, Cornell University and Morris Professor of Industrial Engineering, University of Pennsylvania
- Slides include pictures of turbines, machines, people operating machinery, people working in factories, auto practices, equations solving problems.

Who might be interested? Researchers studying:

- history of industrial and labor relations, immigrants, gender studies, industrial psychology
- history of science & technology, history of automobile production
- discriminatory hiring practices
- history of early Cornell engineering classes

Engineering Lantern Slides

Thank you to Rhea Garen, Agata Okulicz-Kozaryn, Digital Collections, and Evan Earle, Rare and Distinctive Collections, Cornell University

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