

FOR YOUR PROTECTION
THESE ITEMS SHOULD BE USED
IN THIS DEPARTMENT
THEY ARE READILY AVAILABLE
PLEASE USE THEM

WORK BOOK

DO YOU
HAVE
WHAT IT
TAKES?

Design Criteria

Our interest at the present is centered around the design of work methods relative to the use of the human machine. It is quite common industrial practice to use cost as the criterion for evaluating work methods and determining when changes represent improvement. However, cost criteria are a bit illusive, and at times inappropriate. Recalling our discussions of the systems approach to developing improvements, the use of cost as the criterion for evaluating the effectiveness of one operation may not result in improvement of the cost for the process or system of which the operation is but a part. You will recognize this as the *sub-optimization vs. optimization* situation. We must have appropriate criteria for evaluating the system and also for initial evaluation of the components of the system. Most situations in which we are primarily concerned with effective utilization of the human machine are very restricted in scope relative to the entire work system. This requires that we select what seem to be appropriate measures for evaluating individual work

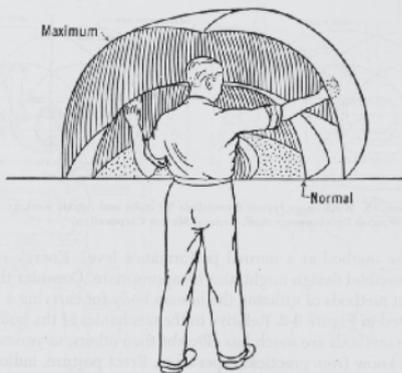


Figure 9-4. Normal and maximum working areas. The normal working area is enclosed by arcs of the forearm, with the upper arm hanging freely. The maximum working area is enclosed by arcs of the full arm pivoted at the shoulder. The body remains in the same position. (From Ralph E. Barnes, *Work Methods Manual*, New York: John Wiley & Sons, Inc., 1944. Reprinted by permission.)

WORK BOOK

AN APTITUDE TEST FOR (UN)SEEN WORK

BY JANE GILMOR
2010

With contributions from Lesley Wright



NATIONAL
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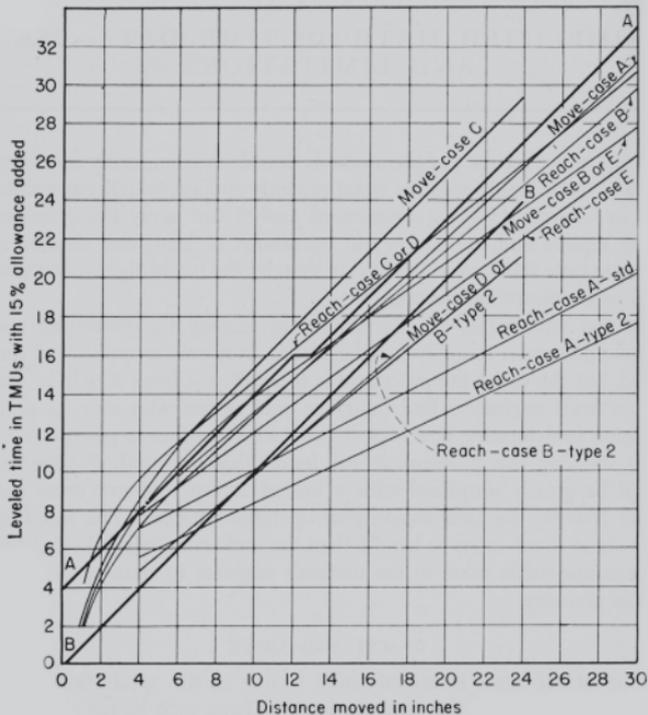


FIG. 93.— Composite curves of all cases of Reach and Move.

WORKBOOK QUIZ #1 WORK PERSONALITY

Multiple choice

For each question, circle the response that best describes you.

1. The quality or strength I can be counted on to display at work is:

- a. responsibility
- b. time management skills
- c. morbid sense of humor
- d. use of literary references in awkward situations

2. My attitude toward work is:

- a. Work hard—play hard
- b. Work equals love
- c. It's a necessary evil
- d. It builds character and pays the bills

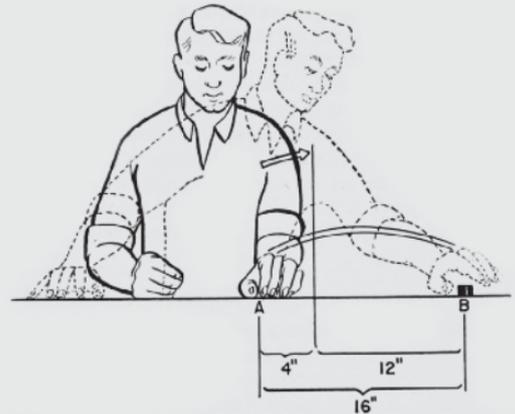


FIG. 19.—Reach accompanied by a body motion made in the same direction as that traveled by the hand

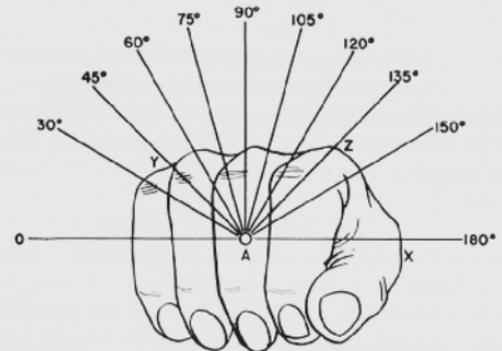


FIG. 30.—Concept employed in determining length of Turn motion.

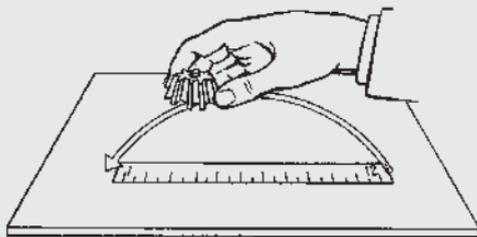


FIG. 4.—Light object moved 12 inches—no restrictions.

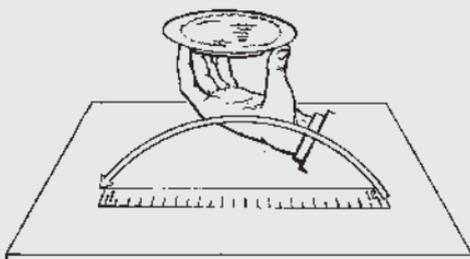


FIG. 5.—Light object moved 12 inches—motion restricted by necessity of avoiding spillage.

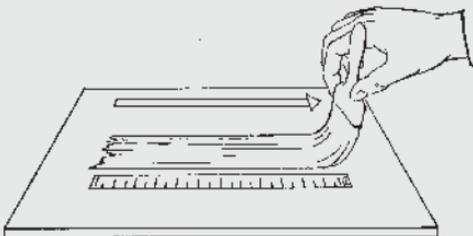


FIG. 6.—Light object moved 12 inches—motion restricted by necessity of allowing paint to flow from brush.

3. At work when I'm feeling discouraged I often:

- a. Take a break
- b. Become consumed with self-pity
- c. Slow to a crawl
- d. Have a big piece of apple pie

4. I like to:

- a. Work a long hard day
- b. Loaf on the job and text message
- c. Come late and leave early
- d. Watch everyone who is working

5. When I look around me at work I see

- a. Nothing but more work
- b. The Break Room
- c. A challenge
- d. The refrigerator

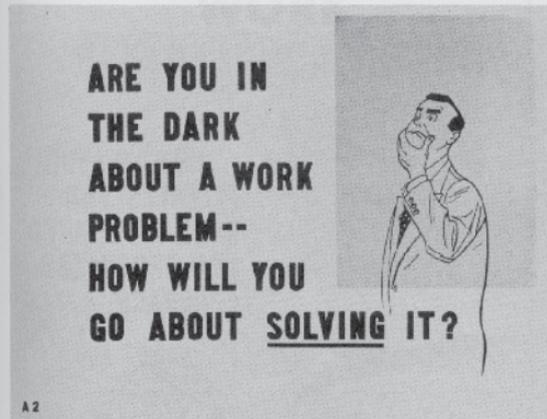
6. People who know me best at work say I am:

- a. jealous and competitive (obnoxious)
- b. methodical and reserved (rigid)
- c. overly sensitive to criticism (a nut case)
- d. dedicated and traditional (boring)



A 1

A-1, GTA 20-100. Each day you are faced with new challenges to get your work out faster or with less personnel or without excessive overtime. (Reproduced by permission of the Department of the Army)



A 2

A-2, GTA 20-100. You, as supervisors, are closest to your work—and are in the best position to solve your own work problems. (Reproduced by permission of the Department of the Army)



Figure 126 Print of motion picture film showing eye and hand motions of the operator assembling small parts.

7. At work I have a great need to:

- a. be accepted
- b. punch my boss in the face
- c. start a hostile take over
- d. sleep

8. In work situations I usually:

- a. try to keep everyone around me happy
- b. be sure everyone's job gets done even if I have to do it
- c. talk to myself quietly
- d. work as fast as I can so I can get the employee of the month award again

9. I work so that I can:

- a. take care of my family
- b. take care of myself and my cat/dog
- c. get out of the house
- d. have something to do

10. The work I do is:

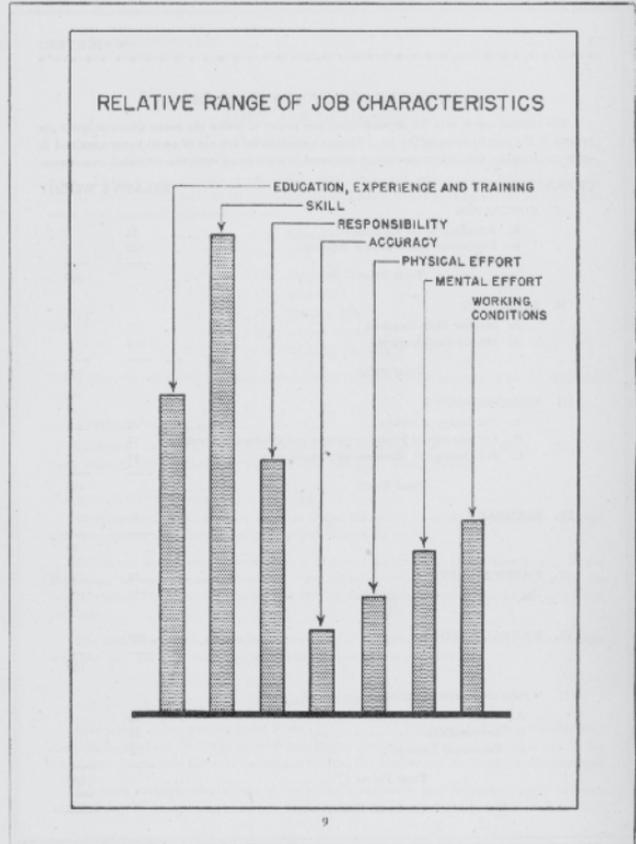
- a. necessary in my community
- b. necessary in our world
- c. worthless but puts food on the table
- d. what is it that I do?

SCORING:

All "A's" — you pass

All "D's" — back to school!

Mixed — you're confused!



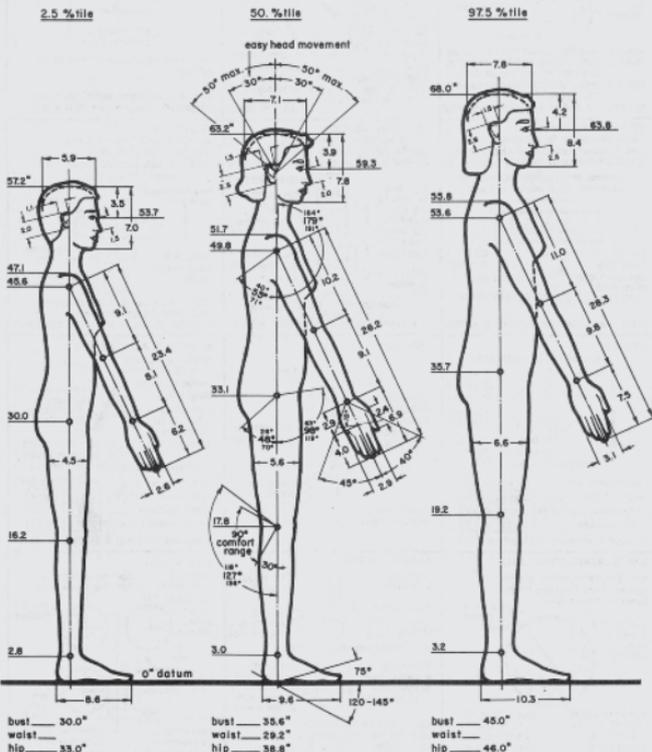
4. ARE YOUR PERSONNEL DOING TOO MANY UNRELATED TASKS?



B12 JACKS-OF-ALL-TRADES ARE MASTERS OF NONE

ANTHROPOMETRIC DATA — STANDING ADULT FEMALE

ACCOMMODATING 95% OF U.S. ADULT FEMALE POPULATION



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WORKBOOK QUIZ #2 STORY QUESTIONS

If you were working on the line at the shoe factory and you were required to put the soles on 105 shoes an hour and you work 10 hours a day, 6 days a week, how many weeks will it take you to sole 250,132 shoes?

- a. sixty weeks
- b. twenty-five miles an hour
- c. who cares
- d. I quit

MAN-MINUTES TO PRODUCE 320 LB. BULK WORK			
With 4-30" EXTRACTOR (80 lb. capacity each)		With 1-50" EXTRACTOR (320 lb. capacity each)	
	Load trucks from washer 3 1/2 man-minutes		Load containers from washer 3 1/2 man-minutes
	Push trucks to extractors 1 1/2 man-minutes		Convey containers to extractor 1/2 man-minutes
	Load extractors and balance loads 8 man-minutes		Balance load - place containers in extractor 1 man-minute
	Unload extractors into trucks 10 1/2 man-minutes		Hoist containers from extractor 1/2 man-minutes
	Push trucks to shakeout table 1 1/2 man-minutes		Convey containers to shakeout table 1/2 man-minutes
	Unload trucks onto shakeout table 2 1/2 man-minutes		Dump load onto shakeout table 1/2 man-minutes
	Return trucks to extractors and washers 1 1/2 man-minutes		Return containers to washers 1/2 man-minutes
	Total time old method 29 1/2 man-minutes		Total time improved method 8 man-minutes
TIME SAVED EACH LOAD CYCLE			21 1/2 man-minutes

Figure 64 Chart used by laundry machinery manufacturer to show how extractor is designed to eliminate hand operations and save time.



Fig. 10.1 Hand signals from the Slinger's Handbook of the Sheffield Area Safety Group (Industrial and Commercial).

KNOW YOUR CRANE SIGNALS



Signals should stand in a sunny position where they CAN BE SEEN (they SHOULD BE SEEN CLEARLY), but where they are not as possible. Each signal should be distinct and clear.

Fig. 18.2 Know your crane signals. The Federation of Civil Engineering Contractors.

If your tractor goes fifteen mph maximum and you are needed in the hog lot three acres away, how long will it take you to get there?

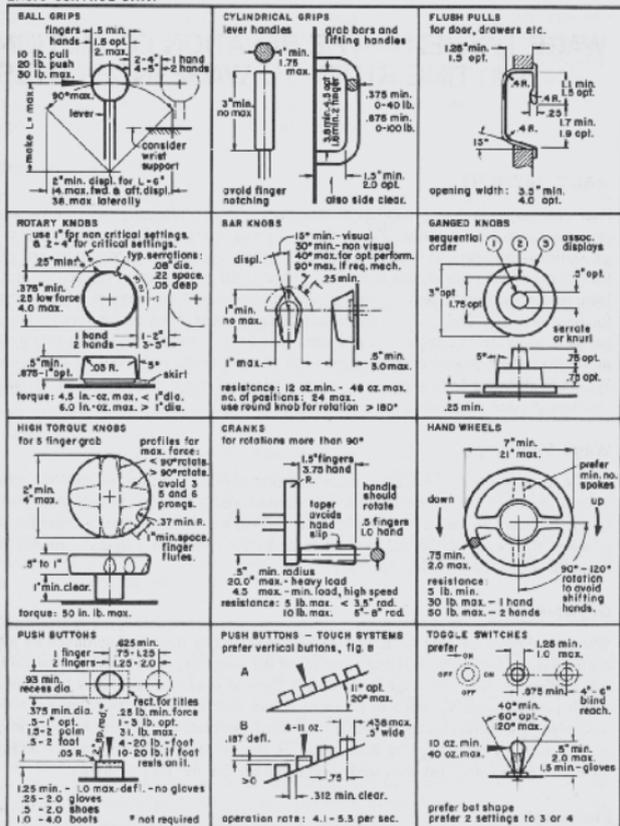
- not long
- fifteen minutes
- The hogs are gonna starve
- 4.2 hours including lunch break

If, in your life, you worked for a total of 50 years but were laid off twice, unemployed for 17 months, laid up with a bad knee, and between jobs 9 times, how many days total did you work?

- a. A bunch
- b. 12,000
- c. 40,000
- d. An eternity



Figure 116 Arrangement of work place—improved method. Filling mailing envelope with four sheets of advertising material. *A*, triangular blocks; *B*, block on which sheets are jogged.

BASIC CONTROL DATA


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Figure 275 Basic control data. (From *The Measure of Man* by Henry Dreyfuss, published by Whitney Library of Design, New York.)

At the local convenience store, how many transactions does the clerk handle on an 8-hour shift?

- 50 gas sales,
39 newspapers,
7 beer runs,
29 donuts, and
65 cigarette purchases
- 320 customers
- 42 old guys,
18 young women,
36 construction dudes,
10 pesky kids
- It's all a blur

b. Resistance to change, which should be met by encouraging personnel to develop their own ideas. Individuals do not normally resist changes which they have originated. Thus, a change in a process developed by the individual on the job is more likely to be accepted by him than a similar development by his superior or by an outside staff officer.

27. Technical requirements

A prime consideration for any improvement is better utilization of existing facilities, including buildings, machinery, equipment, and personnel. New facilities are expensive and require time to obtain and develop. It is,

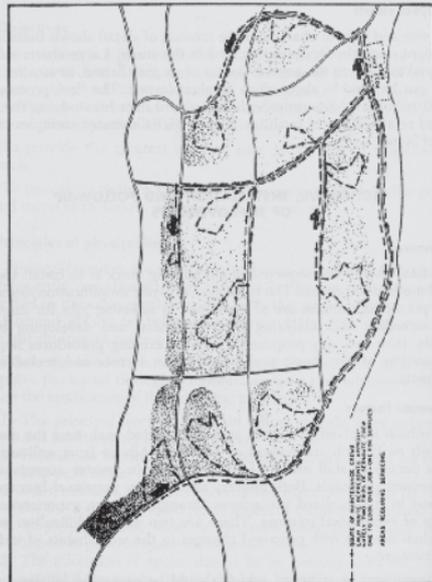


Figure 23-7. Examples of layout charts. (Installation maintenance—before study.)

Continue the quiz at:
unseenwork.com

This publication accompanies a component of *Culturing Community: Projects about Place*, curated by Lesley Wright and presented at Faulconer Gallery, Grinnell College (Grinnell, Iowa) from September 24 to December 12, 2010.
grinnell.edu/faulconergallery

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BY MANAGEMENT.

ALL IN AND OUT SERVICE
BY FRONT ENTRANCE