Barrel Fillers Plain
1929

Barrel Fillers Plain

Age

Age in years	f	x	fx	fx^2
25 - 29	6	0	0	0
30 - 34	5	1	5	5
35 - 39	5	2	10	20
40 - 44	6	3	18	54
45 - 49	1	4	4	16
50 - 54	1	5	5	25
55 -	2	6	12	72
	26		54	192

No information 1

$$Nu_1 = \frac{54}{26} = 2.076923$$

$$Nu_2 = \frac{192}{26} = 7.384615$$

$$(Nu_1)^2 = 4.313609$$

$$Pi_2 = 7.384615 - 4.313609 = 3.071006$$

$$Sigma = 1.752429 \times 5 = 8.762145 \text{ years}$$

$$P.E._{sig.} = \frac{.67449 \times 8.762145}{\sqrt{52}}$$

$$= \frac{5.909979}{7.211102}$$

$$= \pm .819567$$

$$mean = 2.076923 \times 5 + 27.5$$

$$= 37.884615 \text{ years}$$

$$P.E._m = \frac{5.909979}{\sqrt{26}}$$

$$= \frac{5.909979}{5.099000}$$

$$= \pm 1.159046$$

$$mean = 37.885 \pm 1.159 \text{ years}$$

$$S.D. = 8.762 \pm .820 \text{ years}$$

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Barrel Fillers Plain

Weight

Weight in pounds	f	x	fx	fx^2
115 - 129	3	0	0	0
130 - 144	5	1	5	5
145 - 159	8	2	16	32
160 - 174	6	3	18	54
175 - 189	2	4	8	32
190 - 204	2	5	10	50
205 -	1	6	6	36
	27		63	209

$$Nu_1 = \frac{63}{27} = 2.333331$$

$$Nu_2 = \frac{209}{27} = 7.740733$$

$$(Nu_1)^2 = 5.444434$$

$$Pi_2 = 2.296299$$

$$\text{Sigma} = 1.515354 \times 15 = 22.730310 \text{ lbs.}$$

$$P.E._{sig.} = \frac{.67449 \times 22.730310}{\sqrt{54}}$$

$$= \frac{15.331367}{7.349469}$$

$$= \pm 2.086051$$

$$\text{mean} = 2.333331 \times 15 + 122.5$$

$$= 157.499965 \text{ lbs.}$$

$$P.E._{m} = \frac{.67449 \times 22.730310}{\sqrt{27}}$$

$$= \frac{15.331367}{5.196152}$$

$$= \pm 2.950523$$

$$\text{mean} = 157.500 \pm 2.951 \text{ lbs.}$$

$$\text{S.D.} = 22.730 \pm 2.086 \text{ lbs.}$$

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Barrel Fillers Plain

Height

Height in inches	f	x	fx	fx^2
63 - 63.9	2	0	0	0
64 - 64.9	1	1	1	1
65 - 65.9	0	2	0	0
66 - 66.9	6	3	18	54
67 - 67.9	6	4	24	96
68 - 68.9	1	5	5	25
69 - 69.9	2	6	12	72
70 - 70.9	4	7	28	196
71 - 71.9	2	8	16	128
72 -	3	9	27	243
	27		131	815

$$Nu_1 = \frac{131}{27} = 4.851847$$

$$Nu_2 = \frac{815}{27} = 30.185155$$

$$(Nu_1)^2 = 23.540419$$

$$Pi_2 = 4.851846$$

$$Sigma = 2.202691 \times 1 = 2.202691 \text{ inches}$$

$$P.E._{sig.} = \frac{.67449 \times 2.202691}{\sqrt{54}}$$

$$= \frac{1.485693}{7.349469}$$

$$= \pm .202150$$

$$mean = 4.851847 \times 1 + 63.5$$

$$= 68.351847 \text{ inches}$$

$$P.E._m = \frac{.67449 \times 2.202691}{\sqrt{27}}$$

$$= \frac{1.485693}{5.196152}$$

$$= \pm .285922$$

$$mean = 68.352 \pm .286 \text{ inches}$$

$$S.D. = 2.203 \pm .202 \text{ inches}$$

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Barrel Fillers Plain

Pb in Urine mgs./Liter

Mgs. Pb per liter urine	f	x	fx	fx^2
.0 - .009	1	0	0	0
.01 - .019	3	1	3	3
.02 - .029	1	2	2	4
.03 - .039	1	3	3	9
.04 - .049	3	4	12	48
.05 - .059	5	5	25	125
.06 - .069	3	6	18	108
.07 - .079	5	7	35	245
.08 - .089	1	8	8	64
.09 - .099	3	9	27	243
.10 -	1	10	10	100
	27		143	949

$$Nu_1 = \frac{143}{27} = 5.296296$$

$$Nu_2 = \frac{949}{27} = 35.148148$$

$$(Nu_1)^2 = 28.050751$$

$$Pi_2 = 35.148148 - 28.050751$$

$$= 7.097397 \times .01$$

$$= .071 \text{ mgs.}$$

$$P.E._{sig.} = \frac{.67449 \times .071}{\sqrt{54}}$$

$$= \frac{.048}{7.348}$$

$$= \pm .007$$

Wide variability. S. D. greater than the mean. Mean stable in spite of variability.

$$\text{mean} = 5.296296 \times .01 + .005$$

$$= .058 \text{ mgs. per liter urine}$$

$$P.E._m = \frac{.67449 \times .071}{\sqrt{27}}$$

$$= \frac{.048}{5.196}$$

$$= \pm .009$$

$$\text{mean} = .058 \pm .009 \text{ mgs. Pb per liter}$$

$$\text{S.D.} = .071 \pm .007 \text{ mgs.}$$

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Barrel Fillers Plain

Pb in Urine (Total)

Pb in urine mgs.	f	x	fx	fx^2
.0 - .039	2	0	0	0
.04 - .079	4	1	4	4
.08 - .119	7	2	14	28
.12 - .159	8	3	24	72
.16 - .199	5	4	20	80
.20 - .239	1	5	5	25
	27		67	209

$$Nu_1 = \frac{67}{27} = 2.481479$$

$$Nu_2 = \frac{209}{27} = 7.740733$$

$$(Nu_1)^2 = 6.157738$$

$$Pi_2 = 1.582995$$

$$\text{Sigma} = 1.258171 \times .04 = .050327 \text{ mgs.}$$

$$P.E._{sig.} = \frac{.67449 \times .050327}{\sqrt{54}}$$

$$= \frac{.033945}{7.349469}$$

$$= \pm .004619$$

$$\text{mean} = 2.481479 \times .04 + .02$$

$$= .119259 \text{ mgs. Pb}$$

$$P.E._m = \frac{.67449 \times .050327}{\sqrt{27}}$$

$$= \frac{.033945}{5.196152}$$

$$= \pm .006533$$

$$\text{mean} = .119 \pm .007 \text{ mgs. Pb}$$

$$\text{S.D.} = .050 \pm .005 \text{ mgs.}$$

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Pb in Faeces mgs./gm. Ash

Mgs. Pb per gm. ash	f	x	fx	fx^2
.0 - .039	1	0	0	0
.04 - .079	9	1	9	9
.08 - .119	7	2	14	28
.12 - .159	3	3	9	27
.16 - .199	2	4	8	32
.20 - .239	1	5	5	25
.24 - .279	1	6	6	36
.28 - .319	0	7	0	0
.32 - .359	1	8	8	64
.36 - .399	0	9	0	0
.40 - .439	2	10	20	200
	27		79	421

$$Nu_1 = \frac{79}{27} = 2.925925$$

$$Nu_2 = \frac{421}{27} = 15.592592$$

$$(Nu_1)^2 = 8.561037$$

$$Pi_2 = 15.592592 - 8.561037$$

$$= 7.031555$$

$$Sigma = 2.651707 \times .04 = .106 \text{ mgs.}$$

$$P.E._{sig.} = \frac{.67449 \times .106}{\sqrt{54}}$$

$$= \frac{.071}{7.348}$$

$$= \pm .009$$

$$mean = 2.925925 \times .04 + .02$$

$$= .137 \text{ mgs. Pb per gm. ash}$$

$$P.E._m = \frac{.67449 \times .071}{\sqrt{27}}$$

$$= \frac{.071}{5.196}$$

$$= \pm .014$$

$$mean = .137 \pm .014 \text{ mgs. per gm. ash}$$

$$S.D. = .106 \pm .009 \text{ mgs.}$$

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Barrel Fillers Plain

Pb in Faeces (Total)

Pb in faeces (total) mgs.	f	x	fx	fx^2
.0 - .15	6	0	0	0
.16 - .31	5	1	5	5
.32 - .47	7	2	14	28
.48 - .63	1	3	3	9
.64 - .79	3	4	12	48
.80 - .95	1	5	5	25
.96 - 1.11	1	6	6	36
1.12 -	3	7	21	147
	27		66	298

$$Nu_1 = \frac{66}{27} = 2.444442$$

$$Nu_2 = \frac{298}{27} = 11.037026$$

$$(Nu_1)^2 = 5.975297$$

$$Pi_2 = 5.061729$$

$$\text{Sigma} = 2.249829 \times .16 = .359973 \text{ mgs. Pb}$$

$$P.E._{sig.} = \frac{.67449 \times .359973}{\sqrt{54}}$$

$$= \frac{.242798}{7.349469}$$

$$= \pm .033036$$

$$\text{mean} = 2.444442 \times .16 + .08$$

$$= .471111 \text{ mgs. Pb}$$

$$P.E._{m} = \frac{.67449 \times .359973}{\sqrt{27}}$$

$$= \frac{.242798}{5.196152}$$

$$= \pm .046727$$

$$\text{mean} = .471 \pm .047 \text{ mgs. Pb}$$

$$\text{S.D.} = .360 \pm .033 \text{ mgs.}$$

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Haemoglobin

DARE haemoglobin reading	f	x	fx	fx^2
60 - 63	5	0	0	0
64 - 67	4	1	4	4
68 - 71	7	2	14	28
72 - 75	5	3	15	45
76 - 79	0	4	0	0
80 - 83	4	5	20	100
84 -	1	6	6	36
	26		59	213

No information 1

$$Nu_1 = \frac{59}{26} = 2.269231$$

$$Nu_2 = \frac{213}{26} = 8.192308$$

$$(Nu_1)^2 = 5.149409$$

$$Pi_2 = 3.042899$$

$$\text{Sigma} = 1.744391 \times 4 = 6.977564\% \text{ H.}$$

$$\text{P.E.}_{sig.} = \frac{.67449 \times 6.977564}{\sqrt{52}}$$

$$= \frac{4.706297}{7.211102}$$

$$= \pm .652646$$

$$\text{mean} = 2.269231 \times 4 + 62$$

$$= 71.076921$$

$$\text{P.E.}_{m} = \frac{.67449 \times 6.977564}{\sqrt{26}}$$

$$= \frac{4.706297}{5.099019}$$

$$= \pm .922981$$

$$\text{mean} = 71.077 \pm .923\% \text{ Haem.}$$

$$\text{S.D.} = 6.978 \pm .653\% \text{ Haem.}$$

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Barrel Fillers Plain

Dynamometer Left

Dynamometer reading	f	x	fx	fx^2
60 - 69	5	0	0	0
70 - 79	2	1	2	2
80 - 89	4	2	8	16
90 - 99	3	3	9	27
100 - 109	6	4	24	96
110 - 119	2	5	10	50
120 - 129	0	6	0	0
130 -	1	7	7	49
	23		60	240

No information 4

$$Nu_1 = \frac{60}{23} = 2.608696$$

$$Nu_2 = \frac{240}{23} = 10.434782$$

$$(Nu_1)^2 = 6.805295$$

$$Pi_2 = 3.629487$$

$$\text{Sigma} = 1.905121 \times 10 = 19.051210$$

$$\text{P.E.}_{\text{sig.}} = \frac{.67449 \times 19.051210}{\sqrt{46}}$$

$$= \frac{12.849851}{6.782330}$$

$$= \pm 1.894607$$

$$\text{mean} = 2.608696 \times 10 + 65$$

$$= 91.086960 \text{ Dynam. degrees}$$

$$\text{P.E.}_{m} = \frac{.67449 \times 19.051210}{\sqrt{23}}$$

$$= \frac{12.849851}{4.795831}$$

$$= \pm 2.679379$$

$$\text{mean} = 91.087 \pm 2.679 \text{ Dynam. degrees}$$

$$\text{S.D.} = 19.051 \pm 1.895 \text{ Dynam. degrees}$$

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Barrel Fillers Plain

Dynamometer Right

Dynamometer reading	f	x	fx	fx^2
50 - 59	2	0	0	0
60 - 69	0	1	0	0
70 - 79	3	2	6	12
80 - 89	1	3	3	9
90 - 99	4	4	16	64
100 - 109	3	5	15	75
110 - 119	5	6	30	180
120 - 129	3	7	21	147
130 - 139	1	8	8	64
140 -	1	9	9	81
	23		108	632

No information 4

$$Nu_1 = \frac{108}{23} = 4.695652$$

$$Nu_2 = \frac{632}{23} = 27.478268$$

$$(Nu_1)^2 = 22.049148$$

$$Pi_2 = 5.429120$$

$$\text{Sigma} = 2.330047 \times 10 = 23.300470$$

$$\text{P.E.}_{\text{sig.}} = \frac{.67449 \times 23.300470}{\sqrt{46}}$$

$$= \frac{15.715934}{6.782329}$$

$$= \pm 2.317188$$

$$\text{mean} = 4.695652 \times 10 + 55$$

$$= 101.956520$$

$$\text{P.E.}_{m} = \frac{.67449 \times 23.300470}{\sqrt{23}}$$

$$= \frac{15.715934}{4.795831}$$

$$= \pm 3.276999$$

mean = 101.957 ± 3.277 Dynam. degrees

S.D. = 23.300 ± 2.317 Dynam. degrees

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Barrel Fillers Plain

Pulse Pressure

Pulse pressure mm. Hg	f	x	fx	fx^2
30 - 39	3	0	0	0
40 - 49	8	1	8	8
50 - 59	9	2	18	36
60 - 69	5	3	15	45
70 - 79	0	4	0	0
80 - 89	2	5	10	50
	27		51	139

$$Nu_1 = \frac{51}{27} = 1.888887$$

$$Nu_2 = \frac{139}{27} = 5.148143$$

$$(Nu_1)^2 = 3.567894$$

$$Pi_2 = 1.580249$$

$$\text{Sigma} = 1.257080 \times 10 = 12.570800 \text{ beats}$$

$$P.E._{sig.} = \frac{.67449 \times 12.570800}{\sqrt{54}}$$

$$= \frac{8.478879}{7.349469}$$

$$= \pm 1.153672$$

$$\text{mean} = 1.888887 \times 10 + 35$$

$$= 53.888870 \text{ mms. Hg}$$

$$P.E._{m} = \frac{.67449 \times 12.570800}{\sqrt{27}}$$

$$= \frac{8.478879}{5.196152}$$

$$= \pm 1.631761$$

$$\text{mean} = 53.889 \pm 1.632 \text{ mms. Hg}$$

$$\text{S.D.} = 12.571 \pm 1.154 \text{ mms. Hg}$$

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Systolic Pressure

Systolic pressure mm. Hg	f	x	fx	fx^2
110 - 119	4	0	0	0
120 - 129	7	1	7	7
130 - 139	8	2	16	32
140 - 149	5	3	15	45
150 - 159	1	4	4	16
160 -	2	5	10	50
	27		52	150

$$Nu_1 = \frac{52}{27} = 1.925924$$

$$Nu_2 = \frac{150}{27} = 5.555550$$

$$(Nu_1)^2 = 3.709183$$

$$Pi_2 = 1.846367$$

$$\text{Sigma} = 1.358811 \times 10 = 13.588110 \text{ mms. Hg}$$

$$P.E._{sig.} = \frac{.67449 \times 13.588110}{\sqrt{54}}$$

$$= \frac{9.165044}{7.349469}$$

$$= \pm 1.247035$$

$$\text{mean} = 1.925924 \times 10 + 115$$

$$= 134.259240 \text{ mms. Hg}$$

$$P.E._{m} = \frac{.67449 \times 13.588110}{\sqrt{27}}$$

$$= \frac{9.165044}{5.196152}$$

$$= \pm 1.763814$$

$$\text{mean} = 134.259 \pm 1.764 \text{ mms. Hg}$$

$$S.D. = 13.588 \pm 1.247 \text{ mms.}$$

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Barrel Fillers Plain

Pulse

Pulse in beats per minute	f	x	fx	fx^2
70 - 74	8	0	0	0
75 - 79	9	1	9	9
80 - 84	7	2	14	28
85 - 89	0	3	0	0
90 - 94	1	4	4	16
95 - 99	2	5	10	50
	27		37	103

$$Nu_1 = \frac{37}{27} = 1.370369$$

$$Nu_2 = \frac{103}{27} = 3.814811$$

$$(Nu_1)^2 = 1.877911$$

$$Pi_2 = 1.936900$$

$$\text{Sigma} = 1.391726 \times 5 = 6.958630 \text{ beats}$$

$$P.E._{sig.} = \frac{.67449 \times 6.958630}{\sqrt{54}}$$

$$= \frac{4.693526}{7.349469}$$

$$= \pm .638621$$

$$\text{mean} = 1.370369 \times 5 + 72.5$$

$$= 79.351845$$

$$P.E._m = \frac{.67449 \times 6.958630}{\sqrt{27}}$$

$$= \frac{4.693526}{5.196152}$$

$$= \pm .903270$$

$$\text{mean} = 79.352 \pm .903 \text{ beats per minute}$$

$$\text{S.D.} = 6.959 \pm .639 \text{ beats}$$

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Temperature

Temperature in degrees F.	f	x	fx	fx^2
97 - 97.4	1	0	0	0
97.5 - 97.9	5	1	5	5
98 - 98.4	12	2	24	48
98.5 - 98.9	4	3	12	36
99 -	5	4	20	80
	27		61	169

$$Nu_1 = \frac{61}{27} = 2.259257$$

$$Nu_2 = \frac{169}{27} = 6.259253$$

$$(Nu_1)^2 = 5.104242$$

$$Pi_2 = 1.155011$$

$$\text{Sigma} = 1.074714 \times .5 = .537357^\circ \text{ F.}$$

$$\text{P.E.}_{\text{sig.}} = \frac{.67449 \times .537357}{\sqrt{54}}$$

$$= \frac{.362442}{7.349469}$$

$$= \pm .0493154$$

$$\text{mean} = 2.259257 \times .5 + 97.25$$

$$= 98.379629$$

$$\text{P.E.}_{m} = \frac{.67449 \times .537357}{\sqrt{27}}$$

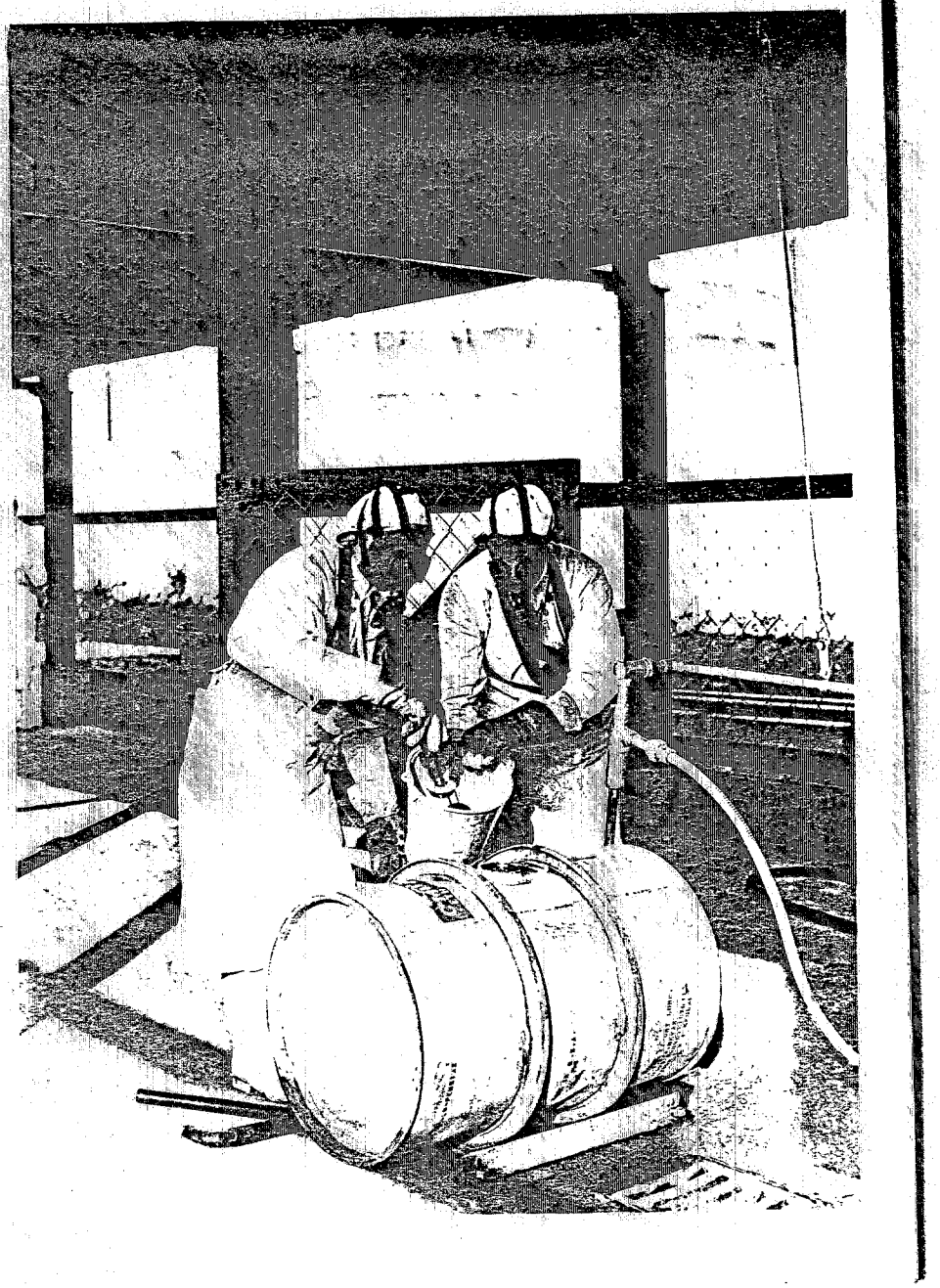
$$= \frac{.362442}{5.196152}$$

$$= \pm .069752$$

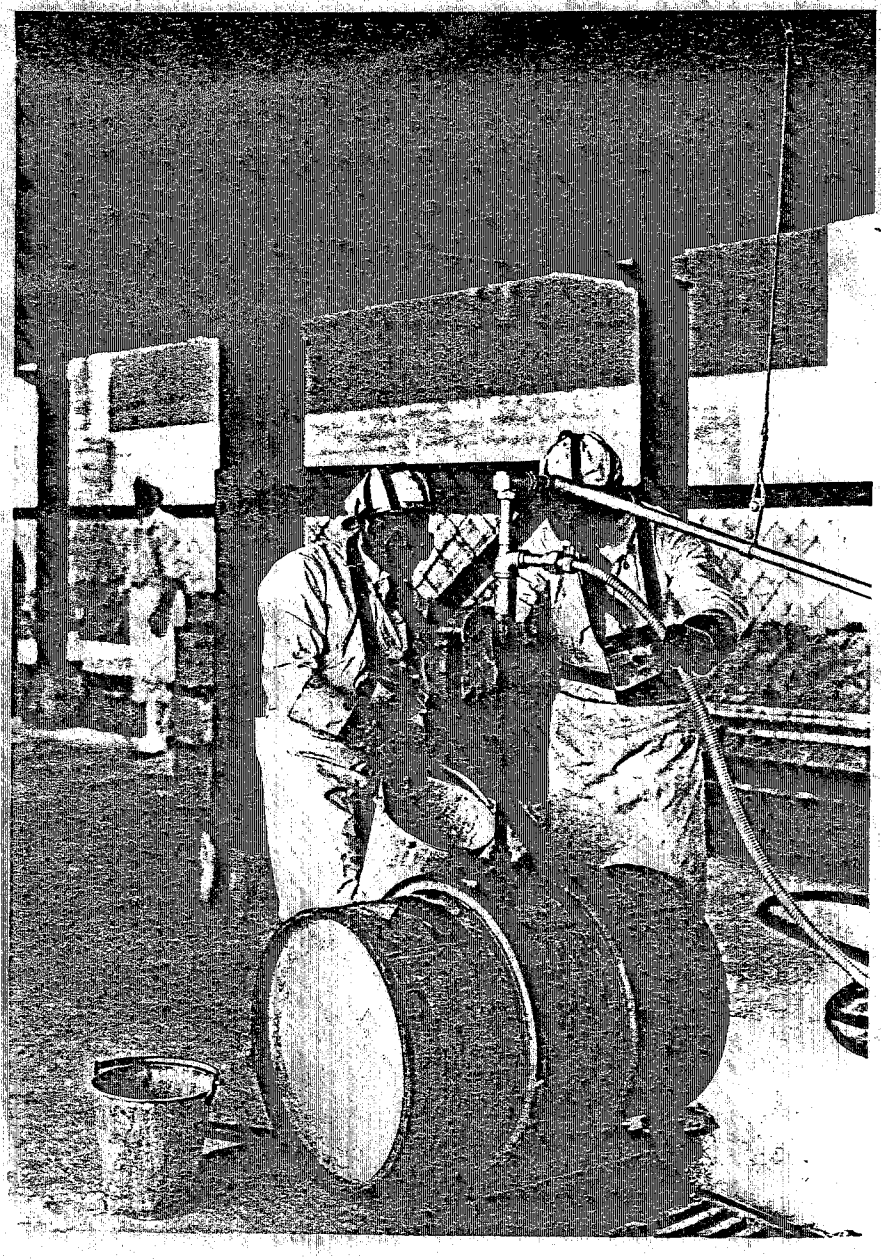
$$\text{mean} = 98.380 \pm .074^\circ \text{ F.}$$

$$\text{S.D.} = .537 \pm .049^\circ \text{ F.}$$

KE 0019000



KE 0019001



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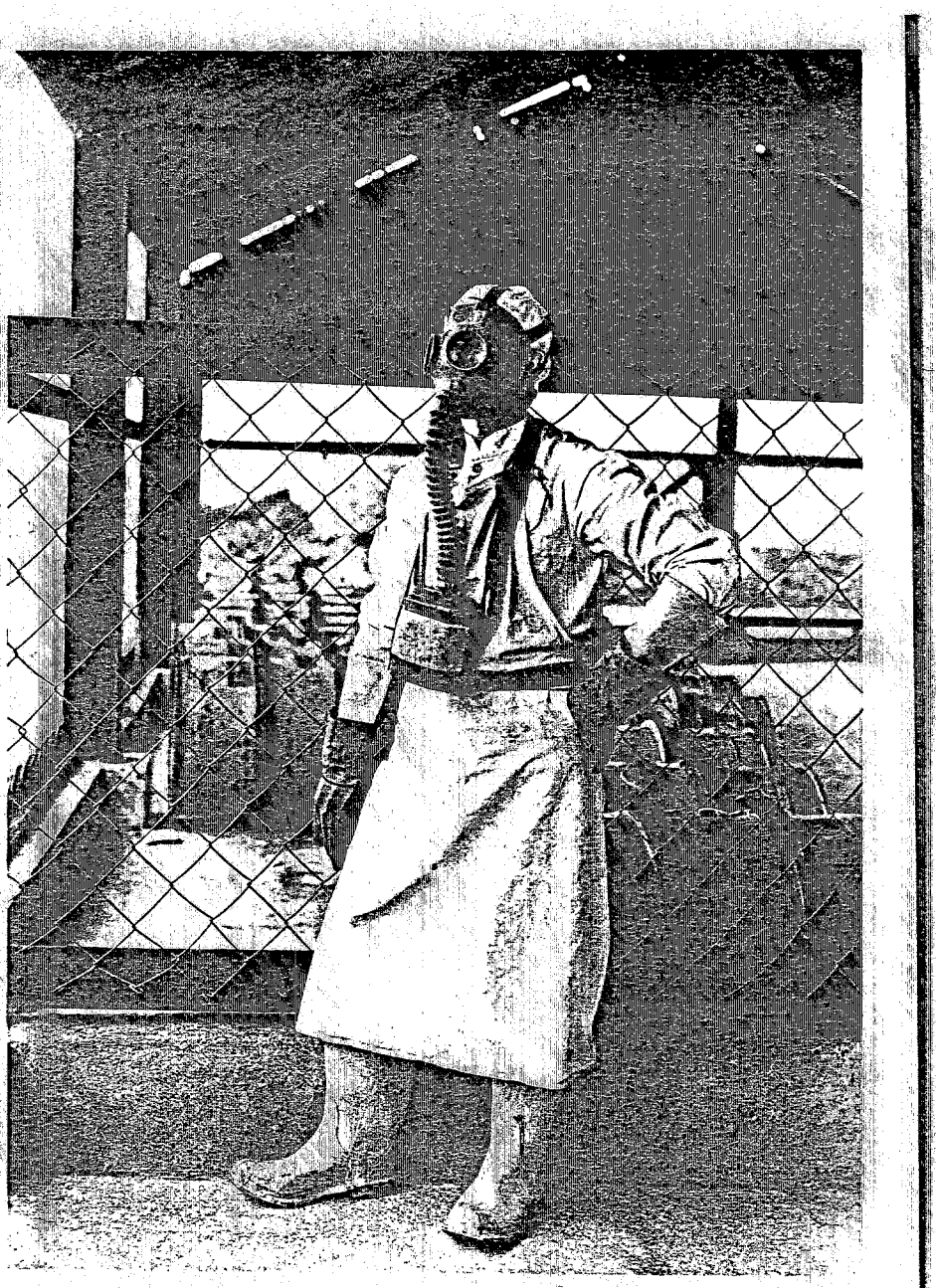

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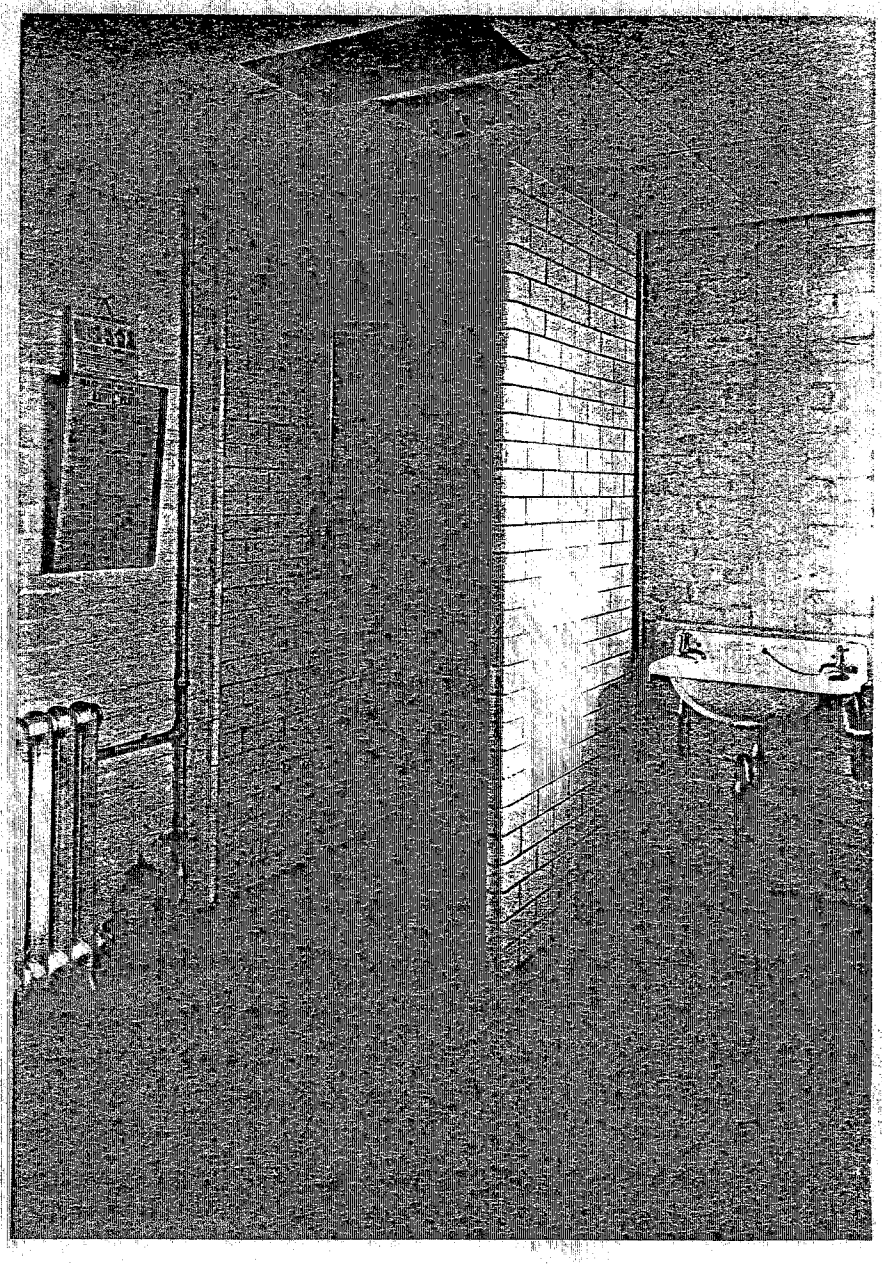

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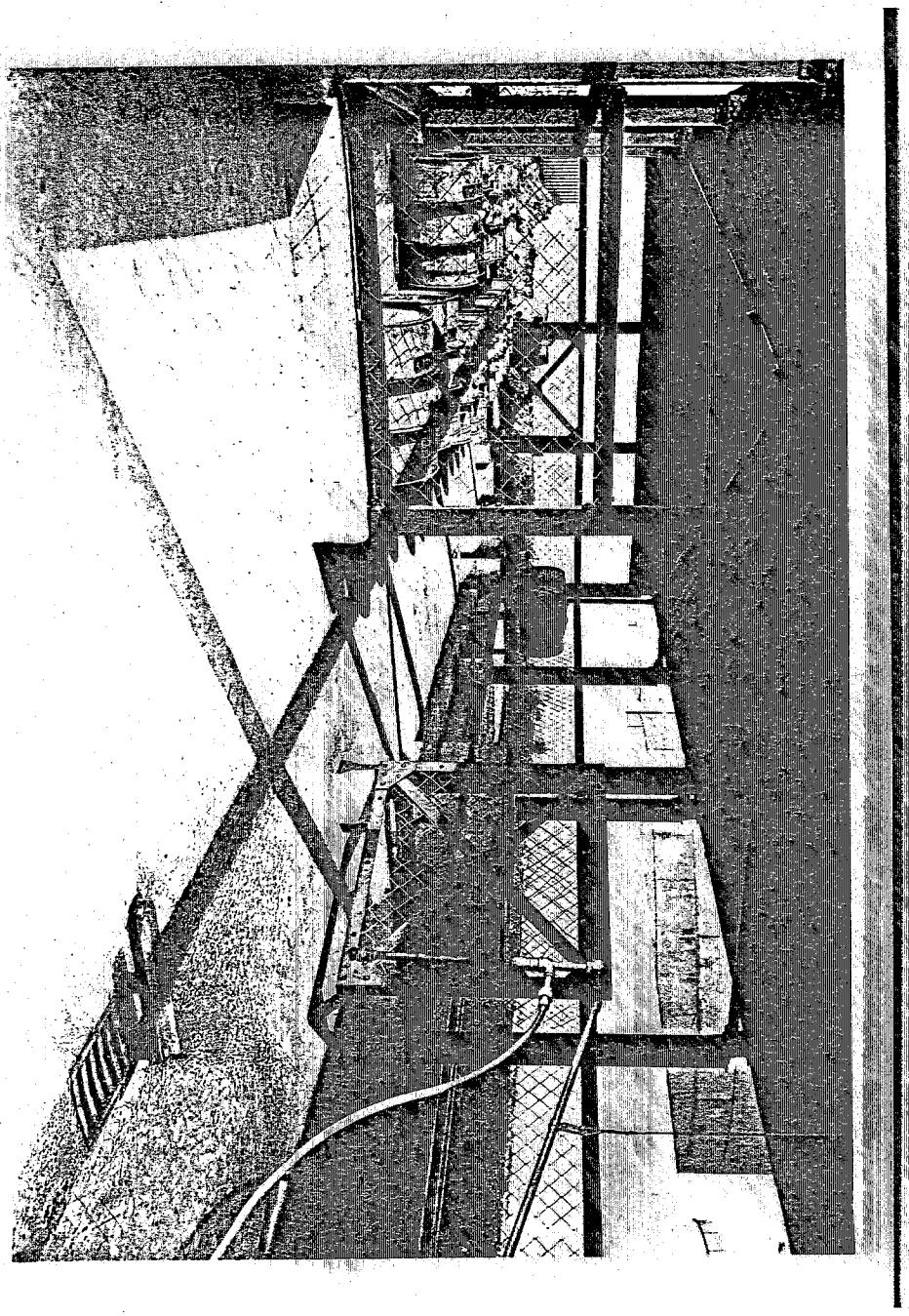

KE 0019006

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