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A STATISTICAL STUDY OF AESTHETIC JUDGMENT IN SPEECH

by

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For several years the author has been interested in the judging of Speech Contests, as have many teachers in the field for a much longer time. It has often seemed that a decision is more or less a matter of chance, and that, after all, there is not much reliability in judging.

This particular work grew out of a discussion in one of the Speech classes at the University of Wisconsin. It was hoped that some definite facts might be uncovered in a little statistical study of the problem. Therefore this work was undertaken.

In order to control as many of the factors as possible, it was decided to use only recorded speeches. This would make possible the repetition of the experiment at any time. The following six speeches[1] were chosen because they were easily available, because they were by supposedly great speakers and because they were all of one type, namely political speeches.

Revise Taxes	McAdoo, William G.
President Wilson	Wise, Dr. Stephen S.
Democratic Achievement	Clark, Champ

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1 All six records may be procured from the Nation's Forum, 102 West 38th Street, New York City. The records are by the Columbia Graphophone Company. Revise Taxes, N.F.2, 49706; President Wilson, N.F.6, 49738; Democratic Achievement, N.F.12, 49799; League of Nations, N.F. 1, 49655; Summons to Duty, N.F.14, 49844; Save America, N.F.9, 49785. The records are listed at $2 each.

League of Nations	Lodge, Henry Cabot
Summons to Duty	Cummings, Homer S.
Save America	Butler, Nicholas Murray

These speeches were given to a lecture section of a class in Speech 1 meeting in Bascom Theatre[2] at the University of Wisconsin. A Brunswick Panotrope victrola[3] was used for the reproduction. The maximum possible amplification was used. The last three speeches were much better recorded than the others (the arrangement was by chance), but this was not objected to as the aim was not to do justice to the speakers, but to judge the speeches as given. The following instructions were read to the class before the experiment:

> You now have in your hands some mimeographed sheets. The answers that you make on these sheets will be the subject of some research work. It is important that you give the answers that seem right to you. It is not important that you agree with the person next to you, but that you give your own individual reactions. Fill in the blanks for your name, the date, your Madison address, your home address, the number of this speech course, the

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2 Bascom Theatre has a seating capacity of 534 and all seats are arranged to have a good view of the stage. At one time the acoustics of the room were bad, but the Burgess Laboratories of Madison, Wisconsin, worked on the room and the acoustics are now good.

3 Brunswick Panatrope Model P-3 number 153444.

name of your instructor, your age, nationality, sex, and classification. List any other courses that you have taken in the Speech Department. Now list any other courses you are now taking in the Speech Department. Following the question whether or not you have had any experience as a speaker or reader, write either YES or NO. If YES, tell WHAT experience you have had.

I am going to play a record[4] so that you may become accustomed to the recording device. It is not one of those listed on the sheets which you hold in your hands.

Now I am going to play the records of the six speeches in the order indicated on your sheets. I want you to listen carefully to these and grade each one. Use the blank sheet for preliminary computations. Give the one which you believe to be the best a grade of 100% and the one which you believe to be the poorest a grade of 50%. Give the others any grade in between 50 and 100 which you think they deserve. Do not give any two speeches the same grade. At the end of each speech, if you have heard it before, check in the column indicated. Then estimate as closely as possible the number of times you have heard it, and the length of time since you last heard it.

The ballots contained only the name of the speech and not the speaker, so as to prevent any one from being influenced by the name of the speaker.

After the six speeches had been played, the following

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4 Sothern's interpretation of Shylock from Merchant of Venice, Act 3, Scene 1, Victor Record 74673.

was read to the class:

> Now that you have heard all six of the speeches, give what you believe to be the oustanding excellence in the speech you ranked first. Give also what you believe to be the outstanding deficiency in the selection you ranked last.[5]

After all ballots had been thrown out which were not in conformity with the instructions in every particular, there were 136 remaining. (Table I).

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5 This material was of such an indefinite nature that no attempt was made to use it. Such answers as a "quavering voice", "easy to hear", "strong finish" were given.

TABLE I.

1 Per-centage	2 Per-centage	3 Per-centage	4 Per-centage	5 Per-centage	6 Per-centage	Ballot
85	100	50	65	90	80	1
50	100	65	90	80	70	2
50	100	60	70	80	90	3
75	100	50	70	80	90	4
60	100	50	85	90	95	5
75	100	50	85	88	80	6
60	100	50	80	95	85	7
50	100	95	70	80	90	8
60	100	80	90	95	97	9
75	100	50	80	90	95	10
50	100	60	70	90	80	11
50	100	60	75	95	98	12
75	100	90	50	80	85	13
50	100	60	70	80	90	14
70	100	50	90	80	95	15
55	100	50	85	90	95	16
60	100	50	85	90	95	17
70	100	50	80	75	90	18
65	100	50	76	90	85	19
50	100	70	90	80	60	20
50	100	60	65	95	75	21
84	100	80	50	69	94	22
100	50	70	75	80	95	23
85	50	100	87	90	95	24
60	70	100	50	80	90	25
65	70	100	50	55	60	26
50	90	100	60	70	80	27
60	55	100	50	90	80	28
75	50	85	100	80	94	29
90	60	50	100	80	70	30
50	55	80	100	90	75	31
55	96	50	100	98	97	32
65	90	50	100	85	80	33
50	80	70	100	90	60	34
70	95	50	100	75	85	35
50	85	70	100	95	90	36
70	50	60	100	80	90	37
50	95	70	100	85	90	38
75	60	50	55	100	70	39
60	80	50	70	100	90	40
50	90	70	85	100	95	41
50	70	60	80	100	90	42

70	80	50	90	100	95	43
60	75	50	85	100	90	44
50	80	75	60	100	82	45
65	90	50	80	100	95	46
50	60	70	80	100	90	47
50	60	80	70	100	90	48
75	50	51	87	100	97	49
65	95	50	85	100	80	50
70	60	50	80	100	90	51
63	65	50	85	100	79	52
50	80	60	70	100	90	53
50	70	95	90	100	88	54
70	93	50	77	100	90	55
70	60	50	90	100	80	56
90	75	50	80	100	85	57
70	90	80	50	100	60	58
50	70	60	90	100	80	59
50	80	60	90	100	70	60
50	95	60	70	100	80	61
50	90	60	80	100	70	62
90	50	75	80	100	85	63
95	80	50	85	100	90	64
70	85	50	95	100	90	65
50	85	60	70	100	90	66
60	80	50	70	100	90	67
50	70	80	65	100	93	68
50	75	65	60	100	90	69
50	70	80	95	100	85	70
50	75	71	79	100	90	71
75	95	78	50	100	80	72
50	95	70	85	100	80	73
50	90	60	70	100	80	74
50	88	68	75	100	92	75
80	88	50	90	100	95	76
50	90	60	70	100	80	77
70	65	80	50	100	90	78
50	53	75	80	100	85	79
50	70	60	90	100	80	80
75	50	70	90	100	80	81
60	80	50	55	100	90	82
65	85	95	50	100	80	83
60	70	50	80	100	90	84
70	90	50	80	100	85	85
60	85	50	75	98	100	86
60	50	70	80	90	100	87
75	80	50	85	90	100	88
75	65	85	50	98	100	89

60	65	50	80	95	100	90
60	70	50	85	95	100	91
70	80	50	95	90	100	92
50	90	70	75	80	100	93
50	75	64	93	95	100	94
91	99	50	98	95	100	95
60	65	50	90	95	100	96
60	70	50	80	90	100	97
50	80	60	70	90	100	98
50	95	80	75	85	100	99
60	55	50	80	90	100	100
75	95	50	90	93	100	101
50	60	80	70	90	100	102
70	60	50	85	95	100	103
50	80	60	70	90	100	104
50	70	65	83	95	100	105
50	58	80	61	92	100	106
60	70	50	80	90	100	107
60	80	50	70	90	100	108
50	80	85	93	97	100	109
60	98	50	95	90	100	110
70	50	65	80	90	100	111
60	70	50	90	80	100	112
60	80	70	50	90	100	113
55	60	50	90	95	100	114
70	87	60	50	90	100	115
60	95	50	80	85	100	116
60	80	50	70	90	100	117
50	80	60	70	90	100	118
70	90	50	60	80	100	119
50	80	60	70	90	100	120
60	95	50	70	80	100	121
50	85	70	75	90	100	122
60	75	50	55	85	100	123
60	80	50	90	70	100	124
50	85	55	90	65	100	125
50	90	65	85	95	100	126
60	70	65	50	55	100	127
60	80	50	70	90	100	128
60	80	50	90	95	100	129
60	78	50	73	90	100	130
60	50	80	70	90	100	131
55	90	50	75	80	100	132
60	90	50	80	88	100	133
75	85	50	55	80	100	134
70	90	50	60	80	100	135
95	90	50	85	80	100	136

These 136 judgments were averaged as a whole and then they were divided into four equal groups by lot. For convenience sake we shall call the whole group X and the smaller groups C, D, E, F.[6] These smaller groups of 34 each were then combined in all possible combinations into groups of 68 each. These were designated as CD, CE, etc. The ballots were also divided according to the sex of the judge. A table of total percents (Table II) given by each group to each speech was then prepared.

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6 Group C was composed of ballots, 11, 12, 20, 26, 28, 41, 44, 51, 54, 56, 61, 62, 65, 66, 70, 71, 79, 82, 86, 87, 91, 103, 105, 109, 110, 111, 114, 124, 127, 128, 130, 133, 136.
Group D was composed of ballots 2, 4, 5, 19, 21, 29, 30, 32, 33, 36, 37, 40, 45, 47, 52, 55, 58, 59, 60, 68, 72, 73, 74, 78, 83, 89, 94, 99, 101, 107, 113, 115, 122, 131.
Group E was composed of ballots 6, 7, 8, 14, 16, 17, 23, 24, 34, 35, 38, 42, 43, 46, 48, 49, 67, 69, 75, 77, 81, 84, 90, 93, 95, 96, 97, 108, 116, 118, 123, 125, 126, 129.
Group F was composed of ballots 1, 3, 9, 10, 13, 15, 18, 22, 25, 27, 31, 39, 50, 53, 57, 63, 64, 76, 80, 85, 88, 92, 98, 100, 102, 106, 112, 117, 119, 120, 121, 132, 134, 135.
Group of Women was composed of ballots 2, 3, 5, 6,10, 16, 17, 18,21,23,24,26,30,31,33,34,35,37,38,42,43,44, 45,46,49,50,51,53,56,57,58,59,60,62,63,64,65,66,67, 69,70,71,72,73,77,78,80,83,88,90,91,95,101,103,104, 105,116,120,121,122,125,126,128,129,132,135.
Group of Men was composed of ballots 1,4,7,8,9,11,12, 13,14,15,19,20,22,25,27,28,29,32,36,39,40,41,47,48,52, 54,55,61,68,74,75,76,79,81,82,84,85,86,87,89,92,93,94, 96,97,98,99,100,102,106,107,108,109,110,111,112,113, 114,115,117,118,119,123,124,127,130,131,133,134,136.

TABLE II.

Total Percentage

Speech	C	D	E	F
1	1985	2078	2071	2249
2	2604	2756	2747	2796
3	2121	2207	2019	2065
4	2673	2591	2752	2511
5	3118	3174	3103	3001
6	3101	2980	3149	3131

	CD	CE	CF	DE
1	4063	4056	4234	4149
2	5360	5351	5400	5503
3	4328	4140	4186	4226
4	5264	5425	5184	5343
5	6292	6221	6119	6277
6	6081	6250	6232	6129

	DF	EF	X	MEN
1	4327	4320	8383	4237
2	5552	5543	10903	5569
3	4272	4084	8412	4452
4	5102	5263	10527	5223
5	6175	6104	12396	6310
6	6111	6280	12361	6522

	WOMEN
1	4146
2	5329
3	3960
4	5304
5	6086
6	5839

A Table (Table 3) of the average percent given to each speech by each group was next prepared. This is the Same as Table 2, except that each total percent in Table 2 is divided by the number of people in the group.

TABLE III.

Total Percentage

Speech	C	D	E	F
1	58.38	61.12	60.91	66.15
2	76.59	81.06	80.79	82.23
3	62.38	64.91	59.38	60.73
4	78.62	76.2	80.94	73.85
5	91.7	93.35	91.26	88.26
6	91.2	87.65	92.62	92.09

	CD	CE	CF	DE
1	59.75	59.64	62.26	61.01
2	78.82	78.69	79.41	80.92
3	63.64	60.88	61.56	62.14
4	77.41	79.78	76.23	78.57
5	92.53	91.48	89.98	92.31
6	89.42	91.91	91.64	90.13

	DF	EF	X	Men
1	63.63	63.53	61.64	60.53
2	81.64	81.51	80.17	79.56
3	62.82	60.06	61.85	63.6
4	75.03	77.39	77.4	74.61
5	90.81	89.76	91.14	90.14
6	89.87	92.35	90.89	93.14

	WOMEN
1	62.82
2	80.74
3	60.
4	80.36
5	92.21
6	88.47

It was desired to correlate the judgments of the different groups and Pearson's Products-Moment Formula was chosen as being the most reliable.

$$r = \frac{M_{A \cdot B} - (M_A M_B)}{\sqrt{M_{A^2} - M^2_A}\ \sqrt{M_{B^2} - M^2_B}}$$

Because the same figures would be used over and over again, a table of squares of the figures in Table 3 was prepared and are shown in Table 4. Also there were prepared tables of the means (Table 5) and means squared (Table 6).

TABLE IV

Speech	C	D	E	F
1	3408.2244	3735.6544	3710.0281	4375.8225
2	5866.0281	6570.7236	6527.0241	6761.7729
3	3891.2644	4213.3081	3525.9844	3688.1329
4	6181.1044	5806.44	6551.2836	5453.8225
5	8408.89	8714.2225	8328.3876	7789.8276
6	8317.44	7682.5225	8578.4644	8480.5681

	CD	CE	CF	DE
1	3570.0625	3556.9296	3876.3076	3722.2201
2	6212.5924	6192.1161	6305.9481	6548.0464
3	4050.0496	3706.3744	3789.6336	3861.3796
4	5992.3081	6364.8484	5811.0129	6173.2449
5	8561.8009	8368.5904	8096.4004	8521.1361
6	7995.9364	8447.4481	8397.8896	8123.4169

	DF	EF	X	Men
1	4048.7769	4036.0609	3799.4896	3663.8809
2	6665.0896	6643.8801	6427.2289	6329.7936
3	3946.3524	3607.2036	3825.4225	4044.96
4	5629.5009	5989.2121	5990.76	5566.6521
5	8246.4561	8056.8576	8306.4996	8125.2196
6	8076.6169	8528.5225	8260.9921	8675.0596

	Women
1	3946.3524
2	6518.9476
3	3600.
4	6457.7296
5	8502.6841
6	7826.9409

TABLE V

Mean

A	B	C	D	AB
76.48	77.38	77.65	77.22	76.93
AC	AD	BC	BD	CD
77.06	76.84	77.51	77.3	77.43
General	A^2	B^2	C^2	D^2
77.18	6012.1585	6120.4785	6203.5287	6091.6577
AB^2	AC^2	AD^2	BC^2	BD^2
6063.7916	6101.0512	6046.1987	6158.2407	6102.1321
CD^2	$General^2$	Men	Men^2	Women
6143.6228	6101.7321	76.93	6067.5943	77.43
$Women^2$				
6142.1091				

TABLE VI

$Mean^2$

A	B	C	D	AB
5849.1904	5987.6644	6029.5225	5962.9284	5918.2249
AC	AD	BD	BD	CD
5938.2436	5904.3856	6007.8001	5975.29	5995.4049
General	Men	Women		
5956.7524	5918.2249	5995.4049		

Substituting these products, squares and means in the formula and making the computations on a Monroe Calculator for the sake of accuracy, a table of correlations was prepared (Table 7). The probable error formula used was

$$PE_r = .675 \frac{(1-r^2)}{\sqrt{N}}$$

Things Corr.	R	P.E.
CD with X	.9934	.0011
CE " X	.9956	.0007
CF " X	.9979	.0003
DE " X	.9977	.0004
DF " X	.9941	.0009
EF " X	.9935	.0002
Av. 68 with 136	.9954	.0006
C with X	.9899	.0022
D " X	.9851	.0034
E " X	.9931	.0016
F " X	.9721	.0063
Av. 34 with 136	.9851	.0034
CD with EF	.9729	.0044
CE " CF	.9788	.0034
CF " DE	.9916	.0014
CD " CE	.9923	.0012
CD " CF	.9877	.0019
Av. 68 with 68	.9847	.0025
C with D	.9776	.0051
C " E	.9850	.0034
C " F	.9654	.0079
Av. 34 with 34	.9760	.0055
Men with Women	.7494	.0364

It was decided to compare the judgment of the students with that of people classed as expert judges. Therefore a group of twelve people, who had gone out from the University of Wisconsin as single expert judges during the year, was assembled. Nine of the twelve were staff members and the other three were graduate students. The test[7] was given in the Speech Laboratory,[8] room 401, Bascom Hall. The records were played on a Victrola phonograph, Model VVI-70 #8425, which seemed to give about the same results as had the Brunswick Panatrope in Bascom Theatre. This change was made because the Theatre was being used at the time for rehearsal. The following instructions[9] were given:

> You now have in your hands some ballots. The answers that you make on these ballots will be the subject of some research work. It is important that you give the answers that seem right to you. It is not important that you agree with the person next to you, but that you give you own individual reactions.
>
> I am going to play a record so that you may become accustomed to the recording device. It is not one of those listed on the ballots which you hold in your hands.

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7 The six records were the same as given to the students.
8 A room about 35 x 30 x 12.
9 The same as to the students except that blanks were not provided for the information which was not intended to be used in comparison.

One of the Southern records [10] was then played.

> Now I am going to play the records of six speeches in order indicated on your ballots. I want you to listen carefully to these and grade each one. Use the blank sheet for preliminary computations. Give the one which you believe to be the best a grade of 100% and the one which you believe to be the poorest a grade of 50%. Give the others any grade in between 50 and 100 which you think they deserve. Do not give any two speeches the same grade. At the end of each speech if you have heard it before, check in the column indicated. Then estimate as closely as possible the number of times that you have heard it and the length of time since you last heard it.

After all six of the records had beenplayed, the following was read to the group:

> Now that you have heard all six of the speeches, record the grades according to the instructions givenyou and sign your ballots.

A table was prepared (Table 8), showing the results of the judgments of the experts. To avoid personalities we shall designate each judge by a number. The judges were divided into two groups for the purpose of correlation.

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10 The same as in Note 4.

TABLE VIII

Ranks						
4	6	5	2	1	3	1.
3	6	5	2	1	4	2.
3	6	5	2	1	4	3.
5	6	4	3	1	2	4.
4	6	5	1	2	3	5.
4	6	5	1	2	3	6.
23	36	29	11	8	19	Sub-total
4	6	5	2	1	3	Sub av. rank
4	6	5	1	2	3	7.
3	5	6	1	2	4	8.
3	5	6	1	2	4	9.
5	4	6	3	1	2	10.
3	4	6	1	5	2	11.
3	2	6	5	1	4	12.
21	26	35	12	13	19	Sub-total
4	5	6	1	2	3	Sub av. rank
44	62	64	23	21	38	Total
4	5	6	2	1	3	Av. rank
6	3	5	4	1	2	Students

Using the Spearman Rank-Difference Formula [11] the following correlations (Table 9) were worked out.

$$r = 1 - \frac{6 \Sigma D^2}{N(N^2-1)}$$

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11 This formula was chosen largely because it was faster to use and the extreme accuracy of the Pearson's Product-Moment Formulae was not deemed necessary when it was recognized that there were only twelve cases.

TABLE IX

Correlations

	Corr.	P.E.
1 and Students	.4857	.5158
2 " "	.2571	.6304
3 " "	.2571	.6304
4 " "	.6571	.4835
5 " "	.3143	.6083
6 " "	.3143	.6083
7 " "	.3143	.6083
8 " "	.2	.648
9 " "	.2	.648
10 " "	.8857	.1455
11 " "	- .019	
12 " "	.5429	.4761
Teachers and students	.6	.432
1/2 teachers and 1/2 students	.8857	.1455
1 and teachers	.9429	.0749
2 " "	.8857	.1455
3 " "	.8857	.1455
4 " "	.7714	.2733
5 " "	.8857	.1455
6 " "	.8857	.1455
7 " "	.8857	.1455
8 " "	.8857	.1455
9 " "	.8857	.1455

TABLE IX CONTINUED

10 and teachers	.8857	.1455
11 " "	.4286	.551
12 " "	.4286	.551

There were available at this time ballots on eight speeches of Impersonation which had been given in a contest in the same class. These were in ranks only, the class not having been instructed to use percentages. These ballots were treated as a whole and also divided into groups according to the instructors of the quiz sections. Because percentile markings were not available, Spearman's Rank-Difference Formula [12] was used in making the correlations.

The instructors are designated as A, B, C, D, E, [13] and the whole group as X. The average rankings given by each group are given in Table 10. The number of people in each group and the correlations between the different groups are given in Table 11.

12 The same as used for correlations in the judgments of the group of experts.

13 A is the same as Expert #5
B is the same as Expert #11
C is the same as Expert #2
D is the same as Expert #7
E was not included in the list of experts because he found it impossible to be present at the time the experiments were conducted.

TABLE X

Summary

Speech	A	B	C	D	E	X
1	5	5	7	5	5	5
2	3	4	4	4	4	4
3	7	6	6	6	6	6
4	8	7	8	8	8	8
5	2	2	2	3	2	2
6	6	8	5	7	7	7
7	1	3	1	2	1	1
8	4	1	3	1	3	3
Cases	58	15	18	20	19	133

TABLE XI

Impersonation

	Correlations		Cases	
		P.E.	Other	X
A with X	.9524	.0082	58	133
B " "	.881	.0389	15	133
C " "	.9048	.0288	18	133
D " "	.9286	.0208	20	133
E " "	1.0000	.0000	19	133
			A	Other
A with B	.7421	.0772	58	15
" " C	.9048	.0288	58	18
" " D	.8333	.0461	58	20
" " E	.9524	.0144	58	19
			B	Other
B with C	.7381	.0793	15	18
" " D	.9524	.0161	15	20
" " E	.881	.0389	15	19
			C	Other
C with D	.8333	.0485	18	20
" " E	.9048	.0288	18	19
			D	E
D with E	.9286	.0213	20	19

In order to show the distribution of the markings in the large group, graphs were prepared for each speech. (Graphs 1-8). Graphs were also prepared for the distribution of firsts, seconds, etc. (Graphs 9-16).

A contest of eight original speeches was held in Speech 1 (the same group of students as in the other experiments). The ballots were again marked only in ranks. Hence the same formula (Spearman's rank difference) was again used for correlating the results. Such interesting results had been obtained in the work with the speeches of interpretation by dividing the large group into smaller groups according to the students' quiz section instructors that this method was chosen for the original speeches. Table 12 is the average rankings as given by each group.

TABLE XII

Speech	X	A	B	E	C	D
1	7	6	6	7	8	7
2	4	4	5	4	5	5
3	3	3	3	3	3	2
4	5	5	4	6	2	6
5	6	7	8	2	6	8
6	8	8	7	8	7	4
7	1	1	1	1	1	1
8	2	2	2	5	4	3
Case	135	63	15	21	16	20

The correlations between the groups are given in Table 13. The letters for the different instructors are the same as in the Speeches of Interpretation, thus making comparison possible.

TABLE XIII

Original Speeches

	Correlations		Cases	
		P.E.	Other	X
A with X	.9762	.004	63	135
B " "	.9048	.0316	15	135
C " "	.8095	.0582	16	135
D " "	.7143	.0740	20	135
E " "	.6905	.0771	21	135
			A	Other
A with B	.9524	.0162	63	15
" " C	.7619	.0708	63	16
" " D	.7381	.0687	63	20
" " E	.5714	.0993	63	21
			B	Other
B with C	.8095	.0601	15	16
" " D	.8095	.0601	15	20
" " E	.3810	.1491	15	21
			C	Other
C with D	.6190	.1041	16	20
" " E	.5714	.1137	16	21
			D	E
D with E	.3094	.1365	20	21

Graphs were prepared the same as in the speeches of Interpretation to show the distribution of places given to each speech (17-24) and the distribution of firsts, seconds, etc., among the different speeches (25-32).

CONCLUSIONS

1. We may expect a high correlation of judgments between groups of 34 beginning speech students when judging recorded political speeches where the visual element, material of questionable nature, loyalty to one speaker, etc. have been eliminated. In most cases 20 seemed to bring a high correlation but it would seem that the larger number or even forty might be better for further experimenting.

2. The single expert judge is comparatively unreliable. Experts seem to show a noticeable divergence of opinion among themselves, but especially with student judges. The small number used reduces the reliability when comparing experts with the larger student group, but it would seem that the group of experts were large enough to indicate that there is a risk in using a single expert judge. This is not, however, comparing him with a group of perhaps three or five inexpert judges.

3. In the original speeches a disturbing factor entered when one of the contestants used questionable material of a risque nature. In spite of this the judgments surprisingly agree. It would seem that the

first experiment, where standardized conditions prevailed, where the more reliable formula was used, where class loyalty was absent, were the most reliable.

4. There may be a factor entering on the difference in judging of political speeches, speeches of impersonation, and original speeches. The difference in the size of correlations may indicate such a difference.

SUGGESTIONS FOR FUTURE WORK

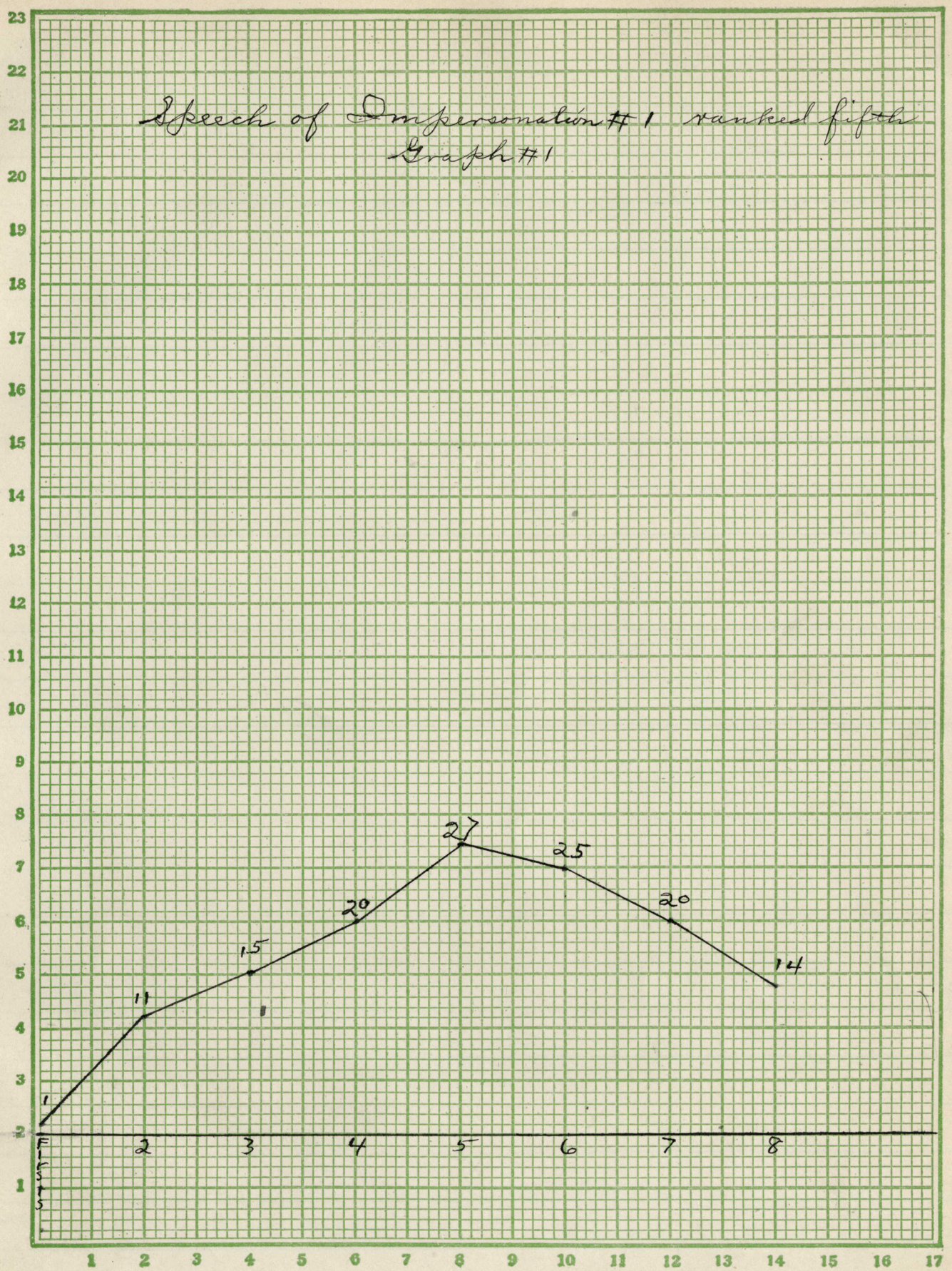
It is evident to the experimenter and those who have worked with him that only the surface of the problem has been touched in these experiments. As the experiments have progressed, certain things have presented themselves which the experimenter believes might profitably be made the subject of further research. Certain things in the matter of technique have suggested themselves to the experimenter which he believes might improve the work. Hence the following suggestions are made for future work:

1. Compare the judgments of various schools.
2. Compare the judgments of nationalities.
3. Compare the judgments of political speeches with that of other types.
4. Compare the judgments with those of people in departments other than the speech department.
5. Compare the judgments with the judgments of professions such as lawyers, preachers, school teachers, business men, etc.
6. Compare the judgments with those on the same speeches in written form.

7. Compare the judgments with those of High School Pupils.
8. Work with smaller groups.
9. Get speeches which are better recorded than some of the ones used in the first experiment.
10. Get a larger group of experts.
11. Form a list of qualities of good speaking and have them ranked in order of importance by various classes of people such as professional people, experts, students, etc. Also note the sex differences.
12. Form a list of faults and have them ranked following the same procedure as in number eleven.

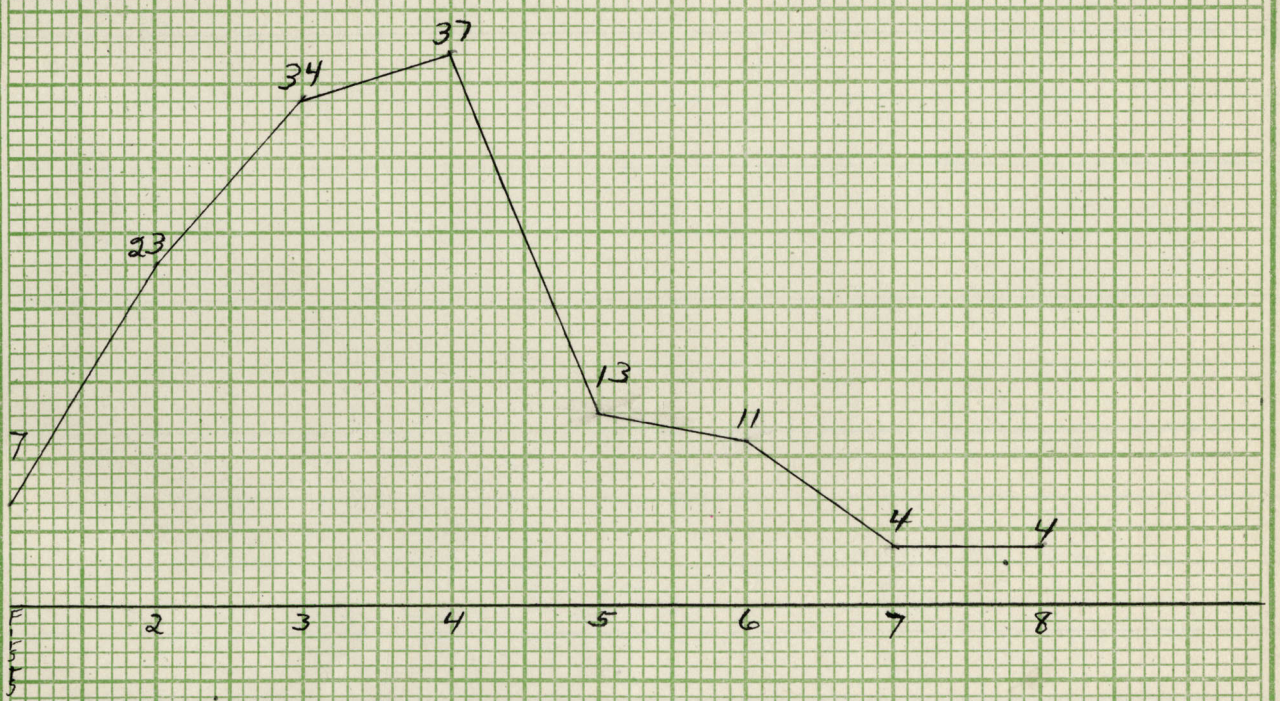
Speech of Impersonation #1 ranked fifth

Graph #1



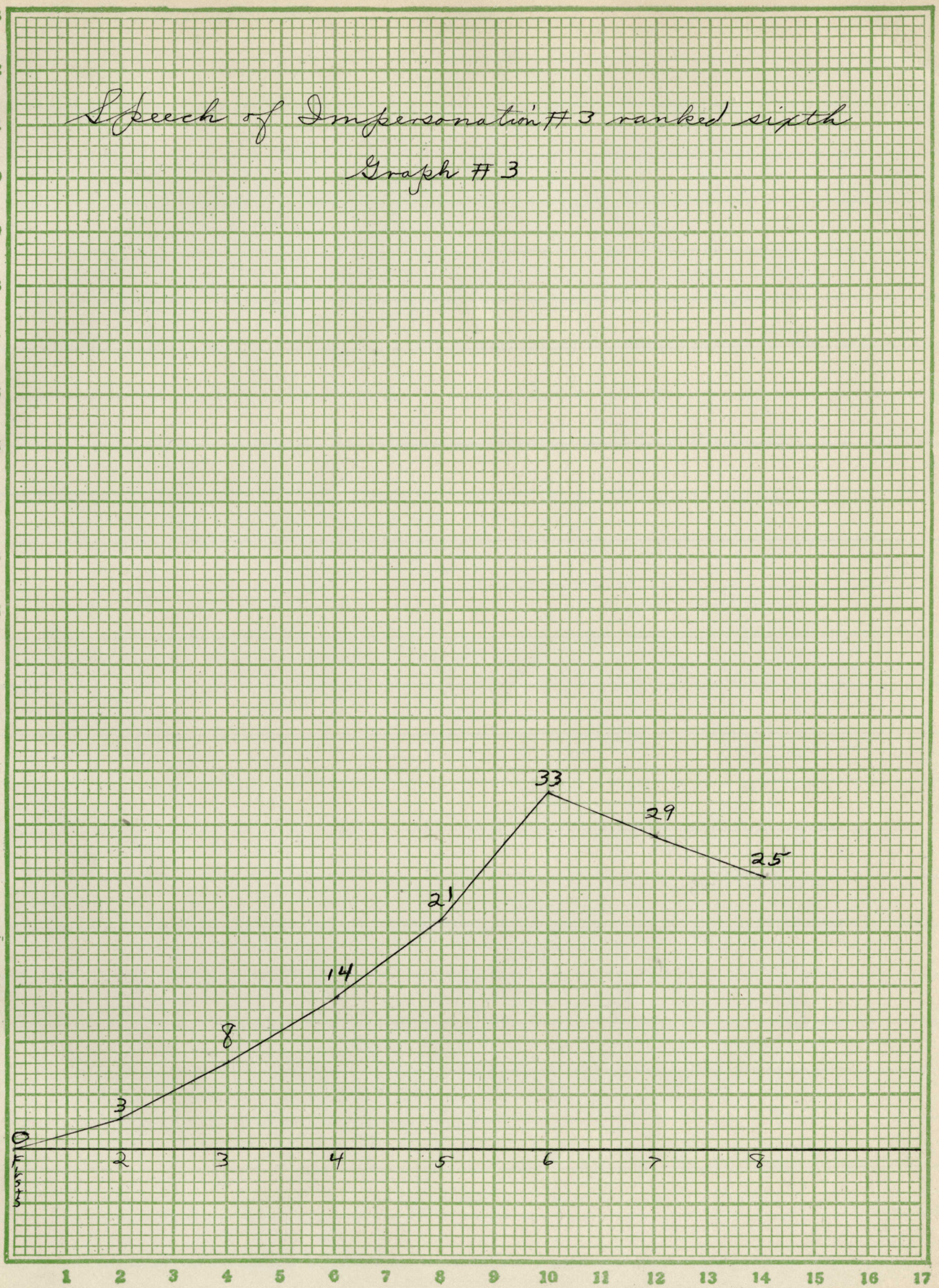
Speech of Impersonation #2 ranked fourth

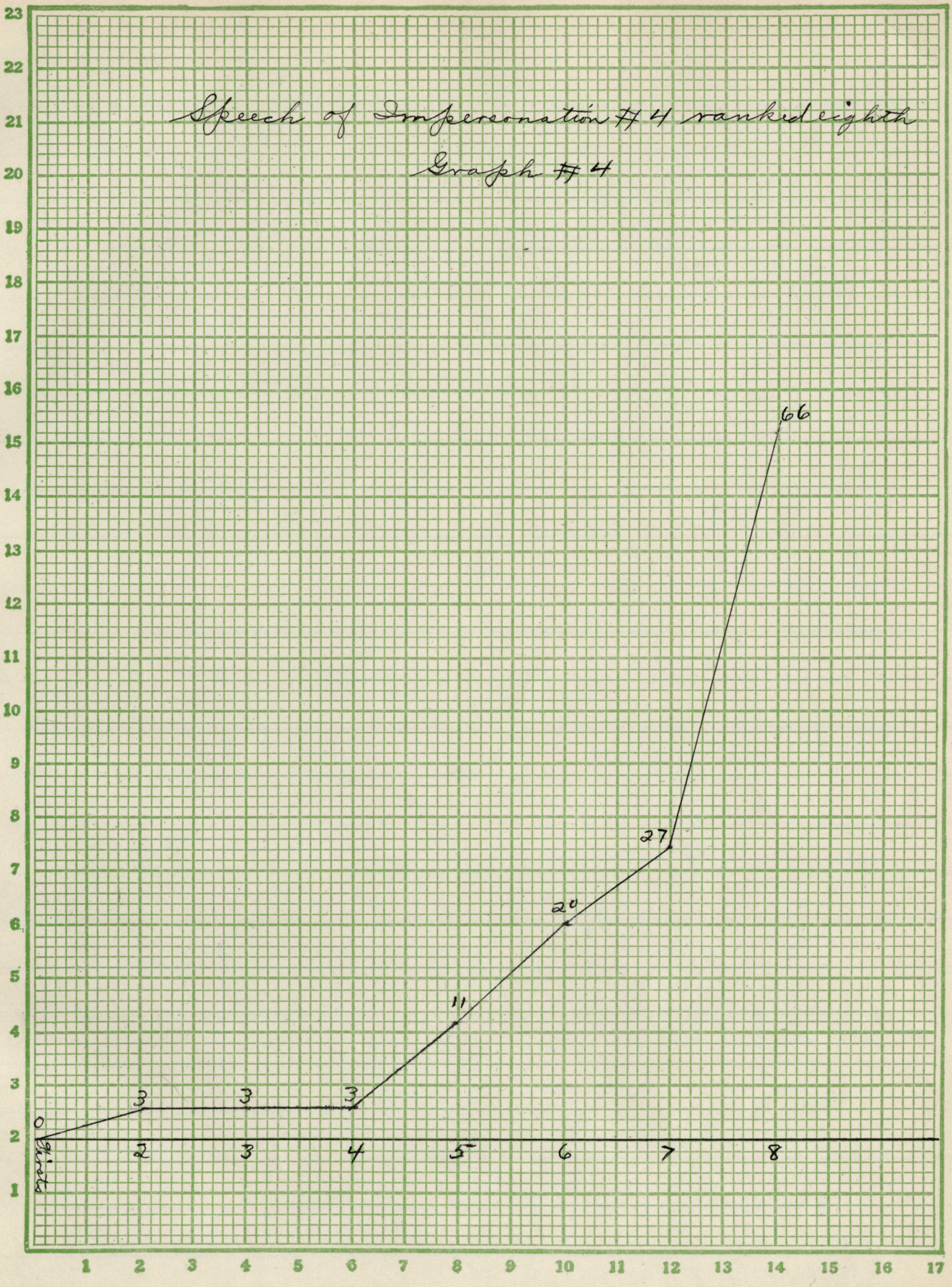
Graph #2



Speech of Impersonation #3 ranked sixth

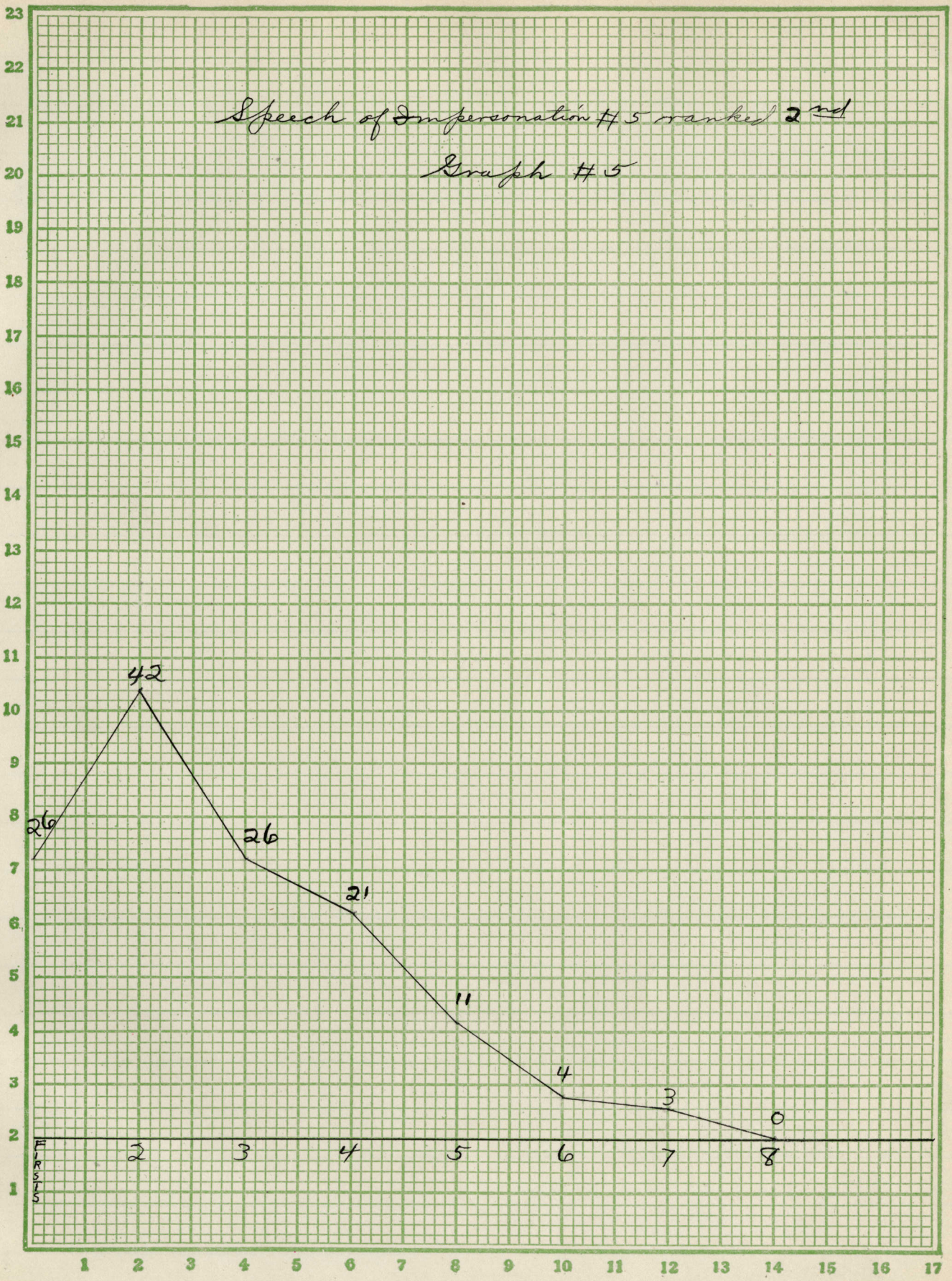
Graph #3




Speech of Impersonation #4 ranked eighth
Graph #4
66
27
20
11
3
3
3
0
Spirits
2
3
4
5
6
7
8

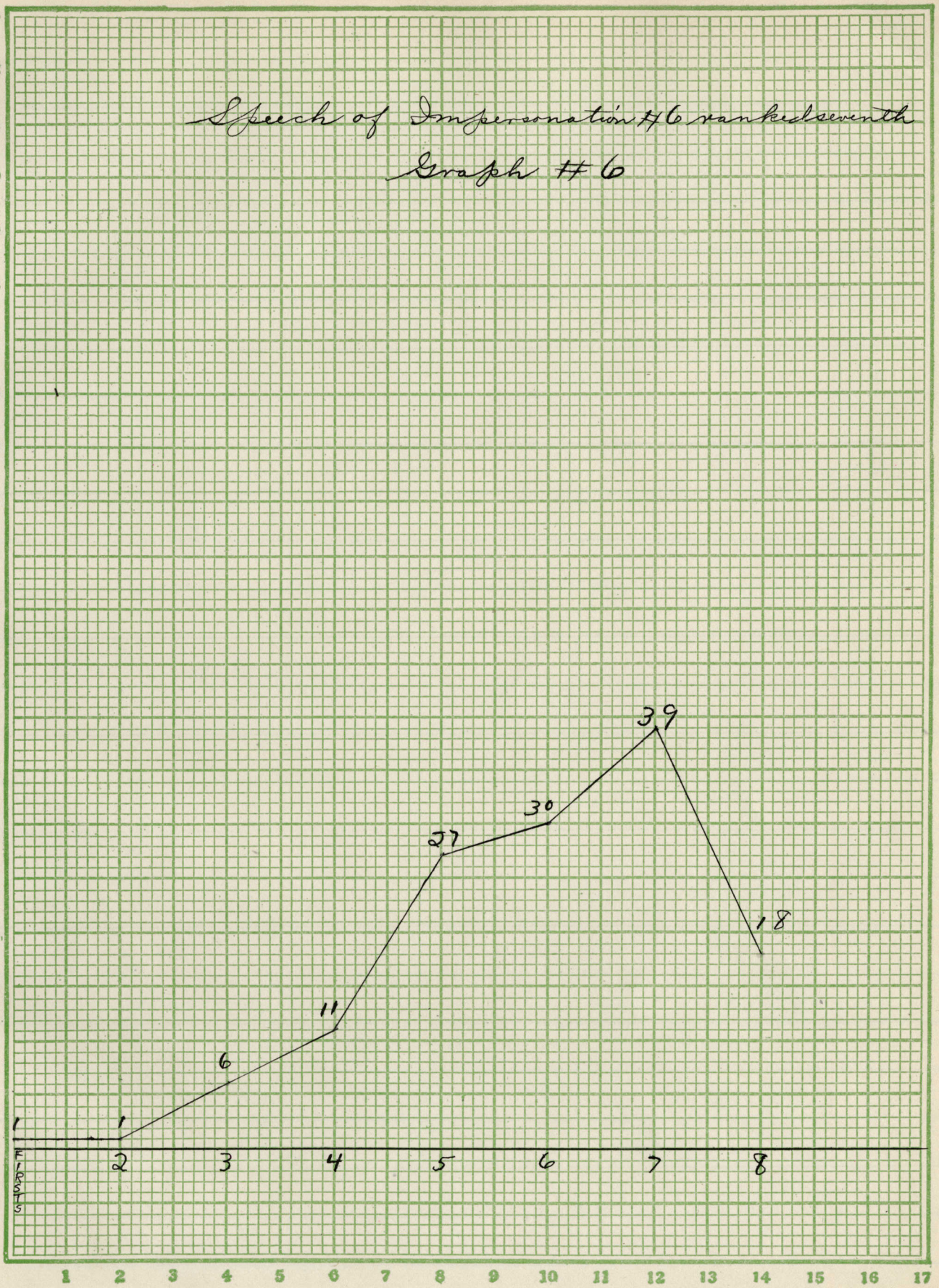
Speech of Impersonation #5 ranked 2nd

Graph #5



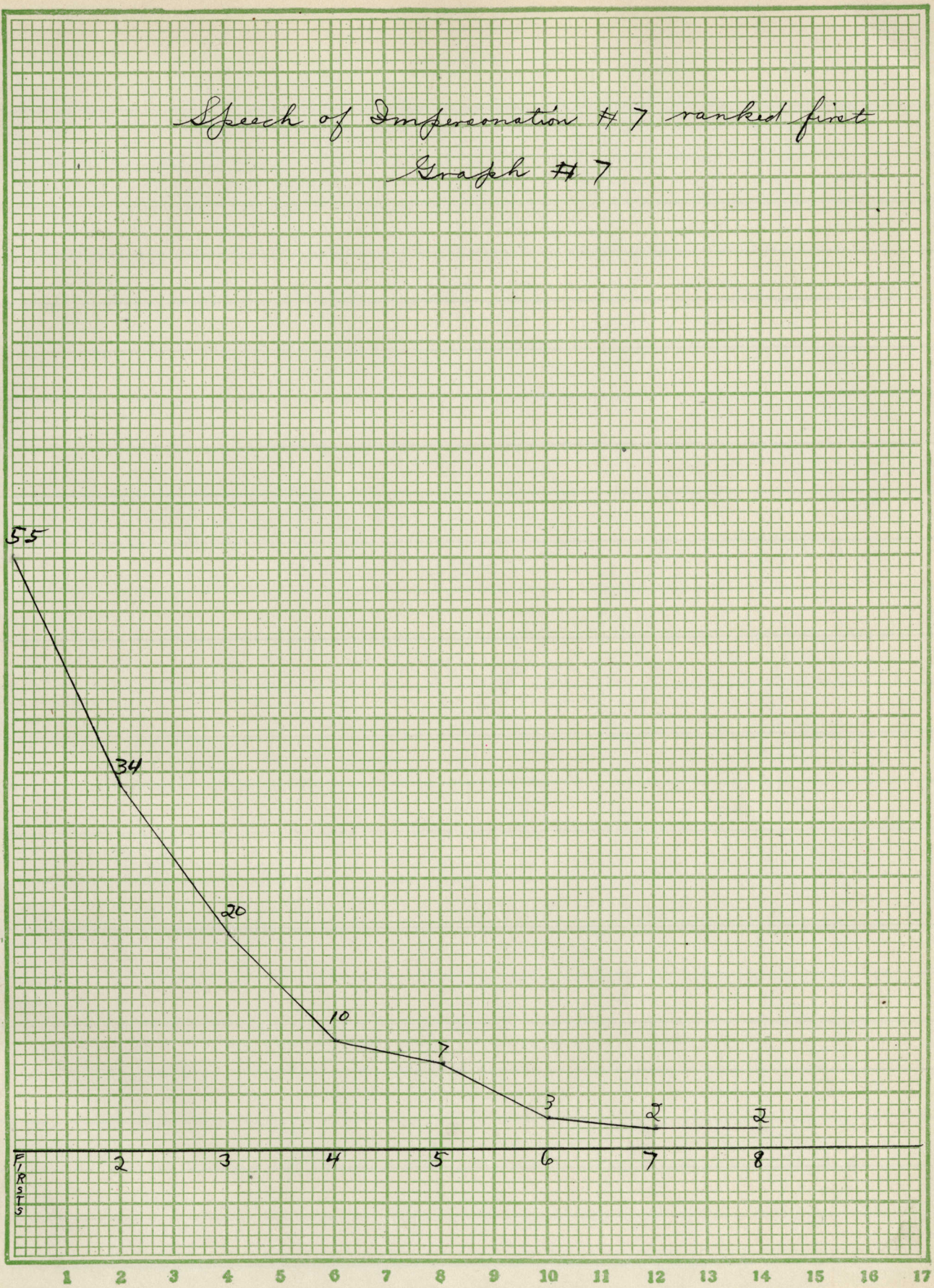
Speech of Impersonation #6 ranked seventh

Graph #6



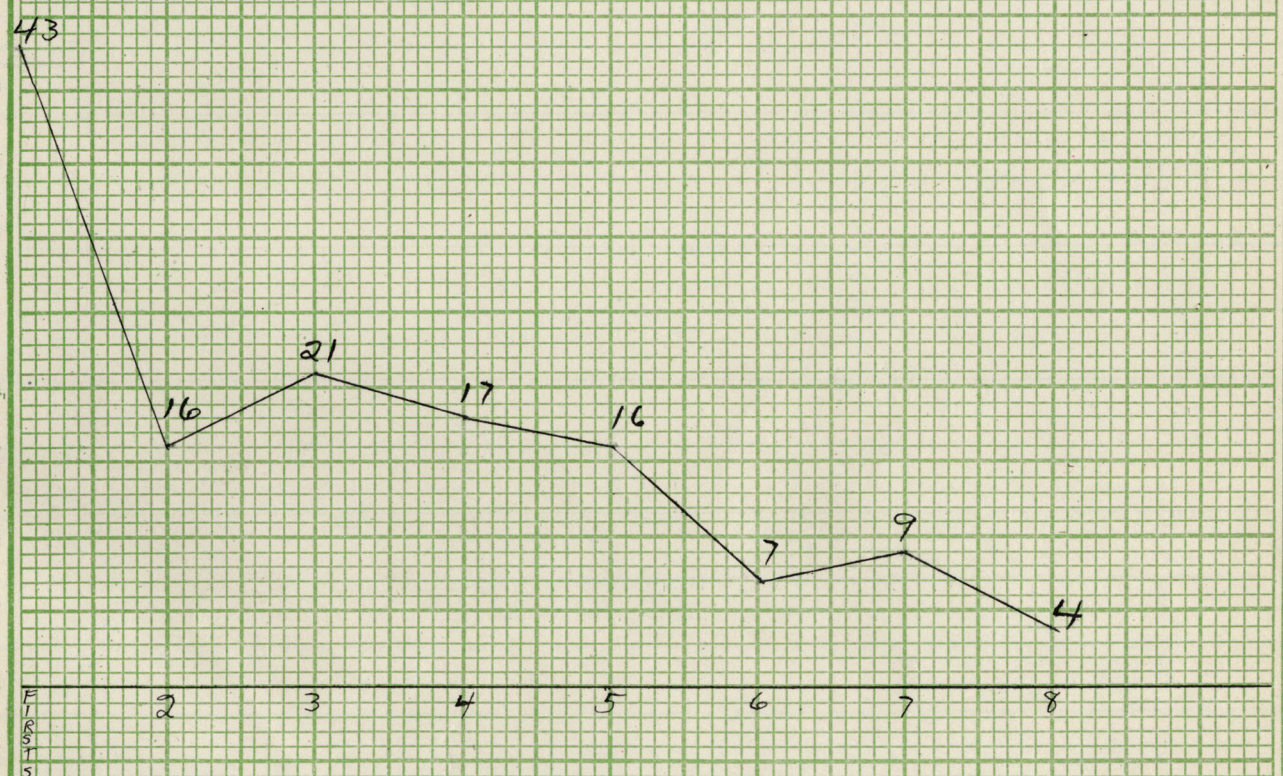
Speech of Impersonation #7 ranked first

Graph #7



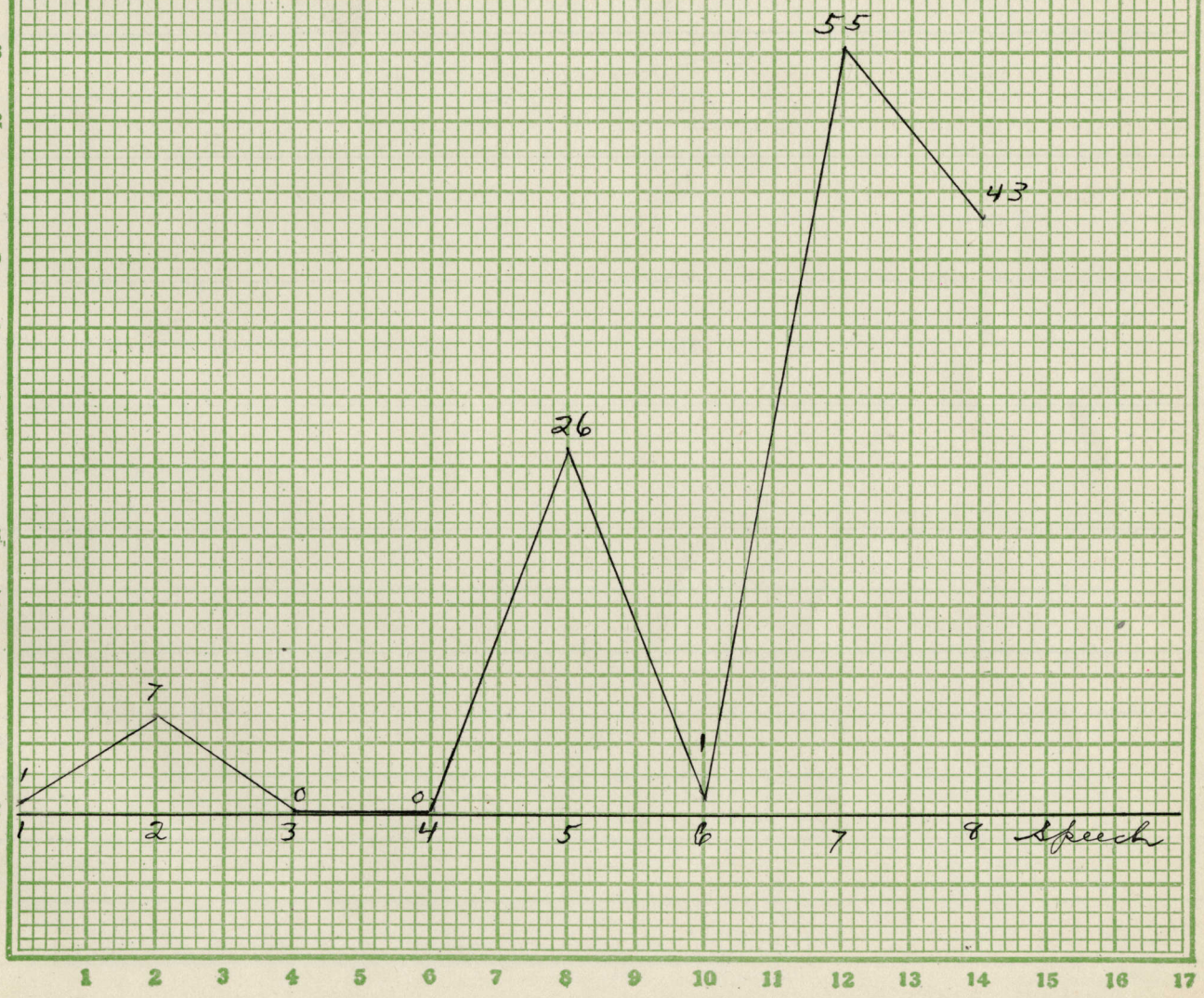
Speech of Impersonation #8 ranked third

Graph # 8



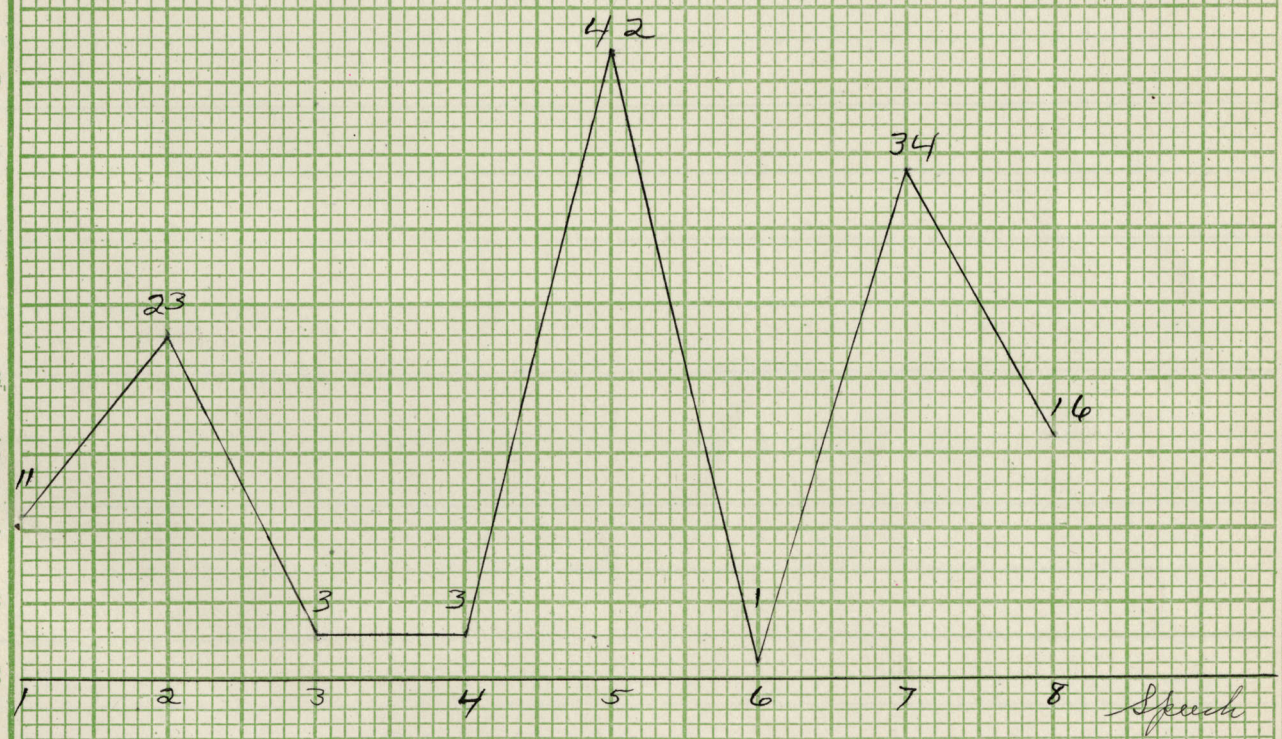
Speeches of Impersonation - Chart of Firsts

Graph #9



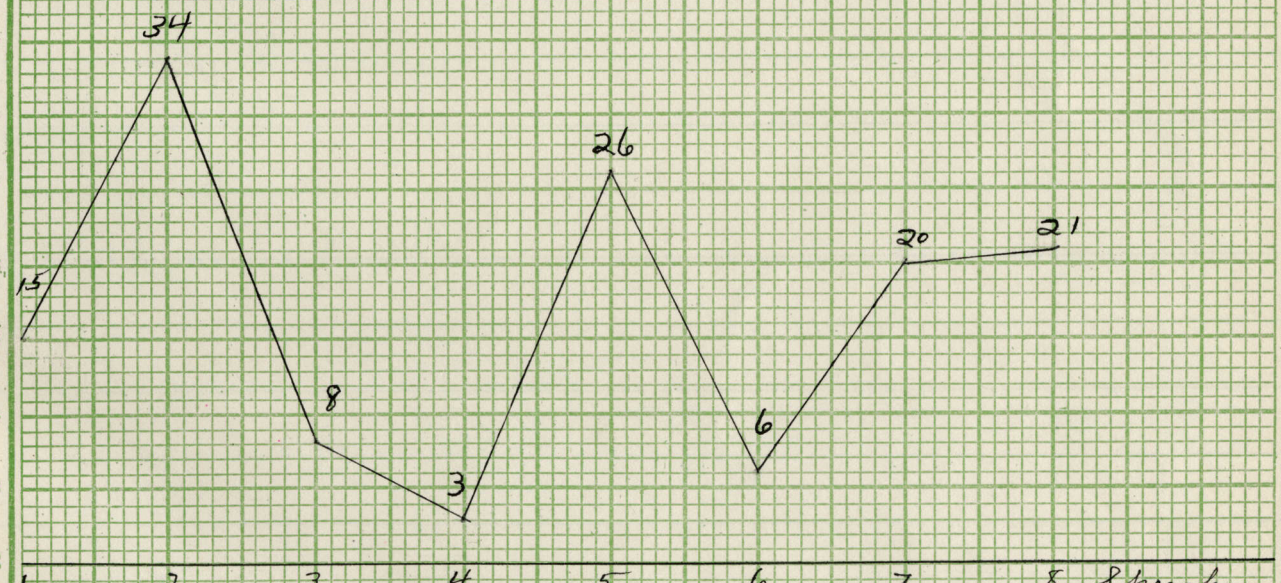
Speeches of Impersonation · Chart of Seconds

Graph # 10



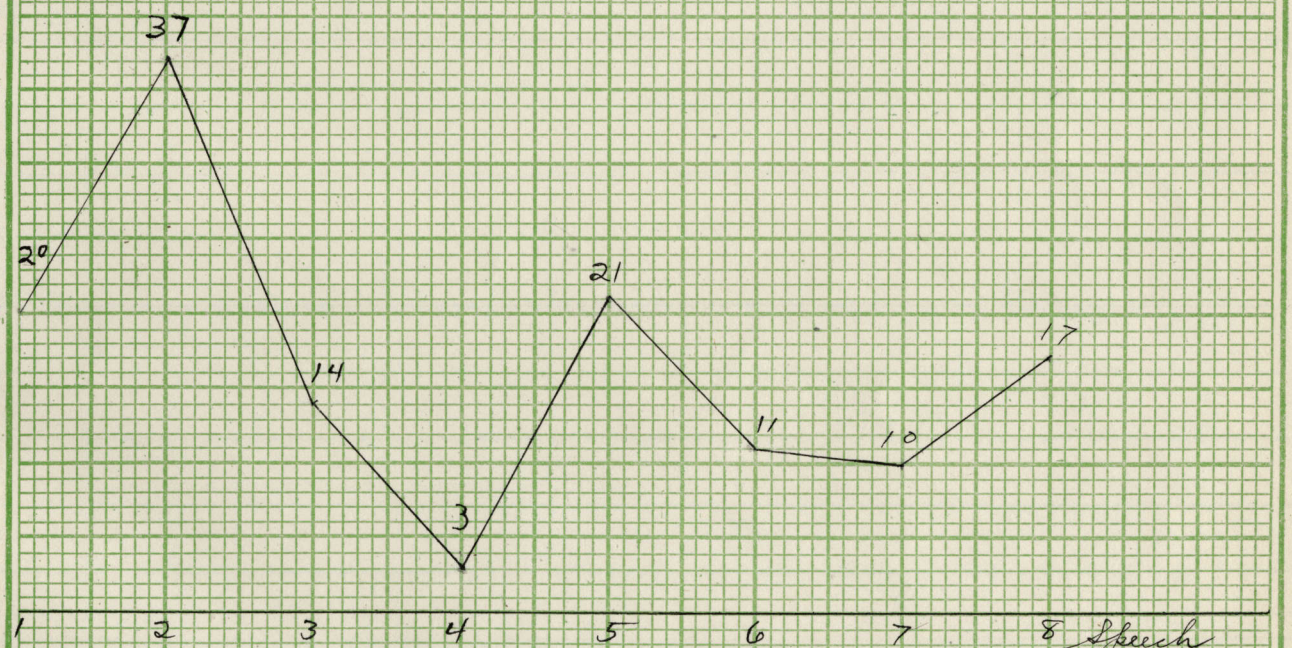
Speeches of Impersonation - Chart of Thirds

Graph # 11



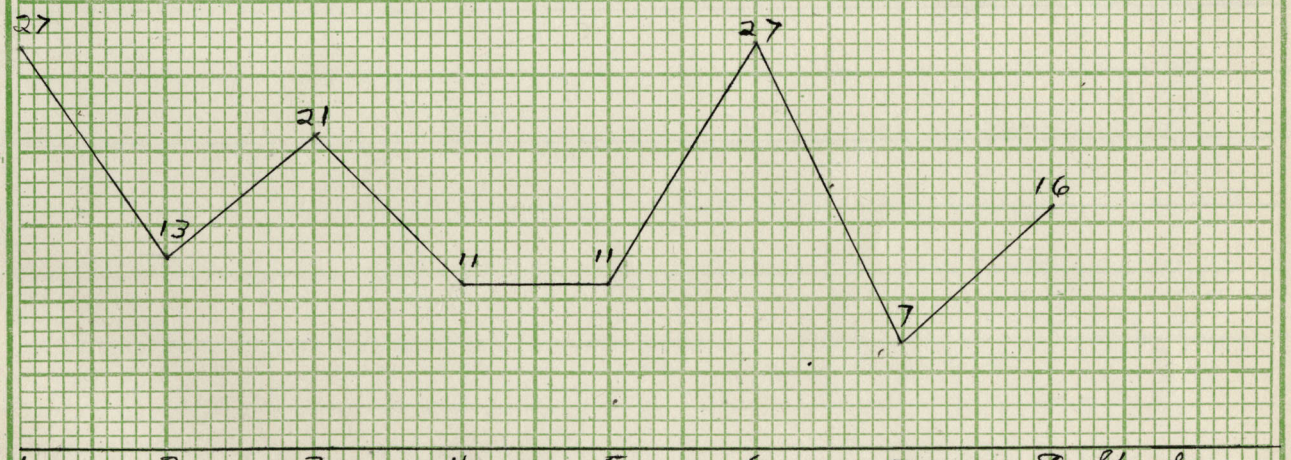
Speeches of Impersonation - Chart of Fourths

Graph #12



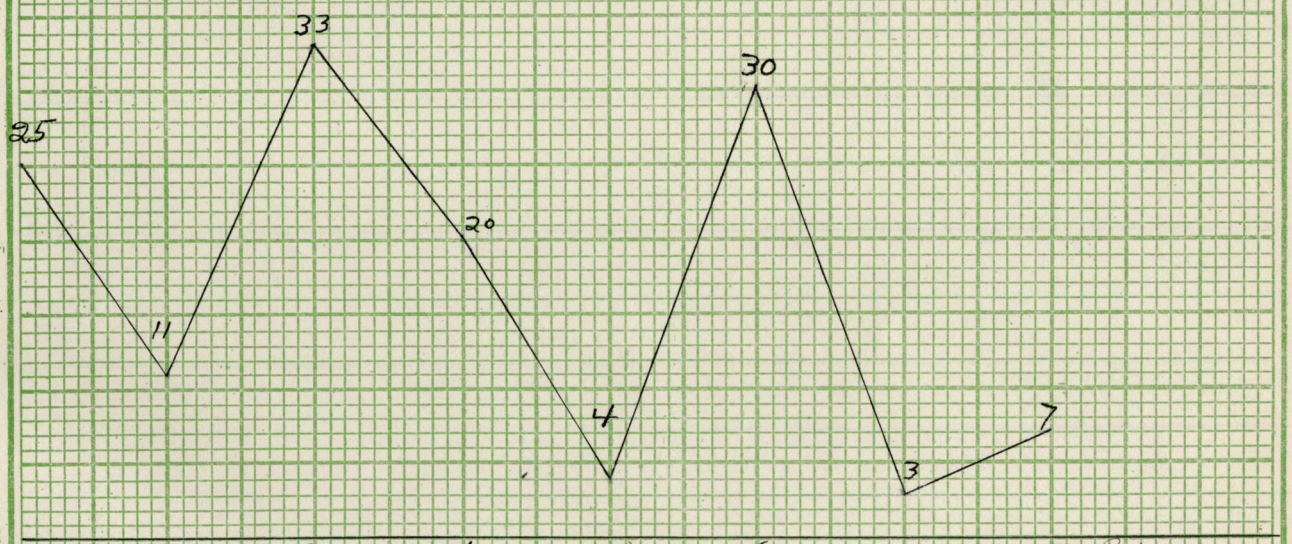
Speech of Impersonation - Chart of Fifths

Graph # 13



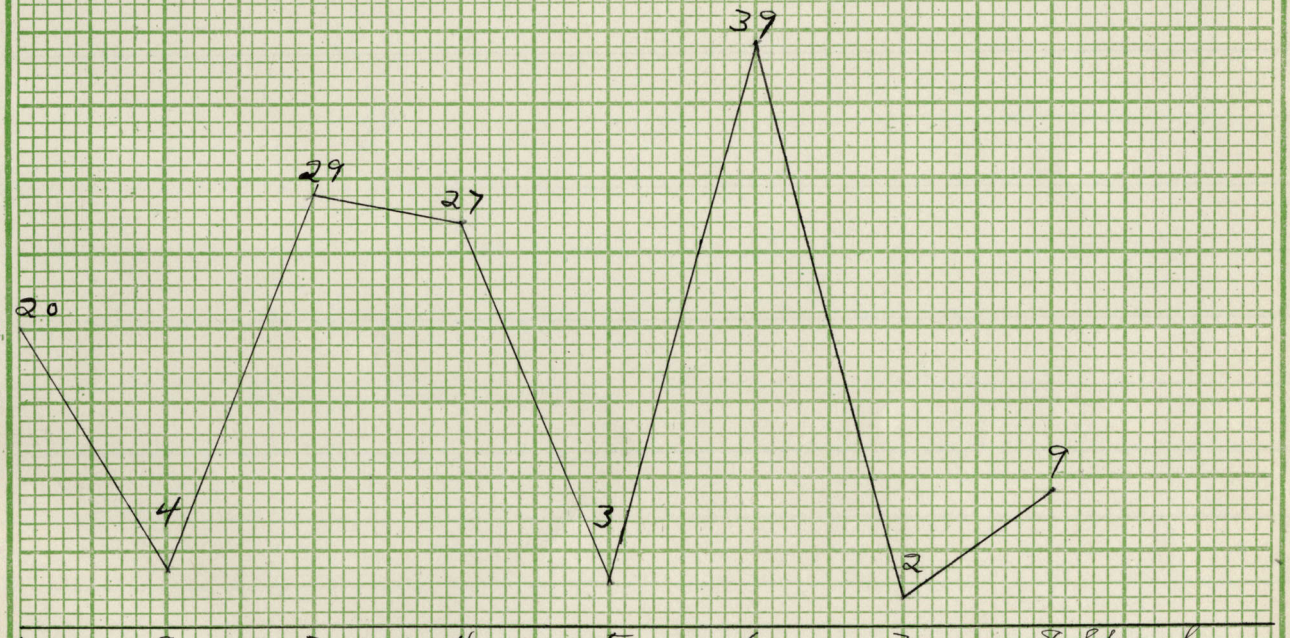
Speeches of Impersonation - Chart of Sixths

Graph # 14



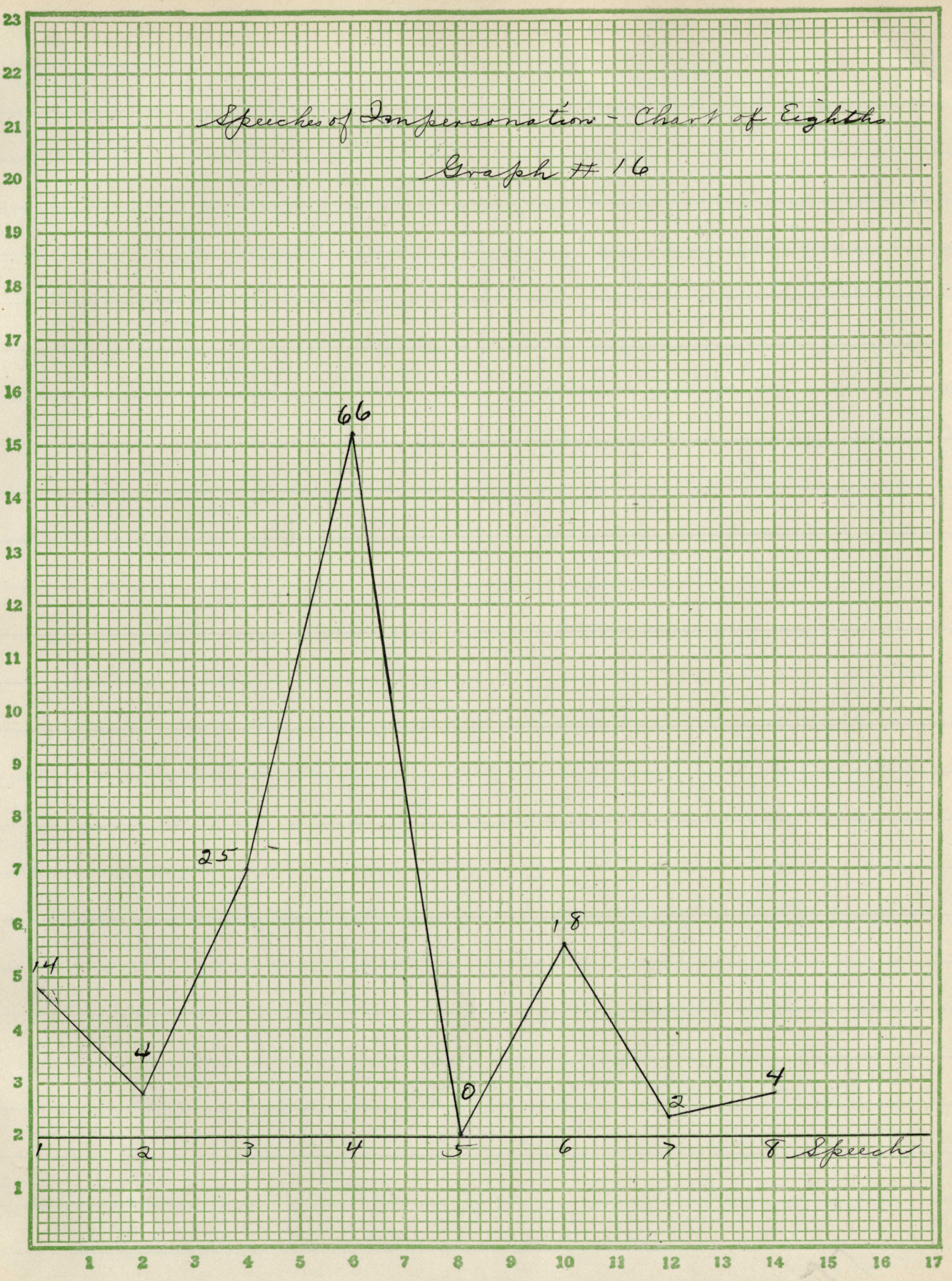
Speeches of Impersonation - Chart of Sevenths

Graph # 15



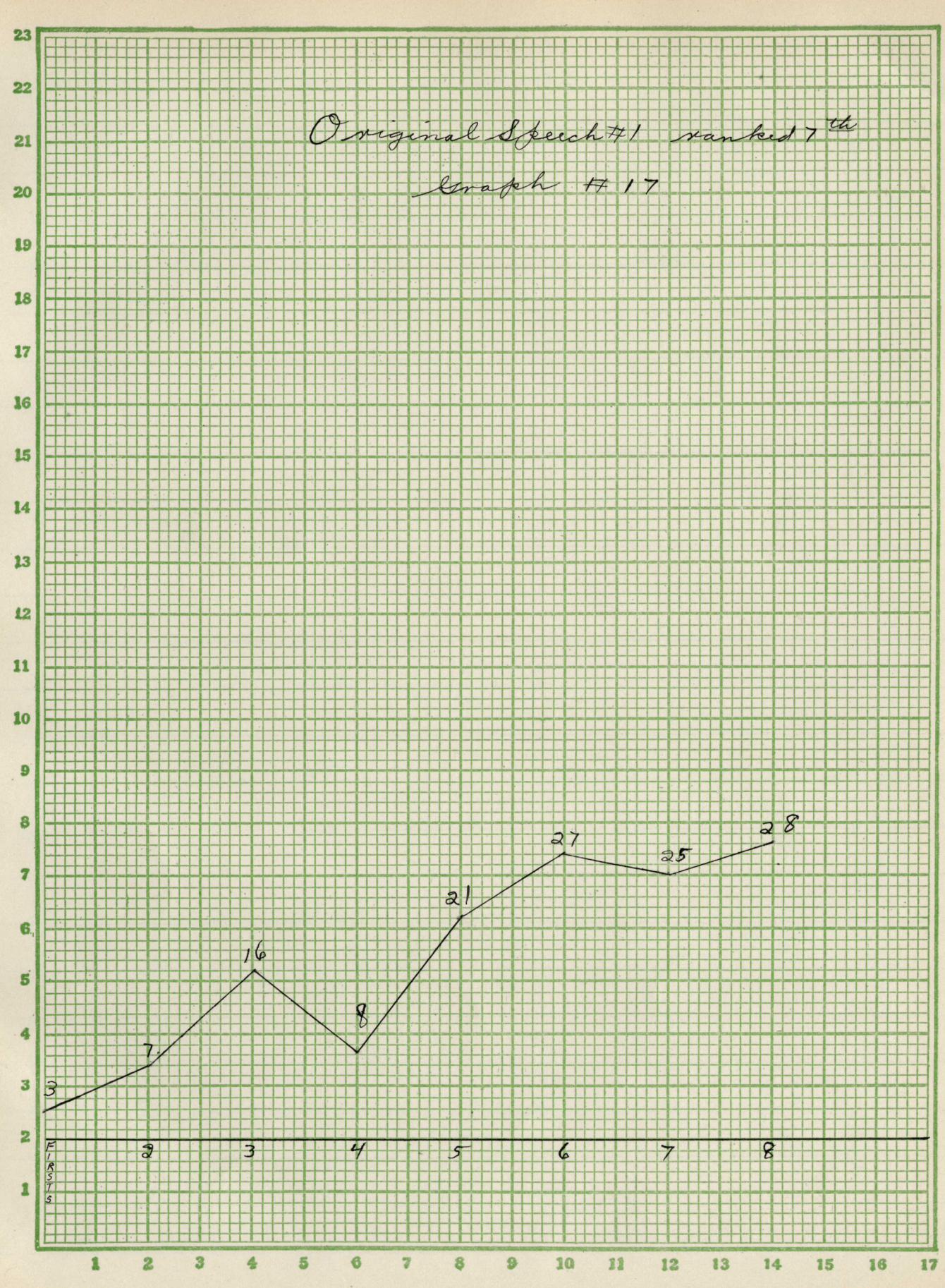
Speeches of Impersonation - Chart of Eighths

Graph # 16



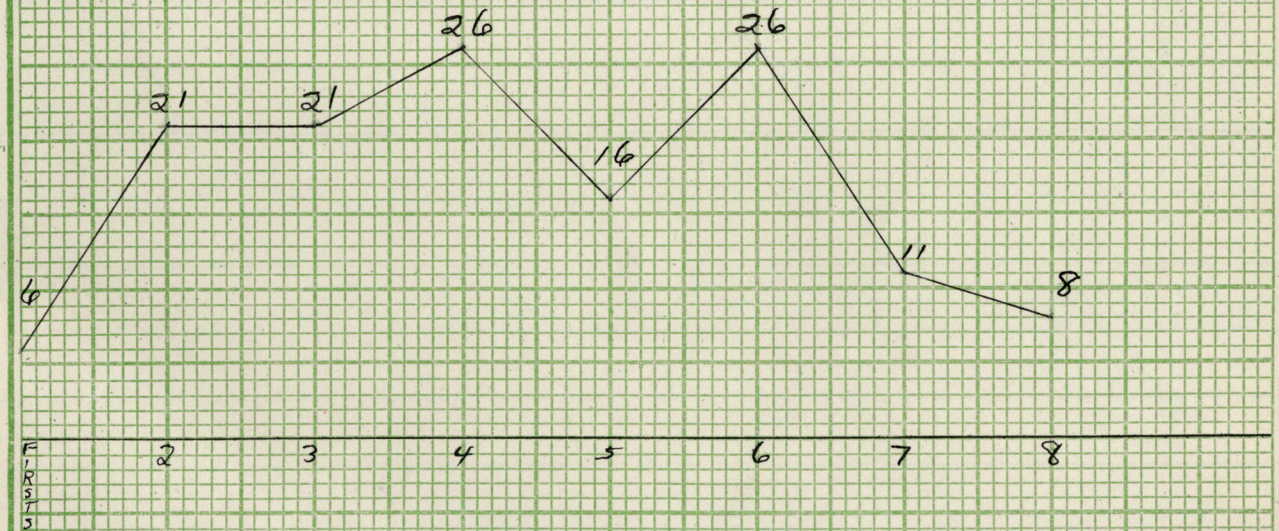
Original Speech #1 ranked 7th

Graph #17



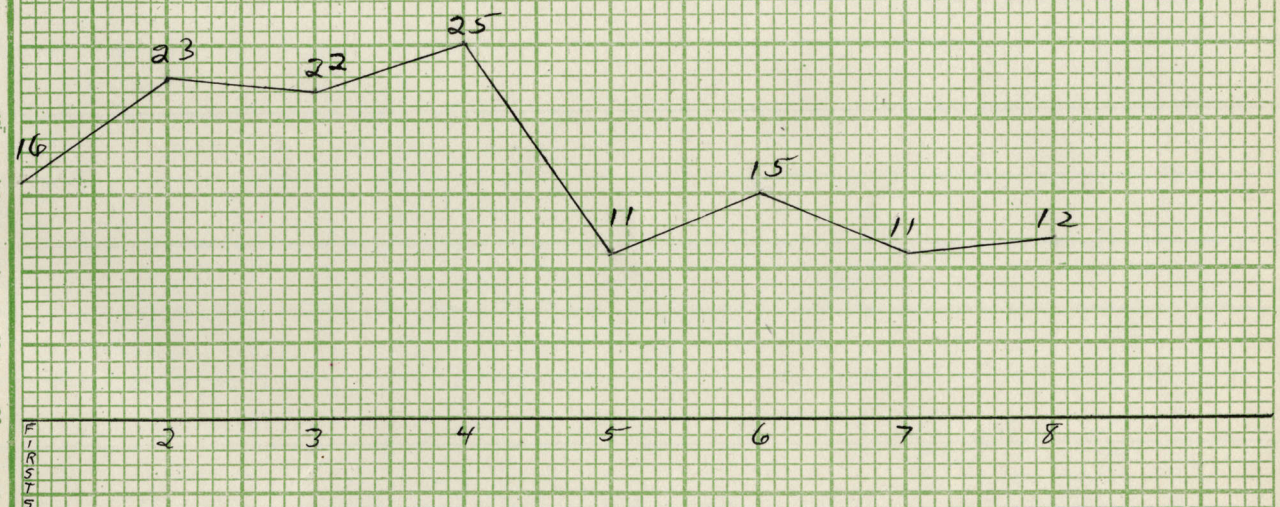
Original Speech #2 ranked fourth

Graph #18



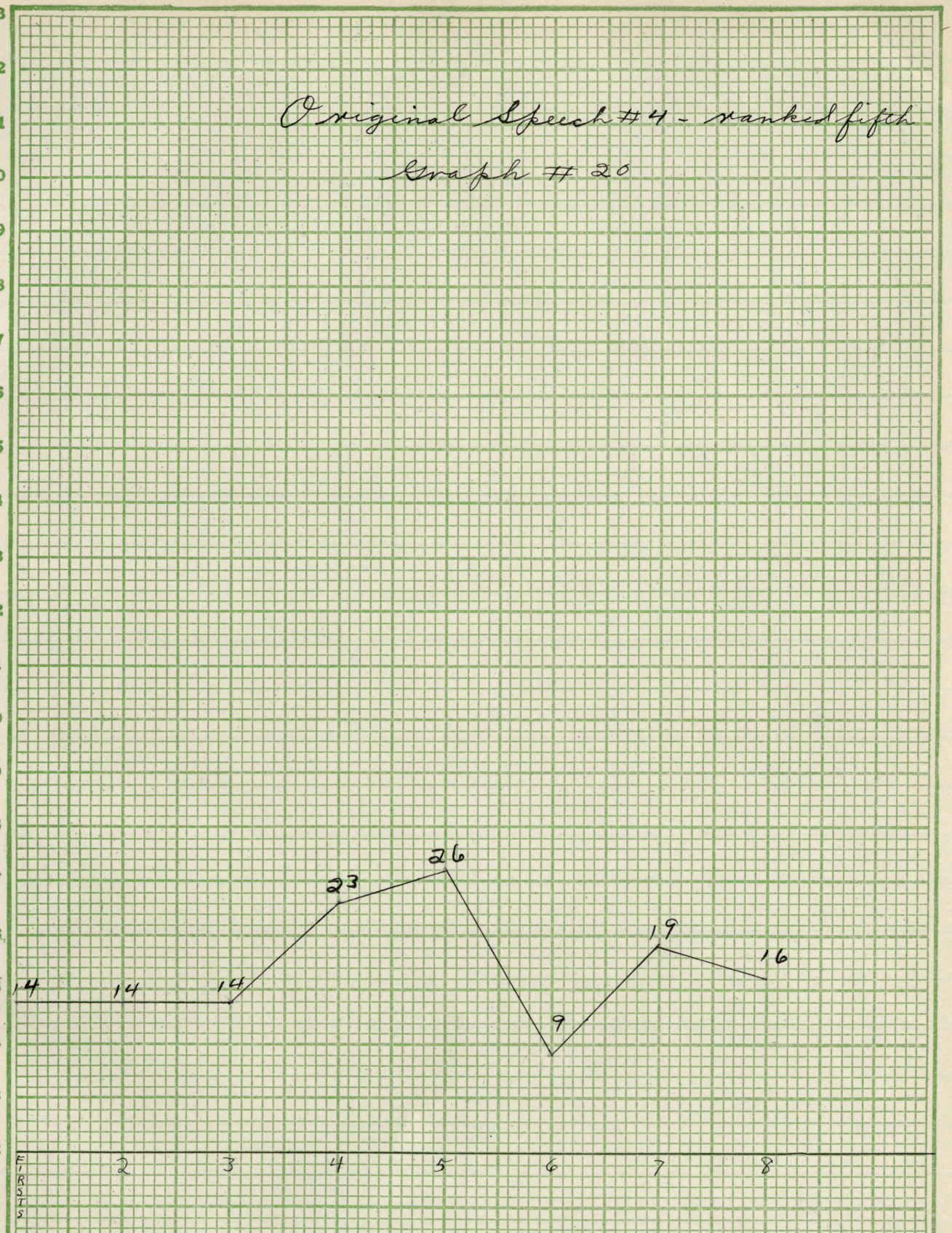
Original Speech #3 ranked third

Graph #19



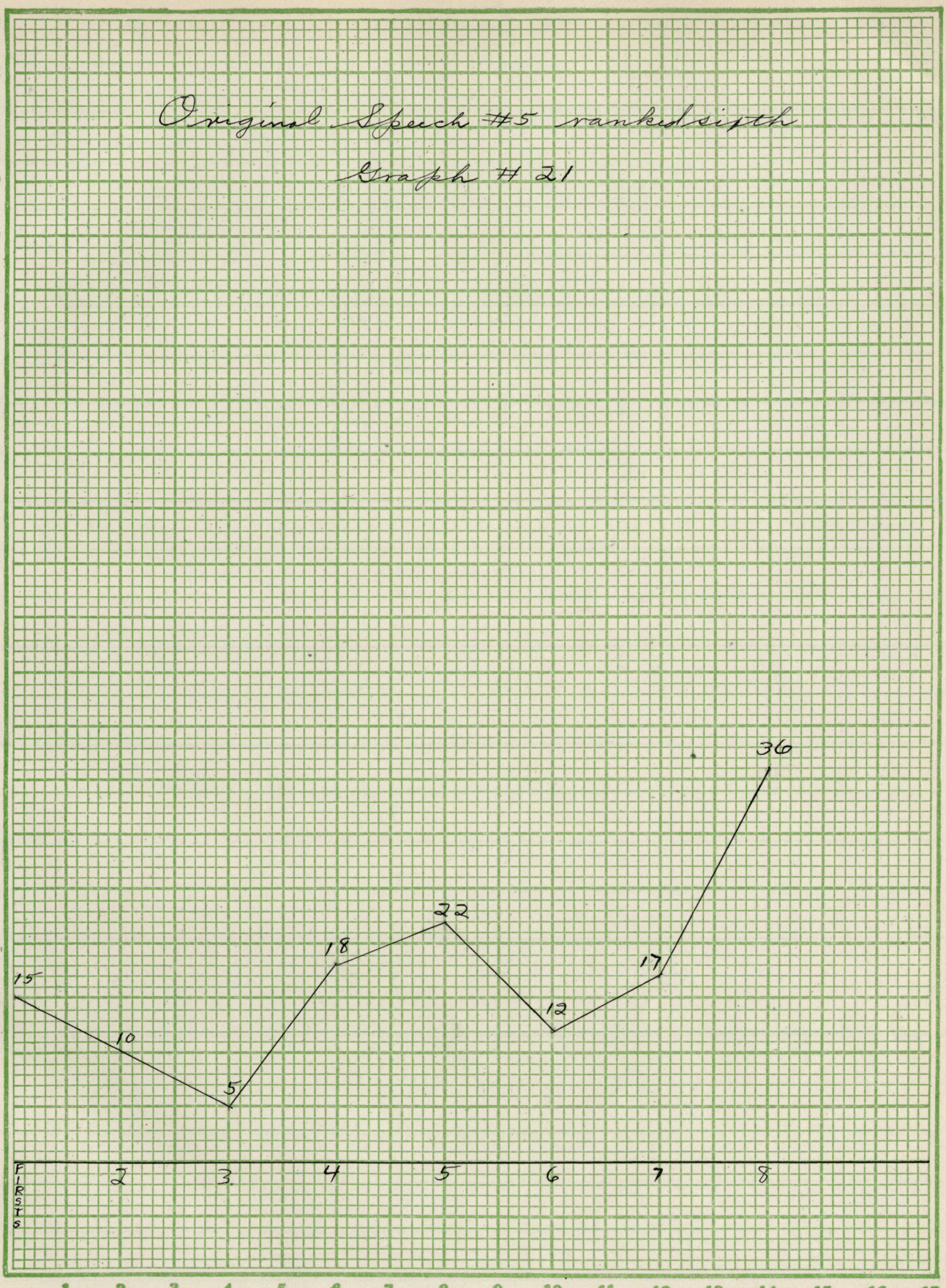
Original Speech #4 - ranked fifth

Graph # 20



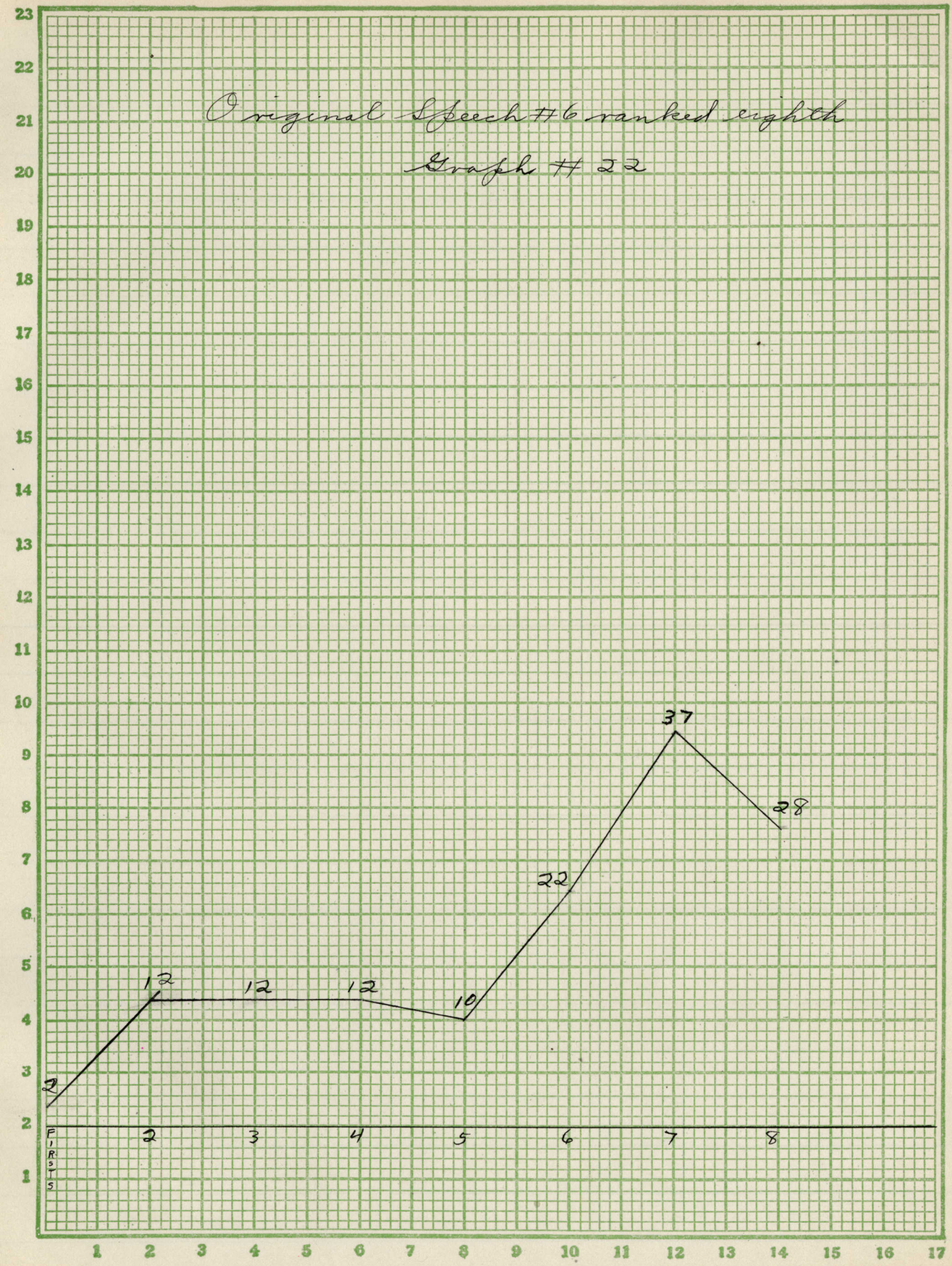
Original Speech #5 ranked sipth

Graph # 21



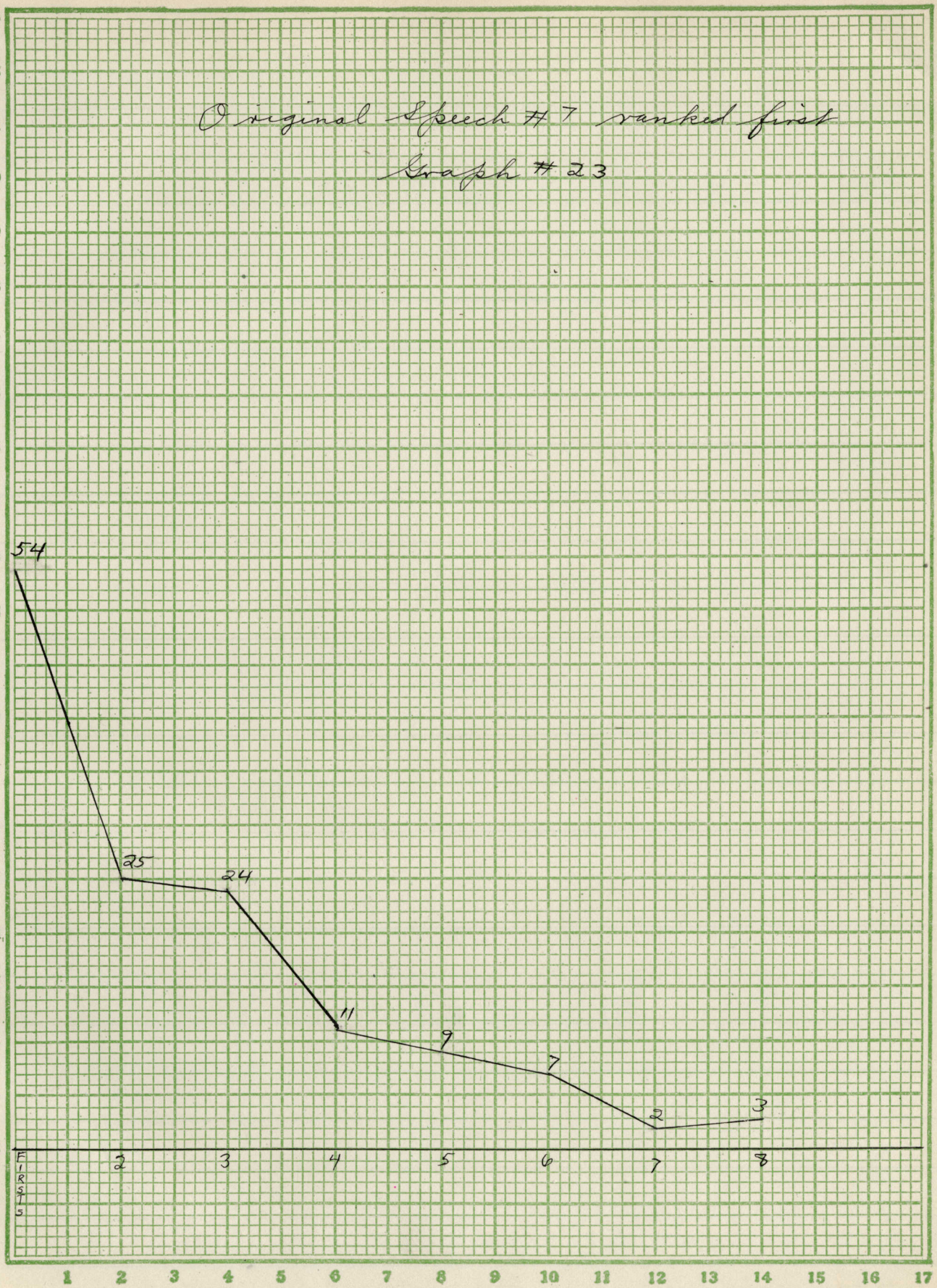
Original Speech #6 ranked eighth

Graph # 22



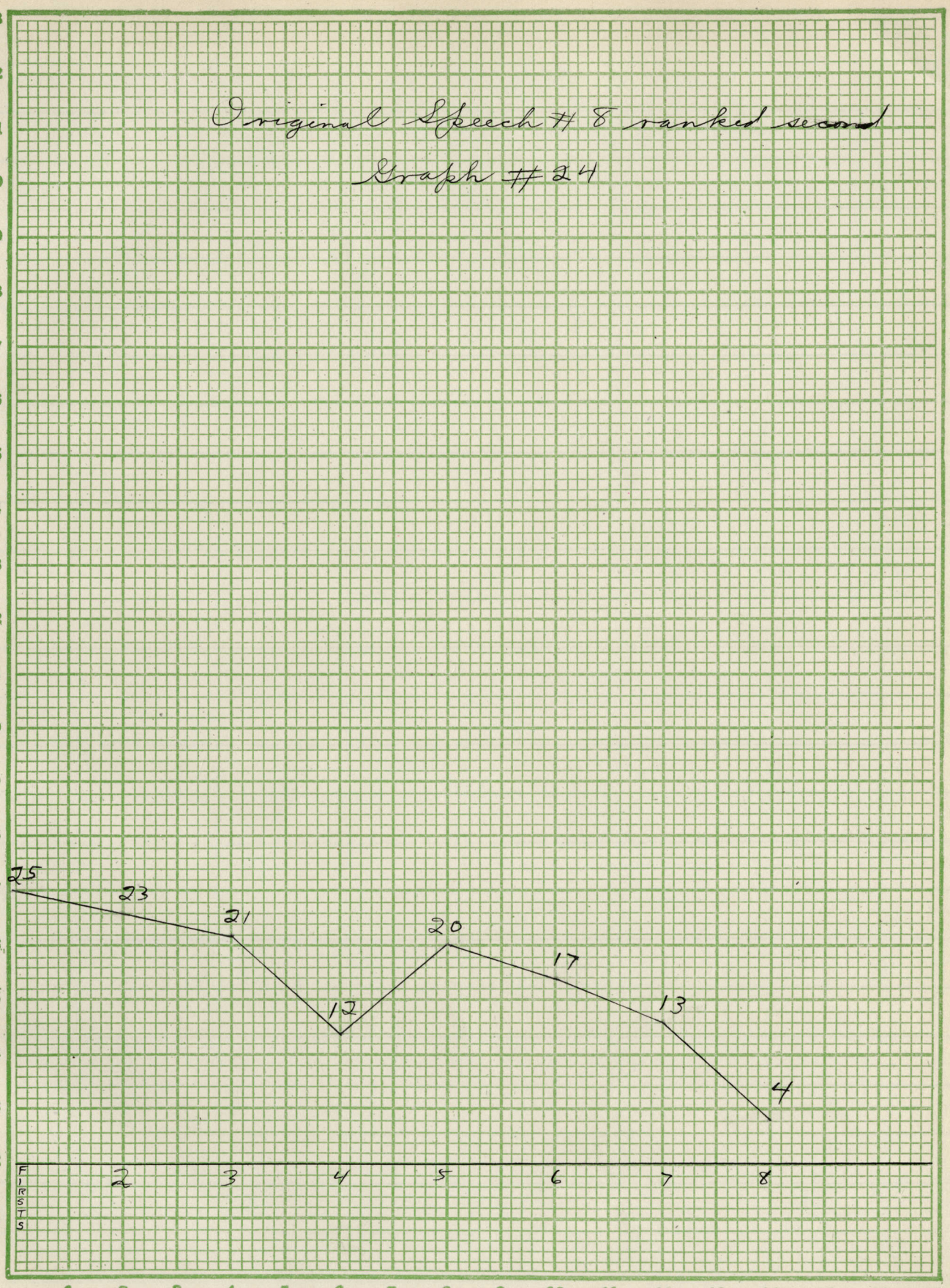
Original Speech #7 ranked first

Graph #23



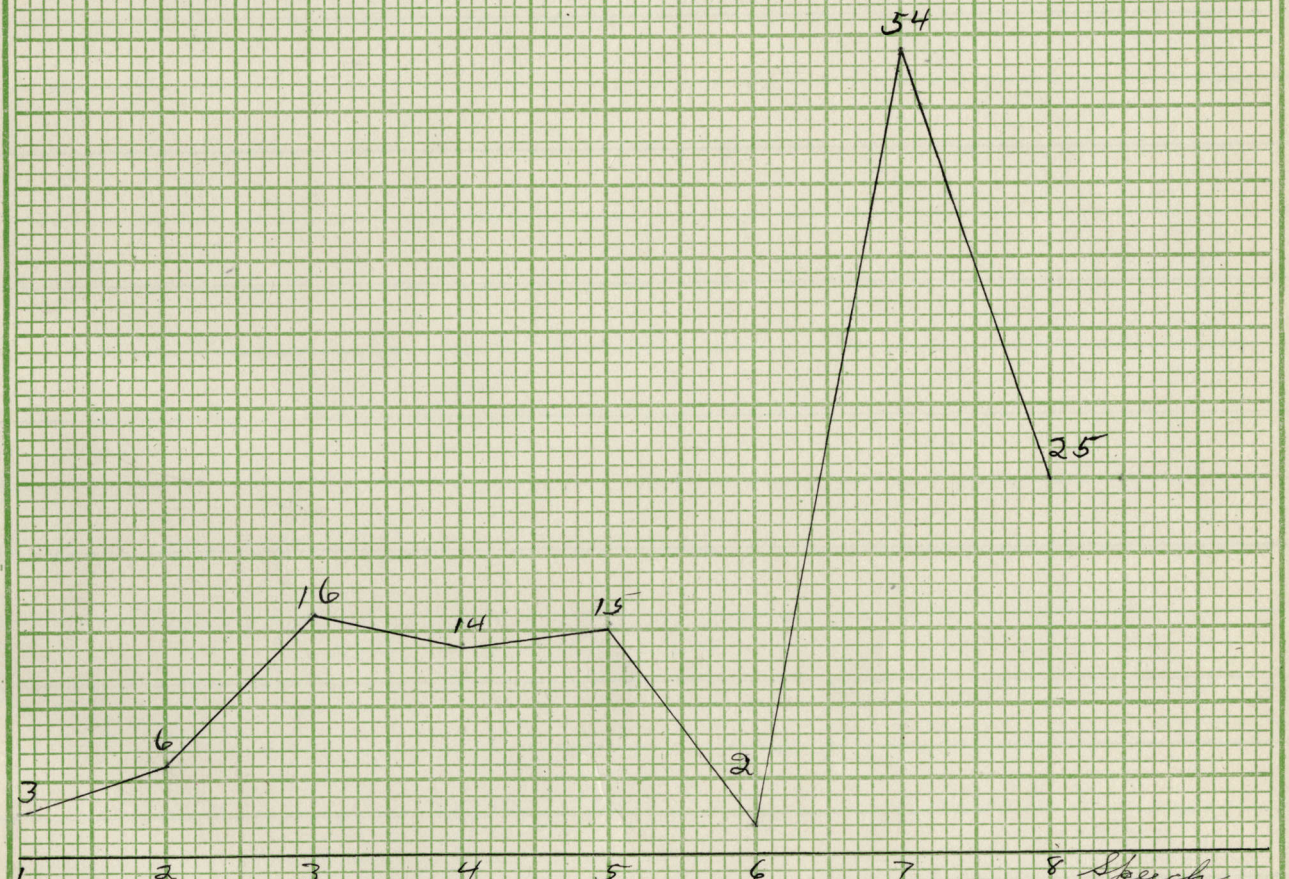
Original Speech # 8 ranked second

Graph # 24



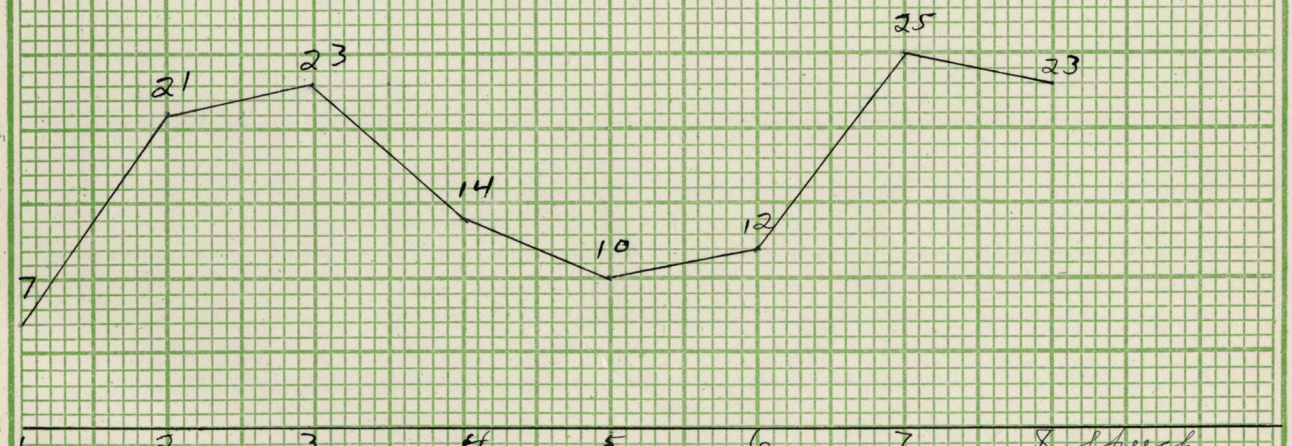
Original Speeches - Chart of Firsts

Graph # 25



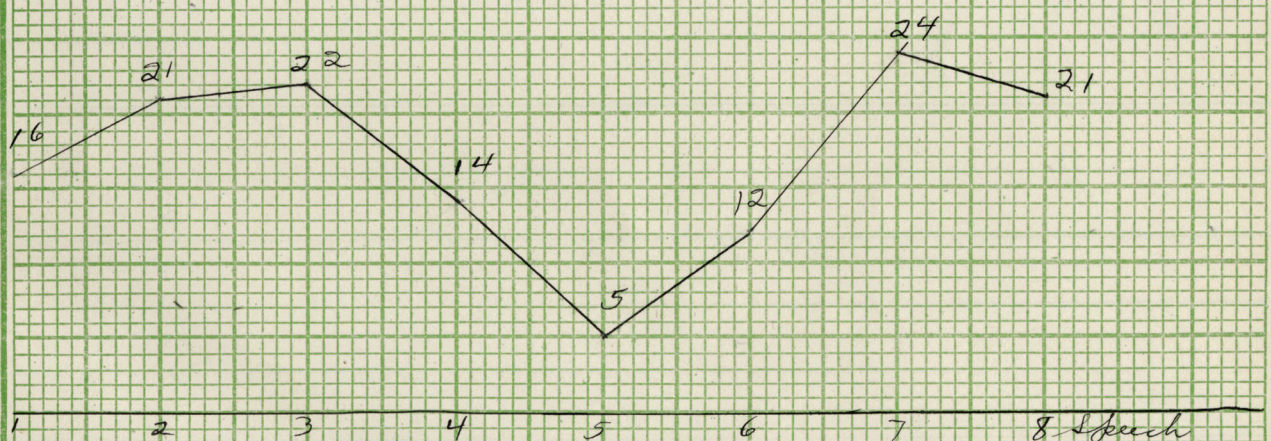
Original Speeches - Chart of Seconds

Graph # 26



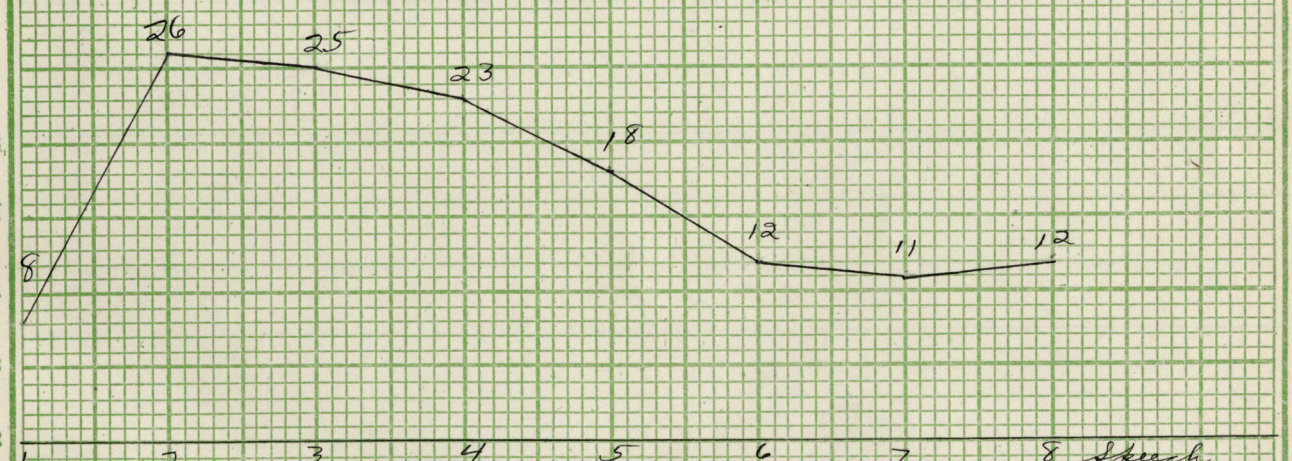
Original Speeches - Chart of Thirds

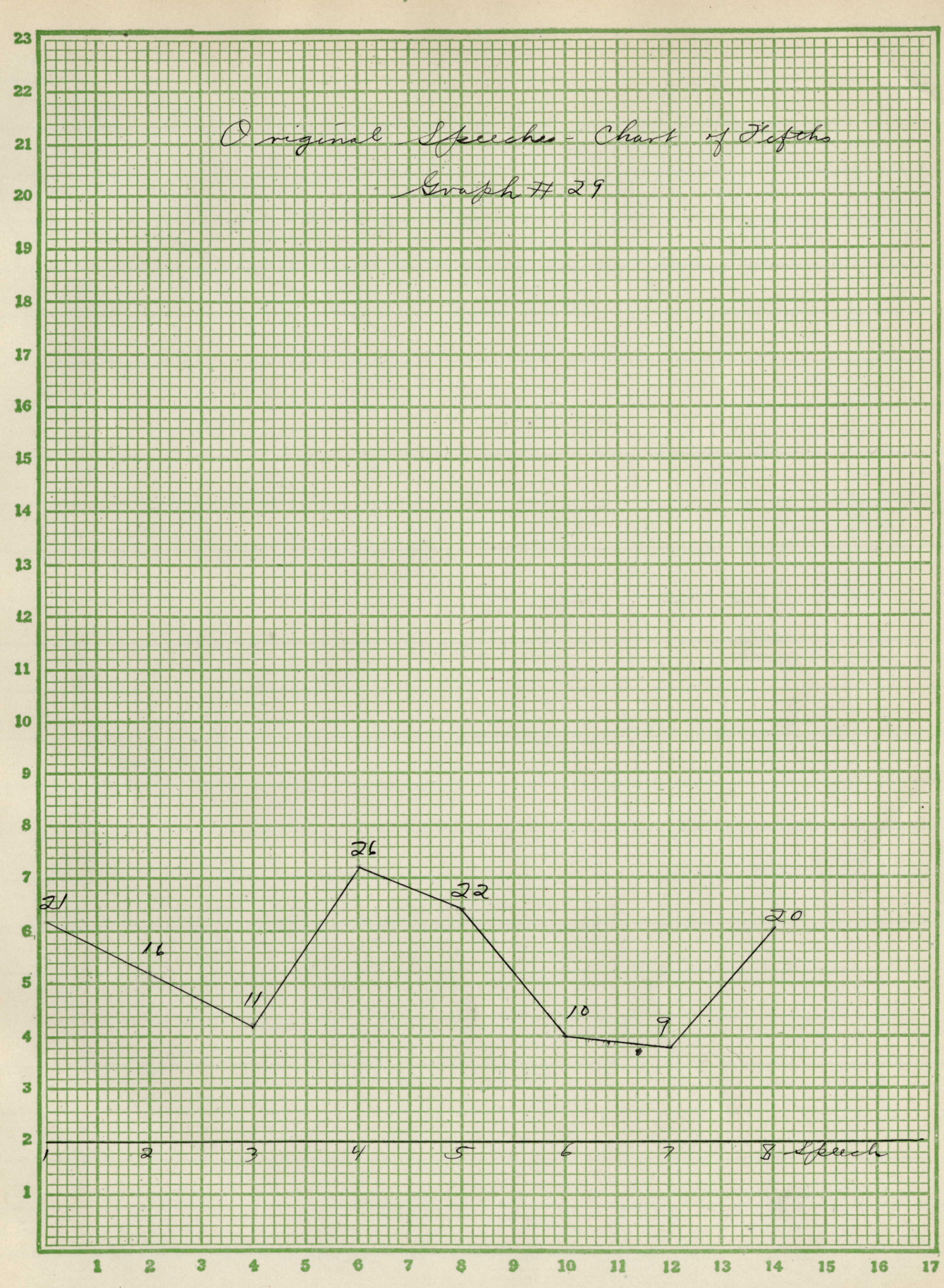
Graph # 27



Original Speeches - Chart of Fourths

Graph # 28



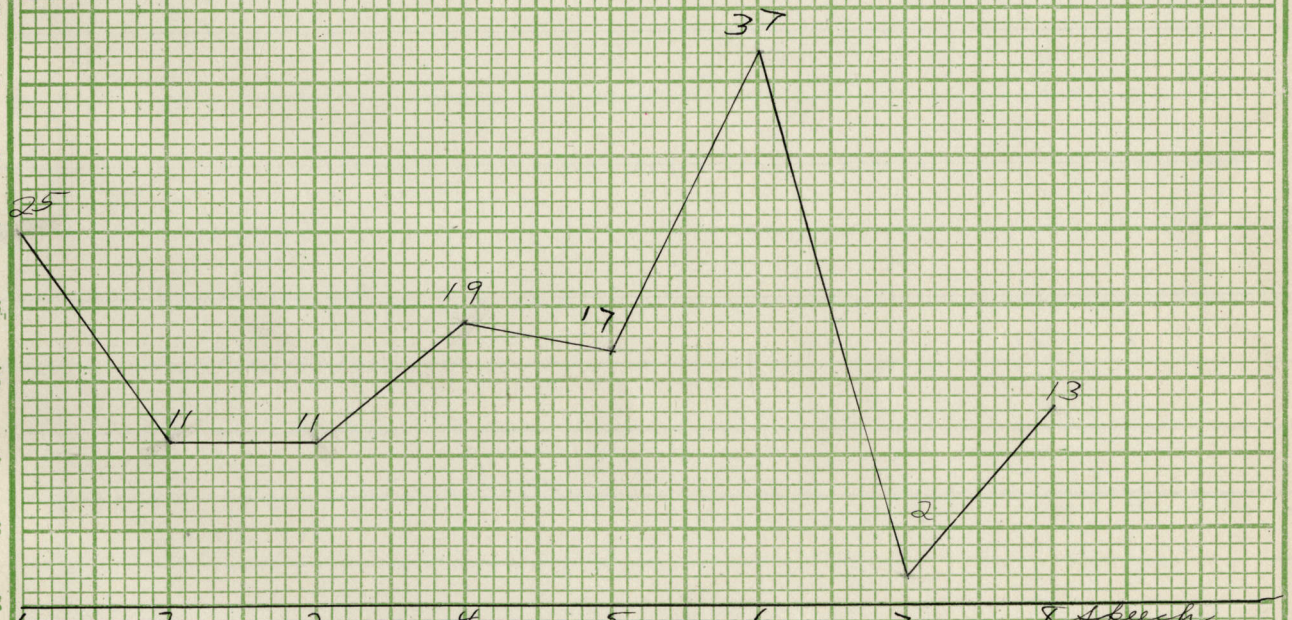

Original Speeches - Chart of Depths
Graph # 29
21
16
11
26
22
10
9
20
1 2 3 4 5 6 7 8 Speech
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

Original Speeches - Chart of Sipths

Graph # 30

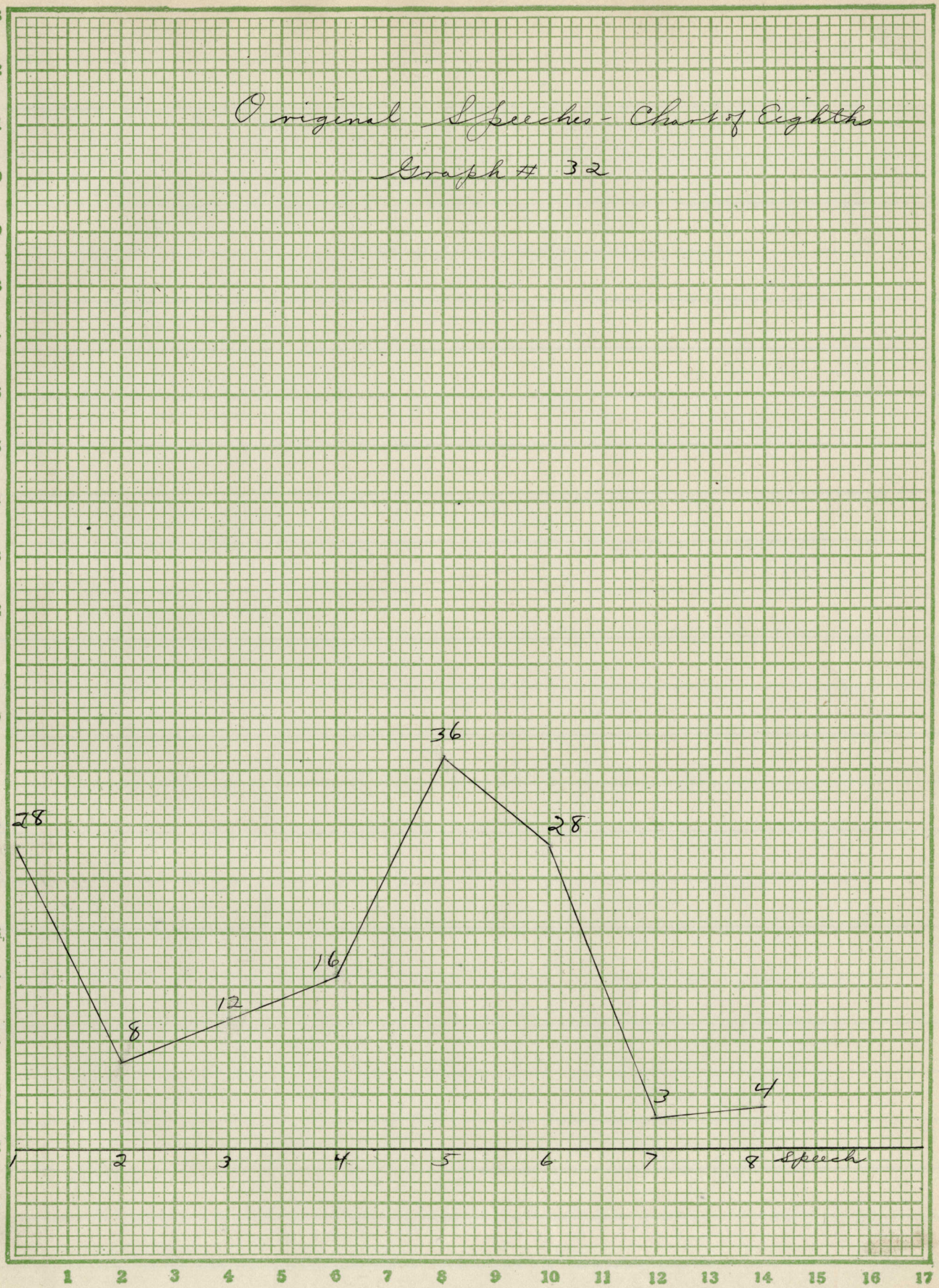
Original Speeches- Chart of Sevenths

Graph # 31



Original Speeches - Chart of Eighths

Graph # 32



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Secrist, Horace. An Introduction to Statistical Methods. MacMillan Company, New York. 1919.

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