1	2	3	4	5	6	7	NO. OF JOBS
2.10	.57	.68	.61	.75	.81	.20	1
	.07	1.11	2.		.56		2
		.12	.25	.48	.22		3
.42	.19	2.53	5.25	.48	.36		4
		1.85	3.25	.57	.76		5
.60	.38	1.10	2.75	.40	.44		6
	.33	.33	.75	.43	.28		7
	.19	.65	1.50	.43			8
.33		.78	.83	.94			9
		1.26	2.25	.55	.22		10
.33		.30	.50	.60	.26		11
	.08	1.71	3.75	.46	.28		12
.19		.19	.75	.25			13
		1.38	2.	.69			14
		.30	.50	.60	.15		15
		.26	.33	.78	.14		16
		.13	.25	.52	.21		17
.45		.69	1.	.69	.12		18
		.88	1.75	.50	.45		19
.59	.22	.52	1.25	.42			20
.35		3.86	6.75	.57	.10		21
.47		.79	1.75	.45	.29		22
	.56	.88	2.	.44			23
		.53	.75	.71			24
	.27	.82	1.50	.55	.22		25
	.45	.75	1.75	.43	.60		26

Total Dozens =   46.16

46.16 ÷ 26 = 1.78, Av. Dozens per Job

TOTAL NO. OF JOBS

Fig. 2. Compilation.

3. Trip machine with right foot.

4. Replace lid on box and place box on pile.

Having standardized the equipment and eliminated waste motions, the operation was time-studied, one specimen sheet being shown in Figure 1.

With the time studies made and our element times computed, we must now select the "standard" element times for making up the standard operation time.

From an inspection of Figure 2 we note that times for "Place Boxes" range from .19 to .60 (column 2). Times for "Adjust Machine" range from .07 to .68 (column 3). Times for "Stamp Boxes" (per doz.) (column 6) range from .25 to .94. We might select

the average time, the mean time or the minimum time. However, it is understood that these times are for a standard operator. Exceptional times should not influence the result. Only the times that repeat most frequently should be used because they indicate the habitual acts of a standard operator.

On this basis, we lay out the element times graphically, as shown in Figures 3, 4, 5 and 6.

From the time study observation sheets the element times were compiled, as in Figure 2.

Element No.	Column No.	Element Description
1	1	Prepare Equipment
		(a) Place Truck
3		(b) Place Orders
2	2	Place Boxes
4	3	Adjust Machine
	4	Stamp Boxes (per job card)
	5	Dozens (per job card)
5	6	Stamp Boxes (per doz.)
6	7	Place Stamped Boxes (per trip to truck)

We now note that there are certain fields in which the element times are grouped. Note in Figure 5 the large group at .57 and in Figure 6 the groups at .22 and .28. In determining what is legally right, we accept the will of the majority. In determining what is standard element time, we can find the average of the majority of element times which are grouped within the smallest range of time. For setting these selected element times (majority) from the discarded element times (minority) we draw the lines—

AB and CD in Figure 3a

EF and GH in Figure 4a

IJ and KL in Figure 5a

MN and OP in Figure 6a

These lines show the majority of elements ranged in the zone of greatest frequency.

These are the majority of the elements that most closely combine for showing the standard element time. For determining the standard element time, we average each of these majority groups. The horizontal lines are drawn to show which times are used.

In order to do this for "Stamp Boxes" element, it is necessary to use the total time from the element compilation sheet, Figure 2, and divide the total time by the total dozens.

We are now ready to make up the standard operation time. (This can be done either on a per-dozen basis or on a per-job basis, the former being the best adapted to this case.)

ELEMENT SELECTION
OPERATION — STAMP BOXES
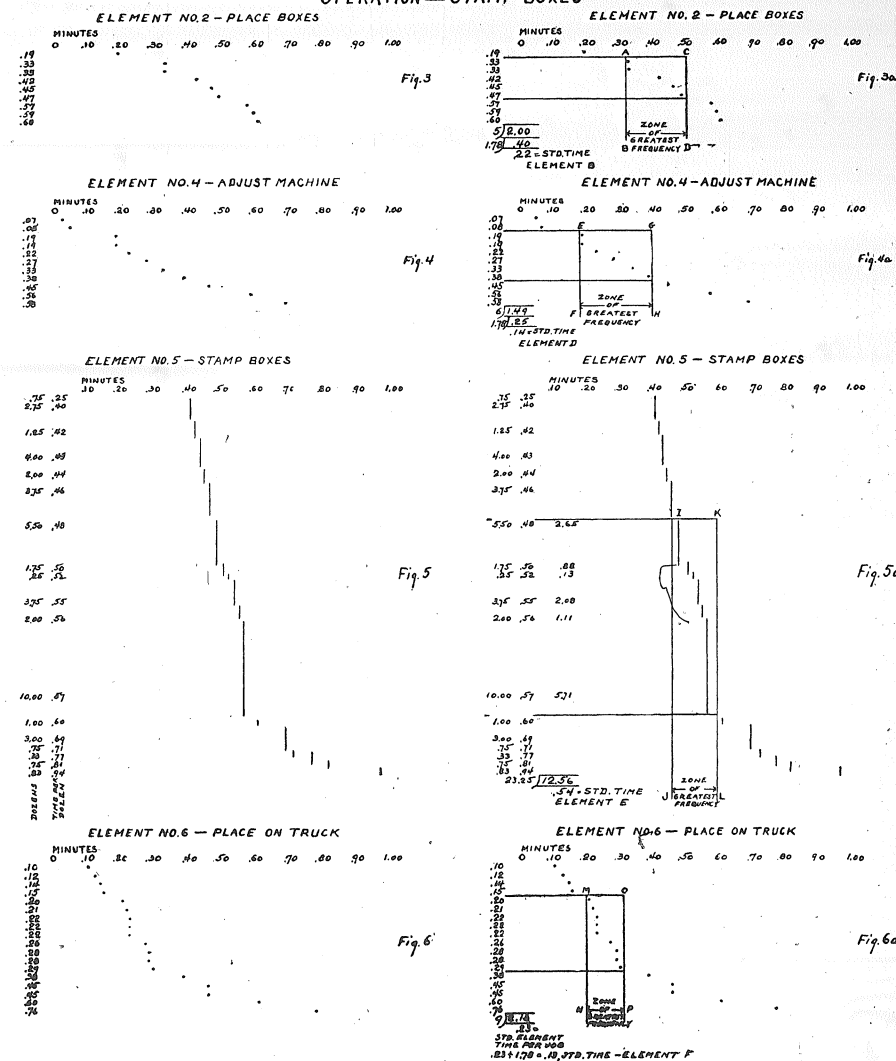
Figs. 3 to 6 and 3a to 6a. Computing Standard Times