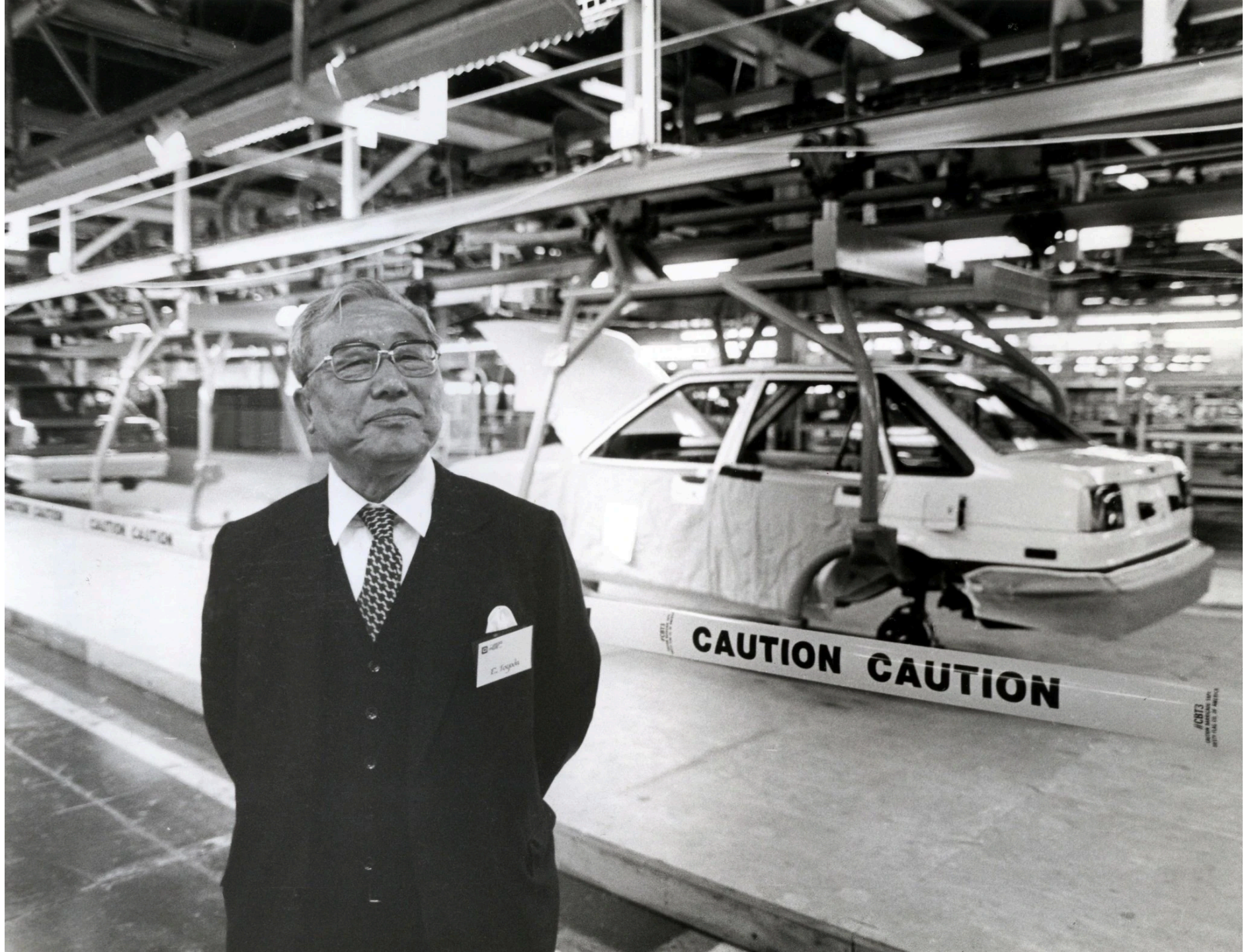
Lean

O.C.TANNER

Tyson Heaton


CAUTION CAUTION
CAUTION CAUTION

NATIONAL BESTSELLER

"The best current book on the changes reshaping manufacturing and the most readable." —*Business Week*

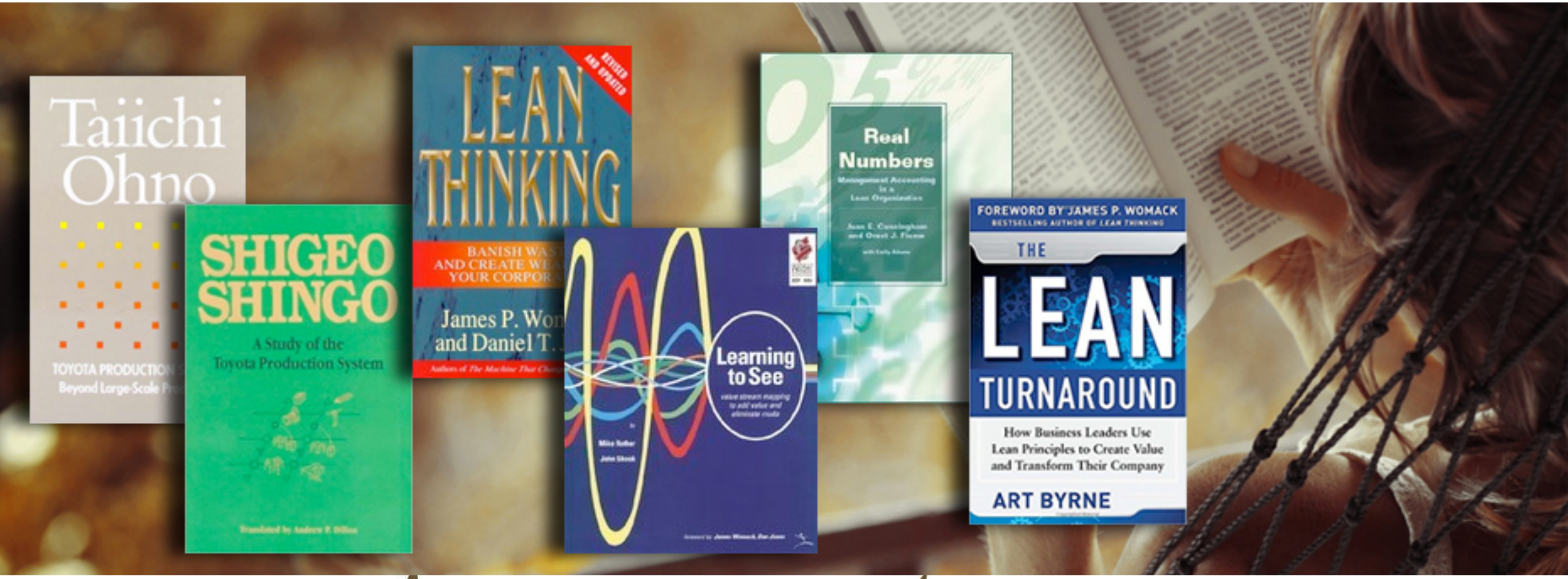
THE MACHINE THAT CHANGED THE WORLD

THE STORY OF LEAN PRODUCTION

HOW JAPAN'S SECRET WEAPON IN THE GLOBAL AUTO WARS WILL REVOLUTIONIZE WESTERN INDUSTRY

THE MIT INTERNATIONAL MOTOR VEHICLE PROGRAM

JAMES P. WOMACK, DANIEL T. JONES, AND DANIEL ROOS


Taiichi Ohno
SHIGEO SHINGO
A Study of the Toyota Production System
LEAN THINKING
Learning to See
Real Numbers
FOREWORD BY JAMES P. WOMACK
THE LEAN TURNAROUND
How Business Leaders Use Lean Principles to Create Value and Transform Their Company
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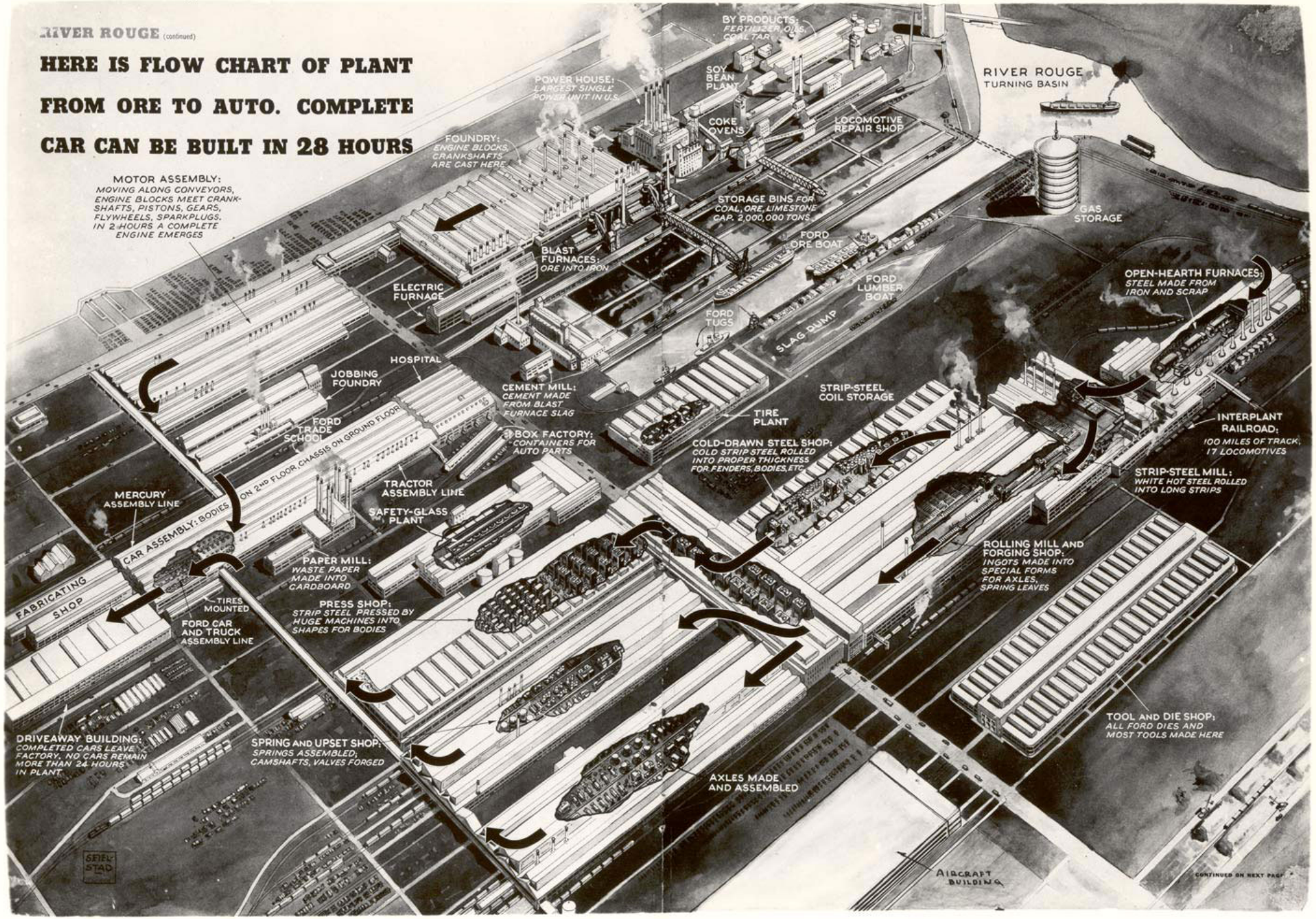





1900: Craft Production
1908: Frederick Taylor – Scientific Management
1908: Ford Model T – Mass Production
1920's: GM – Mass Production – Labor-Options
1940's: WW2 – Japan Reconstruction - Deming
1950's: Eiji Toyoda visits Ford River Rouge- More Deming
1960's-70's: Toyota Production System –, Taiichi Ohno-TQM
1980's-90"s: Womack/Jones– Lean Thinking – Motorola Six Sigma

Principles of Flow

Put Processes in Sequence

Synchronize Processes

Balance Work Content

Balance Demand Pace

Ohno wanted to purse flow but Ford's buffered flow wouldn't work

Mass production wasn't the market he was in – low volume many models

The bank was making life difficult for Toyota

Disengaged unhappy workers that liked to hide problems

Need: Smart leaders & workers who will give discretionary effort and work on the right problems.

Toyota's Breakthrough

Lean is the outcome of merging Flow and TWI

How did it happen?

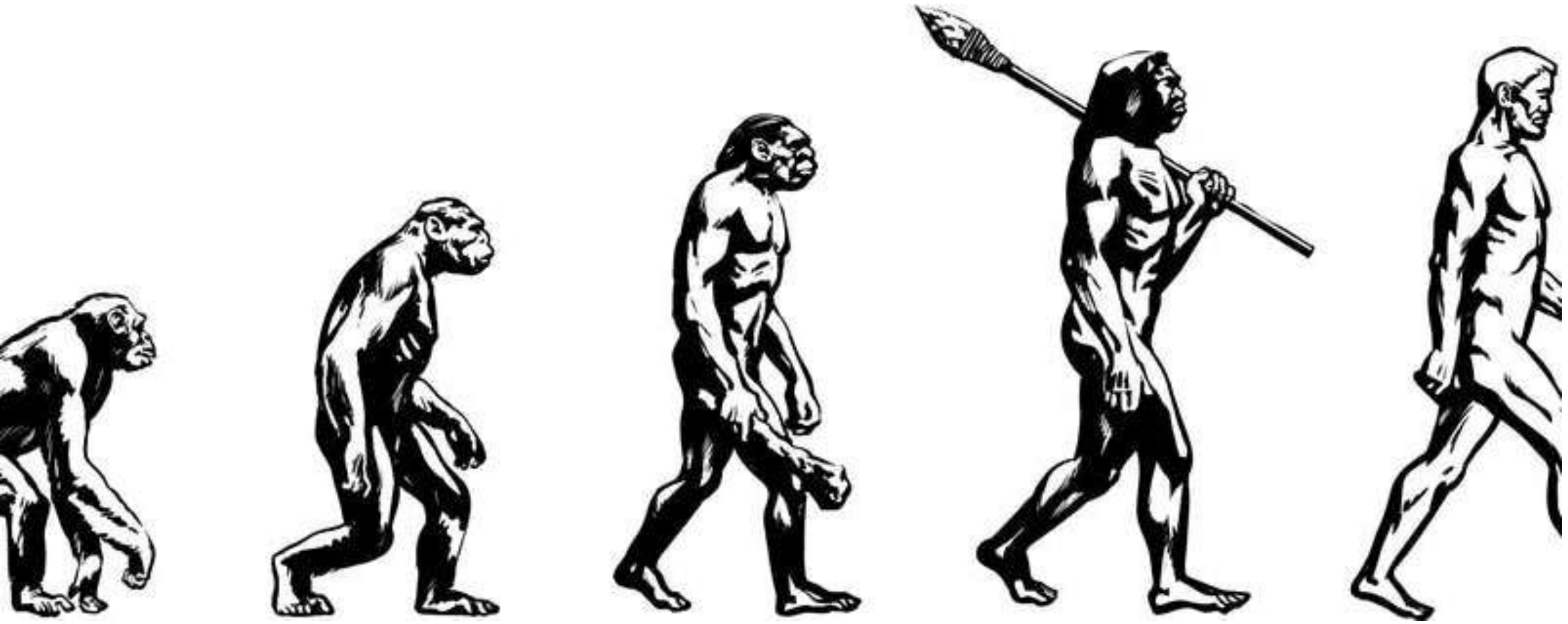
Ohno + Flow + TWI

Determined individual

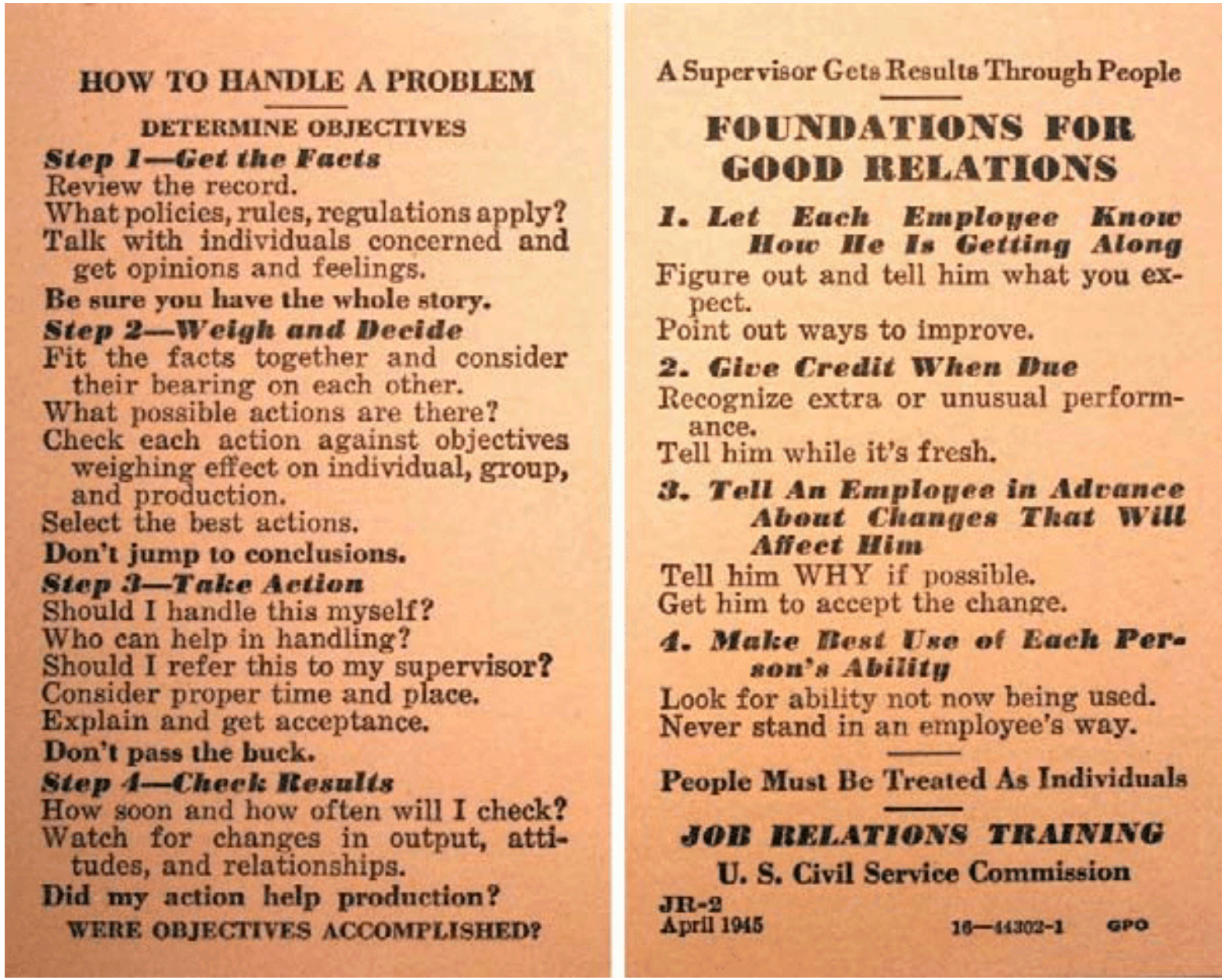
Fragile System

Thinking Patterns

Evolution not Design



Job Relations



HOW TO HANDLE A PROBLEM

DETERMINE OBJECTIVES

Step 1—Get the Facts

Review the record.
What policies, rules, regulations apply?
Talk with individuals concerned and get opinions and feelings.

Be sure you have the whole story.

Step 2—Weigh and Decide

Fit the facts together and consider their bearing on each other.
What possible actions are there?
Check each action against objectives weighing effect on individual, group, and production.
Select the best actions.

Don't jump to conclusions.

Step 3—Take Action

Should I handle this myself?
Who can help in handling?
Should I refer this to my supervisor?
Consider proper time and place.
Explain and get acceptance.

Don't pass the buck.

Step 4—Check Results

How soon and how often will I check?
Watch for changes in output, attitudes, and relationships.

Did my action help production?

WERE OBJECTIVES ACCOMPLISHED?

A Supervisor Gets Results Through People

FOUNDATIONS FOR GOOD RELATIONS

1. Let Each Employee Know How He Is Getting Along

Figure out and tell him what you expect.
Point out ways to improve.

2. Give Credit When Due

Recognize extra or unusual performance.
Tell him while it's fresh.

3. Tell An Employee in Advance About Changes That Will Affect Him

Tell him WHY if possible.
Get him to accept the change.

4. Make Best Use of Each Person's Ability

Look for ability not now being used.
Never stand in an employee's way.

People Must Be Treated As Individuals

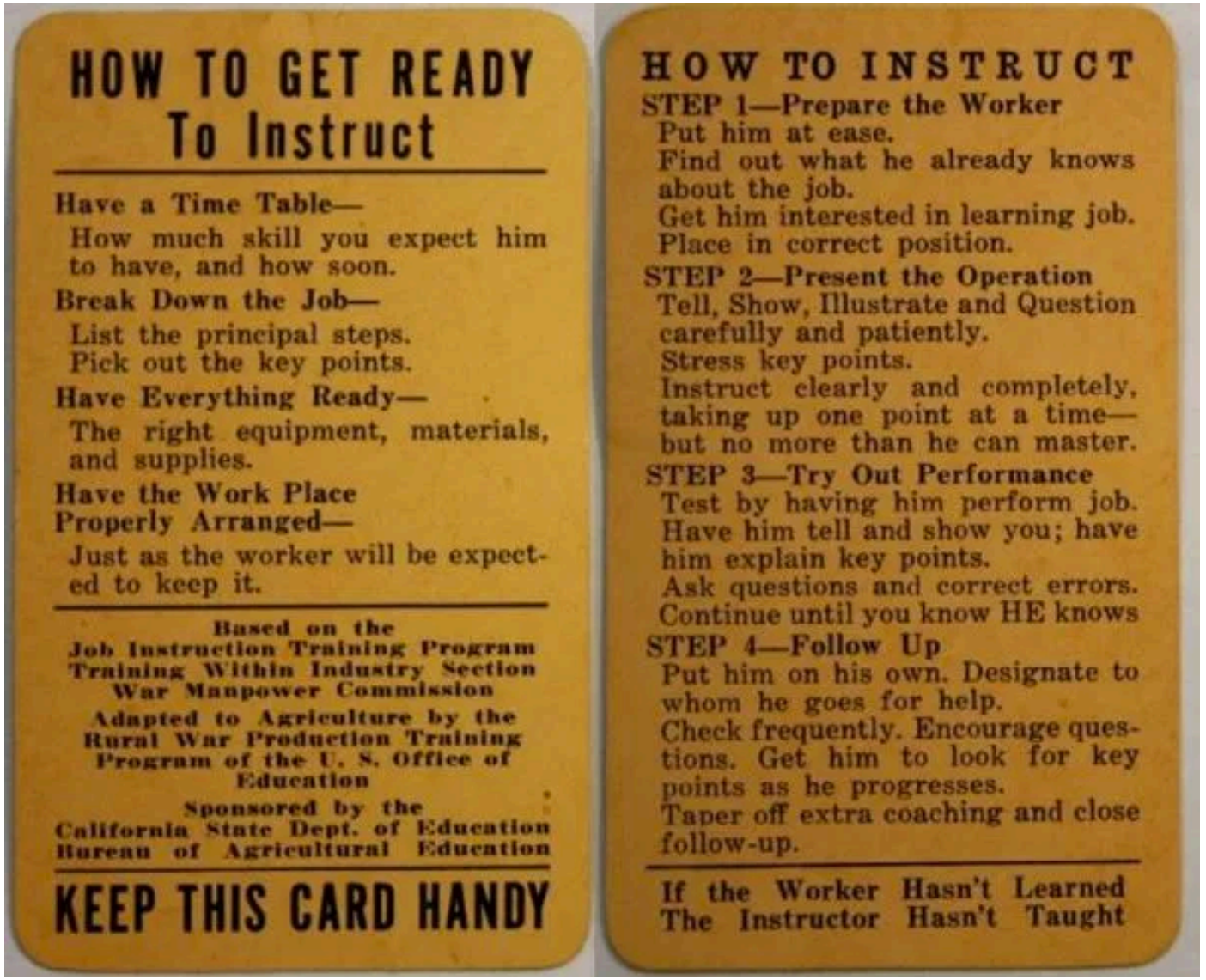
JOB RELATIONS TRAINING

U. S. Civil Service Commission

JR-2
April 1945 **16—44302-1** **GPO**

Engagement – Capturing Discretionary Effort

Job Instruction



HOW TO GET READY To Instruct

Have a Time Table—
How much skill you expect him to have, and how soon.

Break Down the Job—
List the principal steps.
Pick out the key points.

Have Everything Ready—
The right equipment, materials, and supplies.

Have the Work Place Properly Arranged—
Just as the worker will be expected to keep it.

Based on the Job Instruction Training Program Training Within Industry Section War Manpower Commission

Adapted to Agriculture by the Rural War Production Training Program of the U. S. Office of Education

Sponsored by the California State Dept. of Education Bureau of Agricultural Education

KEEP THIS CARD HANDY

HOW TO INSTRUCT

STEP 1—Prepare the Worker
Put him at ease.
Find out what he already knows about the job.
Get him interested in learning job.
Place in correct position.

STEP 2—Present the Operation
Tell, Show, Illustrate and Question carefully and patiently.
Stress key points.
Instruct clearly and completely, taking up one point at a time—but no more than he can master.

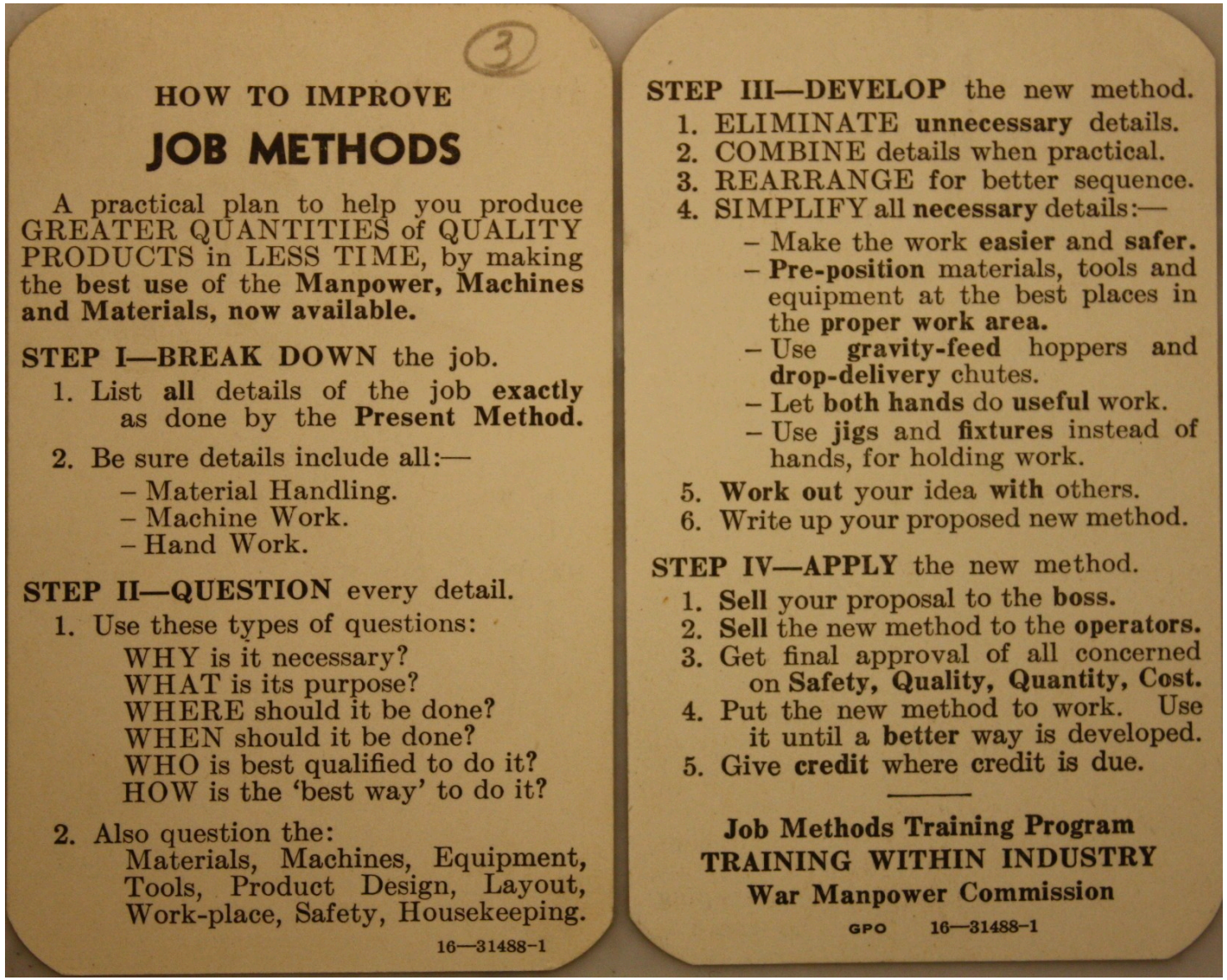
STEP 3—Try Out Performance
Test by having him perform job.
Have him tell and show you; have him explain key points.
Ask questions and correct errors.
Continue until you know HE knows

STEP 4—Follow Up
Put him on his own. Designate to whom he goes for help.
Check frequently. Encourage questions. Get him to look for key points as he progresses.
Taper off extra coaching and close follow-up.

If the Worker Hasn't Learned The Instructor Hasn't Taught

Engagement – Capturing Discretionary Intelligence – Basis for scientific inquiry

Job Methods



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HOW TO IMPROVE

JOB METHODS

A practical plan to help you produce GREATER QUANTITIES of QUALITY PRODUCTS in LESS TIME, by making the **best use** of the **Manpower, Machines and Materials, now available.**

STEP I—BREAK DOWN the job.

1. List **all** details of the job **exactly** as done by the **Present Method.**
2. Be sure details include all:—
   - Material Handling.
   - Machine Work.
   - Hand Work.

STEP II—QUESTION every detail.

1. Use these types of questions:
   WHY is it necessary?
   WHAT is its purpose?
   WHERE should it be done?
   WHEN should it be done?
   WHO is best qualified to do it?
   HOW is the 'best way' to do it?
2. Also question the:
   Materials, Machines, Equipment, Tools, Product Design, Layout, Work-place, Safety, Housekeeping.

16—31488-1

STEP III—DEVELOP the new method.

1. ELIMINATE **unnecessary** details.
2. COMBINE details when practical.
3. REARRANGE for better sequence.
4. SIMPLIFY all **necessary** details:—
   - Make the work **easier** and **safer.**
   - **Pre-position** materials, tools and equipment at the best places in the **proper work area.**
   - Use **gravity-feed** hoppers and **drop-delivery** chutes.
   - Let **both hands** do **useful** work.
   - Use **jigs** and **fixtures** instead of hands, for holding work.
5. **Work out** your idea **with** others.
6. Write up your proposed new method.

STEP IV—APPLY the new method.

1. **Sell** your proposal to the **boss.**
2. **Sell** the new method to the **operators.**
3. Get final approval of all concerned on **Safety, Quality, Quantity, Cost.**
4. Put the new method to work. Use it until a **better** way is developed.
5. Give **credit** where credit is due.

Job Methods Training Program
TRAINING WITHIN INDUSTRY
War Manpower Commission

GPO 16—31488-1

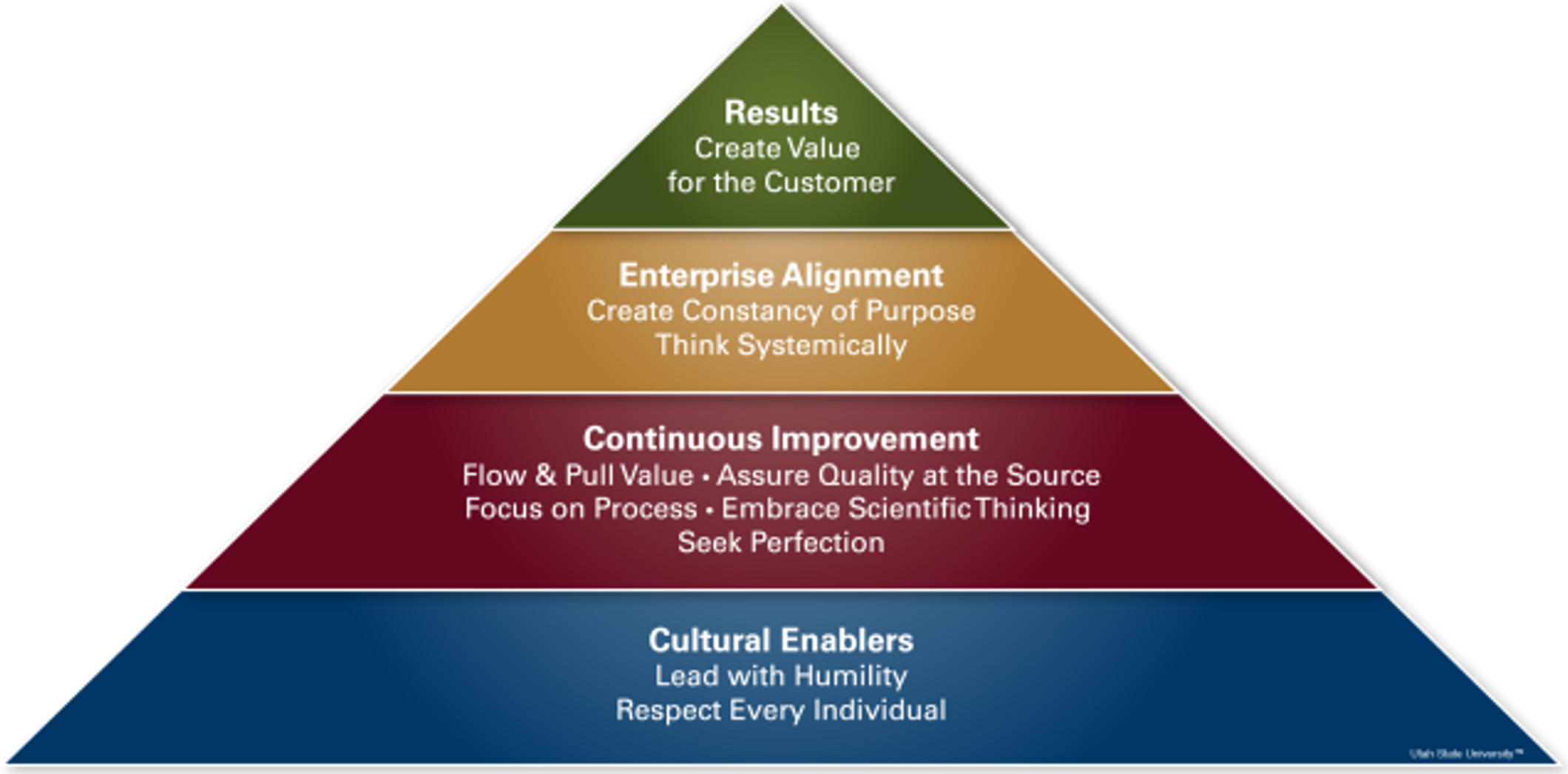
Improving through the Scientific Method

Discovery!

Bank forced a fragile low to no inventory system

- Fragility forces system to break at the weakest points
- System reveals problems to work on and creates urgency in solving the problems
- As stability and growth is achieved Toyota continued to pursue flow and non-stock production

Shingo Model



Essential Core

1 - Capture and encourage discretionary effort/ideas

2 - Bias culture to practice scientific method over experience and gut

3 - Flow value coupled with the strategic use of inventory to reveal fragility

Systematize management to create capacity to focus on 1, 2, & 3

*visualization as a lever for shared clarity

Resources

History & Flow

https://prezi.com/gcsirad76okt/lean-simplified/

https://medium.com/@mark.tesla2/the-development-of-lean-management-9fbb3232858a#.cl0hq2lak

TWI – http://artoflean.com/index.php/documents/twi-material/

Culture & OpEx - https://shingo.org/model/. https://www.octanner.com/

Bonus - https://paulakers.net/books/2-second-lean

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O.C.TANNER

Thrive at work