



This manual has been scanned by the
Vickers MG Collection & Research
Association

www.vickersmachinegun.org.uk

If it is of use, please make a donation at:

https://www.paypal.com/cgi-bin/webscr?cmd=s-xclick&hosted_button_id=NKSHEDAMHTJ3G

*18
Cent*

[Crown copyright reserved.]

July, 1923.

40
W.O.
8721

RANGE TABLE

OF THE

·303-INCH VICKERS MACHINE
GUN.

1923.

108

RANGE TABLE.

303 Vickers gun, Mark VII, ammunition.

1 Range (Yards).	2 Traverse angle.	3 Slope of descent.		4 Height in Yards of Lowest Shot below Centre of Gun.	5 Height of Gun in Yards.	6 Dimensions in Yards of Horizontal Beaten Zones.		7 Time of Flight (Seconds).
		In Minutes.	As a Gradient.			Width.	Length.	
100								
200								
300								
400								
500								
600								
700								
800								
900								
1000	1°							
1100	1° 13'							
1200	1° 28'							
1300	1° 45'							
1400	2° 04'							
1500	2° 25'							
1600	2° 48'							
1700	3° 13'							
1800	3° 40'							
1900	4° 09'							
2000	4° 40'							
2100	5° 13'							
2200	5° 48'							
2300	6° 25'							
2400	7° 04'							
2500	7° 45'							
2600	8° 28'							
2700	9° 13'							
2800	9° 50'							
2900	10° 29'							
3000	11° 10'							

CONTENTS.

	PAGE
Range Table	1
Minimum Clearances and Safety Angles, Overhead Fire...	2
Table, Influence of Ground upon Beaten Zones	3
Graph of Allowances for Climatic Variations	4
V.L. Graph	5
Chart, for Firing Up or Down Hill	6
Trajectory Graph	7



Overhead fire.

Range to our own troops.	Minimum clearance.		Safety angle.
	yards.	metres.	
600 yards	11	10	1 30
700 "	13	12	1 38
800 "	15	14	1 47
900 "	17	16	1 57
1,000 "	20	18	2 10
1,100 "	23	21	2 24
1,200 "	27	25	2 42
1,300 "	31	28	3 2
1,400 "	35	32	3 22
1,500 "	40	37	3 46
1,600 "	46	42	4 13
1,700 "	53	48	4 43
1,800 "	60	55	5 14
1,900 "	69	63	5 50
2,000 "	80	73	6 32

NOTE.—The column headed "Safety angle" in the table given above will not be made use of until after the publication of the revised edition of "Machine Gun Training" now in course of preparation.

The revised edition will contain full explanation of the method of application of these safety angles.

Meanwhile, the methods of overhead fire given in the 1921 (Provisional) edition of "Machine Gun Training" will continue in force.

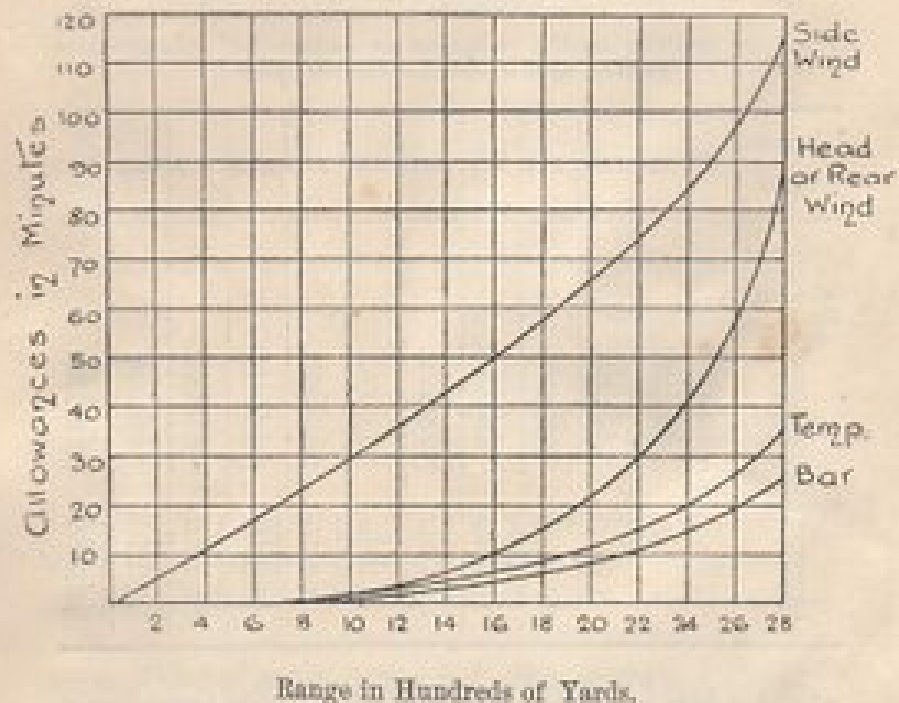
INFLUENCE OF GROUND UPON BEATEN ZONES.

Table for calculating the reduction (or increase) of a beaten zone falling upon a near (or reverse) slope.

Range in yards	0°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°
<i>Gradient of Ground, Near Slope—</i>												
1/8.5	.87	.82	.78	.73	.68	.64	.59	.54	.51	.46	.42	.38
1/12	.80	.75	.71	.66	.62	.57	.53	.48	.45	.40	.36	.32
1/20	.74	.69	.65	.60	.56	.52	.47	.43	.40	.35	.31	.27
1/30	.68	.63	.59	.55	.51	.47	.43	.39	.36	.31	.27	.23
1/40	.62	.57	.53	.49	.45	.41	.37	.33	.30	.25	.21	.17
Flat	1	1	1	1	1	1	1	1	1	1	1	1
<i>Reverse Slope—</i>												
1/10	..	..	1.05	1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40
1/20	..	..	..	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50
1/30	..	..	..	..	..	1.75	2.00	2.25	2.50	2.75	3.00	3.25
1/40	..	..	..	..	..	..	2.13	2.38	2.63	2.88	3.13	3.38
1/50	..	..	..	..	..	..	..	2.50	2.75	3.00	3.25	3.50

Example (near Slope).—Range, 2,000 yards; gradient of near slope on which the shots are falling, is found to be 1 in 20; the beaten zone at 2,000 yards is 130 yards long; from the table, the factor in the vertical column under "2,000," opposite "near slope 1/20" is 0.78. The beaten zone on the slope will be $130 \times 0.78 =$ say, 100 yards.

GRAPH OF ALLOWANCES FOR CLIMATIC VARIATIONS.



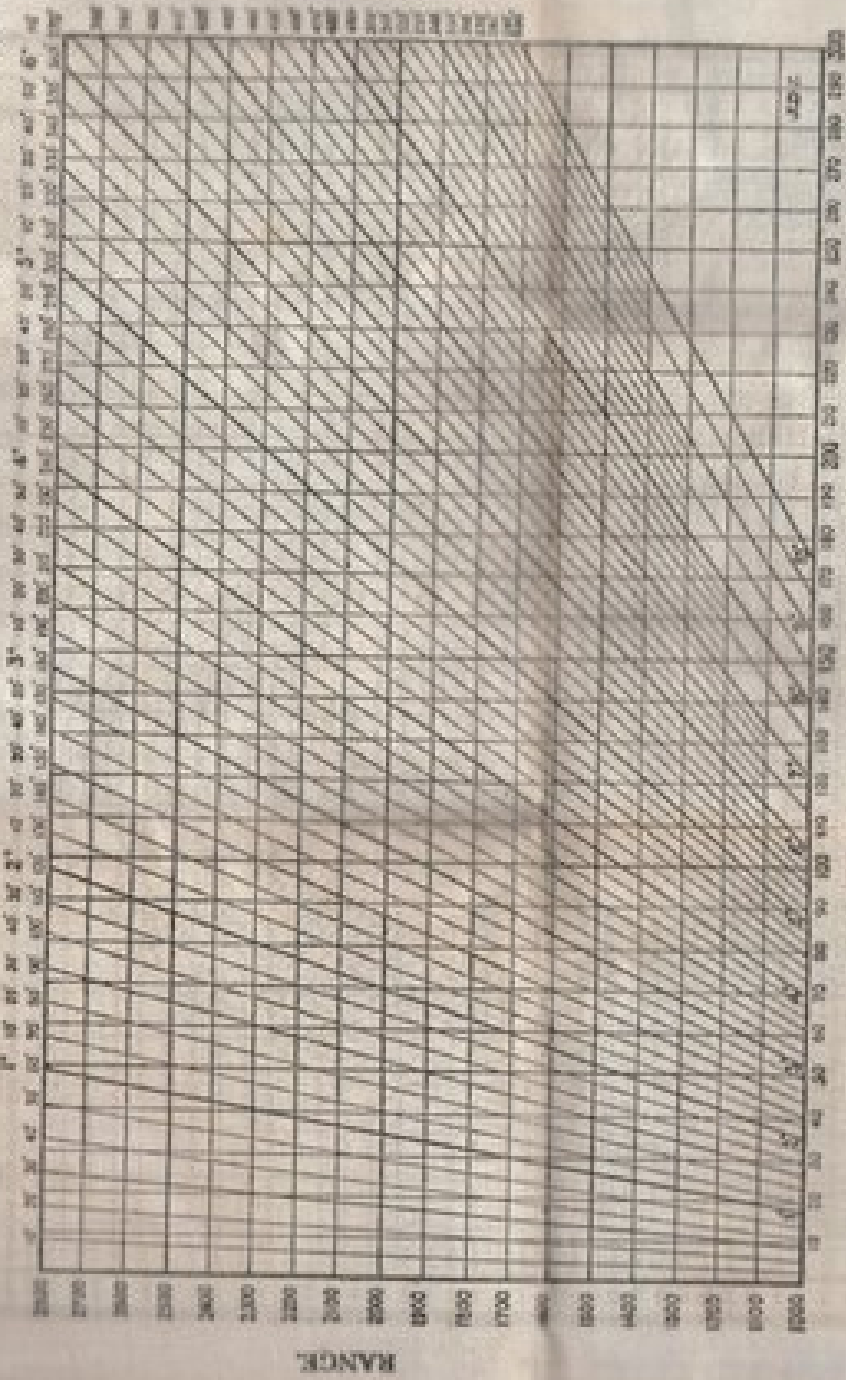
Side wind curve
 Head or rear wind curve } are for 20 miles an hour wind.
 Temperature curve is for a variation of 20° from normal (60° F.).
 Barometer curve is for a variation of 1 inch from normal (30-inch).

Scales for the conversion of COLLAGEN to 100% (100% basis).
 Example—How many tons of collagen are in 100 tons of 100%?
 From scale 100% of collagen base approach level line, which is 100.



V. I. GRAPH.

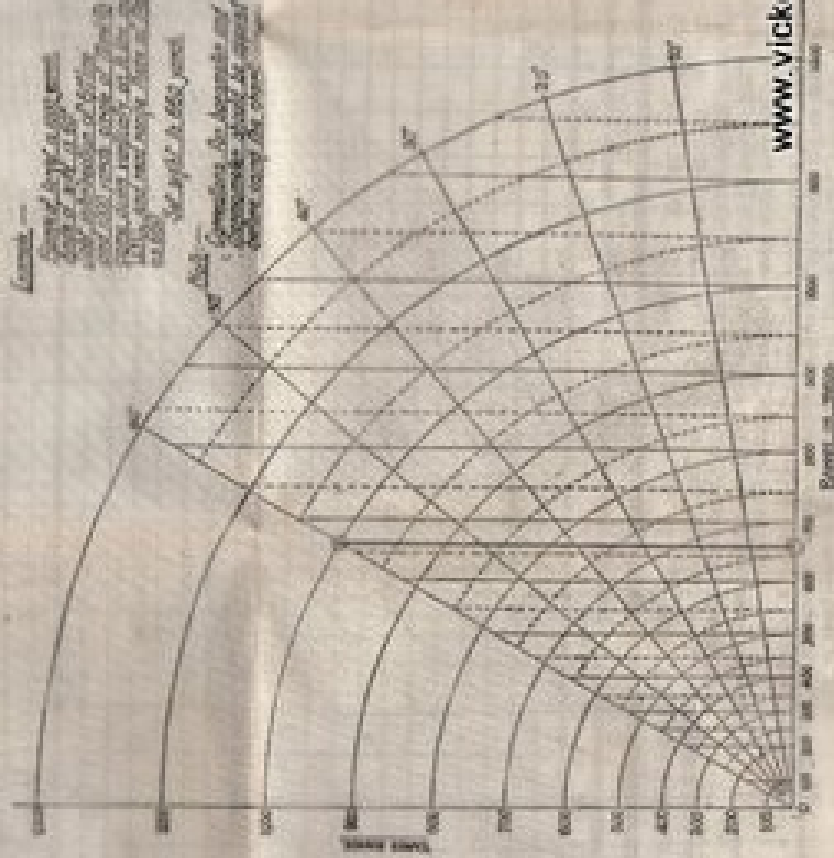
The angle is shown by the diagonal line tangent to the point of intersection of the required base line (vertical) and the (horizontal) range line.
 Note—Both base and range must be taken in the same unit of measure; e.g., both in yards or both in meters.



BASE

CHART FOR 303 MARK YR FOR FIRING UP OR DOWN HILL

Level—
 Angle of slope—
 Range—
 Base—
 The angle is shown by the diagonal line tangent to the point of intersection of the required base line (vertical) and the (horizontal) range line.
 Note—Both base and range must be taken in the same unit of measure; e.g., both in yards or both in meters.

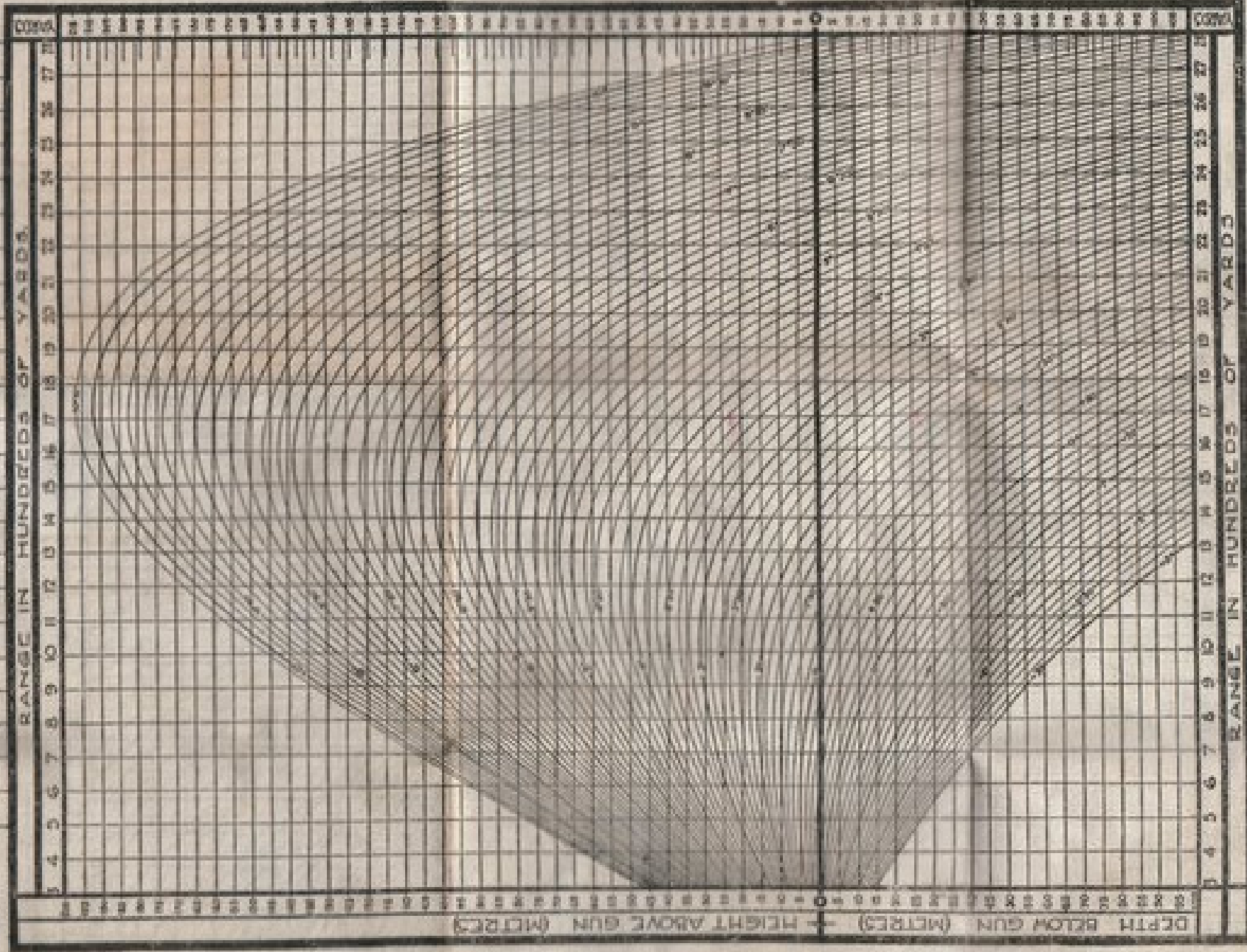


Graph for Calculating Quadrant Elevation (Angle of Fire) and Clearances.

(CURVES REPRESENT CENTRE SHOTS.)

DEPTH OF LOWEST SHOT BELOW CENTRE OF CONE AT VARIOUS DISTANCES FROM GUN.

IN YARDS ..	17	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	100	110	120	130	140	150	160	170	180	190	200
IN METRES	16	18	21	25	27	30	37	43	48	55	61	67	73	80	85	91	100	110	120	130	140	150	160	170	180	190	200



10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	100	110	120	130	140	150	160	170	180	190	200
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

How to Use the Graph.—To Find Q.E.: Take range and run up on vertical scale to height of target above or below gun. The curve cutting this point gives required Quadrant Elevation.

To Find Clearances.—Follow this curve along, and ascertain at what height target is above or below ground. To show distance and height (above or below point) of own troops (or right-hand scale), or meters (left-hand scale), from enemy shot is ground.

1917

1917

1917