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APPENDIXES

APPENDIX I

THE RETURN PERIOD

OF

THE OBSERVED FLOODS AND DROUGHTS

RETURN PERIOD OF ANNUAL OBSERVED FLOOD
 BY PLOTTING POSITIONS FORMULAS AND GUMBEL S FORMULA

STATION K4

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(15)
6000,0000	30,0000	60,0000	31,0000	43,4286	48,4000	45,5000	53,7857	185,3568
4330,0000	15,0000	20,0000	15,5000	17,8824	18,6154	18,2000	19,3077	21,6943
3416,0000	10,0000	12,0000	10,3333	11,2593	11,5238	11,3750	11,7656	6,9933
3160,0000	7,5000	8,5714	7,7500	8,2162	8,3448	8,2727	8,4607	5,1679
3065,0000	6,0000	6,6667	6,2000	6,4681	6,5405	6,5000	6,6053	4,6315
2889,0000	5,0000	5,4545	5,1667	5,3333	5,3778	5,3529	5,4173	3,7980
2799,0000	4,2857	4,6154	4,4286	4,5373	4,5660	4,5500	4,5915	3,4407
2735,0000	3,7500	4,0000	3,8750	3,9481	3,9672	3,9565	3,9841	3,2113
2666,0000	3,3333	3,5294	3,4444	3,4943	3,5072	3,5000	3,5187	2,9848
2627,0000	3,0000	3,1579	3,1000	3,1340	3,1429	3,1379	3,1506	2,8658
2614,0000	2,7273	2,8571	2,8182	2,8411	2,8471	2,8438	2,8523	2,8274
2580,0000	2,5000	2,6087	2,5833	2,5983	2,6022	2,6000	2,6055	2,7302
2442,0000	2,3077	2,4000	2,3846	2,3937	2,3960	2,3947	2,3981	2,3785
2392,0000	2,1429	2,2222	2,2143	2,2190	2,2202	2,2195	2,2212	2,2664
2360,0000	2,0000	2,0690	2,0667	2,0680	2,0684	2,0682	2,0687	2,1986
2336,0000	1,8750	1,9355	1,9375	1,9363	1,9360	1,9362	1,9357	2,1497
2240,0000	1,7647	1,8182	1,8235	1,8204	1,8195	1,8200	1,8188	1,9694
2142,0000	1,6667	1,7143	1,7222	1,7175	1,7163	1,7170	1,7153	1,8089
2104,0000	1,5789	1,6216	1,6316	1,6257	1,6242	1,6250	1,6228	1,7525
2097,0000	1,5000	1,5385	1,5500	1,5431	1,5414	1,5424	1,5399	1,7424
2057,0000	1,4286	1,4634	1,4762	1,4686	1,4667	1,4677	1,4650	1,6868
2040,0000	1,3636	1,3953	1,4091	1,4009	1,3988	1,4000	1,3970	1,6642
1964,0000	1,3043	1,3333	1,3478	1,3392	1,3370	1,3382	1,3351	1,5696
1797,0000	1,2500	1,2766	1,2917	1,2827	1,2804	1,2817	1,2784	1,3967
1640,0000	1,2000	1,2245	1,2400	1,2308	1,2284	1,2297	1,2264	1,2719
1609,0000	1,1538	1,1765	1,1923	1,1829	1,1805	1,1818	1,1784	1,2511
1434,0000	1,1111	1,1321	1,1481	1,1386	1,1362	1,1375	1,1340	1,1538
1076,0000	1,0714	1,0909	1,1071	1,0975	1,0950	1,0964	1,0929	1,0423
1051,0000	1,0345	1,0526	1,0690	1,0592	1,0568	1,0581	1,0546	1,0379
930,0000	1,0000	1,0169	1,0333	1,0236	1,0211	1,0225	1,0189	1,0212

STATION K6

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
2450.0000	21.0000	42.0000	22.0000	30.5714	34.0000	32.0000	37.7143	31.1071
2128.0000	10.5000	14.0000	11.0000	12.5882	13.0769	12.8000	13.5385	15.5596
2060.0000	7.0000	8.4000	7.3333	7.9259	8.0952	8.0000	8.2500	13.4660
1628.0000	5.2500	6.0000	5.5000	5.7838	5.8621	5.8182	5.9326	5.5207
1619.0000	4.2000	4.6667	4.4000	4.5532	4.5946	4.5714	4.6316	5.4228
1568.0000	3.5000	3.8182	3.6667	3.7544	3.7778	3.7647	3.7986	4.9037
1547.0000	3.0000	3.2308	3.1429	3.1940	3.2075	3.2000	3.2195	4.7061
1387.0000	2.6250	2.8000	2.7500	2.7792	2.7869	2.7826	2.7937	3.4712
1330.0000	2.3333	2.4706	2.4444	2.4598	2.4638	2.4615	2.4673	3.1278
950.0000	2.1000	2.2105	2.2000	2.2062	2.2078	2.2069	2.2092	1.6971
824.0000	1.9091	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.4473
809.0000	1.7500	1.8261	1.8333	1.8291	1.8280	1.8286	1.8270	1.4227
804.0000	1.6154	1.6800	1.6923	1.6850	1.6832	1.6842	1.6815	1.4147
779.0000	1.5000	1.5556	1.5714	1.5620	1.5596	1.5610	1.5575	1.3764
766.0000	1.4000	1.4483	1.4667	1.4558	1.4530	1.4545	1.4505	1.3575
762.0000	1.3125	1.3548	1.3750	1.3631	1.3600	1.3617	1.3573	1.3518
692.0000	1.2353	1.2727	1.2941	1.2814	1.2782	1.2800	1.2754	1.2625
600.0000	1.1667	1.2000	1.2222	1.2090	1.2057	1.2075	1.2027	1.1711
597.0000	1.1053	1.1351	1.1579	1.1444	1.1409	1.1429	1.1379	1.1686
583.0000	1.0500	1.0769	1.1000	1.0863	1.0828	1.0847	1.0798	1.1571
456.0000	1.0000	1.0244	1.0476	1.0338	1.0303	1.0323	1.0272	1.0768

STATION K9

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(15)
3060.0000	11.0000	22.0000	12.0000	16.2857	18.0000	17.0000	19.8571	29.2723
2286.0000	5.5000	7.3333	6.0000	6.7059	6.9231	6.8000	7.1282	5.5975
2157.0000	3.6667	4.4000	4.0000	4.2222	4.2857	4.2500	4.3438	4.3279
1996.0000	2.7500	3.1429	3.0000	3.0811	3.1034	3.0909	3.1236	3.1849
1982.0000	2.2000	2.4444	2.4000	2.4255	2.4324	2.4286	2.4386	3.1040
1790.0000	1.8333	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.2223
1584.0000	1.5714	1.6923	1.7143	1.7015	1.6981	1.7000	1.6951	1.6324
1576.0000	1.3750	1.4667	1.5000	1.4805	1.4754	1.4783	1.4709	1.6150
1354.0000	1.2222	1.2941	1.3333	1.3103	1.3043	1.3077	1.2991	1.2570
1135.0000	1.1000	1.1579	1.2000	1.1753	1.1688	1.1724	1.1632	1.0809
1078.0000	1.0000	1.0476	1.0909	1.0654	1.0588	1.0625	1.0530	1.0555

STATION K10

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(15)
3026.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	17.7718
2354.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	4.9869
2233.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	4.0267
1859.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	2.2010
1775.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	1.9534
1668.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.6974
1165.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.0948
1094.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0632

STATION K 11

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
2983.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	12.3216
2822.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	8.8164
2293.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	3.1419
2195.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	2.6456
2034.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	2.0366
1805.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.4882
1476.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.1127
1339.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0476

STATION K 12

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
43.0000	4.0000	8.0000	5.0000	6.2857	6.8000	6.5000	7.3571	12.4670
17.0000	2.0000	2.6667	2.5000	2.5882	2.6154	2.6000	2.6410	1.7645
14.0000	1.3333	1.6000	1.6667	1.6296	1.6190	1.6250	1.6094	1.5058
12.0000	1.0000	1.1429	1.2500	1.1892	1.1724	1.1818	1.1573	1.3734

STATION K 13

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
2983.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	11.2671
2808.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	8.7569
2177.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	3.6865
1877.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	2.5444
1765.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	2.2385
1096.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.2418
1073.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.2250
619.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0353

STATION K17

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
319.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	16.5777
208.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	4.0613
148.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	2.1142
122.0000	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.6702
90.0000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.3219
59.0000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.1310

STATION K19

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
1550.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	27.9916
814.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	2.6356
752.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	2.2367
648.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.7433
620.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.6409
553.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.4383
435.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.1992

STATION K20

FLOOD (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (15)
1350.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	19.6502
989.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	5.2208
749.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	2.3945
614.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.6693
591.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.5825
470.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.2530
412.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.1557

RETURN PERIOD OF ANNUAL AND MONTHLY OBSERVED DROUGHT
BY PLOTTING POSITIONS FORMULAS AND GUMBEL S FORMULA

STATION K4

ANNUAL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
6.0000	29.0000	58.0000	30.0000	42.0000	46.8000	44.0000	52.0000	16.5818
18.0000	14.5000	19.3333	15.0000	17.2941	18.0000	17.6000	18.6667	5.7761
27.0000	9.6667	11.6000	10.0000	10.8889	11.1429	11.0000	11.3750	2.8124
29.0000	7.2500	8.2857	7.5000	7.9459	8.0690	8.0000	8.1798	2.4331
29.0000	5.8000	6.4444	6.0000	6.2553	6.3243	6.2857	6.3860	2.4331
29.0000	4.8333	5.2727	5.0000	5.1579	5.2000	5.1765	5.2374	2.4331
29.0000	4.1429	4.4615	4.2857	4.3881	4.4151	4.4000	4.4390	2.4331
31.0000	3.6250	3.8667	3.7500	3.8182	3.8361	3.8261	3.8519	2.1211
34.0000	3.2222	3.4118	3.3333	3.3793	3.3913	3.3846	3.4019	1.7556
34.0000	2.9000	3.0526	3.0000	3.0309	3.0390	3.0345	3.0460	1.7556
37.0000	2.6364	2.7619	2.7273	2.7477	2.7529	2.7500	2.7576	1.4882
38.0000	2.4167	2.5217	2.5000	2.5128	2.5161	2.5143	2.5190	1.4169
40.0000	2.2308	2.3200	2.3077	2.3150	2.3168	2.3158	2.3185	1.2971
43.0000	2.0714	2.1481	2.1429	2.1460	2.1468	2.1463	2.1475	1.1662
45.0000	1.9333	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.1057
45.0000	1.8125	1.8710	1.8750	1.8726	1.8720	1.8723	1.8715	1.1057
47.0000	1.7059	1.7576	1.7647	1.7605	1.7594	1.7600	1.7585	1.0629
47.0000	1.6111	1.6571	1.6667	1.6610	1.6596	1.6604	1.6583	1.0629
50.0000	1.5263	1.5676	1.5789	1.5722	1.5705	1.5714	1.5690	1.0244
51.0000	1.4500	1.4872	1.5000	1.4924	1.4904	1.4915	1.4888	1.0168
52.0000	1.3810	1.4146	1.4286	1.4203	1.4182	1.4194	1.4163	1.0112
53.0000	1.3182	1.3488	1.3636	1.3548	1.3526	1.3538	1.3506	1.0072
53.0000	1.2609	1.2889	1.3043	1.2952	1.2928	1.2941	1.2908	1.0072
55.0000	1.2083	1.2340	1.2500	1.2405	1.2381	1.2394	1.2360	1.0026
57.0000	1.1600	1.1837	1.2000	1.1903	1.1878	1.1892	1.1857	1.0008
59.0000	1.1154	1.1373	1.1538	1.1440	1.1415	1.1429	1.1393	1.0002
60.0000	1.0741	1.0943	1.1111	1.1011	1.0986	1.1000	1.0964	1.0001
60.0000	1.0357	1.0545	1.0714	1.0614	1.0588	1.0602	1.0566	1.0001
61.0000	1.0000	1.0175	1.0345	1.0244	1.0218	1.0233	1.0196	1.0000

APRIL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
23,0000	22,0000	44,0000	23,0000	32,0000	35,6000	33,5000	39,5000	6,9276
29,0000	11,0000	14,6667	11,5000	13,1765	13,6923	13,4000	14,1795	4,4678
36,0000	7,3333	8,8000	7,6667	8,2963	8,4762	8,3750	8,6406	2,7766
40,0000	5,5000	6,2857	5,7500	6,0541	6,1379	6,0909	6,2135	2,1712
43,0000	4,4000	4,8889	4,6000	4,7660	4,8108	4,7857	4,8509	1,8357
45,0000	3,6667	4,0000	3,8333	3,9298	3,9556	3,9412	3,9784	1,6569
46,0000	3,1429	3,3846	3,2857	3,3433	3,3585	3,3500	3,3720	1,5790
47,0000	2,7500	2,9333	2,8750	2,9091	2,9180	2,9130	2,9259	1,5082
47,0000	2,4444	2,5882	2,5556	2,5747	2,5797	2,5769	2,5841	1,5082
49,0000	2,2000	2,3158	2,3000	2,3093	2,3117	2,3103	2,3138	1,3857
50,0000	2,0000	2,0952	2,0909	2,0935	2,0941	2,0938	2,0947	1,3331
51,0000	1,8333	1,9130	1,9167	1,9145	1,9140	1,9143	1,9135	1,2858
55,0000	1,6923	1,7600	1,7692	1,7638	1,7624	1,7632	1,7611	1,1430
55,0000	1,5714	1,6296	1,6429	1,6350	1,6330	1,6341	1,6313	1,1430
60,0000	1,4667	1,5172	1,5333	1,5238	1,5214	1,5227	1,5192	1,0464
60,0000	1,3750	1,4194	1,4375	1,4268	1,4240	1,4255	1,4216	1,0464
61,0000	1,2941	1,3333	1,3529	1,3413	1,3383	1,3400	1,3357	1,0353
63,0000	1,2222	1,2571	1,2778	1,2655	1,2624	1,2642	1,2597	1,0192
68,0000	1,1579	1,1892	1,2105	1,1979	1,1946	1,1964	1,1918	1,0026
71,0000	1,1000	1,1282	1,1500	1,1371	1,1338	1,1356	1,1309	1,0005
74,0000	1,0476	1,0732	1,0952	1,0821	1,0788	1,0806	1,0759	1,0001
95,0000	1,0000	1,0233	1,0455	1,0323	1,0289	1,0308	1,0260	1,0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
73,0000	23,0000	46,0000	24,0000	33,4286	37,2000	35,0000	41,2857	8,2203
88,0000	11,5000	15,3333	12,0000	13,7647	14,3077	14,0000	14,8205	4,8984
94,0000	7,6667	9,2000	8,0000	8,6667	8,8571	8,7500	9,0313	4,0164
111,0000	5,7500	6,5714	6,0000	6,3243	6,4138	6,3636	6,4944	2,3849
118,0000	4,6000	5,1111	4,8000	4,9787	5,0270	5,0000	5,0702	1,9715
119,0000	3,8333	4,1818	4,0000	4,1053	4,1333	4,1176	4,1583	1,9214
120,0000	3,2857	3,5385	3,4286	3,4925	3,5094	3,5000	3,5244	1,8734
128,0000	2,8750	3,0667	3,0000	3,0390	3,0492	3,0435	3,0582	1,5537
132,0000	2,5556	2,7059	2,6667	2,6897	2,6957	2,6923	2,7009	1,4312
142,0000	2,3000	2,4211	2,4000	2,4124	2,4156	2,4138	2,4184	1,2105
142,0000	2,0909	2,1905	2,1818	2,1869	2,1882	2,1875	2,1894	1,2105
142,0000	1,9167	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	1,2105
143,0000	1,7692	1,8400	1,8462	1,8425	1,8416	1,8421	1,8408	1,1942
146,0000	1,6429	1,7037	1,7143	1,7080	1,7064	1,7073	1,7050	1,1505
149,0000	1,5333	1,5862	1,6000	1,5918	1,5897	1,5909	1,5879	1,1143
161,0000	1,4375	1,4839	1,5000	1,4904	1,4880	1,4894	1,4859	1,0287
162,0000	1,3529	1,3939	1,4118	1,4012	1,3985	1,4000	1,3961	1,0249
173,0000	1,2778	1,3143	1,3333	1,3220	1,3191	1,3208	1,3166	1,0036
176,0000	1,2105	1,2432	1,2632	1,2513	1,2483	1,2500	1,2457	1,0018
176,0000	1,1500	1,1795	1,2000	1,1878	1,1847	1,1864	1,1820	1,0018
179,0000	1,0952	1,1220	1,1429	1,1304	1,1273	1,1290	1,1245	1,0009
195,0000	1,0455	1,0698	1,0909	1,0783	1,0751	1,0769	1,0724	1,0000
208,0000	1,0000	1,0222	1,0435	1,0308	1,0276	1,0294	1,0248	1,0000

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
32.0000	23.0000	46.0000	24.0000	33.4286	37.2000	35.0000	41.2857	8.8220
37.0000	11.5000	15.3333	12.0000	13.7647	14.3077	14.0000	14.8205	6.6362
46.0000	7.6667	9.2000	8.0000	8.6667	8.8571	8.7500	9.0313	4.0555
64.0000	5.7500	6.5714	6.0000	6.3243	6.4138	6.3636	6.4944	1.7455
64.0000	4.6000	5.1111	4.8000	4.9787	5.0270	5.0000	5.0702	1.7455
66.0000	3.8333	4.1818	4.0000	4.1053	4.1333	4.1176	4.1583	1.6191
68.0000	3.2857	3.5385	3.4286	3.4925	3.5094	3.5000	3.5244	1.5093
70.0000	2.8750	3.0667	3.0000	3.0390	3.0492	3.0435	3.0582	1.4144
70.0000	2.5556	2.7059	2.6667	2.6897	2.6957	2.6923	2.7009	1.4144
71.0000	2.3000	2.4211	2.4000	2.4124	2.4156	2.4138	2.4184	1.3720
72.0000	2.0909	2.1905	2.1818	2.1869	2.1882	2.1875	2.1894	1.3329
75.0000	1.9167	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.2329
77.0000	1.7692	1.8400	1.8462	1.8425	1.8416	1.8421	1.8408	1.1794
78.0000	1.6429	1.7037	1.7143	1.7080	1.7064	1.7073	1.7050	1.1562
79.0000	1.5333	1.5862	1.6000	1.5918	1.5897	1.5909	1.5879	1.1351
83.0000	1.4375	1.4839	1.5000	1.4904	1.4880	1.4894	1.4859	1.0707
84.0000	1.3529	1.3939	1.4118	1.4012	1.3985	1.4000	1.3961	1.0589
91.0000	1.2778	1.3143	1.3333	1.3220	1.3191	1.3208	1.3166	1.0120
92.0000	1.2105	1.2432	1.2632	1.2513	1.2483	1.2500	1.2457	1.0091
99.0000	1.1500	1.1795	1.2000	1.1878	1.1847	1.1864	1.1820	1.0007
107.0000	1.0952	1.1220	1.1429	1.1304	1.1273	1.1290	1.1245	1.0000
112.0000	1.0455	1.0698	1.0909	1.0783	1.0751	1.0769	1.0724	1.0000
113.0000	1.0000	1.0222	1.0435	1.0308	1.0276	1.0294	1.0248	1.0000

STATION K6

ANNUAL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
8,0000	21,0000	42,0000	22,0000	30,5714	34,0000	32,0000	37,7143	8,4167
10,0000	10,5000	14,0000	11,0000	12,5882	13,0769	12,8000	13,5385	4,9651
12,0000	7,0000	8,4000	7,3333	7,9259	8,0952	8,0000	8,2500	3,0339
13,0000	5,2500	6,0000	5,5000	5,7838	5,8621	5,8182	5,9326	2,4195
14,0000	4,2000	4,6667	4,4000	4,5532	4,5946	4,5714	4,6316	1,9651
15,0000	3,5000	3,8182	3,6667	3,7544	3,7778	3,7647	3,7986	1,6325
15,0000	3,0000	3,2308	3,1429	3,1940	3,2075	3,2000	3,2195	1,6325
16,0000	2,6250	2,8000	2,7500	2,7792	2,7869	2,7826	2,7937	1,3936
17,0000	2,3333	2,4706	2,4444	2,4598	2,4638	2,4615	2,4673	1,2274
17,0000	2,1000	2,2105	2,2000	2,2062	2,2078	2,2069	2,2092	1,2274
17,0000	1,9091	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	1,2274
18,0000	1,7500	1,8261	1,8333	1,8291	1,8280	1,8286	1,8270	1,1180
18,0000	1,6154	1,6800	1,6923	1,6850	1,6832	1,6842	1,6815	1,1180
19,0000	1,5000	1,5556	1,5714	1,5620	1,5596	1,5610	1,5575	1,0525
19,0000	1,4000	1,4483	1,4667	1,4558	1,4530	1,4545	1,4505	1,0525
20,0000	1,3125	1,3548	1,3750	1,3631	1,3600	1,3617	1,3573	1,0187
20,0000	1,2353	1,2727	1,2941	1,2814	1,2782	1,2800	1,2754	1,0187
21,0000	1,1667	1,2000	1,2222	1,2090	1,2057	1,2075	1,2027	1,0049
21,0000	1,1053	1,1351	1,1579	1,1444	1,1409	1,1429	1,1379	1,0049
24,0000	1,0500	1,0769	1,1000	1,0863	1,0828	1,0847	1,0798	1,0000
27,0000	1,0000	1,0244	1,0476	1,0338	1,0303	1,0323	1,0272	1,0000

APRIL

DROUGHT
(CMS)

RETURN PERIOD, YEARS

	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
10.0000	21.0000	42.0000	22.0000	30,5714	34.0000	32.0000	37.7143	5,9741
10.0000	10,5000	14.0000	11.0000	12,5882	13.0769	12,8000	13.5385	5,9741
14.0000	7,0000	8.4000	7.3333	7,9259	8.0952	8,0000	8.2500	2,7355
15.0000	5,2500	6.0000	5.5000	5,7838	5.8621	5,8182	5.9326	2,2980
17.0000	4,2000	4.6667	4.4000	4,5532	4.5946	4,5714	4.6316	1,6848
17.0000	3,5000	3,8182	3.6667	3,7544	3.7778	3,7647	3.7986	1,6848
18.0000	3,0000	3,2308	3.1429	3,1940	3.2075	3,2000	3.2195	1,4771
18.0000	2,6250	2.8000	2.7500	2,7792	2.7869	2,7826	2.7937	1,4771
19.0000	2,3333	2.4706	2.4444	2,4598	2.4638	2,4615	2.4673	1,3193
19.0000	2,1000	2.2105	2.2000	2,2062	2.2078	2,2069	2.2092	1,3193
20.0000	1,9091	2.0000	2.0000	2,0000	2.0000	2,0000	2.0000	1,2026
20.0000	1,7500	1.8261	1.8333	1,8291	1.8280	1,8286	1.8270	1,2026
21.0000	1,6154	1.6800	1.6923	1,6850	1.6832	1,6842	1.6815	1,1197
22.0000	1,5000	1.5556	1.5714	1,5620	1.5596	1,5610	1.5575	1,0643
22.0000	1,4000	1.4483	1.4667	1,4558	1.4530	1,4545	1.4505	1,0643
22.0000	1,3125	1.3548	1.3750	1,3631	1.3600	1,3617	1.3573	1,0643
22.0000	1,2353	1.2727	1.2941	1,2814	1.2782	1,2800	1.2754	1,0643
24.0000	1,1667	1.2000	1.2222	1,2090	1.2057	1,2075	1.2027	1,0121
27.0000	1,1053	1.1351	1.1579	1,1444	1.1409	1,1429	1.1379	1,0002
31.0000	1,0500	1.0769	1.1000	1,0863	1.0828	1,0847	1.0798	1,0000
32.0000	1,0000	1.0244	1.0476	1,0338	1.0303	1,0323	1.0272	1,0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
34,0000	21,0000	42,0000	22,0000	30,5714	34,0000	32,0000	37,7143	3,6215
44,0000	10,5000	14,0000	11,0000	12,5882	13,0769	12,8000	13,5385	2,0163
44,0000	7,0000	8,4000	7,3333	7,9259	8,0952	8,0000	8,2500	2,0163
45,0000	5,2500	6,0000	5,5000	5,7838	5,8621	5,8182	5,9326	1,9150
46,0000	4,2000	4,6667	4,4000	4,5532	4,5946	4,5714	4,6316	1,8216
47,0000	3,5000	3,8182	3,6667	3,7544	3,7778	3,7647	3,7986	1,7357
48,0000	3,0000	3,2308	3,1429	3,1940	3,2075	3,2000	3,2195	1,6567
48,0000	2,6250	2,8000	2,7500	2,7792	2,7869	2,7826	2,7937	1,6567
48,0000	2,3333	2,4706	2,4444	2,4598	2,4638	2,4615	2,4673	1,6567
49,0000	2,1000	2,2105	2,2000	2,2062	2,2078	2,2069	2,2092	1,5843
50,0000	1,9091	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	1,5179
53,0000	1,7500	1,8261	1,8333	1,8291	1,8280	1,8286	1,8270	1,3513
57,0000	1,6154	1,6800	1,6923	1,6850	1,6832	1,6842	1,6815	1,1934
59,0000	1,5000	1,5556	1,5714	1,5620	1,5596	1,5610	1,5575	1,1372
60,0000	1,4000	1,4483	1,4667	1,4558	1,4530	1,4545	1,4505	1,1140
61,0000	1,3125	1,3548	1,3750	1,3631	1,3600	1,3617	1,3573	1,0936
67,0000	1,2353	1,2727	1,2941	1,2814	1,2782	1,2800	1,2754	1,0216
67,0000	1,1667	1,2000	1,2222	1,2090	1,2057	1,2075	1,2027	1,0216
68,0000	1,1053	1,1351	1,1579	1,1444	1,1409	1,1429	1,1379	1,0159
82,0000	1,0500	1,0769	1,1000	1,0863	1,0828	1,0847	1,0798	1,0000
114,0000	1,0000	1,0244	1,0476	1,0338	1,0303	1,0323	1,0272	1,0000

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
18,0000	20,0000	40,0000	21,0000	29,1429	32,4000	30,5000	35,9286	3,6482
22,0000	10,0000	13,3333	10,5000	12,0000	12,4615	12,2000	12,8974	2,1499
22,0000	6,6667	8,0000	7,0000	7,5556	7,7143	7,6250	7,8594	2,1499
22,0000	5,0000	5,7143	5,2500	5,5135	5,5862	5,5455	5,6517	2,1499
23,0000	4,0000	4,4444	4,2000	4,3404	4,3784	4,3571	4,4123	1,9129
23,0000	3,3333	3,6364	3,5000	3,5789	3,6000	3,5882	3,6187	1,9129
24,0000	2,8571	3,0769	3,0000	3,0448	3,0566	3,0500	3,0671	1,7155
24,0000	2,5000	2,6667	2,6250	2,6494	2,6557	2,6522	2,6614	1,7155
24,0000	2,2222	2,3529	2,3333	2,3448	2,3478	2,3462	2,3505	1,7155
26,0000	2,0000	2,1053	2,1000	2,1031	2,1039	2,1034	2,1046	1,4176
26,0000	1,8182	1,9048	1,9091	1,9065	1,9059	1,9063	1,9053	1,4176
28,0000	1,6667	1,7391	1,7500	1,7436	1,7419	1,7429	1,7405	1,2213
29,0000	1,5385	1,6000	1,6154	1,6063	1,6040	1,6053	1,6019	1,1531
29,0000	1,4286	1,4815	1,5000	1,4891	1,4862	1,4878	1,4838	1,1531
31,0000	1,3333	1,3793	1,4000	1,3878	1,3846	1,3864	1,3819	1,0632
31,0000	1,2500	1,2903	1,3125	1,2994	1,2960	1,2979	1,2931	1,0632
35,0000	1,1765	1,2121	1,2353	1,2216	1,2180	1,2200	1,2150	1,0041
37,0000	1,1111	1,1429	1,1667	1,1525	1,1489	1,1509	1,1458	1,0005
41,0000	1,0526	1,0811	1,1053	1,0909	1,0872	1,0893	1,0841	1,0000
50,0000	1,0000	1,0256	1,0500	1,0355	1,0318	1,0339	1,0286	1,0000

STATION K9

ANNUAL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
8,7000	11,0000	22,0000	12,0000	16,2857	18,0000	17,0000	19,8571	3,2827
9,6000	5,5000	7,3333	6,0000	6,7059	6,9231	6,8000	7,1282	2,4294
10,0000	3,6667	4,4000	4,0000	4,2222	4,2857	4,2500	4,3438	2,1456
11,0000	2,7500	3,1429	3,0000	3,0811	3,1034	3,0909	3,1236	1,6252
12,0000	2,2000	2,4444	2,4000	2,4255	2,4324	2,4286	2,4386	1,3047
12,0000	1,8333	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	1,3047
12,0000	1,5714	1,6923	1,7143	1,7015	1,6981	1,7000	1,6951	1,3047
13,0000	1,3750	1,4667	1,5000	1,4805	1,4754	1,4783	1,4709	1,1226
13,0000	1,2222	1,2941	1,3333	1,3103	1,3043	1,3077	1,2991	1,1226
18,0000	1,1000	1,1579	1,2000	1,1753	1,1688	1,1724	1,1632	1,0000
18,0000	1,0000	1,0476	1,0909	1,0654	1,0588	1,0625	1,0530	1,0000

APRIL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
8,7000	10,0000	20,0000	11,0000	14,8571	16,4000	15,5000	18,0714	7,4771
12,0000	5,0000	6,6667	5,5000	6,1176	6,3077	6,2000	6,4872	1,7032
13,0000	3,3333	4,0000	3,6667	3,8519	3,9048	3,8750	3,9531	1,2747
13,0000	2,5000	2,8571	2,7500	2,8108	2,8276	2,8182	2,8427	1,2747
13,0000	2,0000	2,2222	2,2000	2,2128	2,2162	2,2143	2,2193	1,2747
13,0000	1,6667	1,8182	1,8333	1,8246	1,8222	1,8235	1,8201	1,2747
13,0000	1,4286	1,5385	1,5714	1,5522	1,5472	1,5500	1,5427	1,2747
14,0000	1,2500	1,3333	1,3750	1,3506	1,3443	1,3478	1,3386	1,0750
15,0000	1,1111	1,1765	1,2222	1,1954	1,1884	1,1923	1,1822	1,0099
18,0000	1,0000	1,0526	1,1000	1,0722	1,0649	1,0690	1,0586	1,0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
27,0000	11,0000	22,0000	12,0000	16,2857	18,0000	17,0000	19,8571	3,4890
29,0000	5,5000	7,3333	6,0000	6,7059	6,9231	6,8000	7,1282	2,8407
34,0000	3,6667	4,4000	4,0000	4,2222	4,2857	4,2500	4,3438	1,7989
35,0000	2,7500	3,1429	3,0000	3,0811	3,1034	3,0909	3,1236	1,6625
37,0000	2,2000	2,4444	2,4000	2,4255	2,4324	2,4286	2,4386	1,4423
37,0000	1,8333	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	1,4423
39,0000	1,5714	1,6923	1,7143	1,7015	1,6981	1,7000	1,6951	1,2805
45,0000	1,3750	1,4667	1,5000	1,4805	1,4754	1,4783	1,4709	1,0416
47,0000	1,2222	1,2941	1,3333	1,3103	1,3043	1,3077	1,2991	1,0162
51,0000	1,1000	1,1579	1,2000	1,1753	1,1688	1,1724	1,1632	1,0011
62,0000	1,0000	1,0476	1,0909	1,0654	1,0588	1,0625	1,0530	1,0000

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
16,0000	10,0000	20,0000	11,0000	14,8571	16,4000	15,5000	18,0714	3,4009
17,0000	5,0000	6,6667	5,5000	6,1176	6,3077	6,2000	6,4872	2,6500
18,0000	3,3333	4,0000	3,6667	3,8519	3,9048	3,8750	3,9531	2,1046
19,0000	2,5000	2,8571	2,7500	2,8108	2,8276	2,8182	2,8427	1,7123
19,0000	2,0000	2,2222	2,2000	2,2128	2,2162	2,2143	2,2193	1,7123
21,0000	1,6667	1,8182	1,8333	1,8246	1,8222	1,8235	1,8201	1,2455
24,0000	1,4286	1,5385	1,5714	1,5522	1,5472	1,5500	1,5427	1,0170
25,0000	1,2500	1,3333	1,3750	1,3506	1,3443	1,3478	1,3386	1,0038
26,0000	1,1111	1,1765	1,2222	1,1954	1,1884	1,1923	1,1822	1,0005
28,0000	1,0000	1,0526	1,1000	1,0722	1,0649	1,0690	1,0586	1,0000

STATION K 10

ANNUAL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
10.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	2.3542
10.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	2.3542
11.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	1.8432
11.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	1.8432
12.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	1.4946
16.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.0121
18.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.0001
19.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0000

APRIL:

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
11.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	2.6305
11.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	2.6305
12.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	1.9746
13.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	1.5446
14.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	1.2732
16.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.0362
19.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.0000
19.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
35.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	2.8407
38.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	2.1141
39.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	1.9312
43.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	1.4153
46.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	1.1956
48.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.1058
52.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.0197
66.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0000

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
15.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	4.0420
16.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	3.2785
22.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.2523
24.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.0780
25.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.0359
26.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0137
29.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0001

STATION K II

ANNUAL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
27,0000	8,0000	16,0000	9,0000	12,0000	13,2000	12,5000	14,5000	2,8153
30,0000	4,0000	5,3333	4,5000	4,9412	5,0769	5,0000	5,2051	2,2926
32,0000	2,6667	3,2000	3,0000	3,1111	3,1429	3,1250	3,1719	2,0173
41,0000	2,0000	2,2857	2,2500	2,2703	2,2759	2,2727	2,2809	1,2748
43,0000	1,6000	1,7778	1,8000	1,7872	1,7838	1,7857	1,7807	1,1931
44,0000	1,3333	1,4545	1,5000	1,4737	1,4667	1,4706	1,4604	1,1583
54,0000	1,1429	1,2308	1,2857	1,2537	1,2453	1,2500	1,2378	1,0079
71,0000	1,0000	1,0667	1,1250	1,0909	1,0820	1,0870	1,0741	1,0000

APRIL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
27,0000	8,0000	16,0000	9,0000	12,0000	13,2000	12,5000	14,5000	2,8793
34,0000	4,0000	5,3333	4,5000	4,9412	5,0769	5,0000	5,2051	1,9709
35,0000	2,6667	3,2000	3,0000	3,1111	3,1429	3,1250	3,1719	1,8767
42,0000	2,0000	2,2857	2,2500	2,2703	2,2759	2,2727	2,2809	1,3943
43,0000	1,6000	1,7778	1,8000	1,7872	1,7838	1,7857	1,7807	1,3463
46,0000	1,3333	1,4545	1,5000	1,4737	1,4667	1,4706	1,4604	1,2271
69,0000	1,1429	1,2308	1,2857	1,2537	1,2453	1,2500	1,2378	1,0001
78,0000	1,0000	1,0667	1,1250	1,0909	1,0820	1,0870	1,0741	1,0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
81.0000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	3.1067
89.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	2.5018
114.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	1.4324
117.0000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	1.3611
118.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	1.3393
125.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.2120
169.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.0004
192.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0000

FERRJARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
39.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	4.1559
53.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	1.9530
62.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.3604
64.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.2788
67.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.1821
83.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0037
96.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0000

STATION K12

ANNUAL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
0.0000	4.0000	8.0000	5.0000	6.2857	6.8000	6.5000	7.3571	2.3823
0.0320	2.0000	2.6667	2.5000	2.5882	2.6154	2.6000	2.6410	1.7763
0.1100	1.3333	1.6000	1.6667	1.6296	1.6190	1.6250	1.6094	1.1115
0.2200	1.0000	1.1429	1.2500	1.1892	1.1724	1.1818	1.1573	1.0001

APRIL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.0400	3,0000	6,0000	4,0000	4,8571	5,2000	5,0000	5,5714	2,0733
0.0800	1,5000	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000	1,4751
0.2200	1,0000	1,2000	1,3333	1,2593	1,2381	1,2500	1,2188	1,0005

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.0400	4,0000	8,0000	5,0000	6,2857	6,8000	6,5000	7,3571	2,7114
0.1600	2,0000	2,6667	2,5000	2,5882	2,6154	2,6000	2,6410	1,7600
0.4400	1,3333	1,6000	1,6667	1,6296	1,6190	1,6250	1,6094	1,0339
0.6000	1,0000	1,1429	1,2500	1,1892	1,1724	1,1818	1,1573	1,0005

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.0200	4,0000	8,0000	5,0000	6,2857	6,8000	6,5000	7,3571	2,0304
0.0480	2,0000	2,6667	2,5000	2,5882	2,6154	2,6000	2,6410	1,7902
0.1500	1,3333	1,6000	1,6667	1,6296	1,6190	1,6250	1,6094	1,2478
0.4400	1,0000	1,1429	1,2500	1,1892	1,1724	1,1818	1,1573	1,0000

STATION K 13

ANNUAL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
5.6000	8.0000	16.0000	9.0000	12.0000	13.2000	12.5000	14.5000	4.6796
8.0000	4.0000	5.3333	4.5000	4.9412	5.0769	5.0000	5.2051	1.5441
8.0000	2.6667	3.2000	3.0000	3.1111	3.1429	3.1250	3.1719	1.5441
8.4000	2.0000	2.2857	2.2500	2.2703	2.2759	2.2727	2.2809	1.3586
9.0000	1.6000	1.7778	1.8000	1.7872	1.7838	1.7857	1.7807	1.1713
9.0000	1.3333	1.4545	1.5000	1.4737	1.4667	1.4706	1.4604	1.1713
10.0000	1.1429	1.2308	1.2857	1.2537	1.2453	1.2500	1.2378	1.0298
13.0000	1.0000	1.0667	1.1250	1.0909	1.0820	1.0870	1.0741	1.0000

APRIL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
8.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	3.9524
8.4000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	2.6160
9.2000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.3678
9.5000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.1731
10.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.0286
10.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0286
11.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
26.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	5.4755
29.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	1.9035
30.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.4620
31.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.2026
33.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.0144
34.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0014
34.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0014

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
10.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	5.9259
13.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	2.0004
15.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.2312
15.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.2312
17.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.0180
18.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0019
18.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0019

STATION K 17

ANNUAL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	1.9376
0.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	1.9376
0.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.9376
0.0360	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.1655
0.0400	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.1276
0.1200	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0000

APRIL

DROUGHT

RETURN PERIOD, YEARS

(CMS)	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.0000	5.0000	10.0000	6.0000	7.7143	8.4000	8.0000	9.1429	2.6375
0.0400	2.5000	3.3333	3.0000	3.1765	3.2308	3.2000	3.2821	2.0868
0.1200	1.6667	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.4176
0.3200	1.2500	1.4286	1.5000	1.4595	1.4483	1.4545	1.4382	1.0028
0.3600	1.0000	1.1111	1.2000	1.1489	1.1351	1.1429	1.1228	1.0003

DECEMBER

DROUGHT

RETURN PERIOD, YEARS

(CMS)	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.8000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	1.9492
0.9600	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	1.8084
1.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.7758
2.0500	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.2151
2.1000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.1996
5.6300	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0000

FEBRUARY

DROUGHT

RETURN PERIOD, YEARS

(CMS)	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
0.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	4.3366
0.3200	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	1.3851
0.3600	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.2658
0.3600	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.2658
0.4800	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.0628
0.8000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0000

STATION K 19

ANNUAL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
12.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	2.8877
12.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	2.8877
13.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.9472
15.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.1443
16.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.0308
17.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0026
18.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0000

APRIL DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
12.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	4.8689
14.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	2.0501
16.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.1665
17.0000	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.0375
18.0000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.0035
18.0000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0035

DECEMBER DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
27.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	3.8067
36.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	1.9182
41.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.4291
45.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.2026
47.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.1293
50.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0577
69.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0000

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
17.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	3.8958
18.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	2.8907
23.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.0484
24.0000	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.0267
25.0000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.0054
25.0000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0054

STATION K20

ANNUAL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ.(4)	EQ.(5)	EQ.(6)	EQ.(8)	EQ.(9)	EQ.(10)	EQ.(11)	EQ.(24)
12.0000	7.0000	14.0000	8.0000	10.5714	11.6000	11.0000	12.7143	3.8582
14.0000	3.5000	4.6667	4.0000	4.3529	4.4615	4.4000	4.5641	2.3859
15.0000	2.3333	2.8000	2.6667	2.7407	2.7619	2.7500	2.7813	1.9284
19.0000	1.7500	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	1.1001
21.0000	1.4000	1.5556	1.6000	1.5745	1.5676	1.5714	1.5614	1.0132
22.0000	1.1667	1.2727	1.3333	1.2982	1.2889	1.2941	1.2806	1.0029
23.0000	1.0000	1.0769	1.1429	1.1045	1.0943	1.1000	1.0854	1.0004

APRIL

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
14.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	3.0135
14.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	3.0135
21.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.1001
21.0000	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.1001
22.0000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.0476
27.0000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0000

DECEMBER

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
34.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	4.2917
44.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	1.7317
48.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.3362
54.0000	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.0649
55.0000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.0449
66.0000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0000

FEBRUARY

DROUGHT (CMS)	RETURN PERIOD, YEARS							
	EQ. (4)	EQ. (5)	EQ. (6)	EQ. (8)	EQ. (9)	EQ. (10)	EQ. (11)	EQ. (24)
16.0000	6.0000	12.0000	7.0000	9.1429	10.0000	9.5000	10.9286	6.5107
26.0000	3.0000	4.0000	3.5000	3.7647	3.8462	3.8000	3.9231	1.3314
27.0000	2.0000	2.4000	2.3333	2.3704	2.3810	2.3750	2.3906	1.2183
30.0000	1.5000	1.7143	1.7500	1.7297	1.7241	1.7273	1.7191	1.0404
31.0000	1.2000	1.3333	1.4000	1.3617	1.3514	1.3571	1.3421	1.0184
33.0000	1.0000	1.0909	1.1667	1.1228	1.1111	1.1176	1.1007	1.0022

APPENDIX II

COMPUTER PROGRAMS

23% COTTON

EXCELERASE

by

Fox River


```
C TO FIND RELATIONSHIP BETWEEN FLOW AND CATCHMENT AREA
C EQUATION  $Q=K1*A**N1$  OR  $\text{LOG}(Q)=\text{LOG}(K1)+N1*\text{LOG}(A)$ 
C DATA 1, AVERAGE MONTHLY AND ANNUAL FLOWS OF EACH STATION
C 2, AVERAGE MAX, MONTHLY AND ANNUAL FLOWS OF EACH STATION
C 3, AVERAGE MIN, MONTHLY AND ANNUAL FLOWS OF EACH STATION
C 4, MAX, ANNUAL FLOW OF RETURN PERIOD 2,33,10,20,50, AND 100
C YEARS OF EACH STATION
C 5, MIN, MONTHLY AND ANNUAL FLOWS OF RETURN PERIOD 2,33 YEARS
C OF EACH STATION
C 6, CATCHMENT AREA OF EACH STATION
C DIMENSION Q(30),A(30),IM(6)
C Q=FLOW OR RUNOFF IN CMS.
C A=CATCHMENT AREA IN SQ.KM.
C IM=NAME OF EACH MONTH AND ANNUAL
C READ(60,100)NN
C NN=NO, OF SETS OF DATA
100 FORMAT(I5)
DO 1 II=1,NN
WRITE(61,203)II
203 FORMAT(//30X,7HSET NO.,I2//)
WRITE(61,200)
200 FORMAT(28X,2HK1,16X,2HN1,14X,1HR)
READ(60,100)N
C N=NO, OF STATIONS IN BASIN WHICH ARE USED
READ(60,101)(A(I),I=1,N)
101 FORMAT(8F10,2)
DO 10 J=1,13
C 13=12 MONTHS + ANNUAL
READ(60,300)IM
300 FORMAT(6A1)
READ(60,101)(Q(I),I=1,N)
SY=0.
SYY=0.
SXY=0.
SX=0.
SXX=0.
DO 2 I=1,N
U=Q(I)
S=A(I)
Y=ALOG(U)
X=ALOG(S)
SY=SY+Y
SYY=SYY+Y*Y
SXY=SXY+X*Y
SX=SX+X
2 SXX=SXX+X*X
B=N
ALOGK=(SY*SXX-SX*SXY)/(B*SXX-SX*SX)
AK=EXP(ALOGK)
EXPO=(B*SXY-SX*SY)/(B*SXX-SX*SX)
R=(B*SXY-SX*SY)/SQRT((B*SXX-SX*SX)*(B*SYY-SY*SY))
C AK=K1
C EXPO=N1
C R=CORRELATION COEFFICIENT
10 WRITE(61,201)IM,AK,EXPO,R
201 FORMAT(9X,6A1,8X,E12.5,5X,F10,4,5X,F10,4)
1 CONTINUE
STOP
END
```

```
C PROGRAM TO FIND 1, RETURN PERIOD OF FLOOD AND DROUGHT
C 2, FLOOD AND DROUGHT AT ANY RETURN PERIOD
C DIMENSION X(30),NAME(6)
C X=DATA OF FLOOD AND DROUGHT IN CMS,
C T=RETURN PERIOD IN YEARS
C 1, TO FIND FLOOD AT ANY RETURN PERIOD BY GUMBEL FORMULA
C PX=EXP(-EXP(-Y))
C Y=A(X-XF)
C XF=XBAR-0.45005*STD,
C A=1.28255/STD,
C STD,=SQRT(SUM(X-XBAR)**2/(N-1))
C XT=XF+1./A*ALOG(T)
C XT=SIZE OF FLOOD AT RETURN PERIOD T YEARS
C PX=PROBABILITY LESS THAN OR EQUAL X
C X=MAX, FLOW, CMS, OF EACH YEAR OF EACH STATIONS
C AREA=CATCHMENT AREA IN SQ,KM,
C READ(60,100)NN
C NN=NO, OF STATIONS
100 FORMAT(I5)
DO 1 II=1,NN
READ(60,100)M
C M=NUMBER OF STATION
WRITE(61,311)M
311 FORMAT(///20X,9HSTATION K,I2//)
WRITE(61,401)
401 FORMAT(20X,13HTO FIND FLOOD//)
READ(60,101)AREA
READ(60,100)N
C N=NO, OF YEARS OF RECORD
READ(60,101)(X(I),I=1,N)
101 FORMAT(8F10,2)
WRITE(61,301)
301 FORMAT(4X,3HXB1,8X,3HXB2,6X,4HSTD1,7X,4HSTD2,6X,2HXF,10X,1HA,7X,
$2HAA)
CALL NO1(X, N, AREA, XB1, XB2, STD1, STD2)
C XB1,XB2=ARITHMETIC MEAN OF FLOOD AND DROUGHT
C XB1=CMS,,XB2=L/SEC/SQ,KM,
C STD1=CMS,,STD2=L/SEC/SQ,KM,
C XF=XB1-0.45005*STD1
C A=1.28255/STD1
C AA=STD1/1.28255
WRITE(61,200)XB1,XB2,STD1,STD2,XF,A,AA
200 FORMAT(10F10,4)
WRITE(61,312)
312 FORMAT(//8X,5HFLOOD/4X,3HCMS,4X,10HL/S/SQ,KM,,5X,2HPX,8X,2HTX/)
DO 35 I=1,N
Y=A*(X(I)-XF)
POWER=EXP(-Y)
PX=EXP(-POWER)
T=1./((1,-PX)
XX=1000.*X(I)/AREA
35 WRITE(61,200)X(I),XX,PX,T
WRITE(61,302)
302 FORMAT(//23X,25HESTIMATED FLOOD MAGNITUDE/ 17X,7HEQ,(16),18X,7HEQ,
$(18)/4X,2HTX,8X,3HCMS,4X,10HL/S/SQ,KM,,8X,3HCMS,4X,10HL/S/SQ,KM,/)

```

```
DO 25 I=2,20
T=I
YY=-ALOG(1,-1,/T)
Y=-ALOG(YY)
YXT=XF+AA*Y
YXXT=1000,+YXT/AREA
XT=XF+AA+ALOG(T)
XXT=1000,+XT/AREA
25 WRITE(61,201)T,YXT,YXXT,XT,XXT
DO 2 I=3,10
T=10*I
YY=-ALOG(1,-1,/T)
Y=-ALOG(YY)
YXT=XF+AA*Y
YXXT=1000,+YXT/AREA
XT=XF+AA+ALOG(T)
XXT=1000,+XT/AREA
2 WRITE(61,201)T,YXT,YXXT,XT,XXT
DO 3 I=2,10
T=100*I
YY=-ALOG(1,-1,/T)
Y=-ALOG(YY)
YXT=XF+AA*Y
YXXT=1000,+YXT/AREA
XT=XF+AA+ALOG(T)
XXT=1000,+XT/AREA
3 WRITE(61,201)T,YXT,YXXT,XT,XXT
201 FORMAT(F7.1,3X,2F10.4,5X,2F10.4)
C 2, TO FIND RETURN PERIOD OF ANY FLOOD AT EACH STATIONS
C BY PLOTTING POSITIONS FORMULAS
C N=NO, OF YEARS OF RECORD
C M=RANK OF FLOOD FROM MAX, TO MIN,
WRITE(61,303)
303 FORMAT(///3X,5HFLOOD,27X,19HRETURN PERIOD,YEARS/ 3X,5H(CMS),6X,6HE
$, (4),4X,6HEQ,(5),4X,6HEQ,(6),4X,6HEQ,(8),4X,6HEQ,(9),3X,7HEQ,(10)
$,3X,7HEQ,(11)/)
CALL SORT(X,N)
AN=N
DO 4 I=1,N
AI=I
T1=AN/AI
T2=2,+AN/(2,+AI-1.)
T3=(AN+1.)/AI
T4=(AN+0,4)/(AI-0,3)
T5=(AN+0,25)/(AI-3./8.)
T6=(3,+AN+1.)/(3,+AI-1.)
T7=(AN+0,12)/(AI-0,44)
4 WRITE(61,200)X(I),T1,T2,T3,T4,T5,T6,T7
C 3. TO FIND DROUGHT BY GUMBEL FORMULA
C PX1=EXP(-EXP(Y))
C PX1=PROBABILITY GREATER THAN OR EQUAL TO X
C Y=THE SAME AS CALCULATION FLOOD
WRITE(61,402)
402 FORMAT(///20X,15HTO FIND DROUGHT)
DO 20 J=1,4
READ(60,500)NAME
```

```

C      NAME=NAME OF MONTH AND ANNUAL
500  FORMAT(6A1)
      WRITE(61,501)NAME
501  FORMAT(//5X,6A1/)
      WRITE(61,304)
304  FORMAT(5X,3HXB1,8X,3HXB2,6X,4HSTD1,6X,4HSTD2,7X,2HXF,9X,1HA,8X,
$2HAA)
      READ(60,100)N
      READ(60,101)(X(I),I=1,N)
      CALL NO1(X,N,AREA,XB1,XB2,STD1,STD2)
      XF=X31-0.45005*STD1
      A=1.28255/STD1
      AA=STD1/1.28255
      WRITE(61,200)XB1,XB2,STD1,STD2,XF,A,AA
      WRITE(61,305)
305  FORMAT(// 8X,7HDROUGHT/5X,3HCMS,4X,10HL/S/XQ,KM,,4X,3HPX1.7X,
$3HTX1/)
      DO 5 I=1,N
      Y=A*(X(I)-XF)
      POWER=EXP(Y)
      PX1=EXP(-POWER)
      T=1./(1.-PX1)
      XX=1000.*X(I)/AREA
5    WRITE(61,200)X(I),XX,PX1,T
      WRITE(61,306)
306  FORMAT(//14X,17HEST, DROUGHT MAG./18X,7HEQ.(25)/4X,3HTX1,8X,3HCMS,
$4X,10HL/S/SQ,KM,/)
      DO 45 I=2,30
      T=I
      YY=-ALOG(1,-1./T)
      Y=ALOG(YY)
      YXT=XF+AA*Y
      YXXT=1000.*YXT/AREA
45   WRITE(61,202)T,YXT,YXXT
      DO 55 I=4,10
      T=10*I
      YY=-ALOG(1,-1./T)
      Y=ALOG(YY)
      YXT=XF+AA*Y
      YXXT=1000.*YXT/AREA
55   WRITE(61,202)T,YXT,YXXT
      DO 65 I=2,10
      T=100*I
      YY=-ALOG(1,-1./T)
      Y=ALOG(YY)
      YXT=XF+AA*Y
      YXXT=1000.*YXT/AREA
65   WRITE(61,202)T,YXT,YXXT
202  FORMAT(F7.1,3X,2F10.4)
C      4. TO FIND RETURN PERIOD OF ANY DROUGHT AT EACH STATION
C      BY PLOTTING POSITIONS FORMULAS
C      M=RANK OF DROUGHT FROM MIN TO MAX,
      WRITE(61,309)
309  FORMAT(///3X,7HDROUGHT,25X,19HRETURN PERIOD,YEARS/4X,5H(CMS),5X,
$6HEQ.(4),4X,6HEQ.(5),4X,6HEQ.(6),4X,6HEQ.(8),4X,6HEQ.(9),3X,
$7HEQ.(10),3X,7HEQ.(11)/)

```

```
CALL SORT(X,N)
AN=N
DO 9 I=1,N
AI=I
AM=AN+1,-AI
T1=AN/AM
T2=2,*AN/(2,*AM-1,)
T3=(AN+1,)/AM
T4=(AN+0,4)/(AM-0,3)
T5=(AN+0,25)/(AM-3,/8,)
T6=(3,*AN+1,)/(3,*AM-1,)
T7=(AN+0,12)/(AM-0,44)
9 WRITE(61,200)X(I),T1,T2,T3,T4,T5,T6,T7
20 CONTINUE
1 CONTINUE
STOP
END
```

```

SUBROUTINE NO1(X,N,A,XBAR1,XBAR2,STD1,STD2)
C X=DATA OF FLOOD AND DROUGHT
C N=NO, OF DATA
C A=CATCHMENT AREA IN SQ.KM,
C XBAR1=CMS., XBAR2=L/S/SQ.KM,
C STD1=CMS., STD2=L/S/SQ.KM,
C DIMENSION X(30)
B=N
SUM=0,
DO 1 I=1,N
1 SUM=SUM+X(I)
XBAR1=SUM/B
XBAR2=1000,*XBAR1/A
SUM=0,
DO 2 I=1,N
2 SUM=SUM+(X(I)-XBAR1)**2
STD1=SQRT(SUM/(B-1,))
STD2=1000,*STD1/A
RETURN
END
```

```

SUBROUTINE SORT(X,N)
DIMENSION X(30)
M=N-1
DO 1 I=1,M
L=I+1
DO 1 J=L,N
IF(X(I)-X(J))2,1,1
2 XTEM=X(I)
X(I)=X(J)
X(J)=XTEM
1 CONTINUE
RETURN
END
```

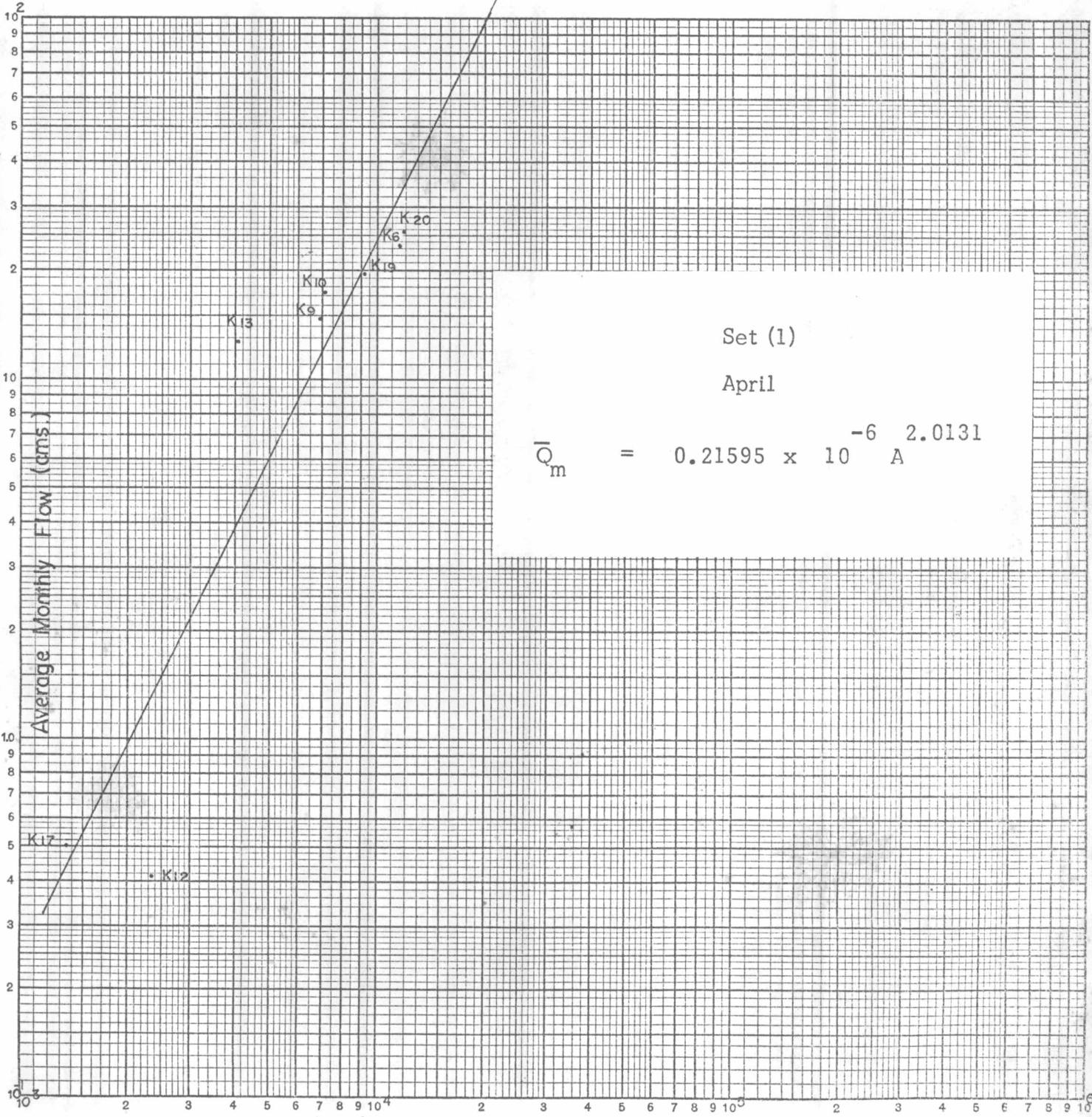
```
C   PROGRAM TO FIND CORRELATION OF MONTHLY FLOW AT STATION X AND Y
    DIMENSION X(360),Y(360)
    READ(60,100)NN
C   NN=NO, OF SETS OF DATA
100  FORMAT(2I5)
    DO 1 II=1,NN
    READ(60,100)M,L
C   M,L=NUMBER OF STATIONS
    READ(60,100)N
C   N=NO,OF DATA
    SUMX=0.
    SUMY=0.
    SUMXY=0.
    SUMXX=0.
    SUMYY=0.
    READ(60,101)(X(I),I=1,N)
    READ(60,101)(Y(I),I=1,N)
101  FORMAT(8F10,2)
    DO 2 I=1,N
    SUMX=SUMX+X(I)
    SUMY=SUMY+Y(I)
    SUMXY=SUMXY+X(I)*Y(I)
    SUMXX=SUMXX+X(I)*X(I)
    2  SUMYY=SUMYY+Y(I)*Y(I)
    AN=N
    XBAR=SUMX/AN
    YBAR=SUMY/AN
    XYBAR=SUMXY/AN
    XXBAR=SUMXX/AN
    YYBAR=SUMYY/AN
    STDX=SQRT(XXBAR-XBAR*XBAR)
    STDY=SQRT(YYBAR-YBAR*YBAR)
    R=(XYBAR-XBAR*YBAR)/(STDX*STDY)
C   R=CORRELATION COEFFICIENT
    1  WRITE(61,200)M,L,R
200  FORMAT(/10X,29HCORRELATION BETWEEN STATION K,I2,13HAND STATION K,
    $I2,4H,R =,F6,4)
    STOP
    END
```


APPENDIX III

GRAPH

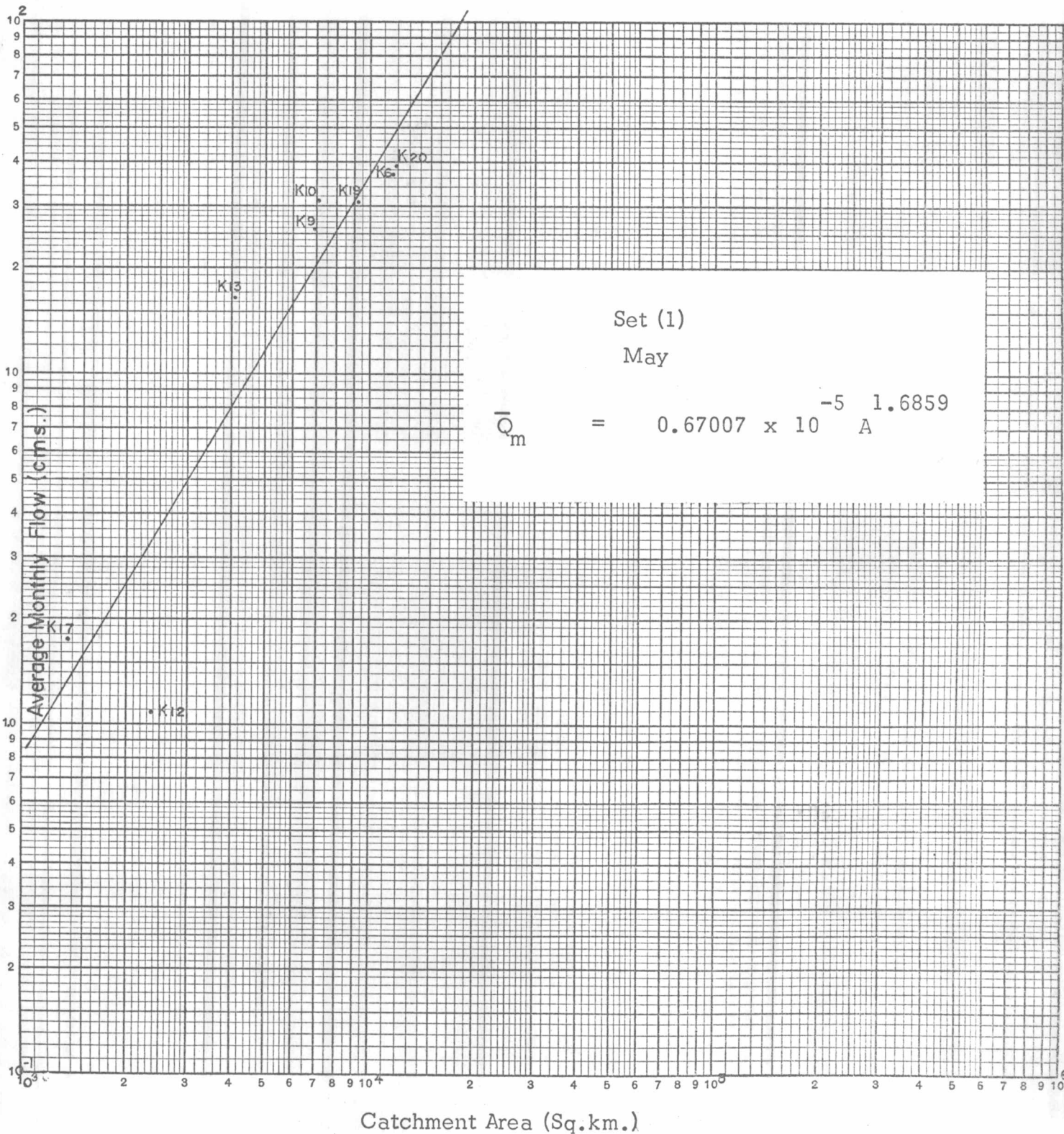
OF

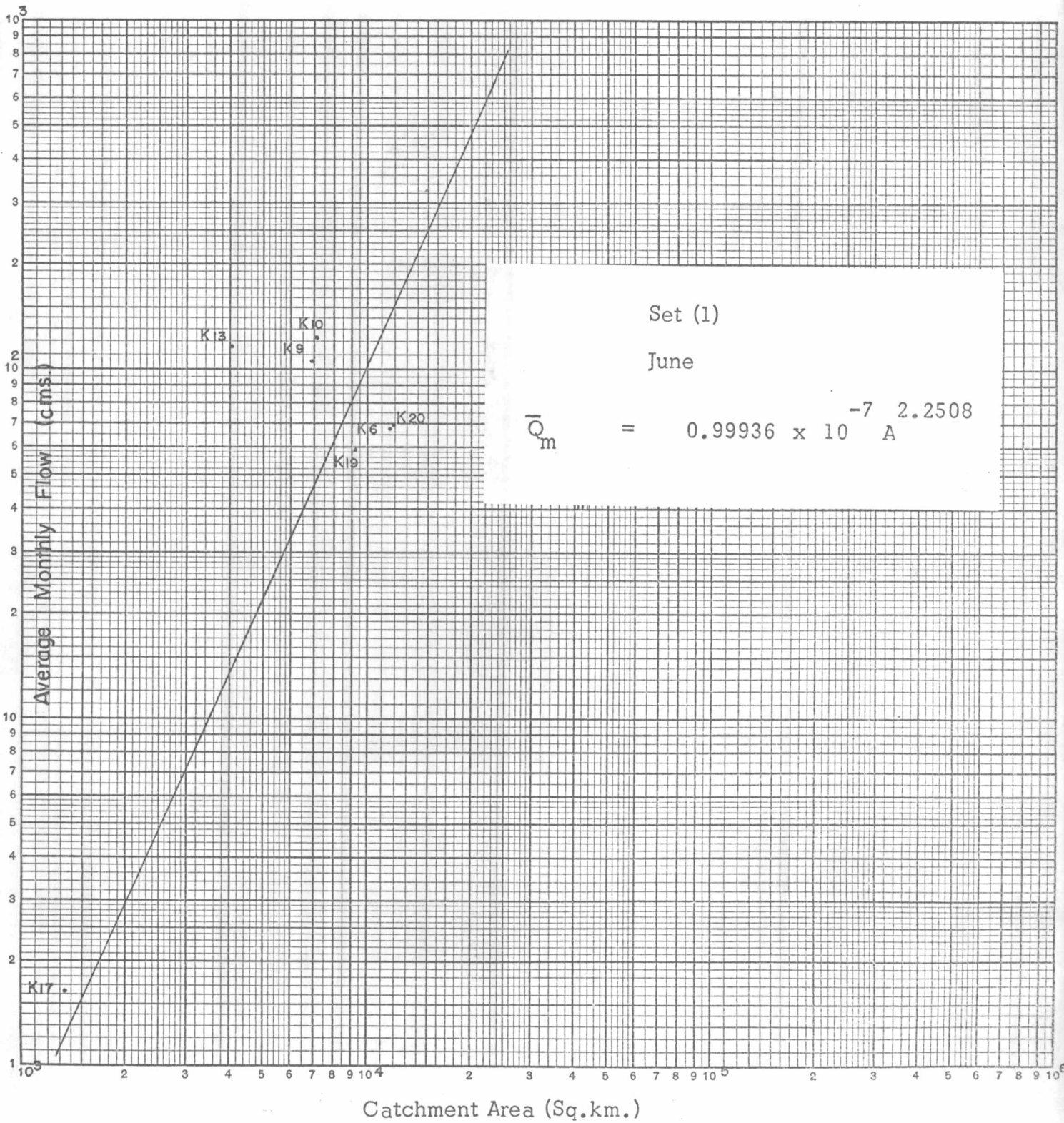
RUN OFF	-	CATCHMENT AREA
FLOOD	-	RETURN PERIOD
DROUGHT	-	RETURN PERIOD



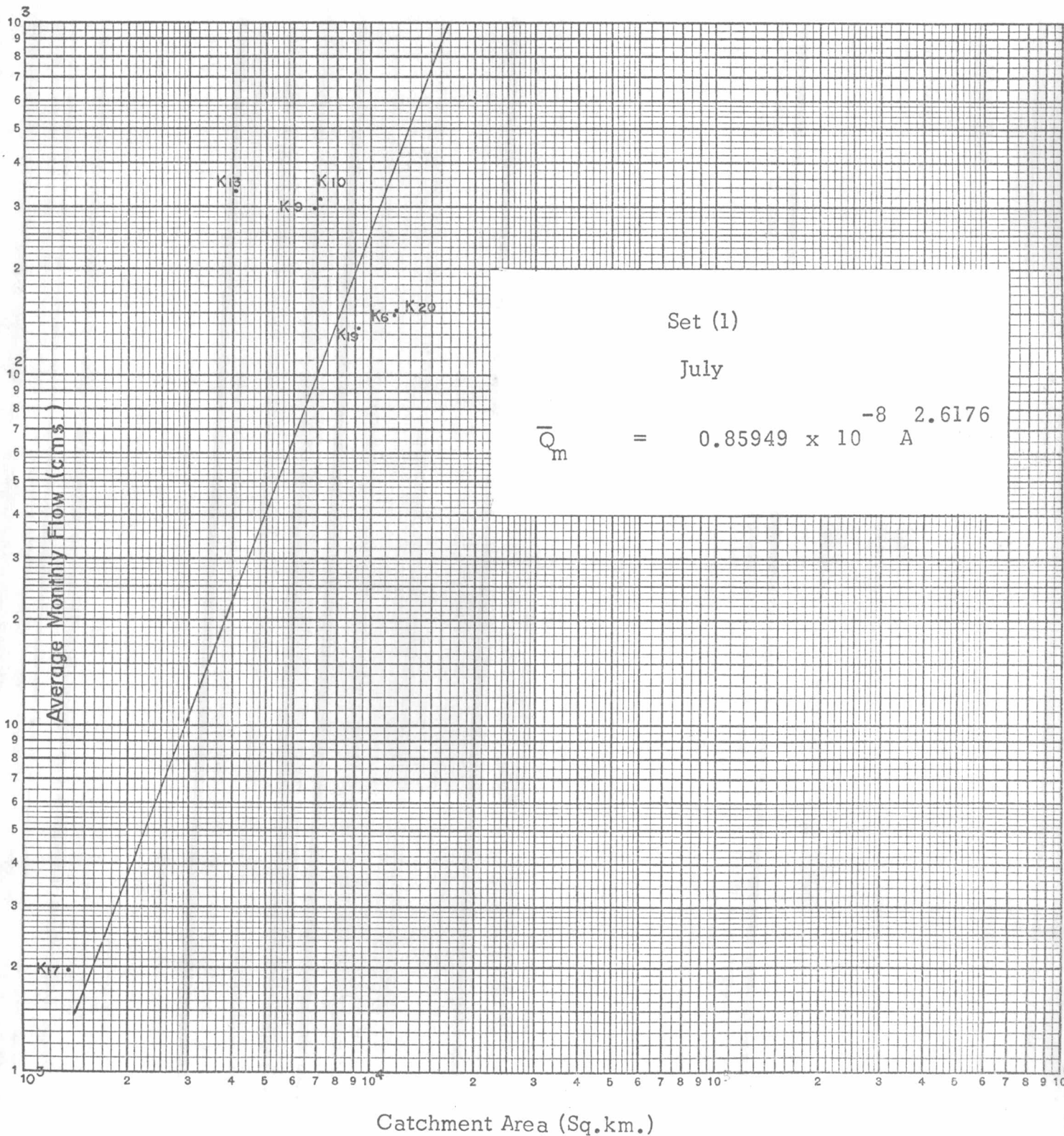
Catchment Area (Sq.km.)

KE
LOGARITHMIC
3 X 3 CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.

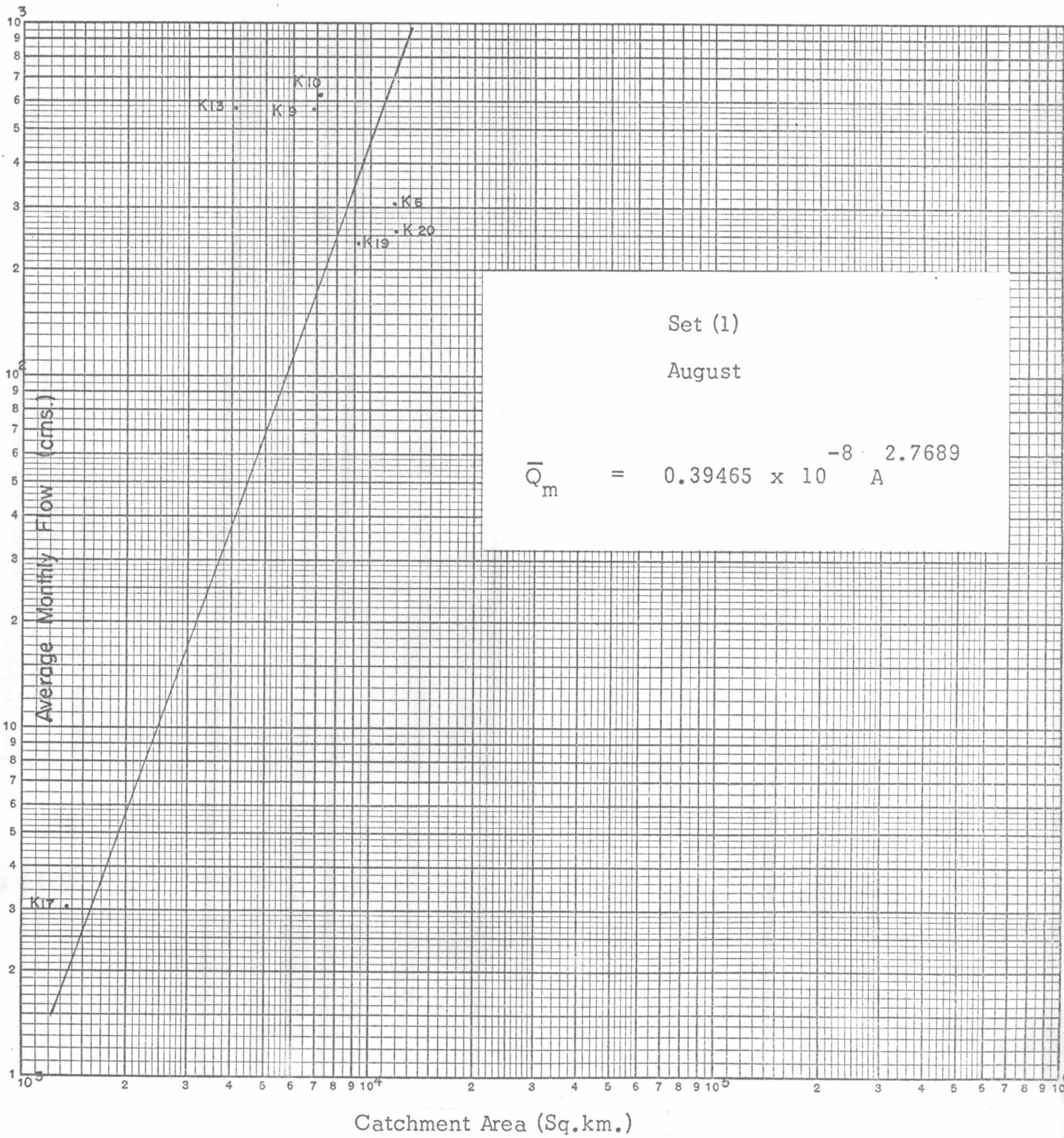




KE
LOGARITHMIC
3 X 3 CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.



KE LOGARITHMIC 46 403
3 X 3 CYCLES MADE IN U.S.A.
KEUFFEL & ESSER CO.



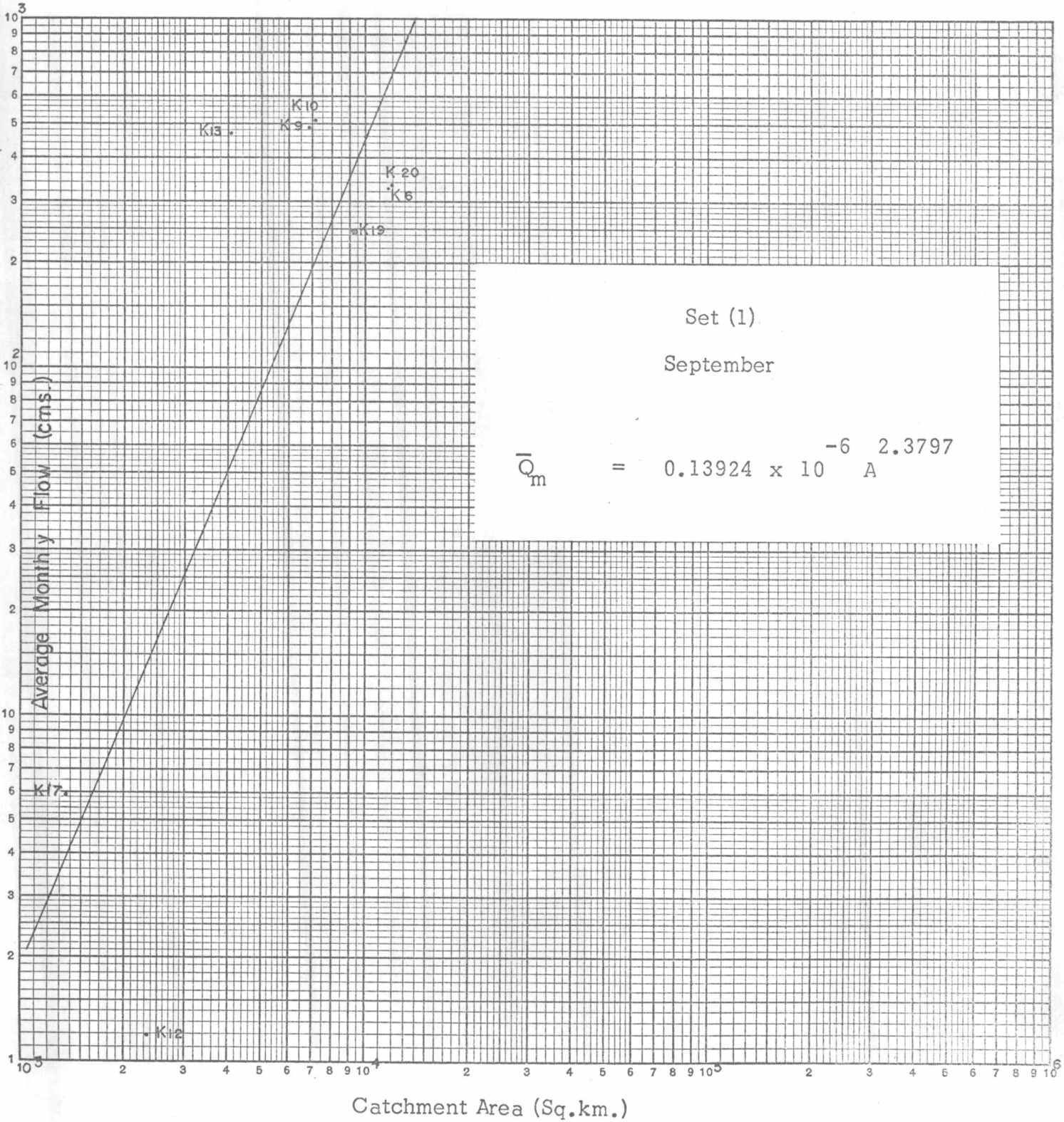
Set (1)

August

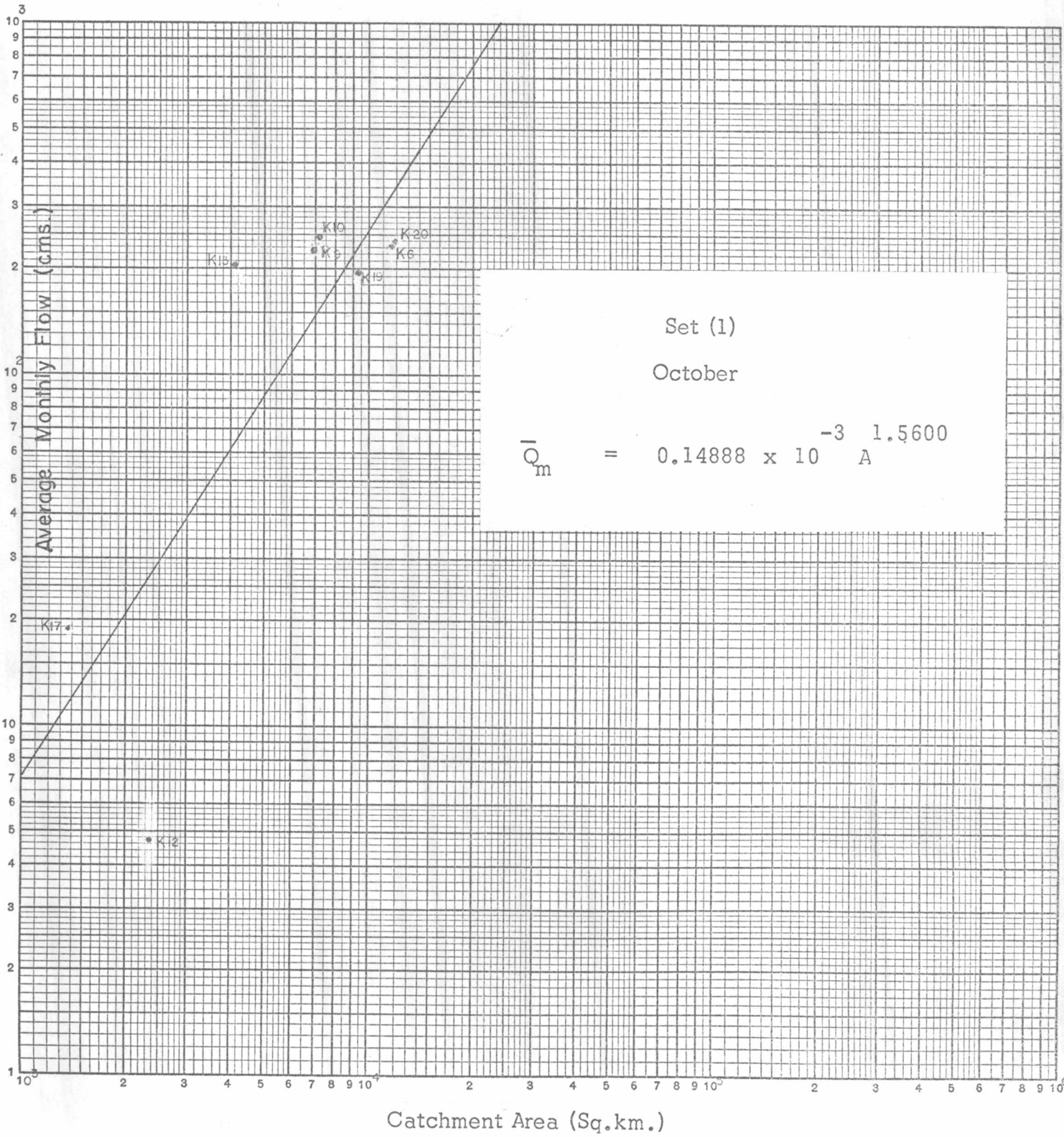
$$Q_m = 0.39465 \times 10^{-8} \cdot A^{2.7689}$$

KEUFFEL & ESSER CO.
3 X 3 CYCLES
LOGARITHMIC
MADE IN U.S.A.
46 7403

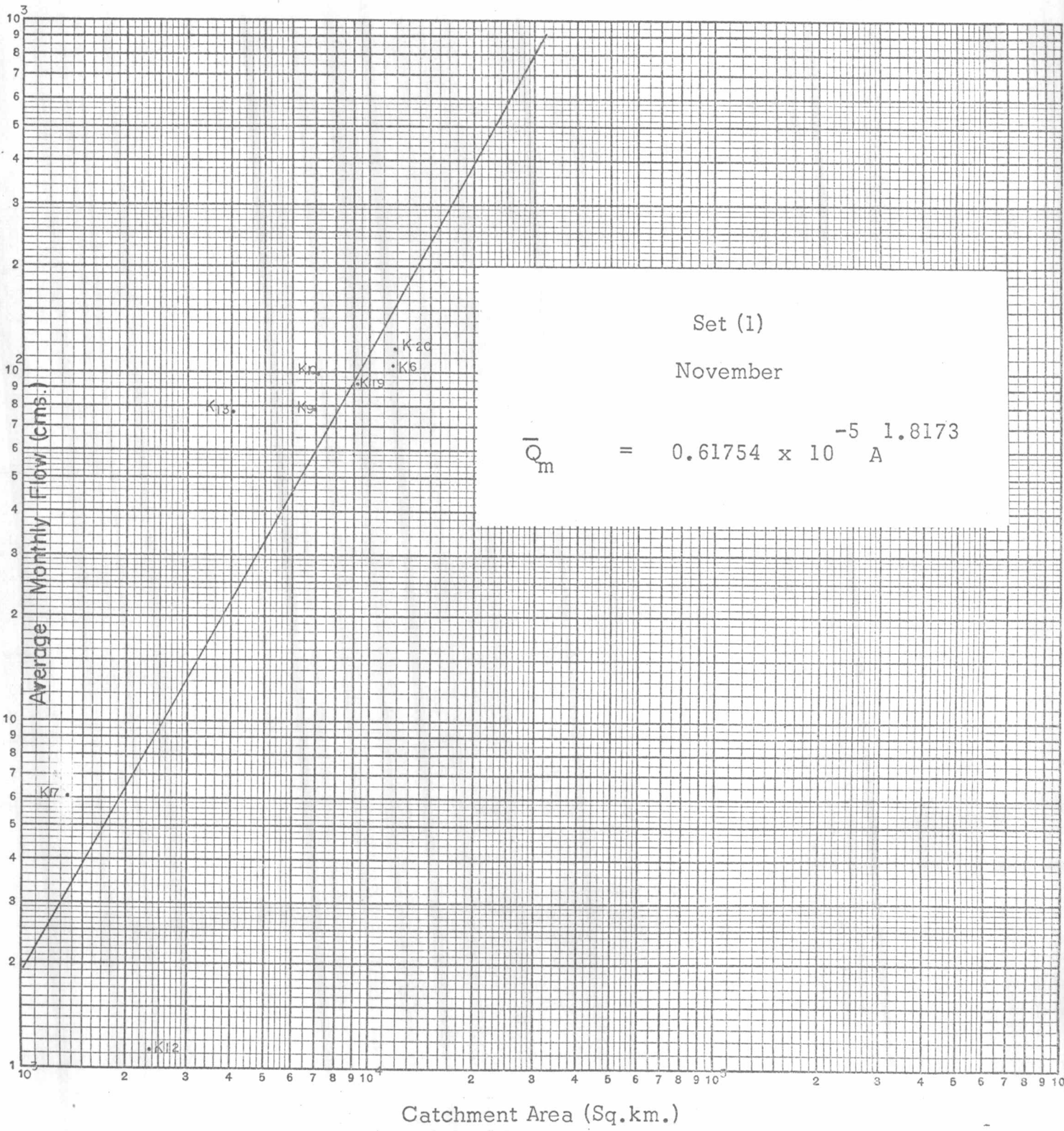
Catchment Area (Sq.km.)



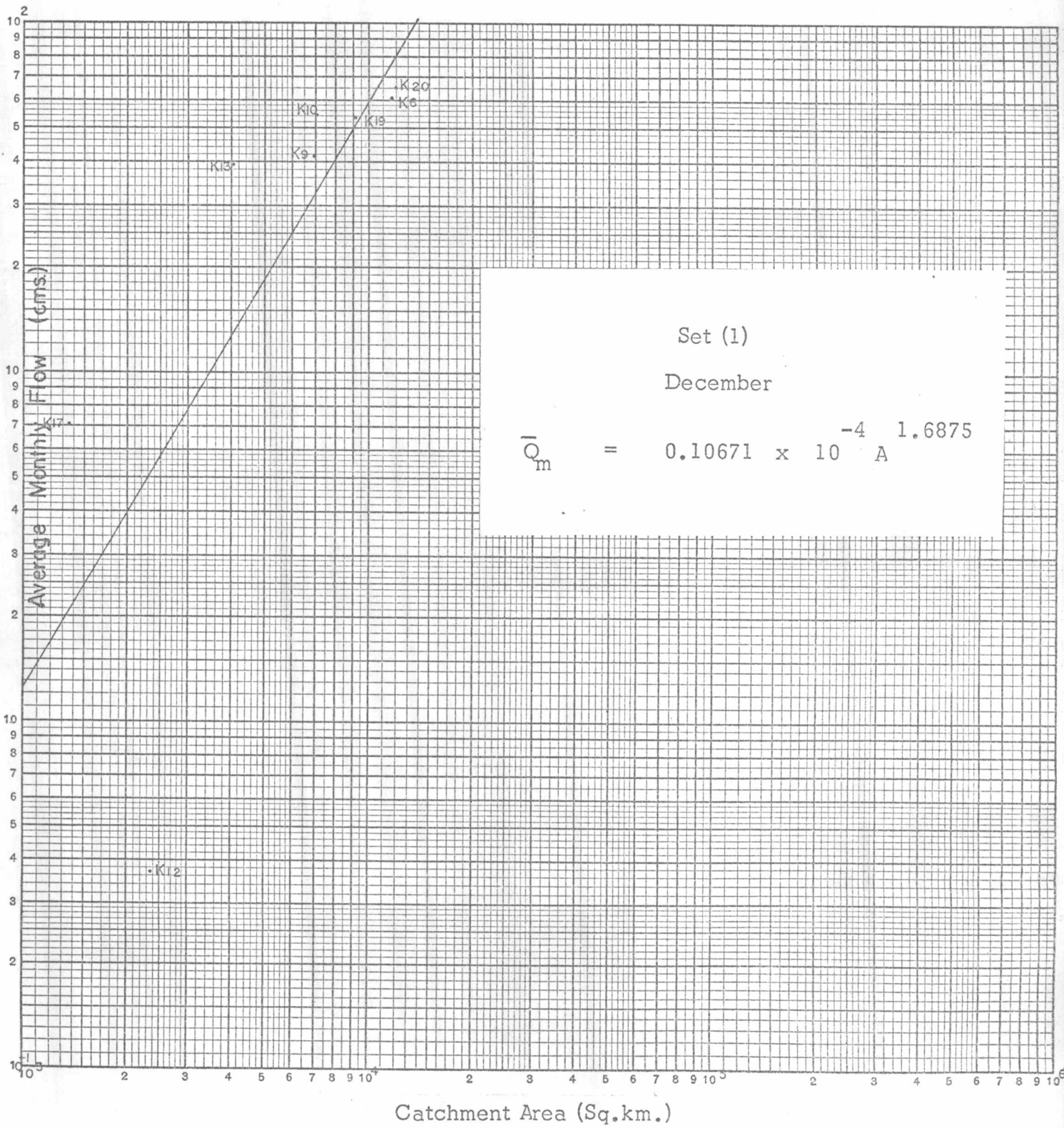
MADE IN U.S.A.
KEUFFEL & ESSER CO.



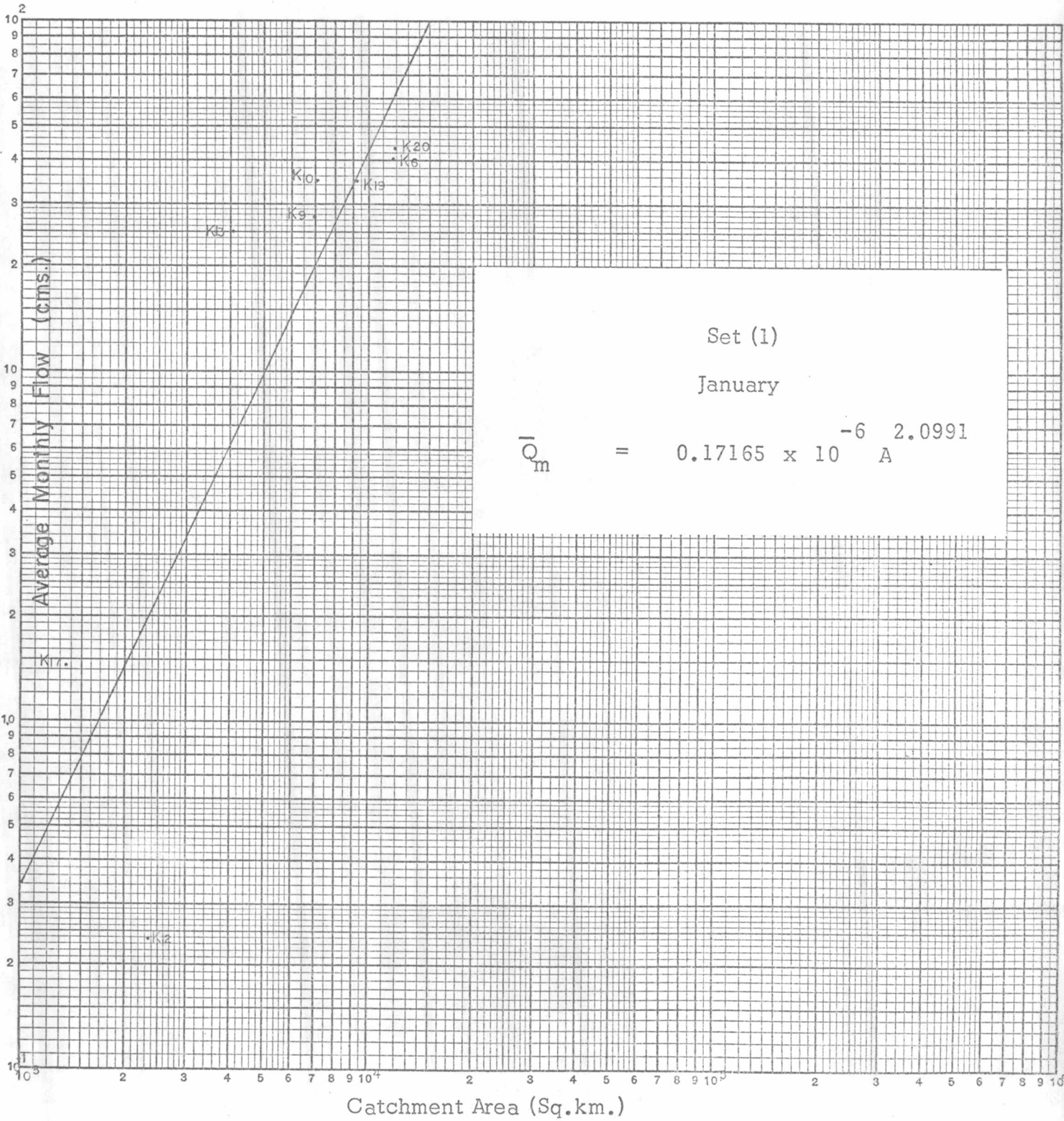
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MADE IN U.S.A.
KEUFFEL & ESSER CO.

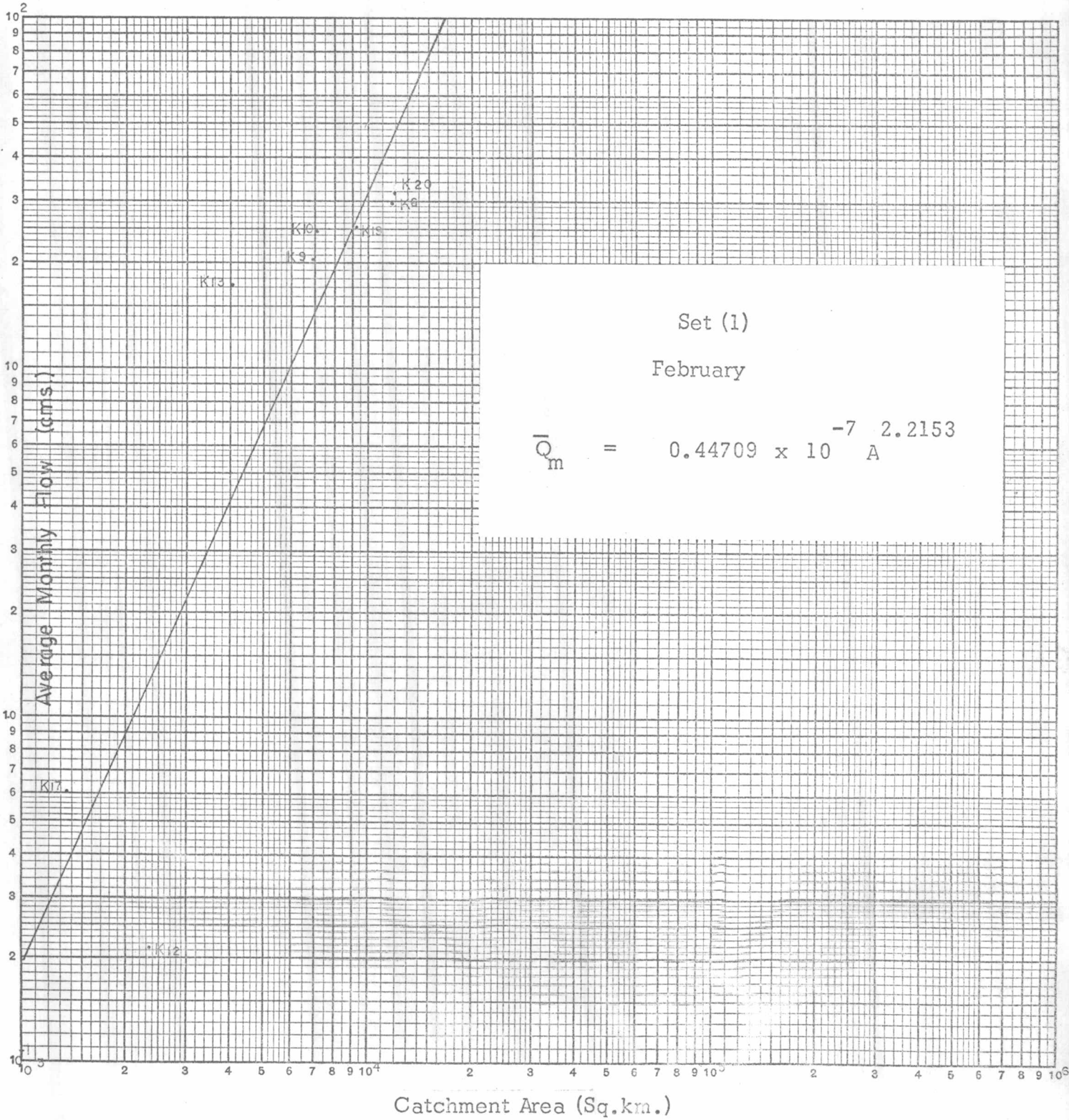


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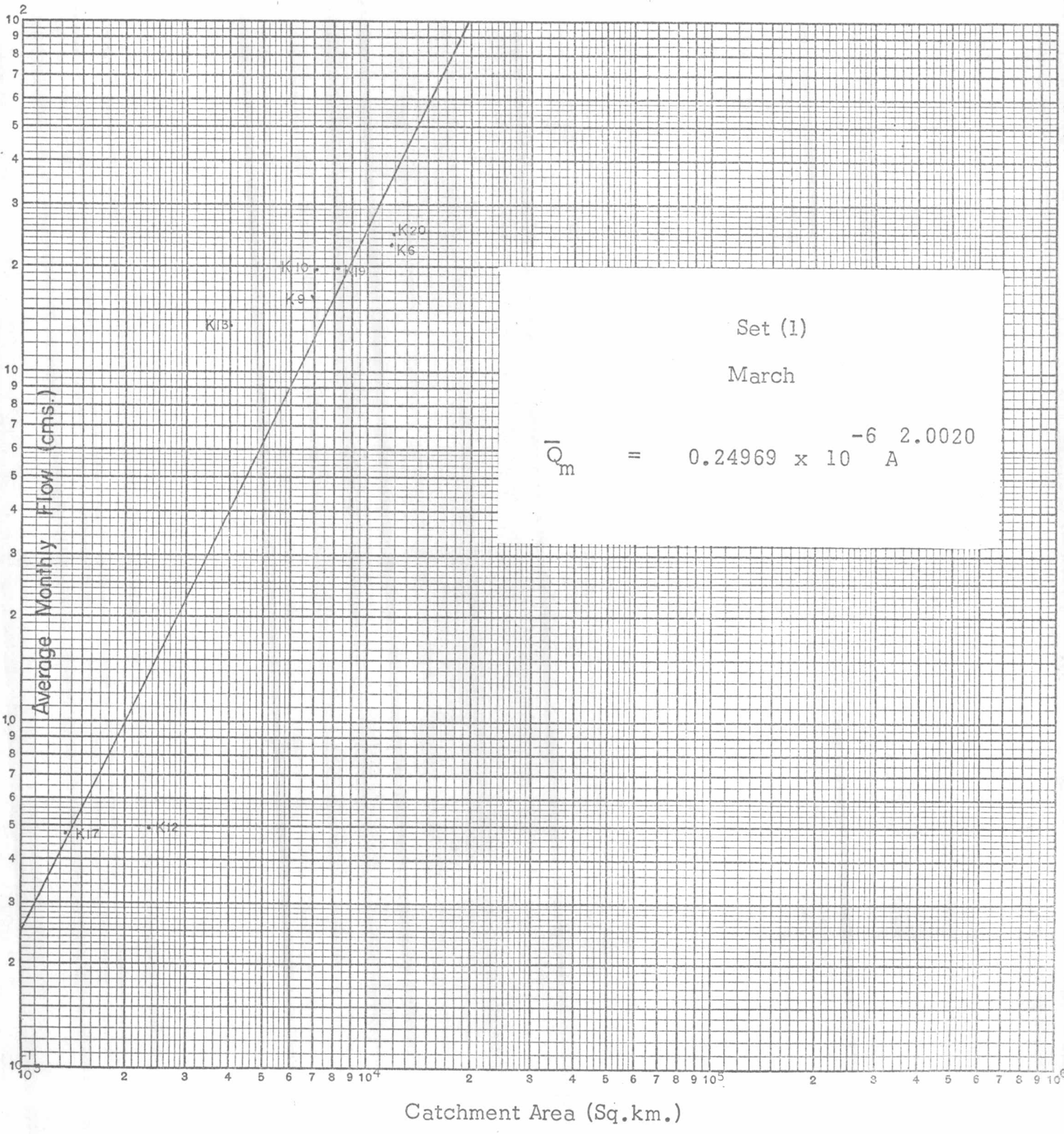


KE LOGARITHMIC 46 7403 MADE IN U.S.A. KEUFFEL & ESSER CO.

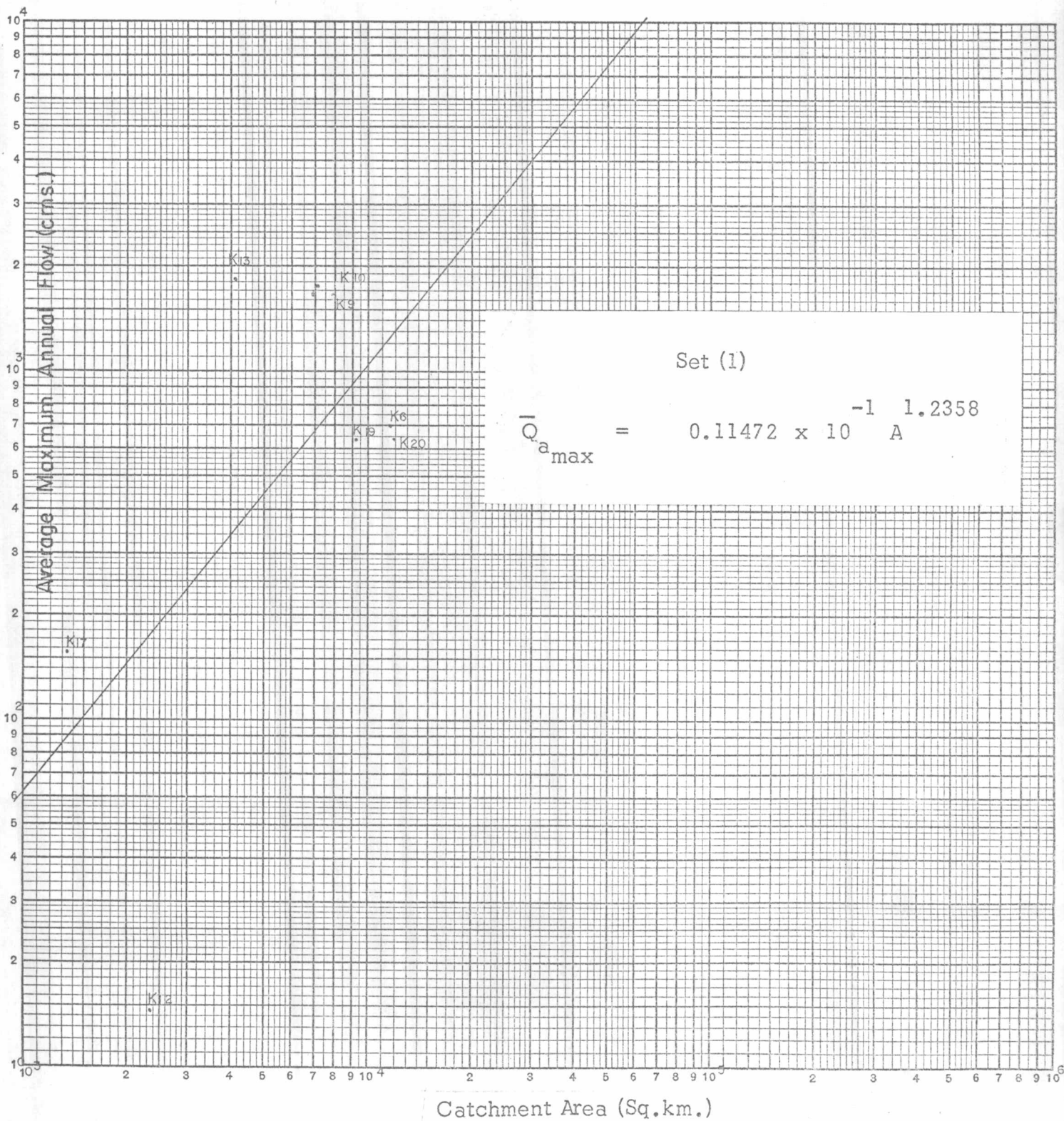




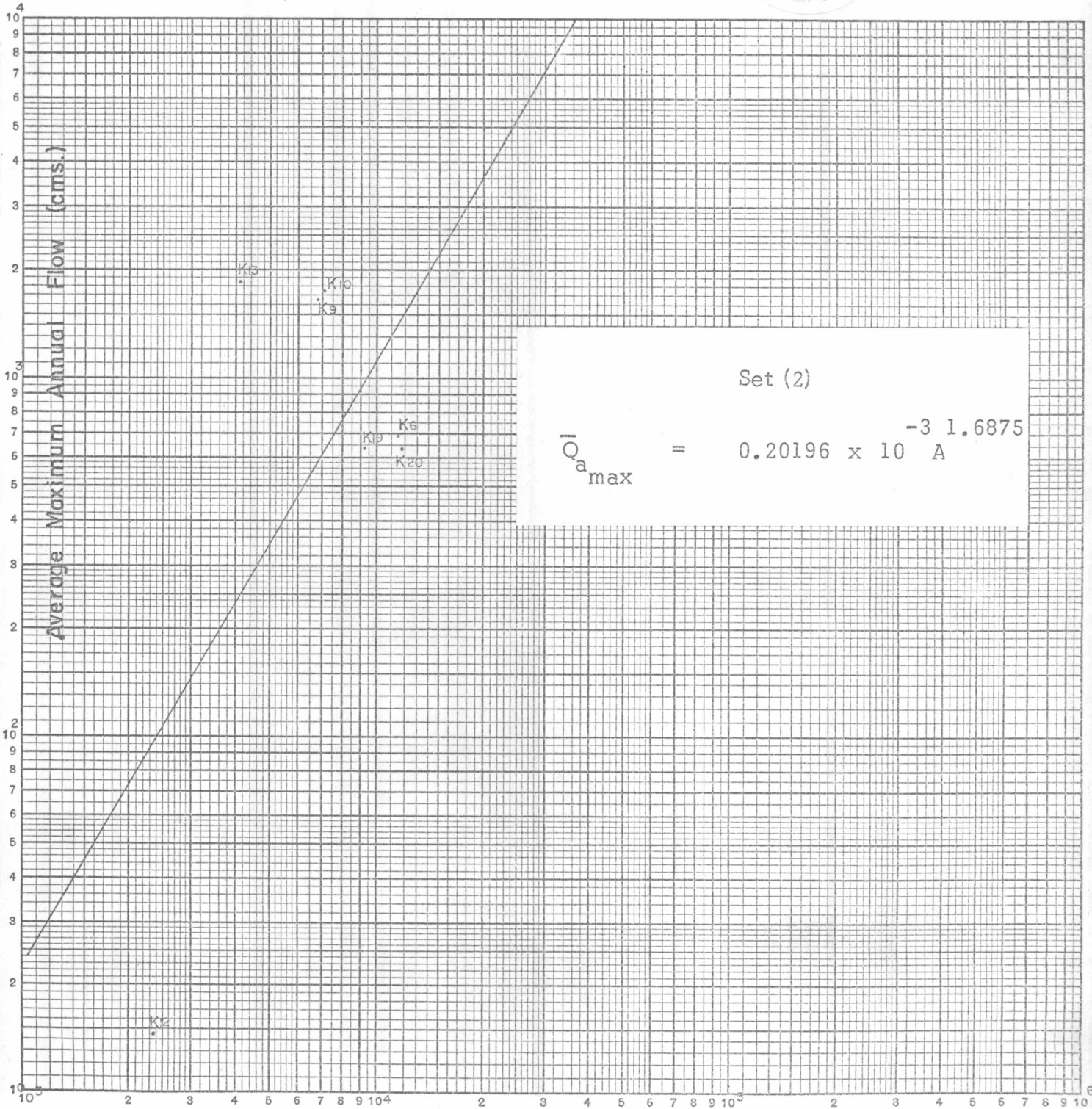
KE
LOGARITHMIC
3 X 3 CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.



KEUFFEL & ESSER CO.
 3 X 3 CYCLES
 LOGARITHMIC
 MADE IN U.S.A.
 40-403

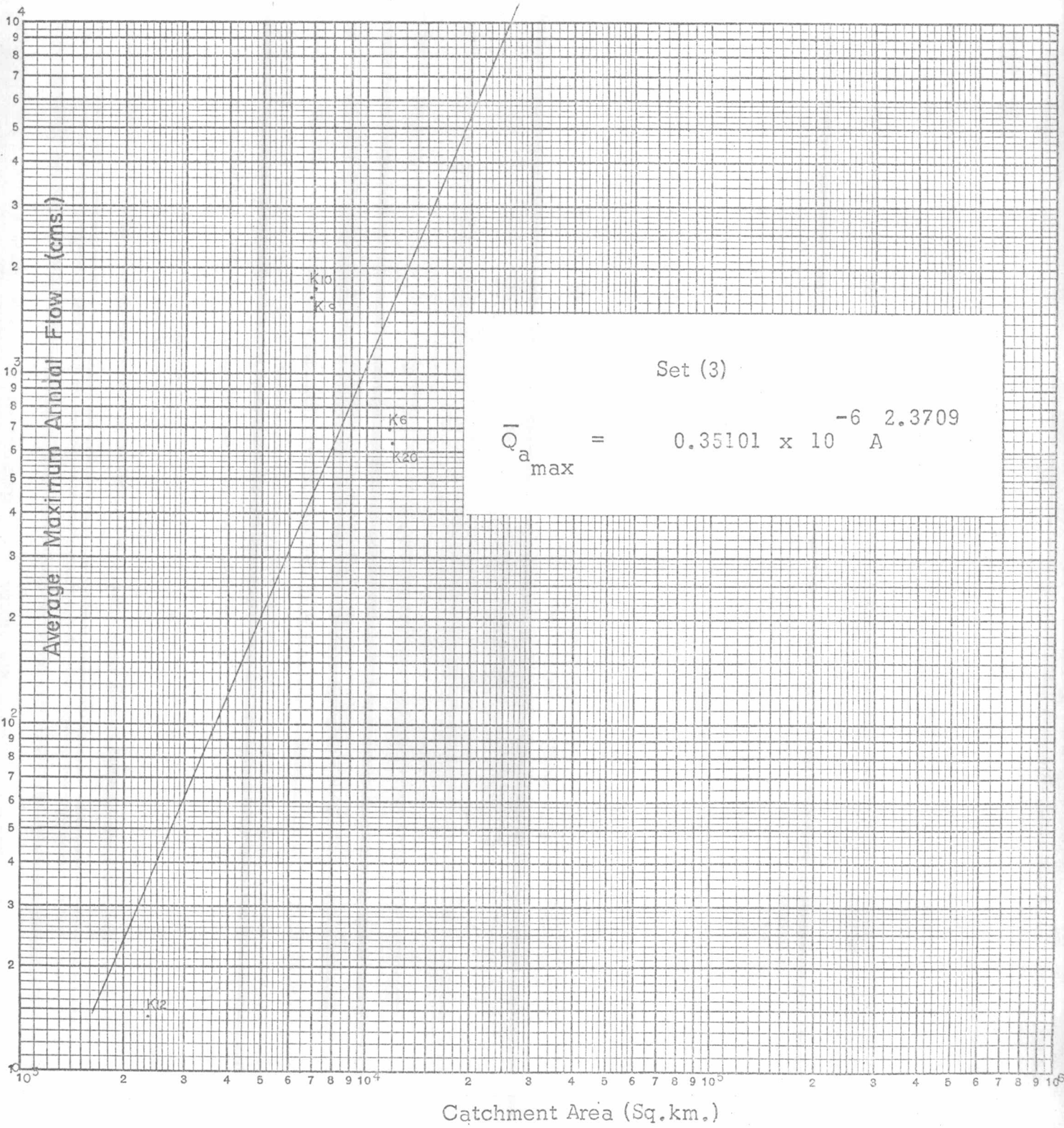



KEUFFEL & ESSER CO.
 KEUFFEL & ESSER CO.
 MADE IN U.S.A.
 46-403
 LOGARITHMIC
 3 X 3 CYCLES



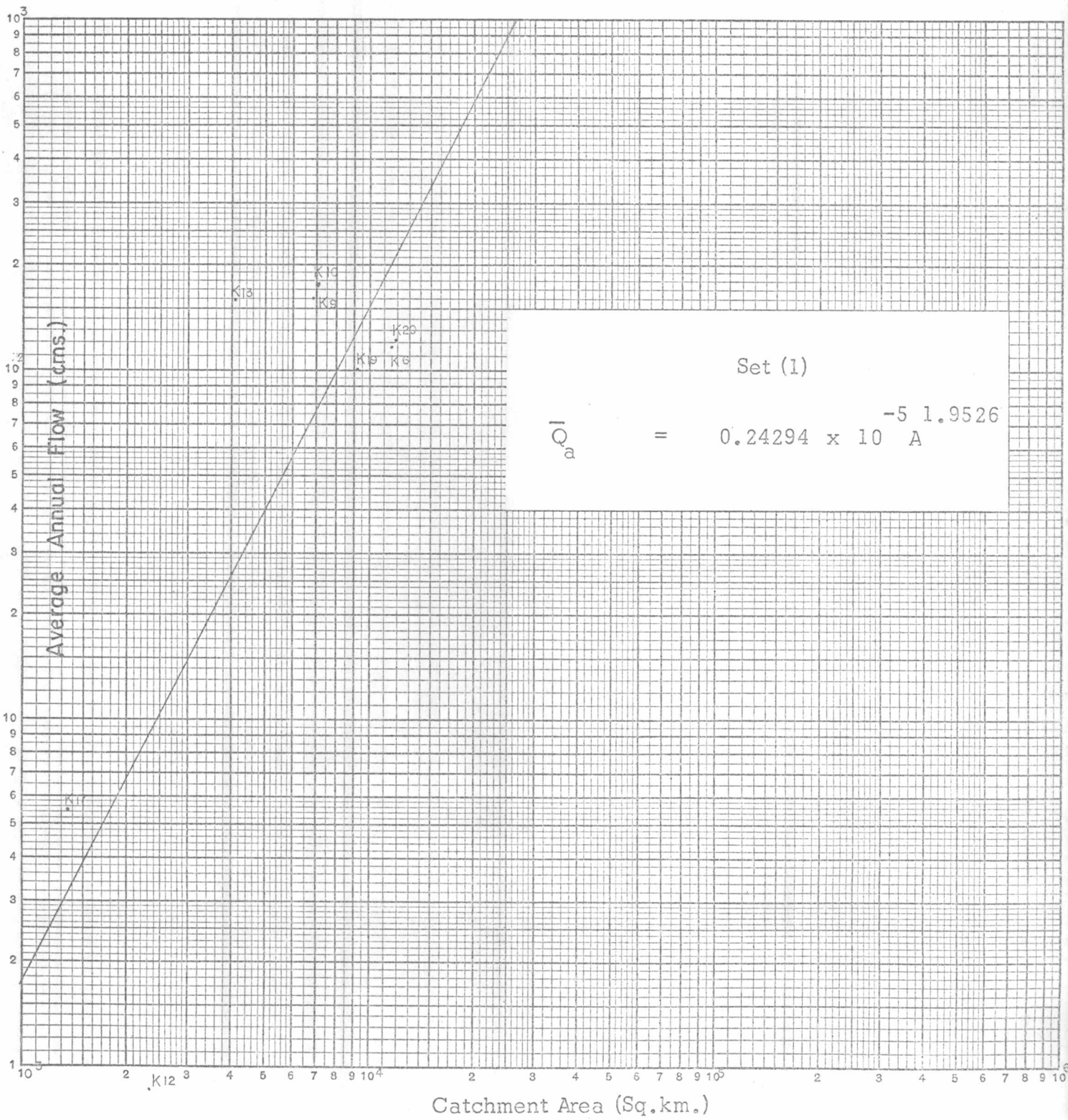
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MADE IN U.S.A.
KEUFFEL & ESSER CO.

Catchment Area (Sq.km.)

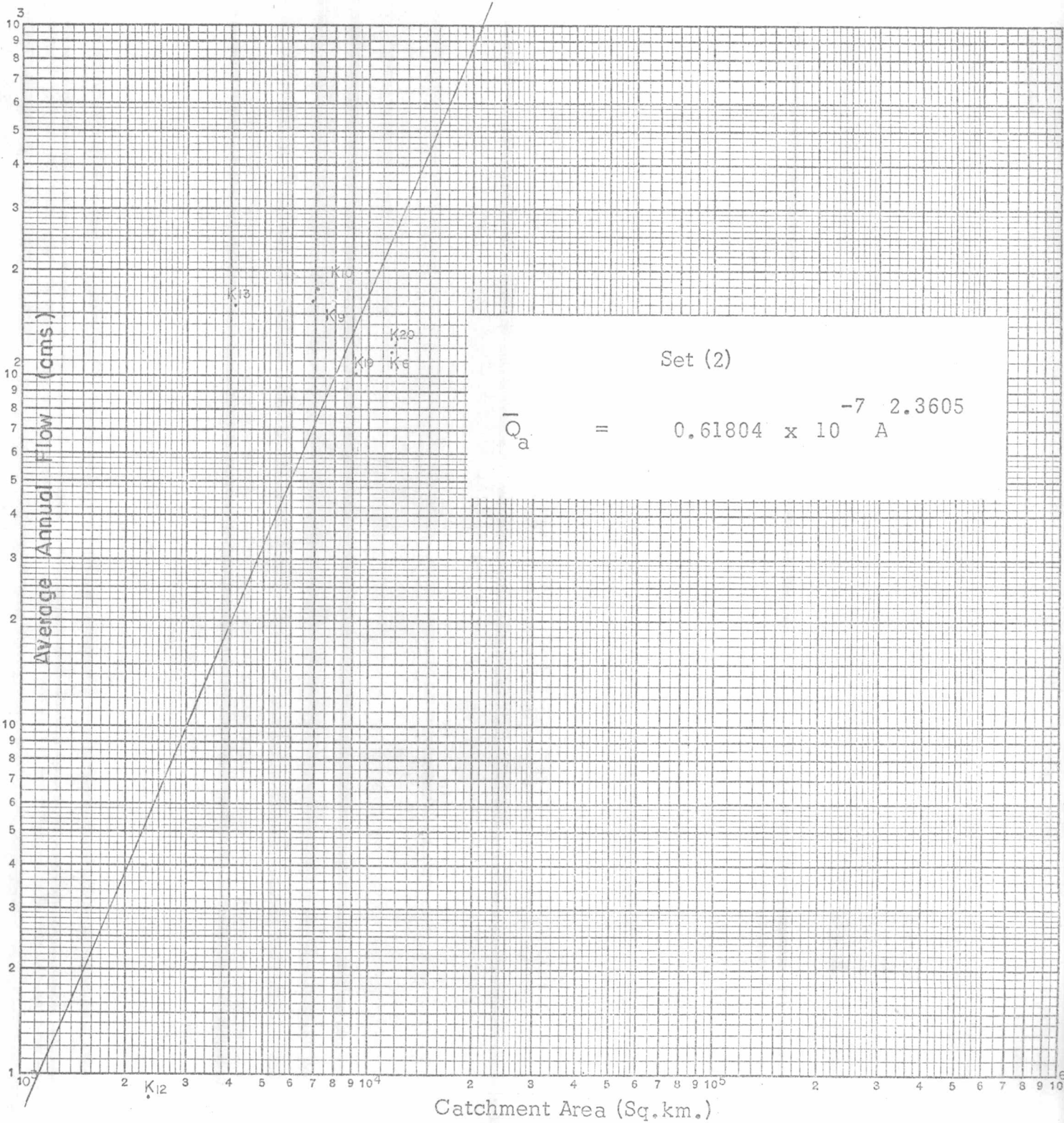



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 KEUFFEL & ESSER CO.

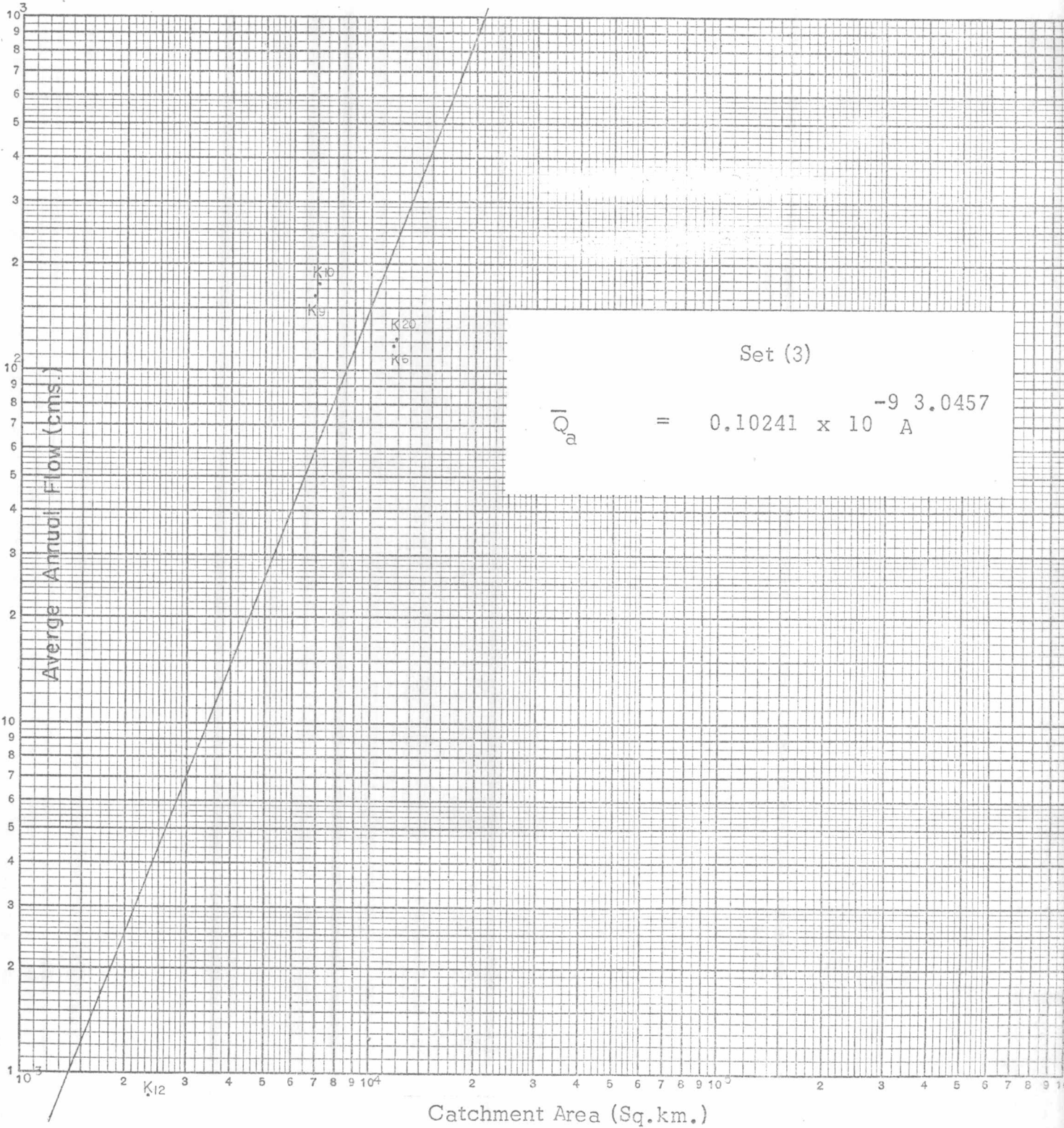
46403



KE LOGARITHMIC 46403 MADE IN U.S.A. KEUFFEL & ESSER CO. 3 X 3 CYCLES



KE LOGARITHMIC
3 X 3 CYCLES
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MADE IN U.S.A.
KEUFFEL & ESSER CO.

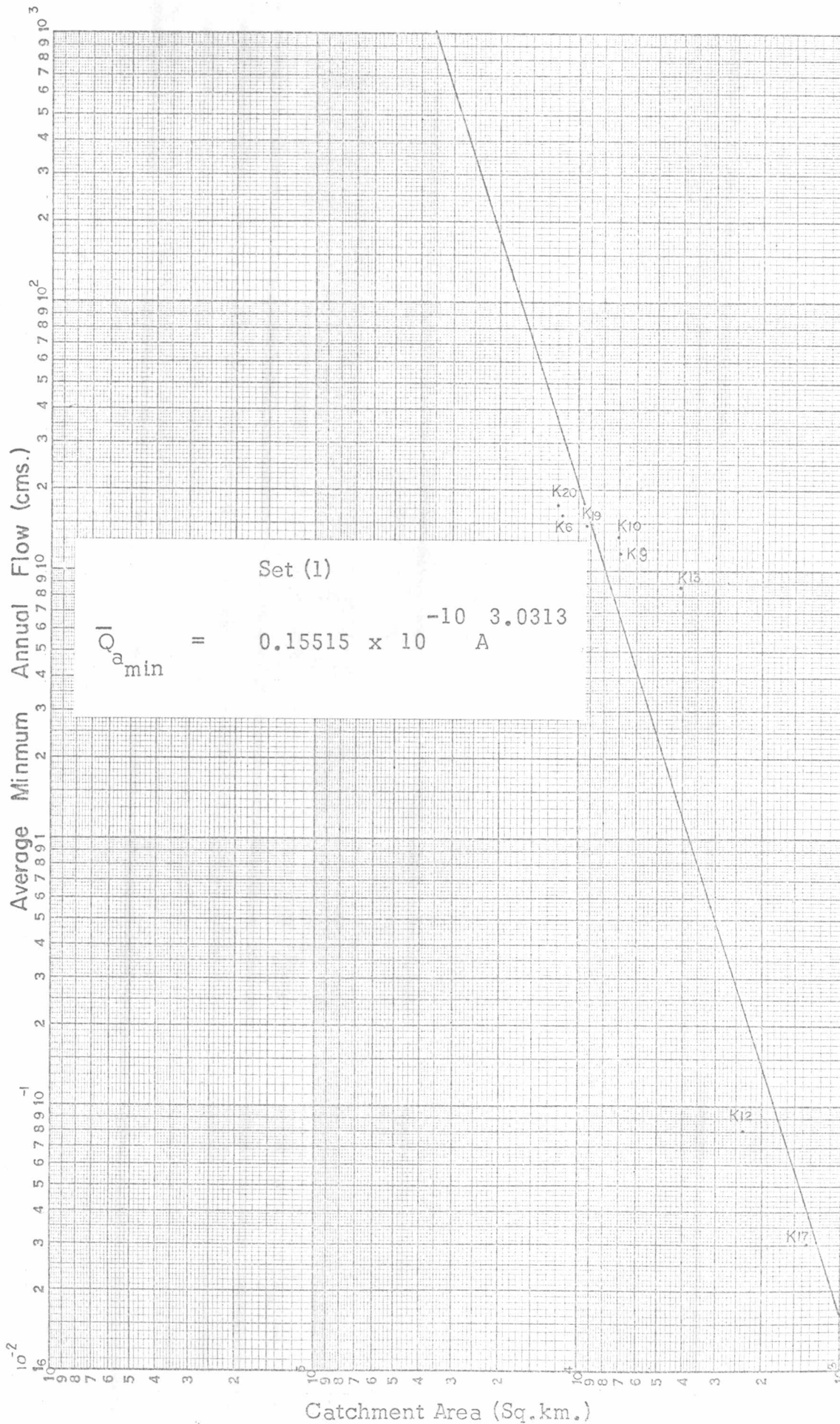


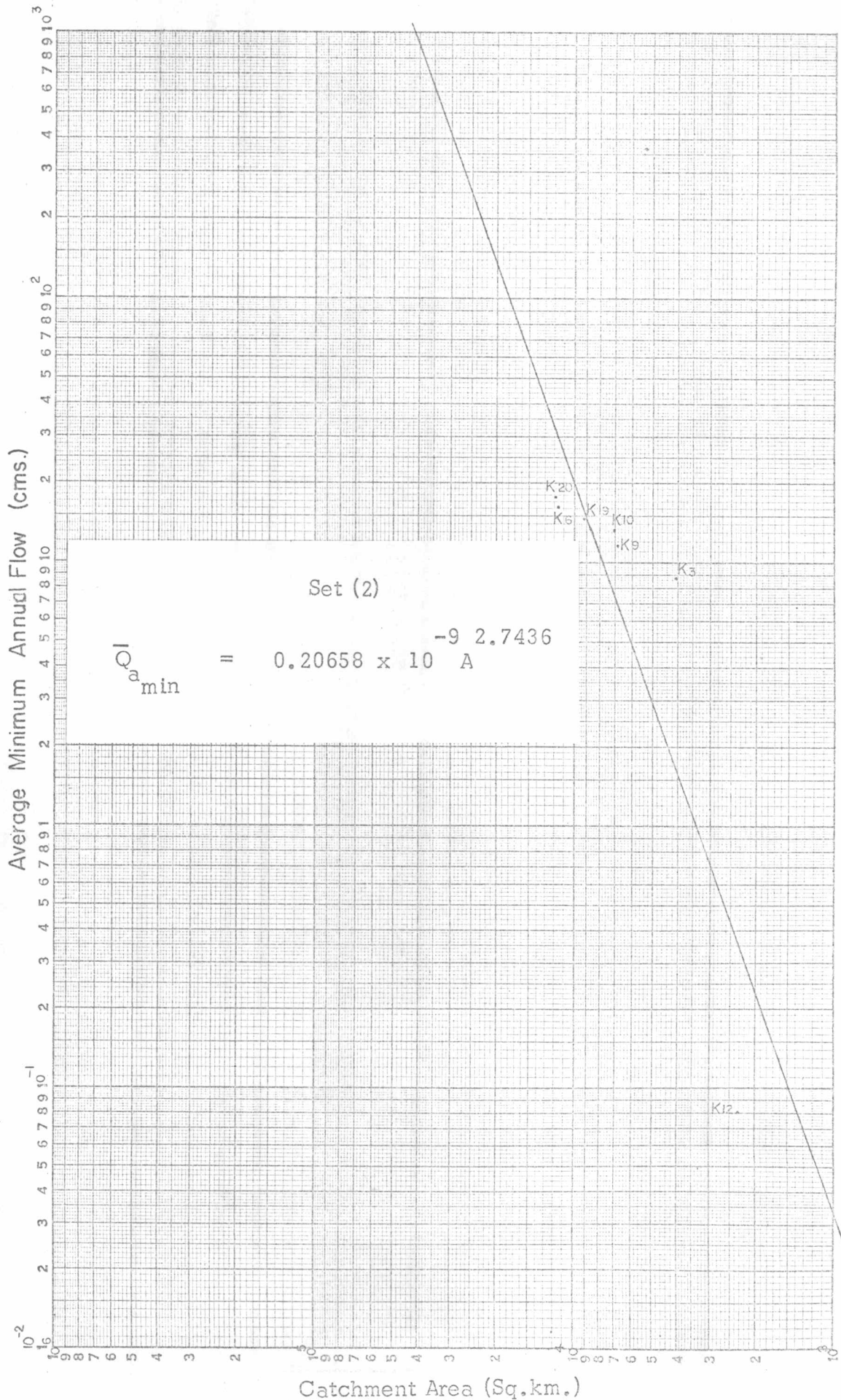
Set (3)

$$Q_a = 0.10241 \times 10^{-9} A^{3.0457}$$

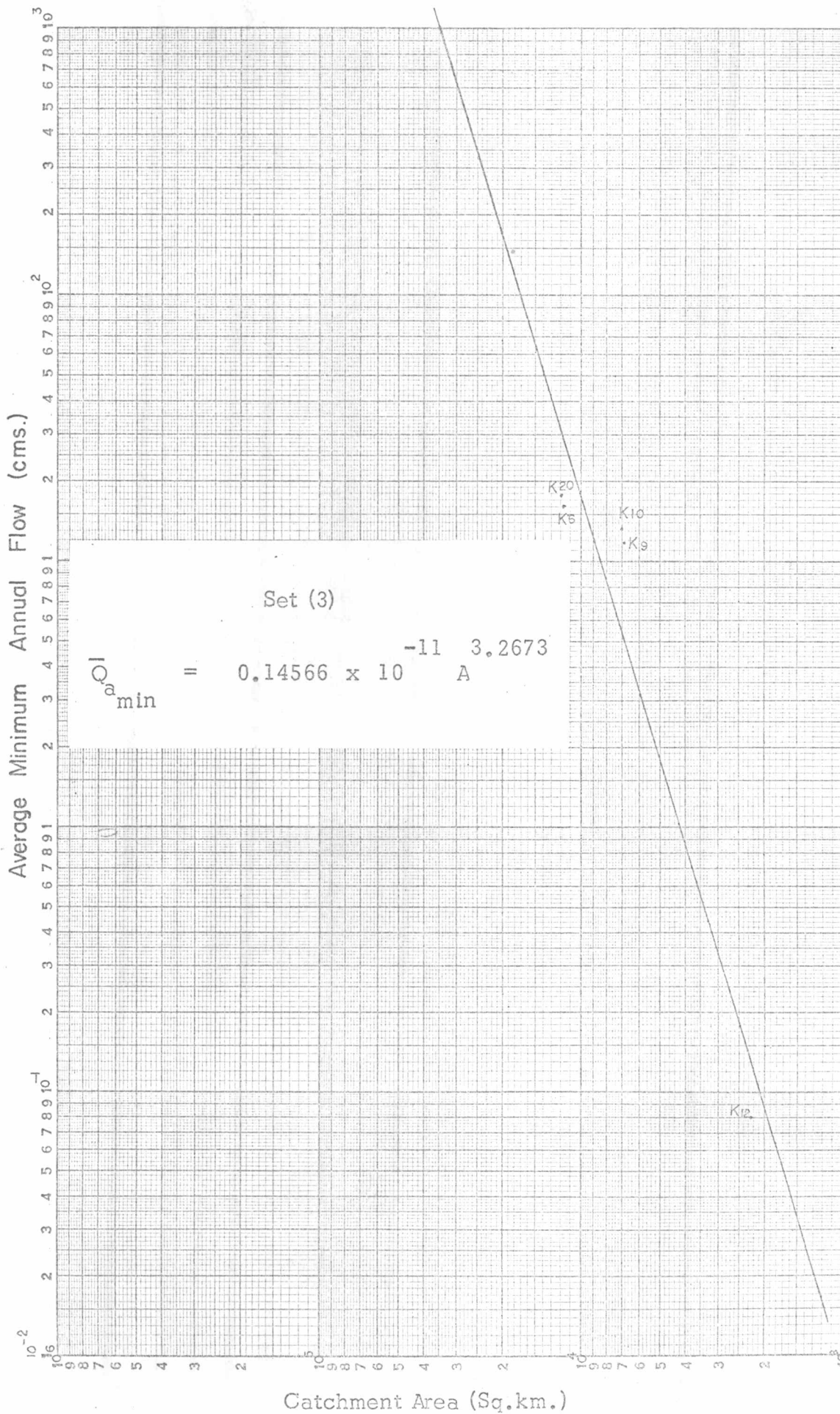
KE LOGARITHMIC
3 X 3 CYCLES
KEUFFEL & ESSER CO.

46-403
MADE IN U.S.A.



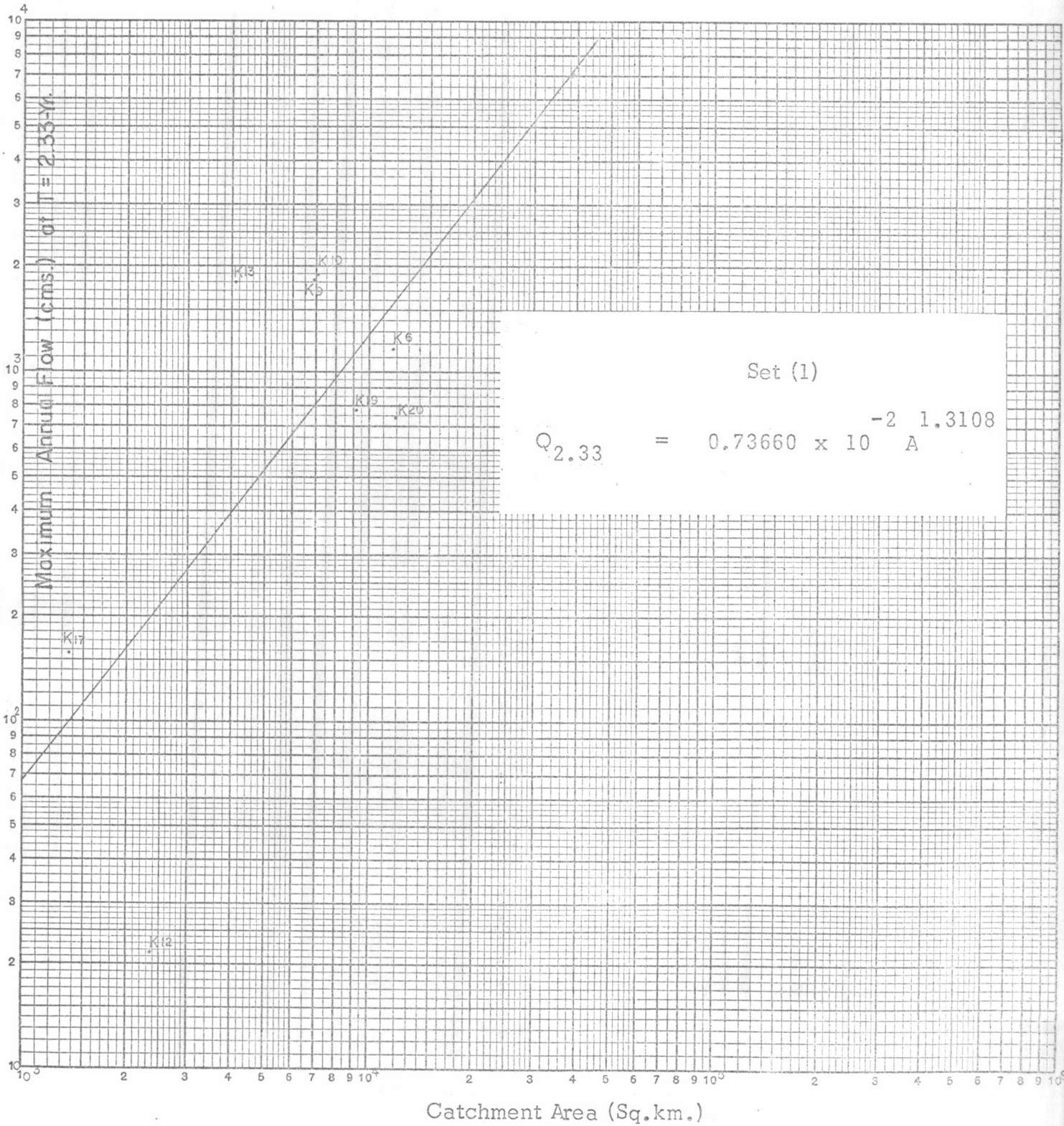


LOGARITHMIC
3 X 5 CYCLES
KEUFFEL & ESSER CO.
U.S.A.

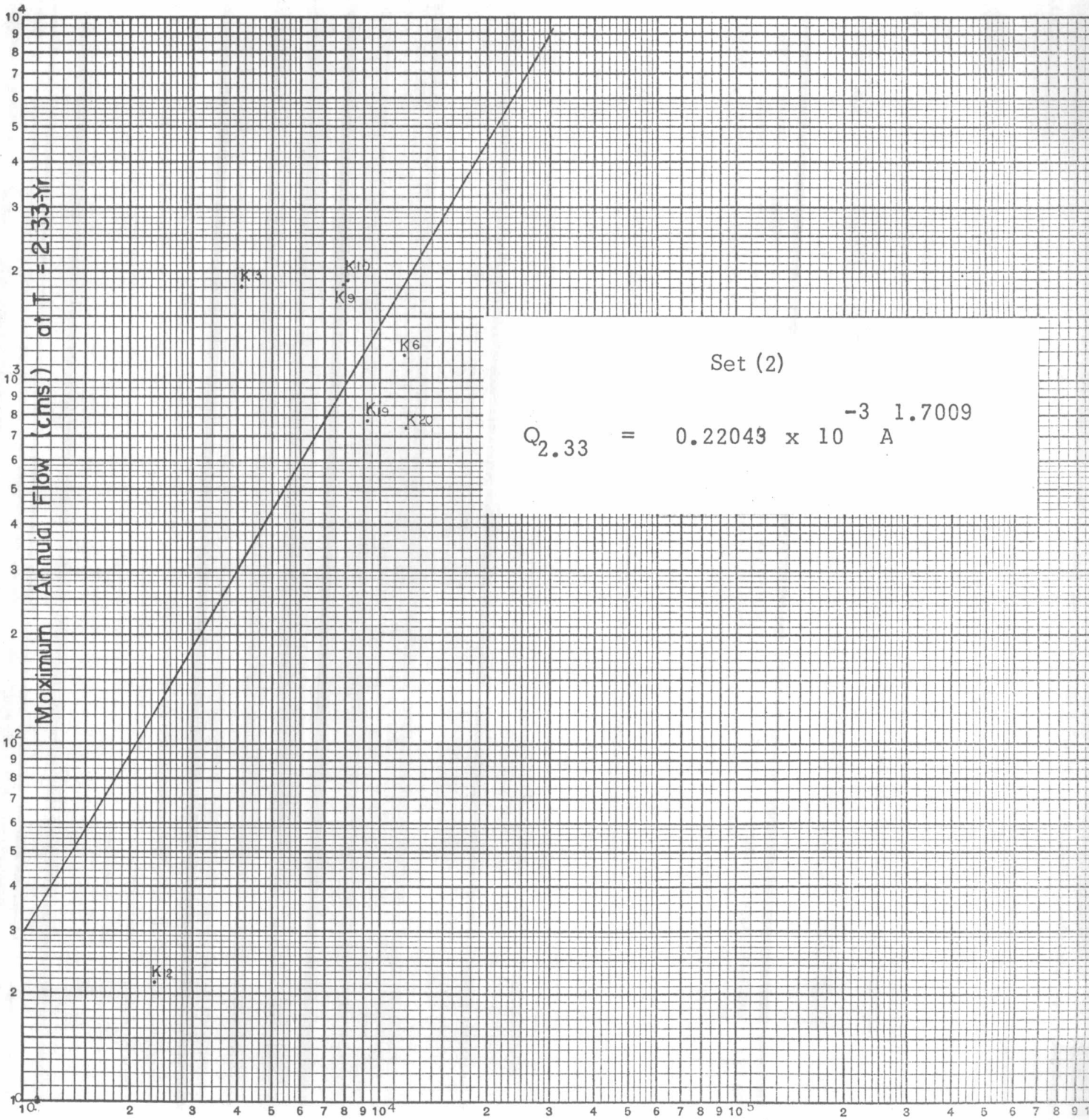


407522
 LOGARITHMIC
 3 X 5 CYCLES
 MADE IN U.S.A.
 KEUFFEL & ESSER CO.

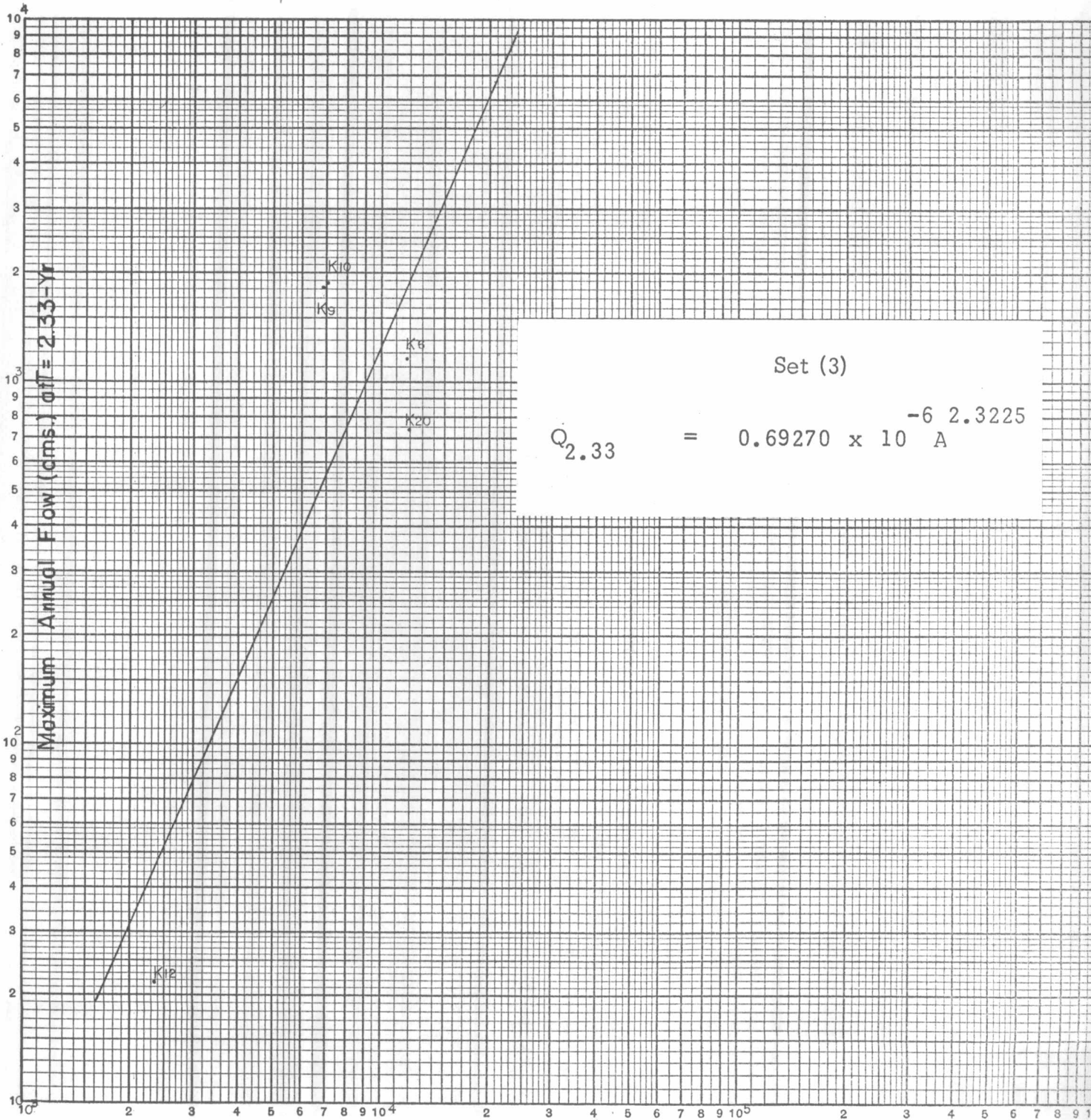
Catchment Area (Sq.km.)



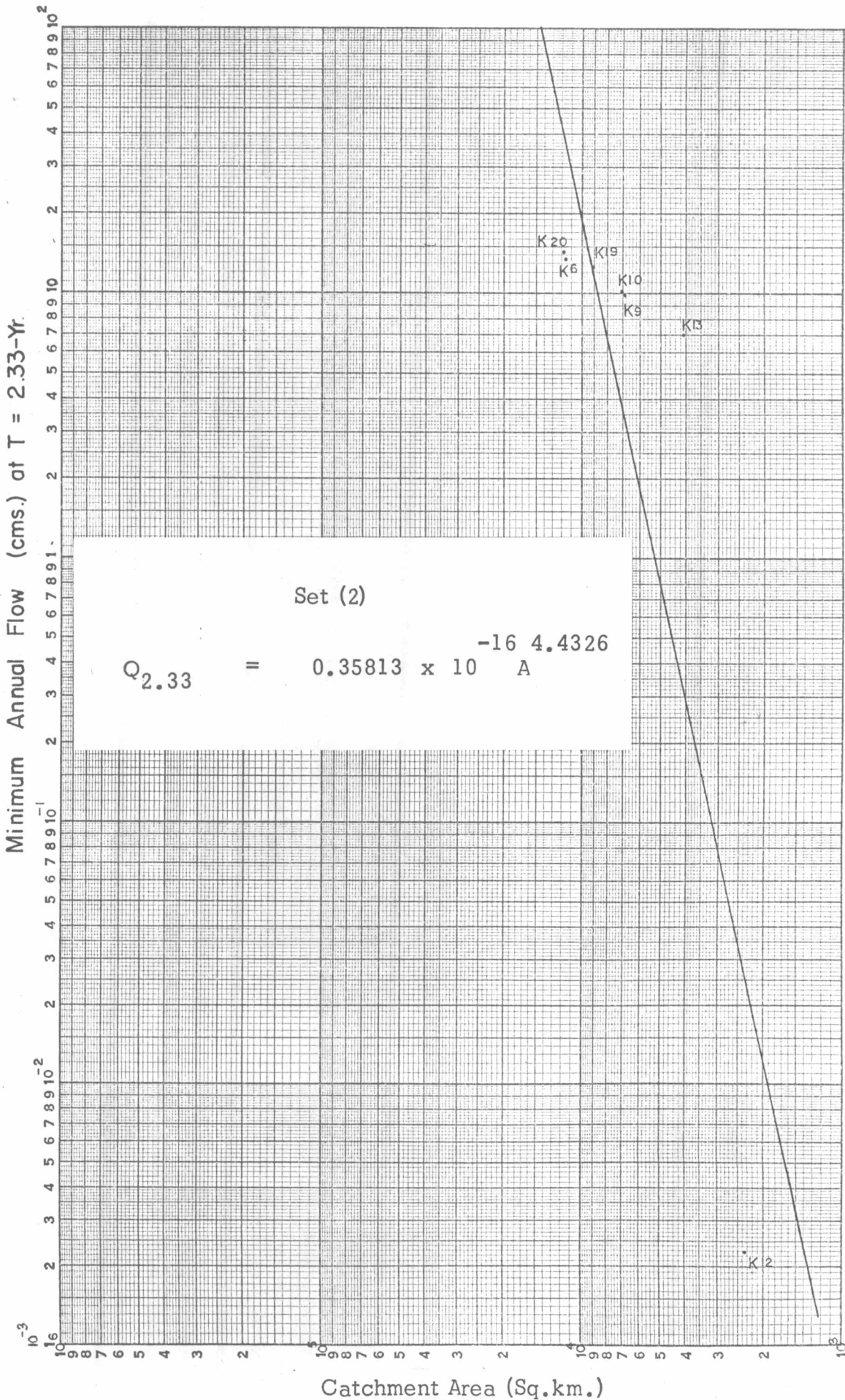
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MADE IN U.S.A.
KEUFFEL & ESSER CO.




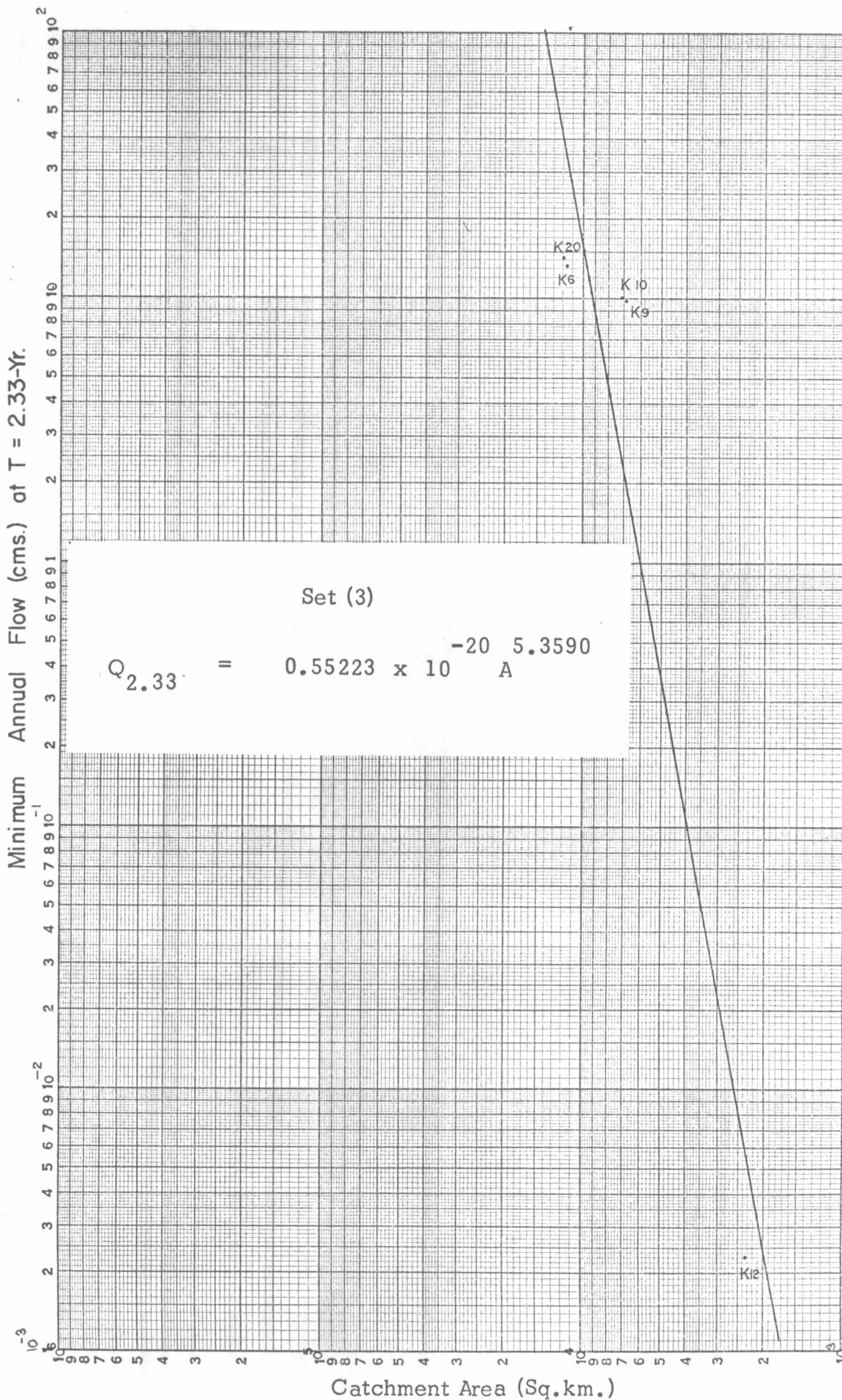
K&E LOGARITHMIC
3 X 3 CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.

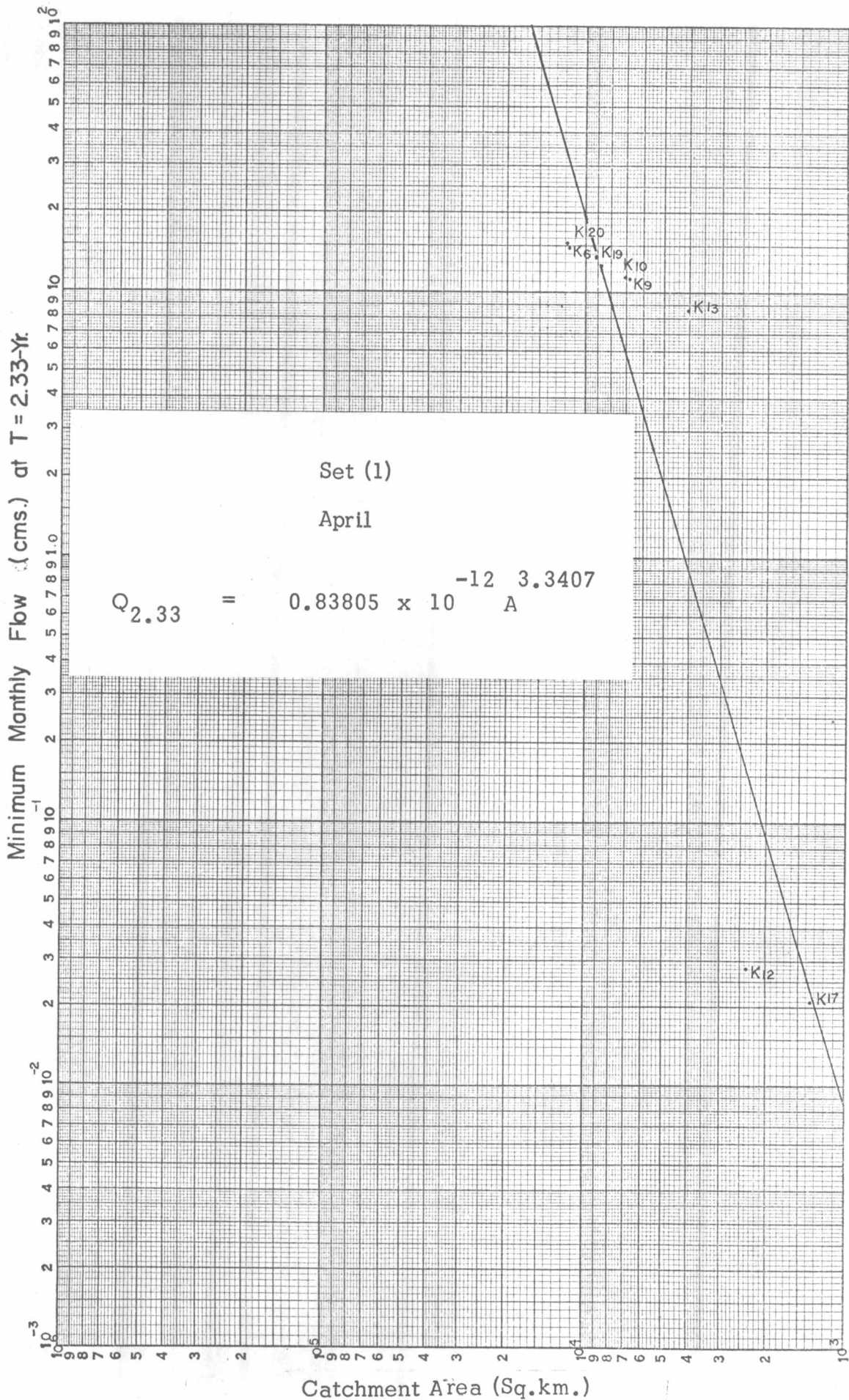



Catchment Area (Sq.km.)

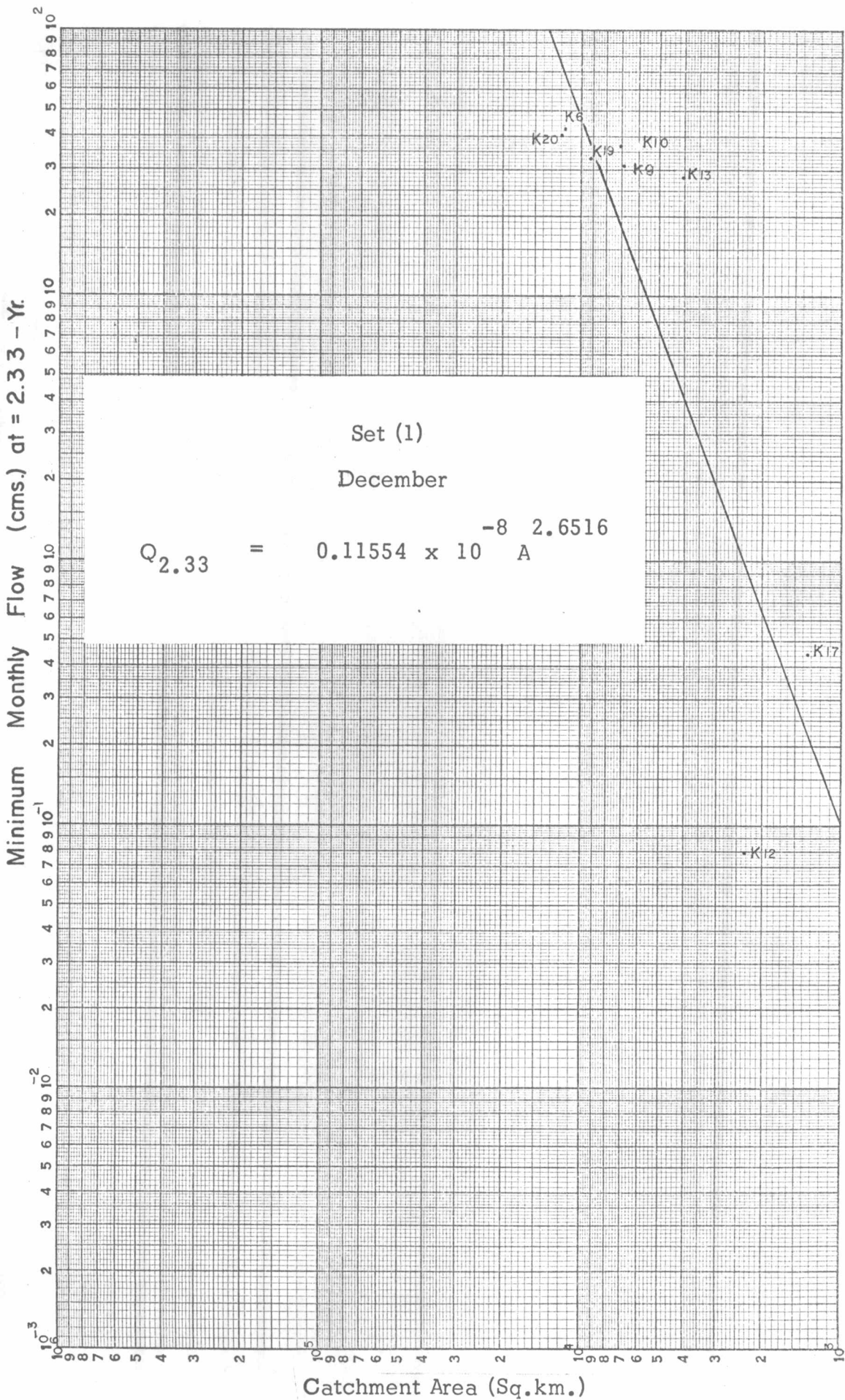



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 3 X 5 CYCLES
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 MADE IN U.S.A.
 KEUFFEL & ESSER CO.



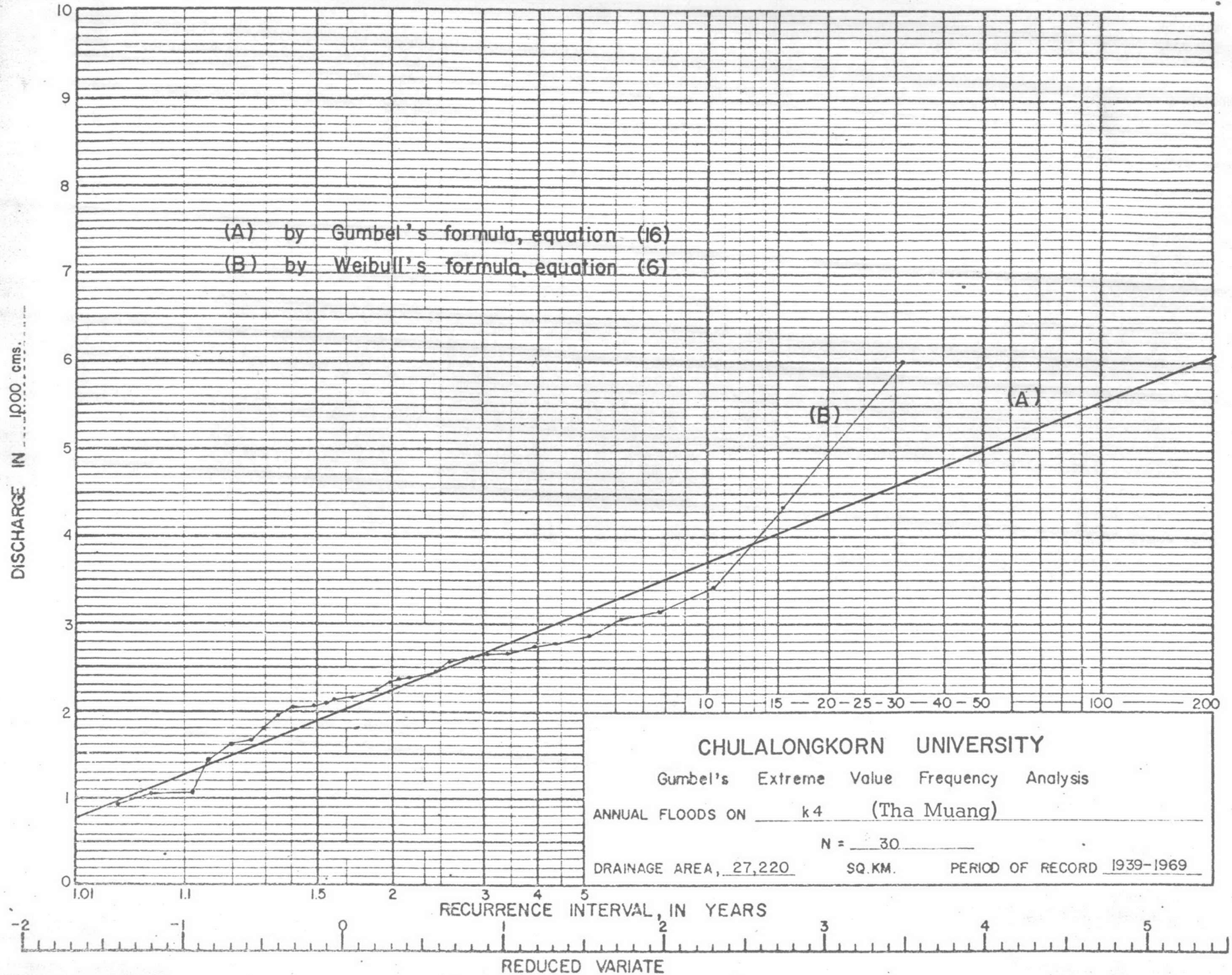


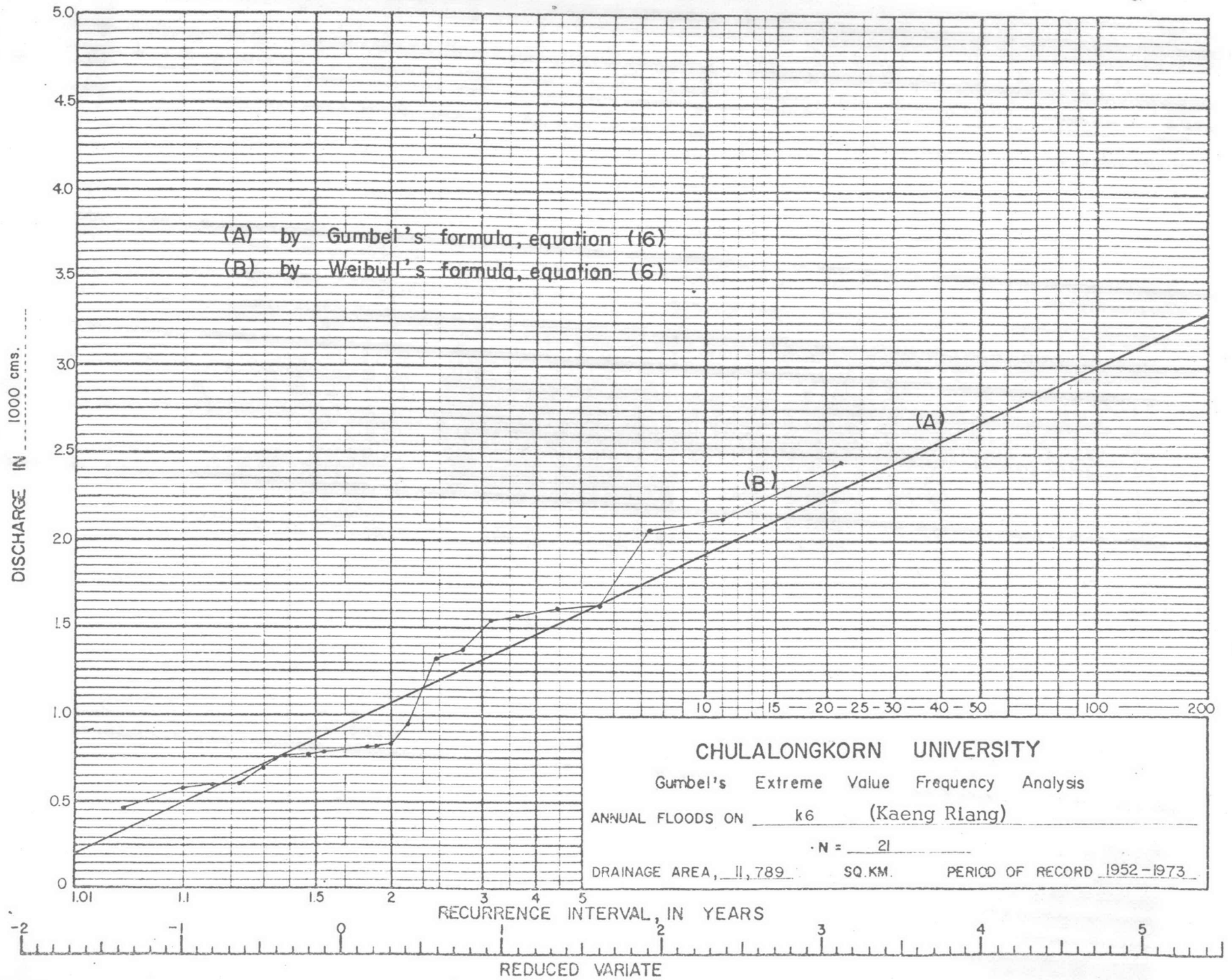

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 KEUFFEL & ESSER CO.

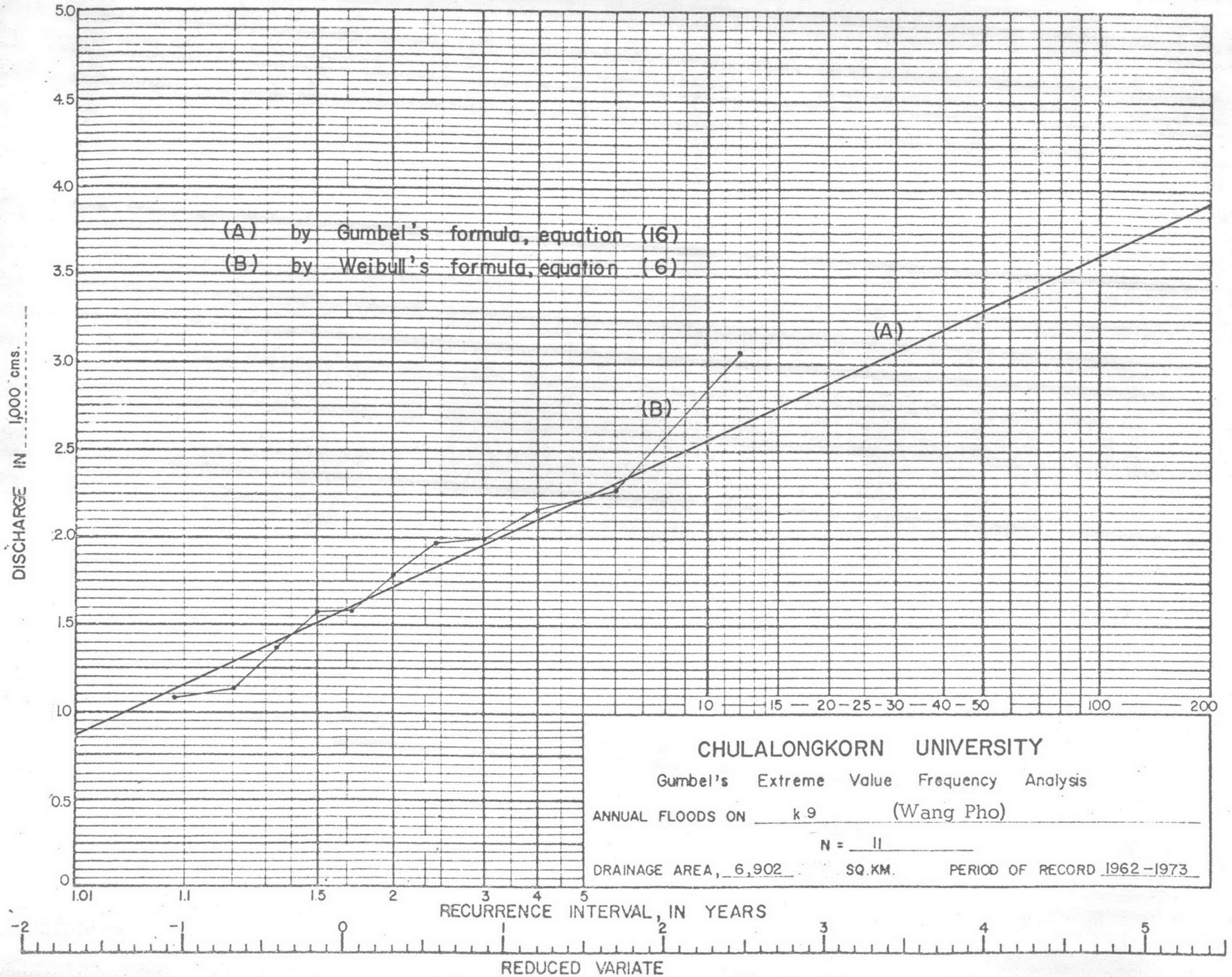


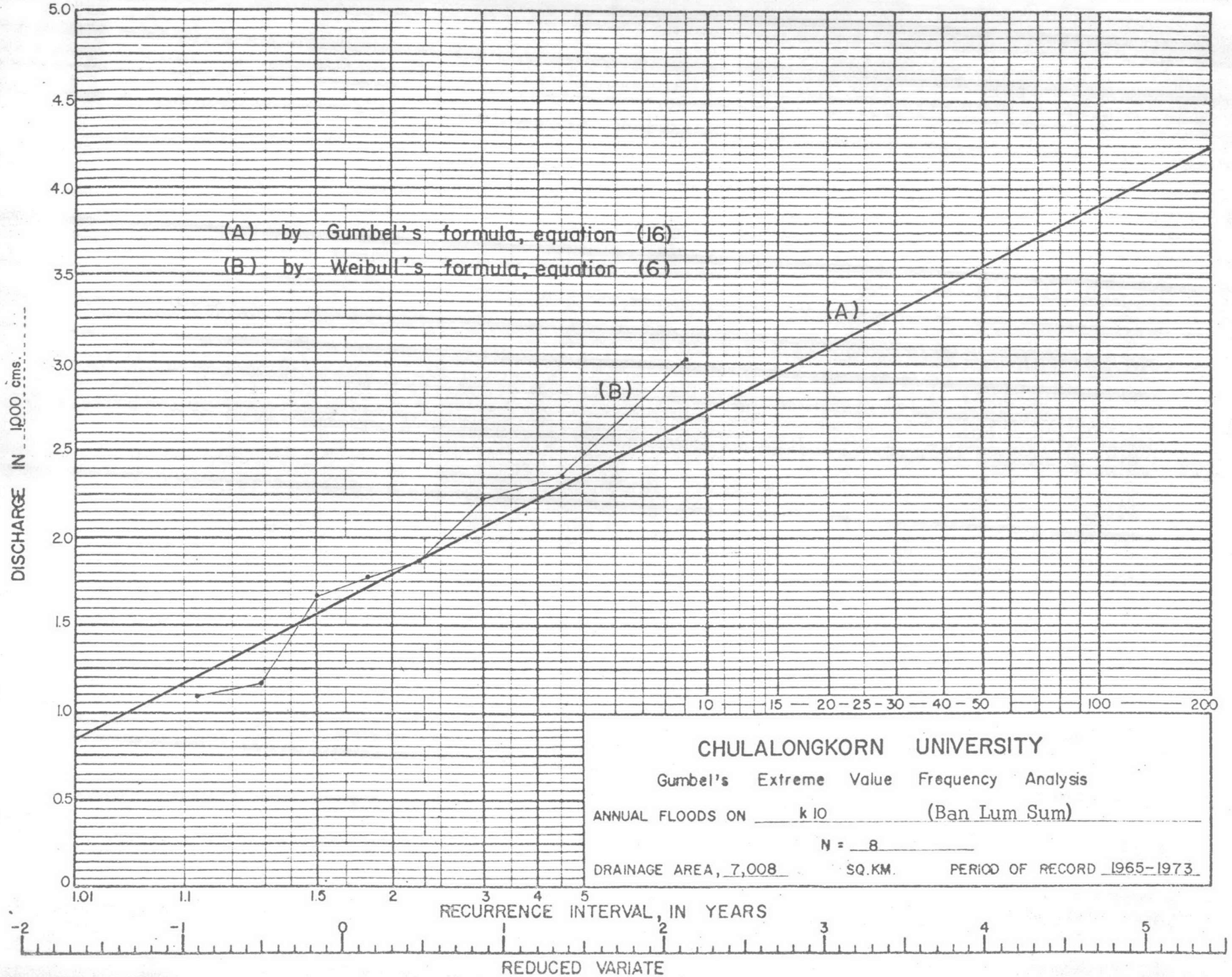
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 MADE IN U.S.A.
 KEUFFEL & ESSER CO.

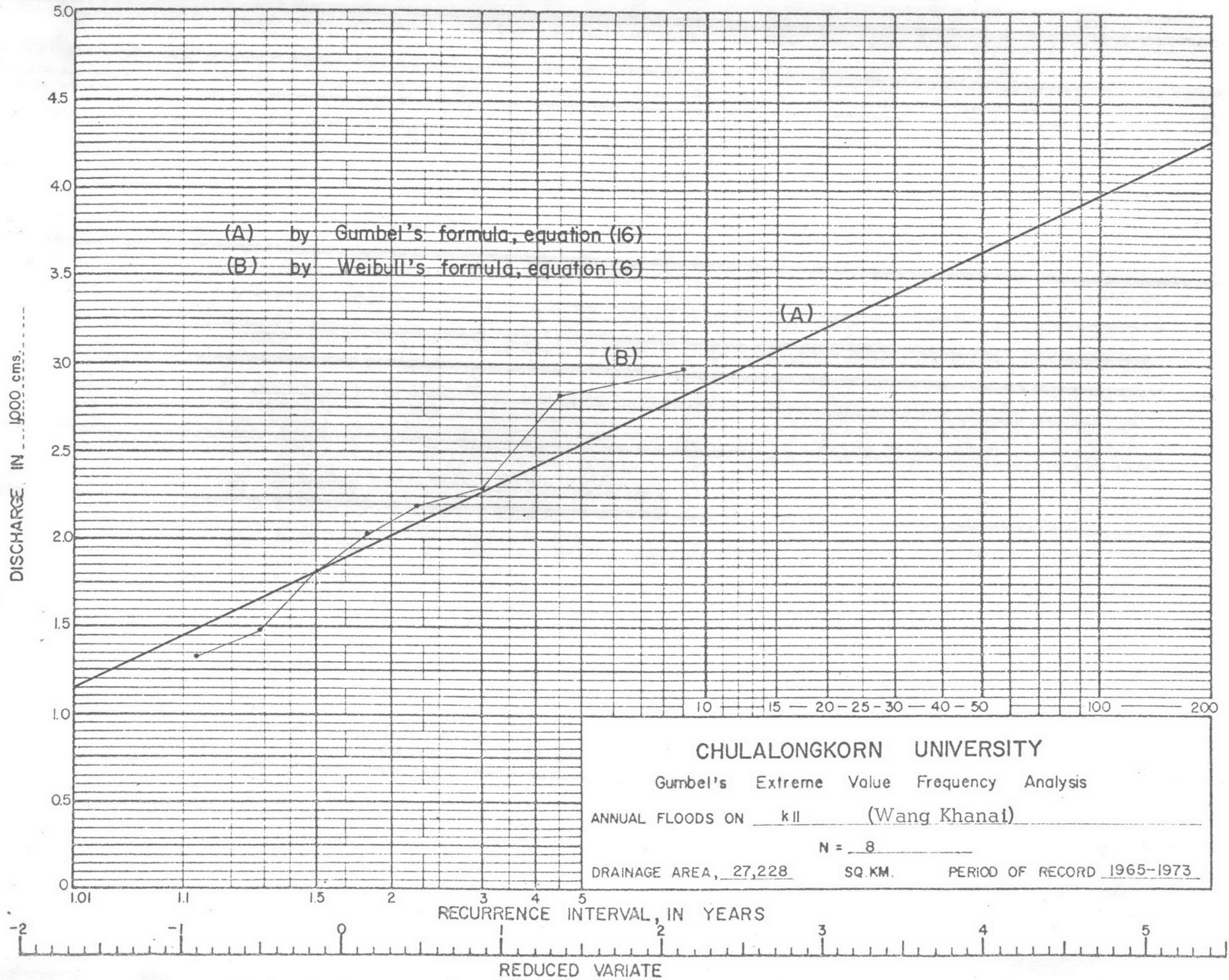
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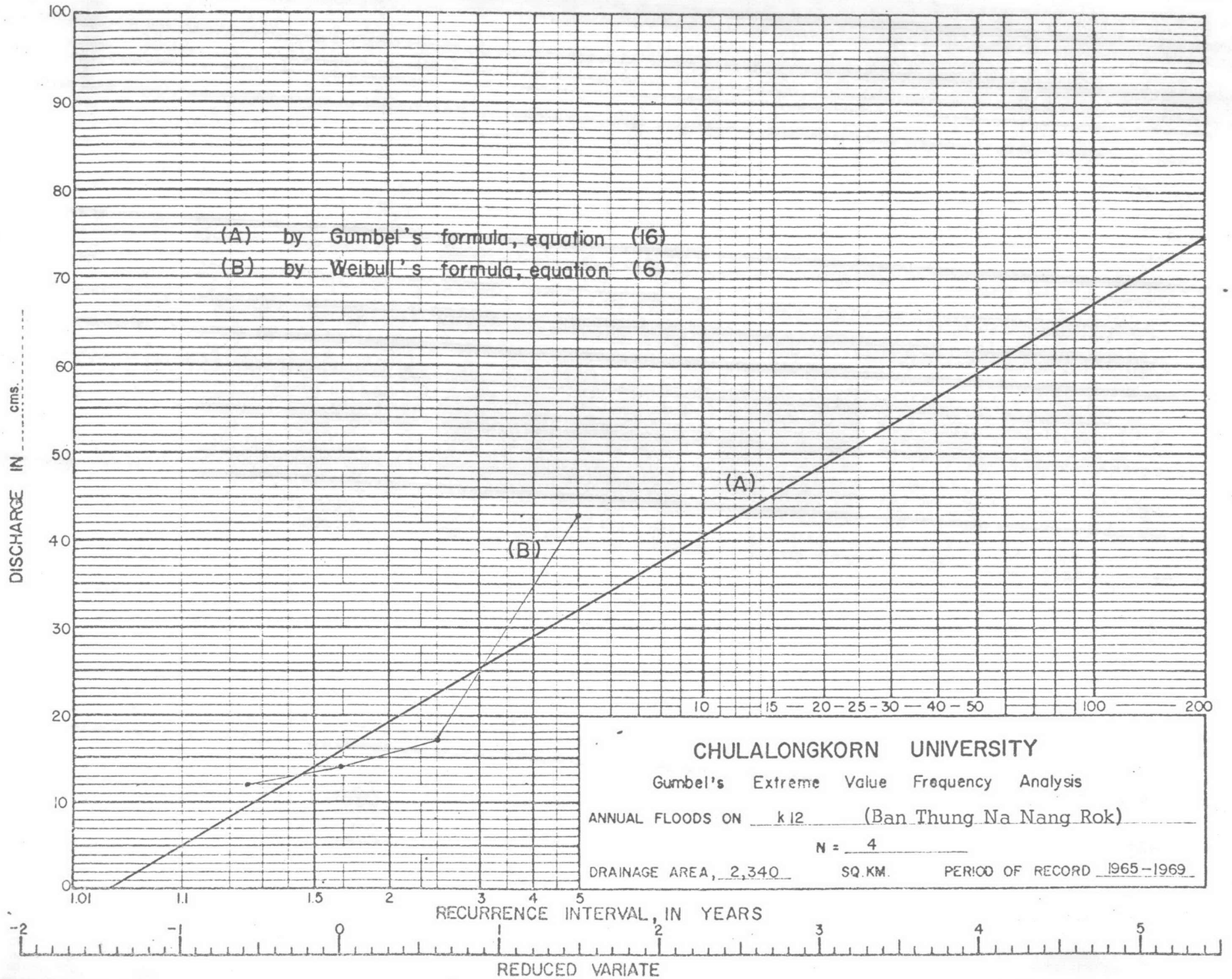


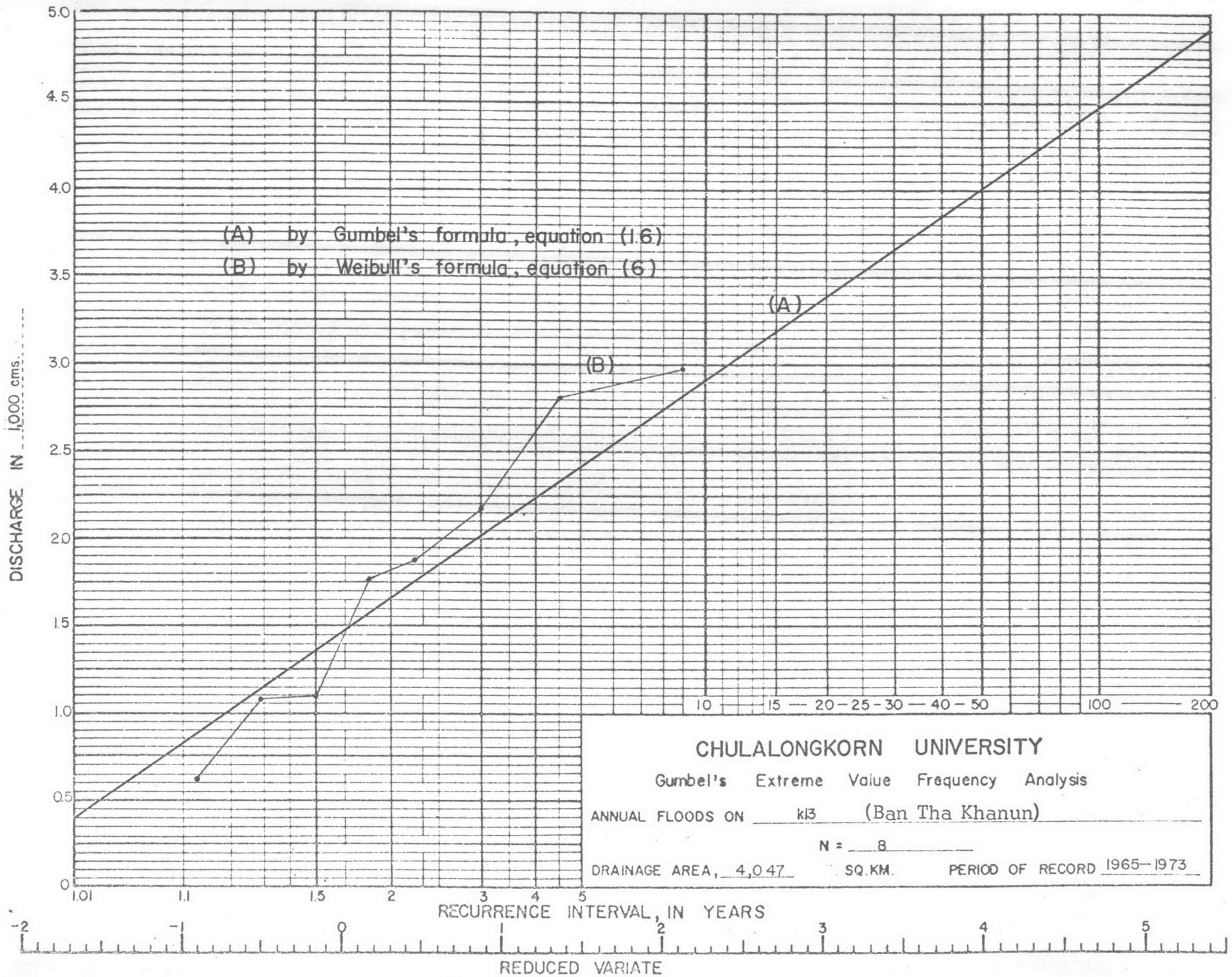


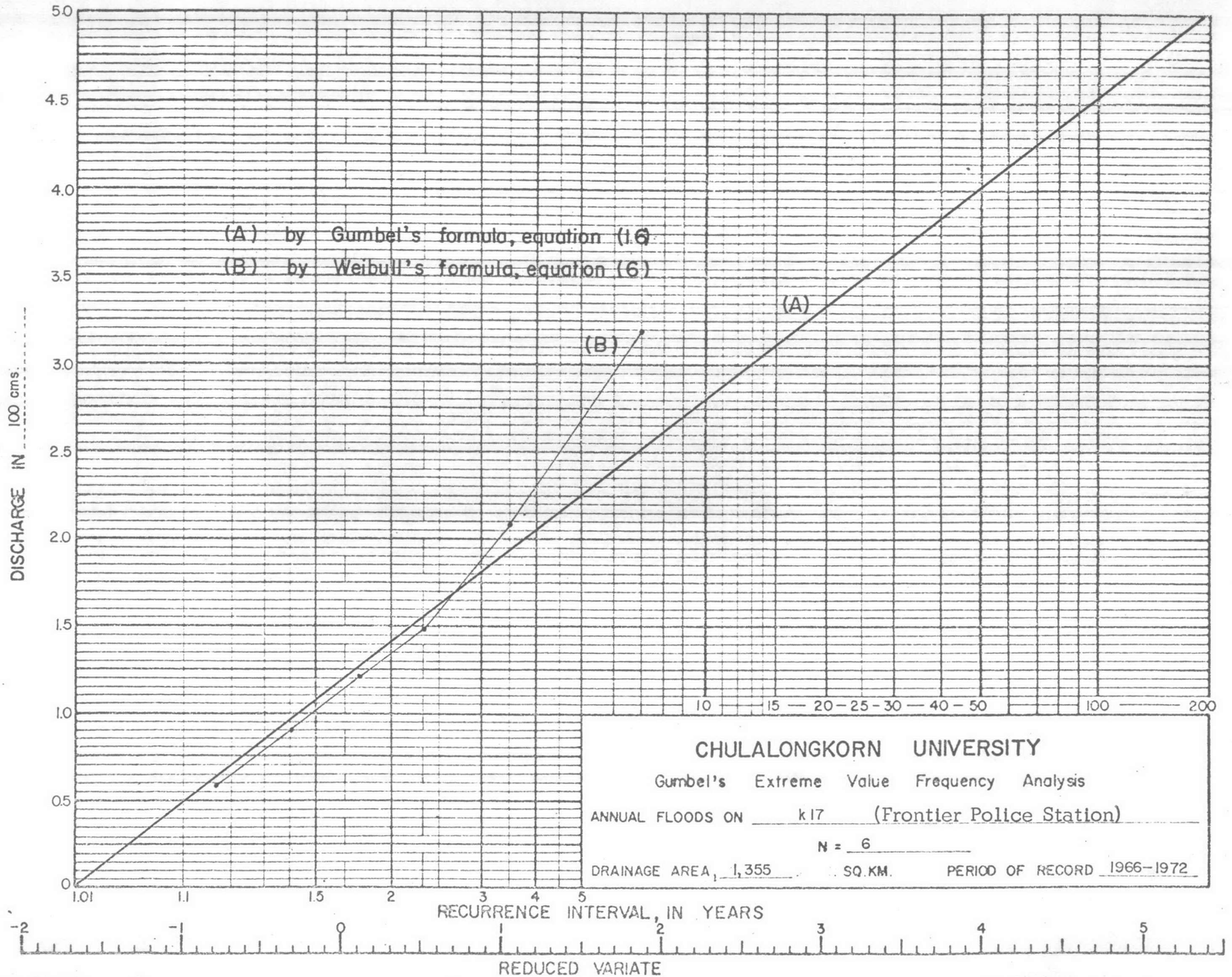




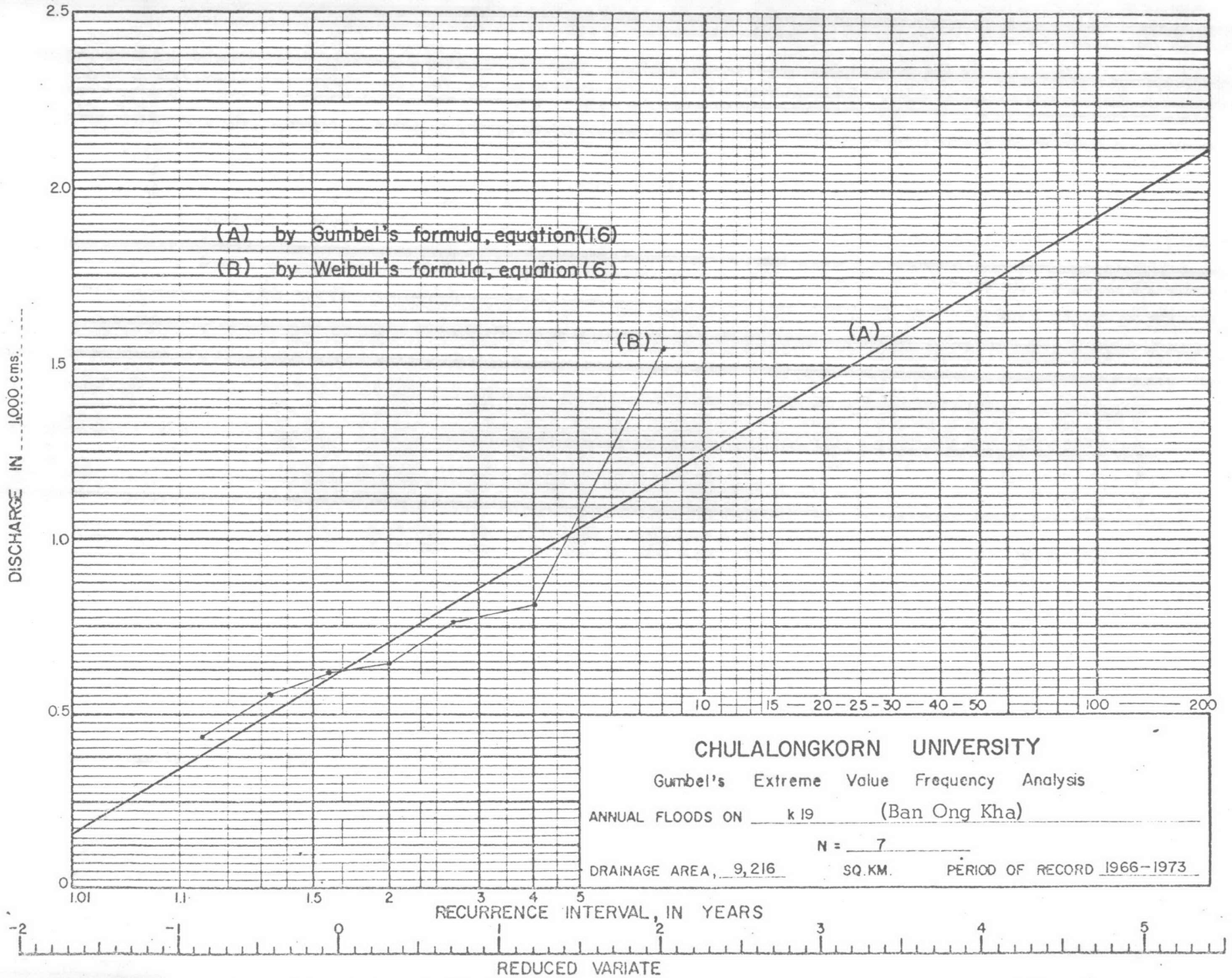


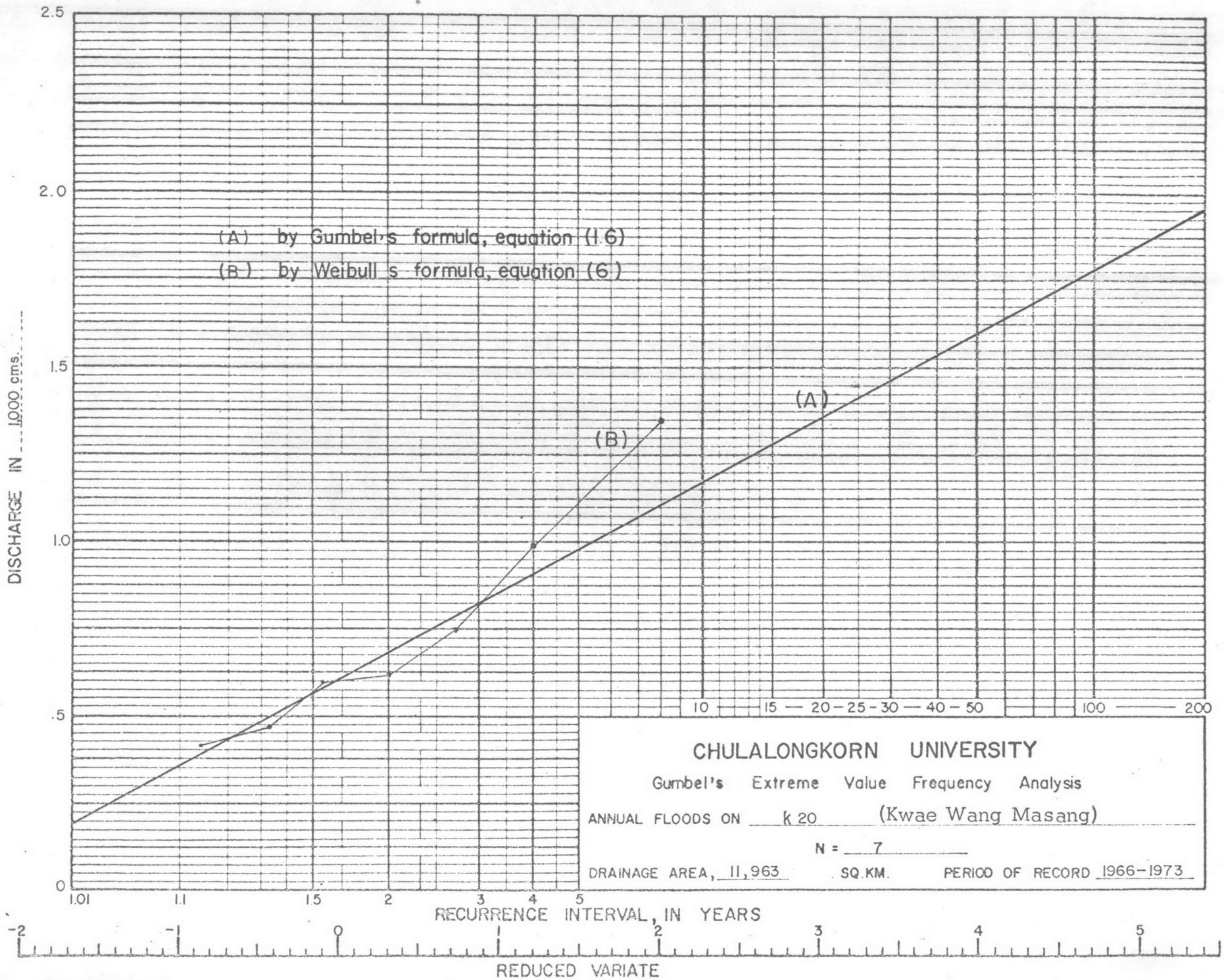


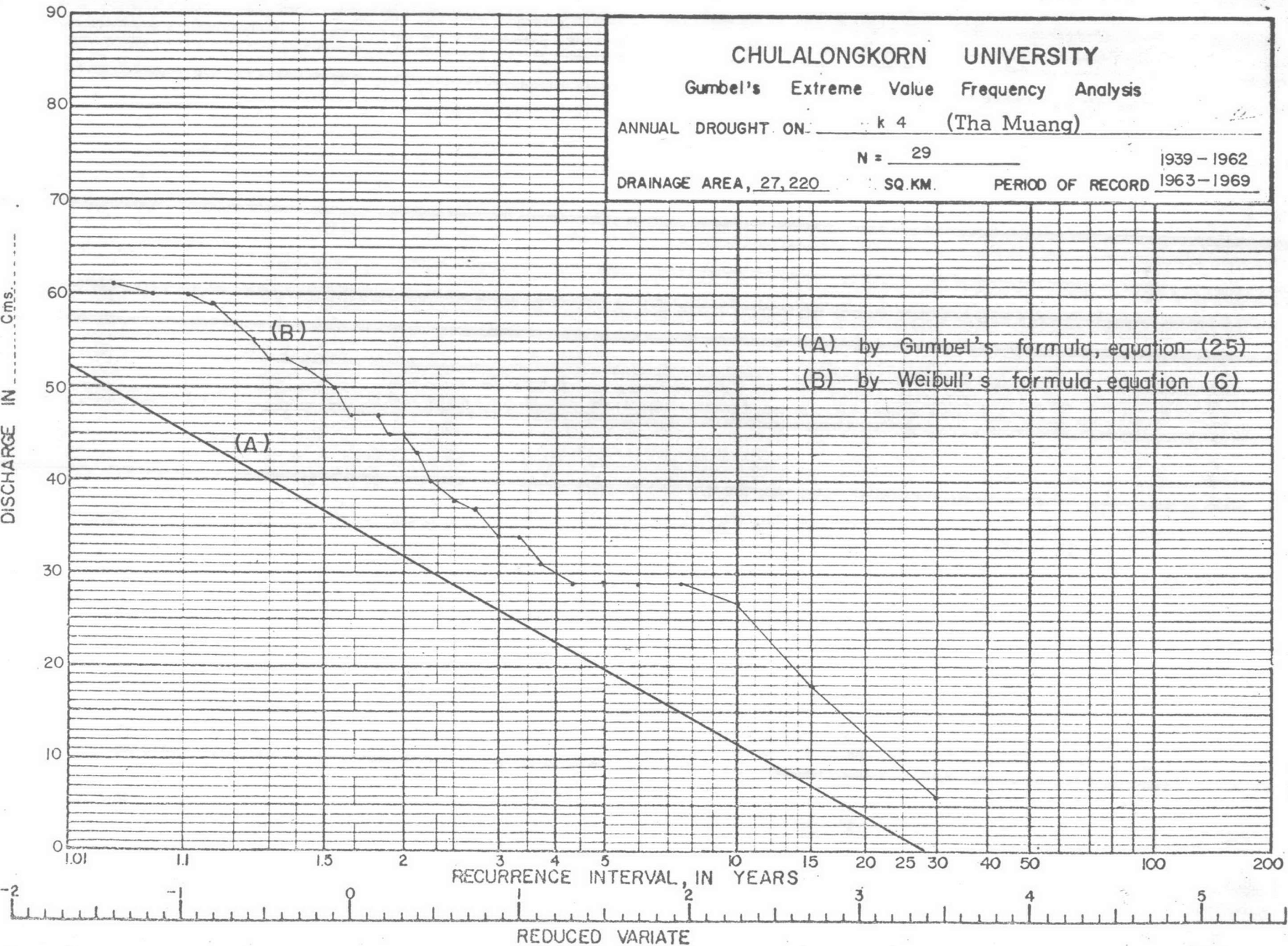




CHULALONGKORN UNIVERSITY
 Gumbel's Extreme Value Frequency Analysis
 ANNUAL FLOODS ON k17 (Frontier Police Station)
 N = 6
 DRAINAGE AREA, 1,355 SQ. KM. PERIOD OF RECORD 1966-1972







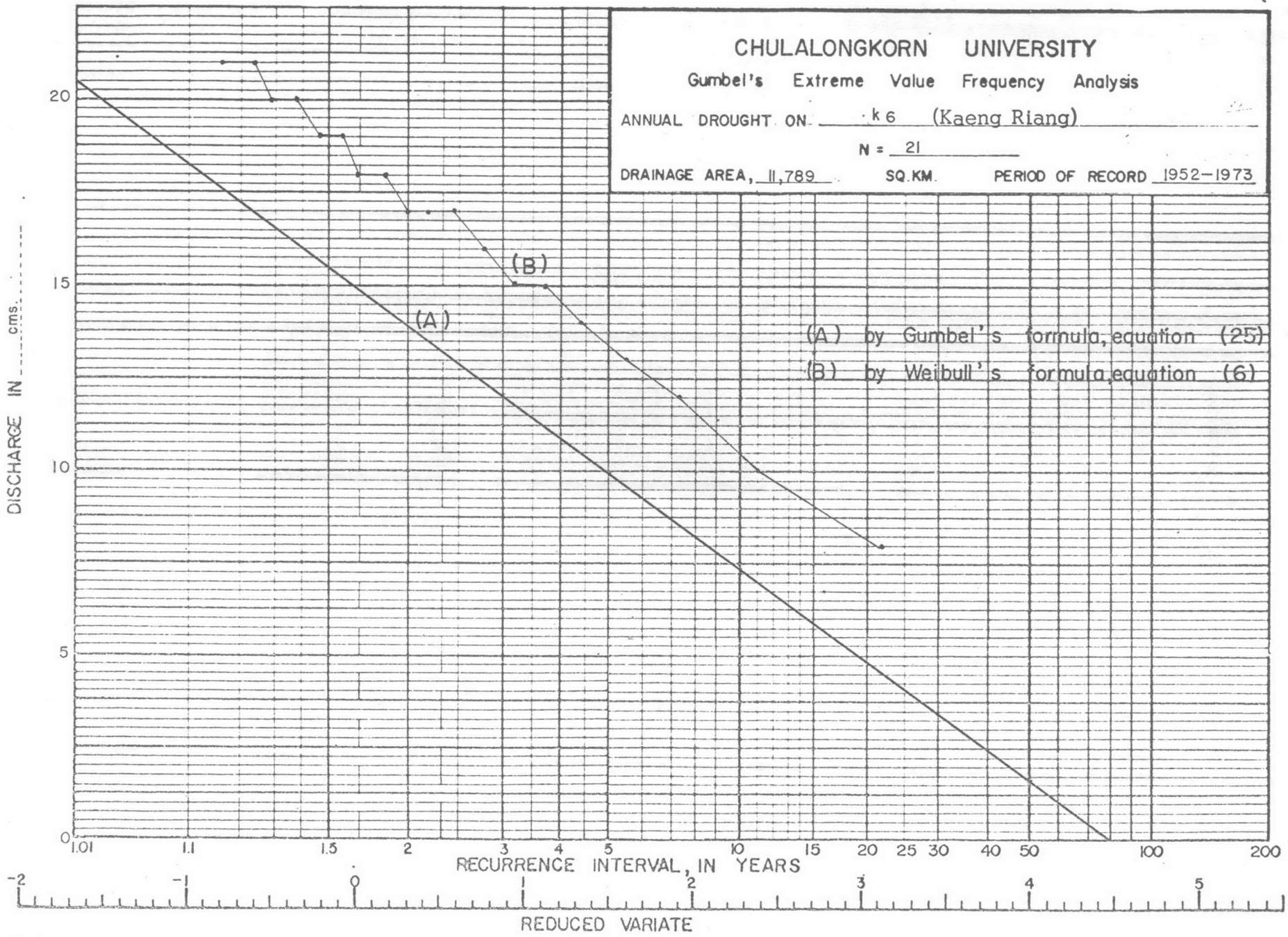
CHULALONGKORN UNIVERSITY

Gumbel's Extreme Value Frequency Analysis

ANNUAL DROUGHT ON k 6 (Kaeng Riang)

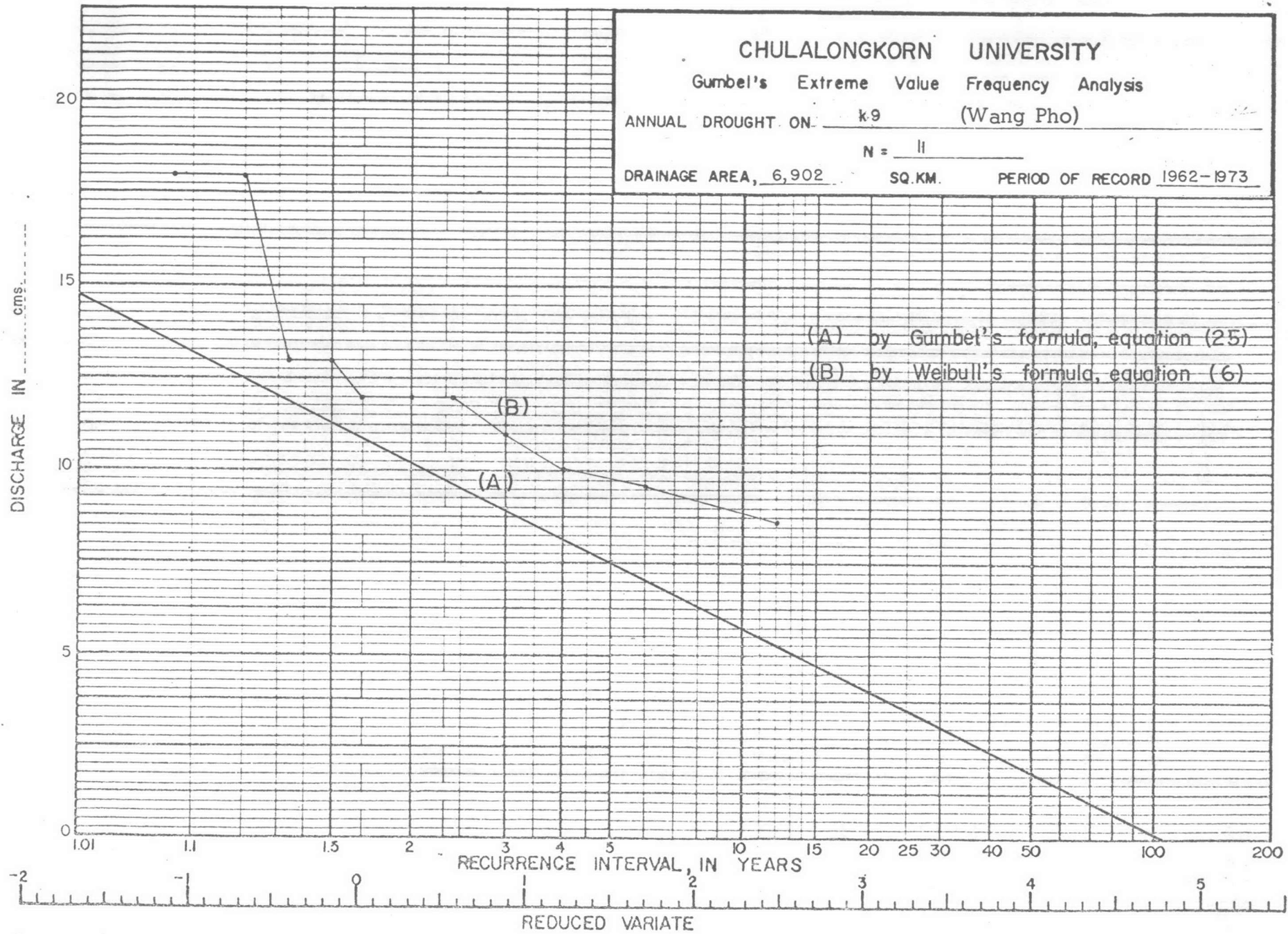
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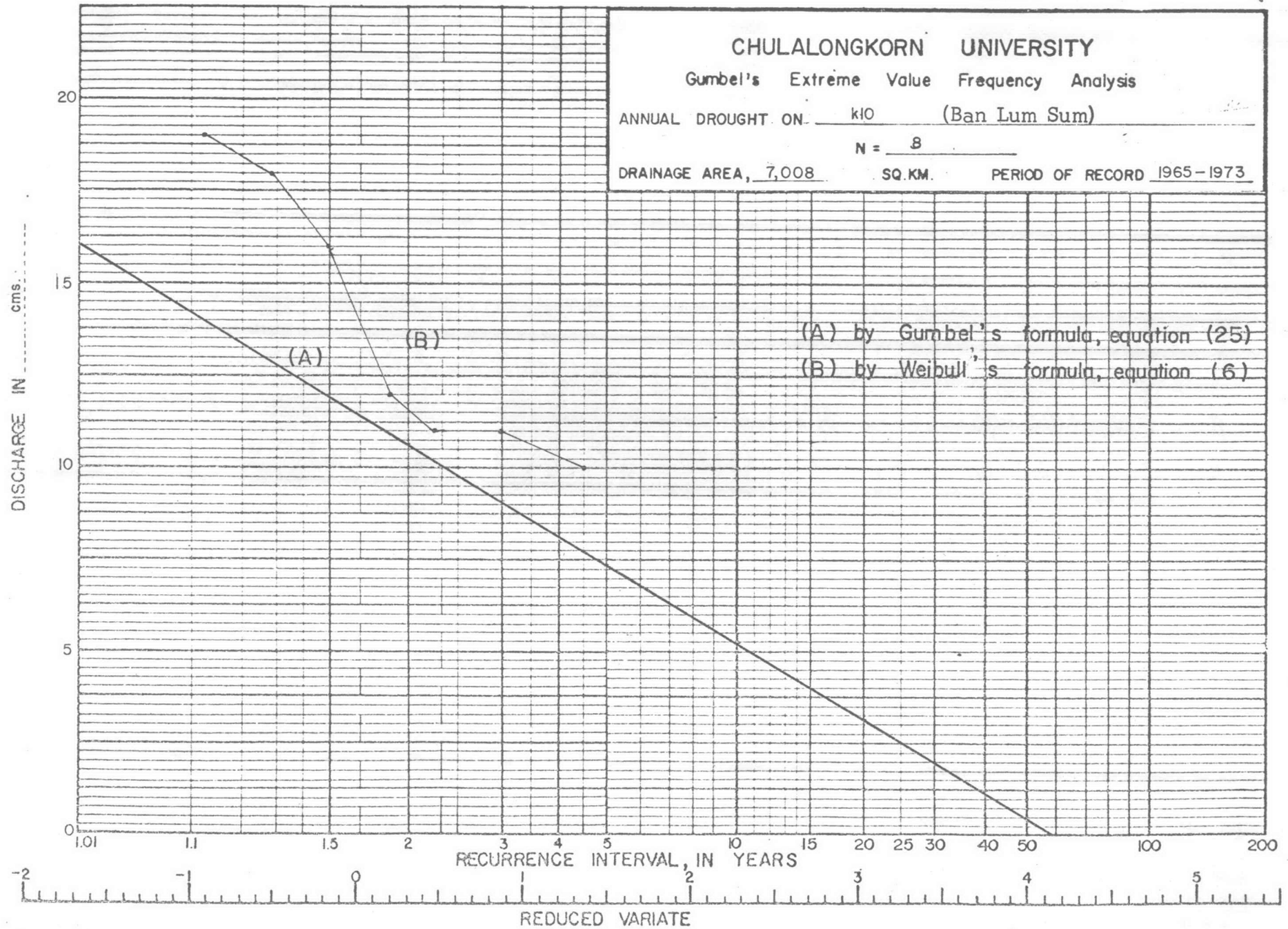
DRAINAGE AREA, 11,789 SQ. KM. PERIOD OF RECORD 1952-1973

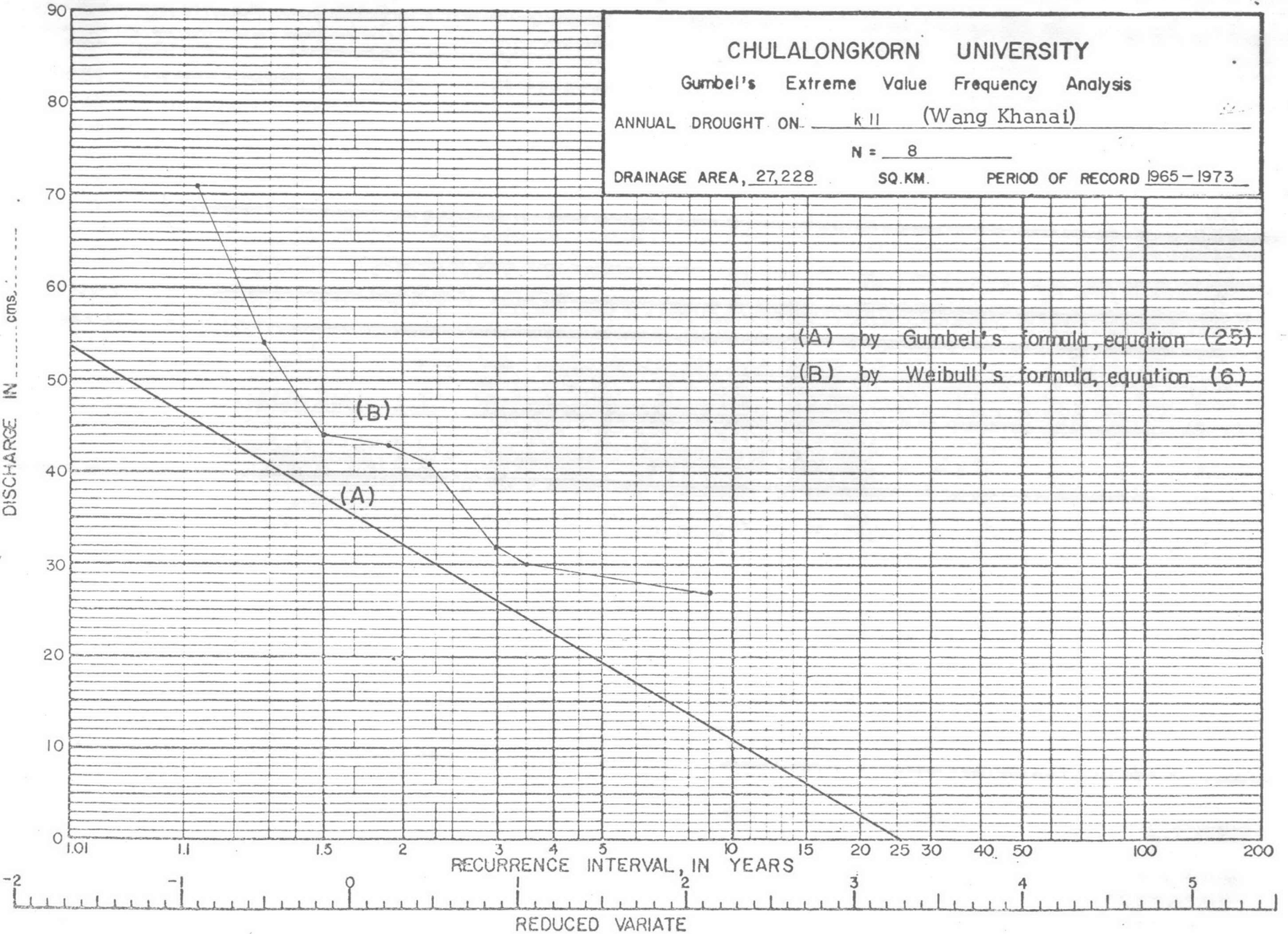


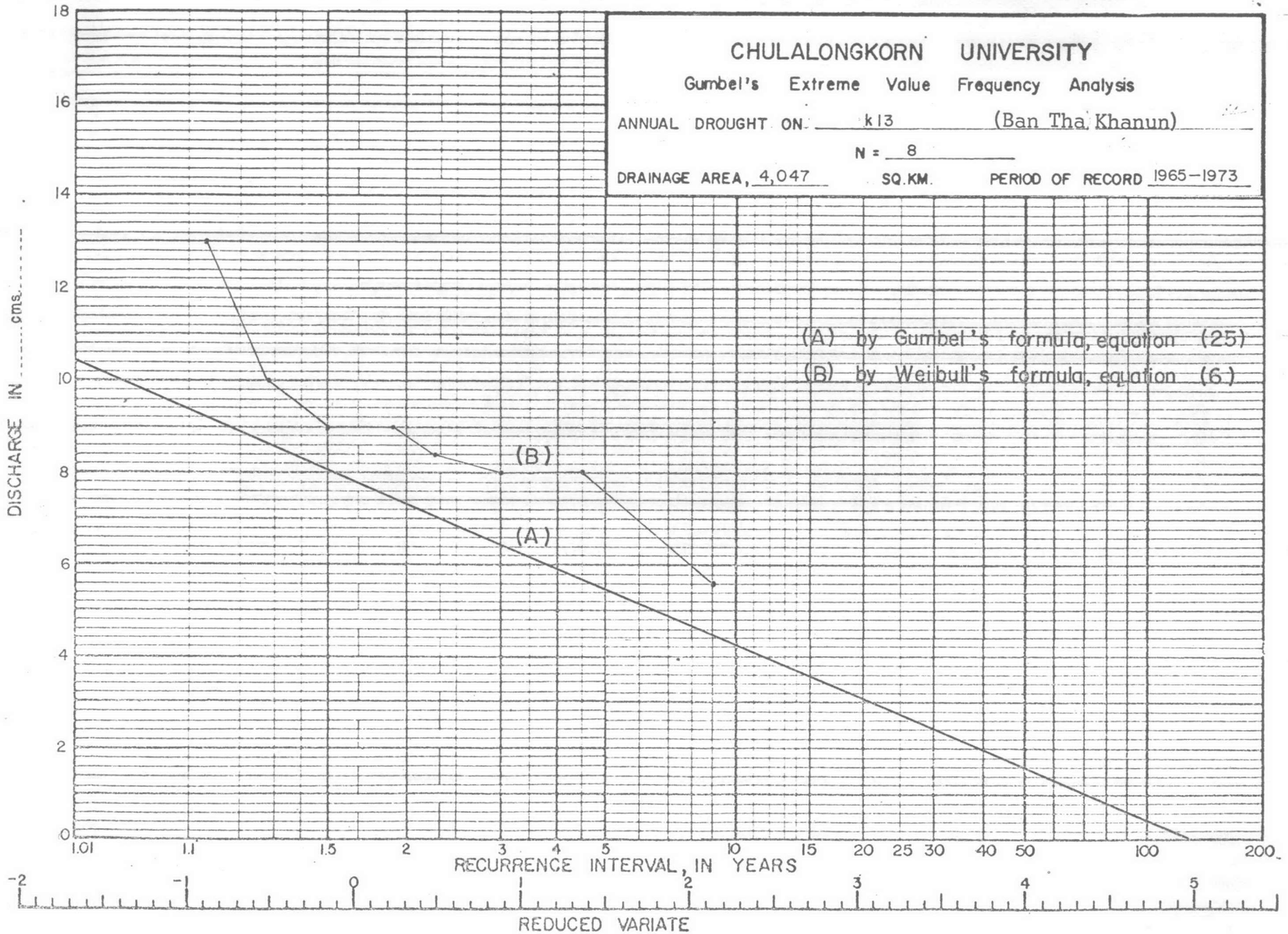
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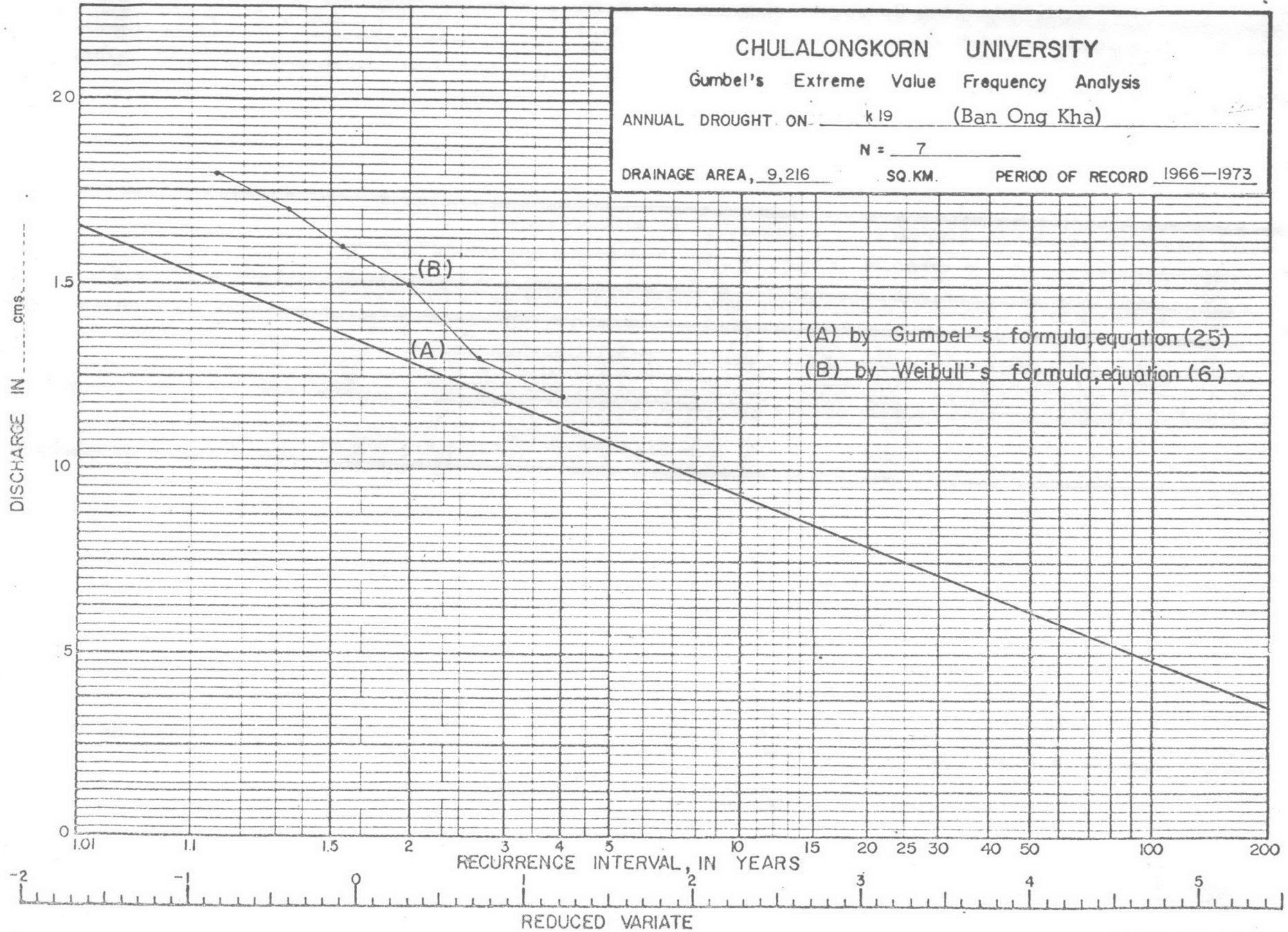
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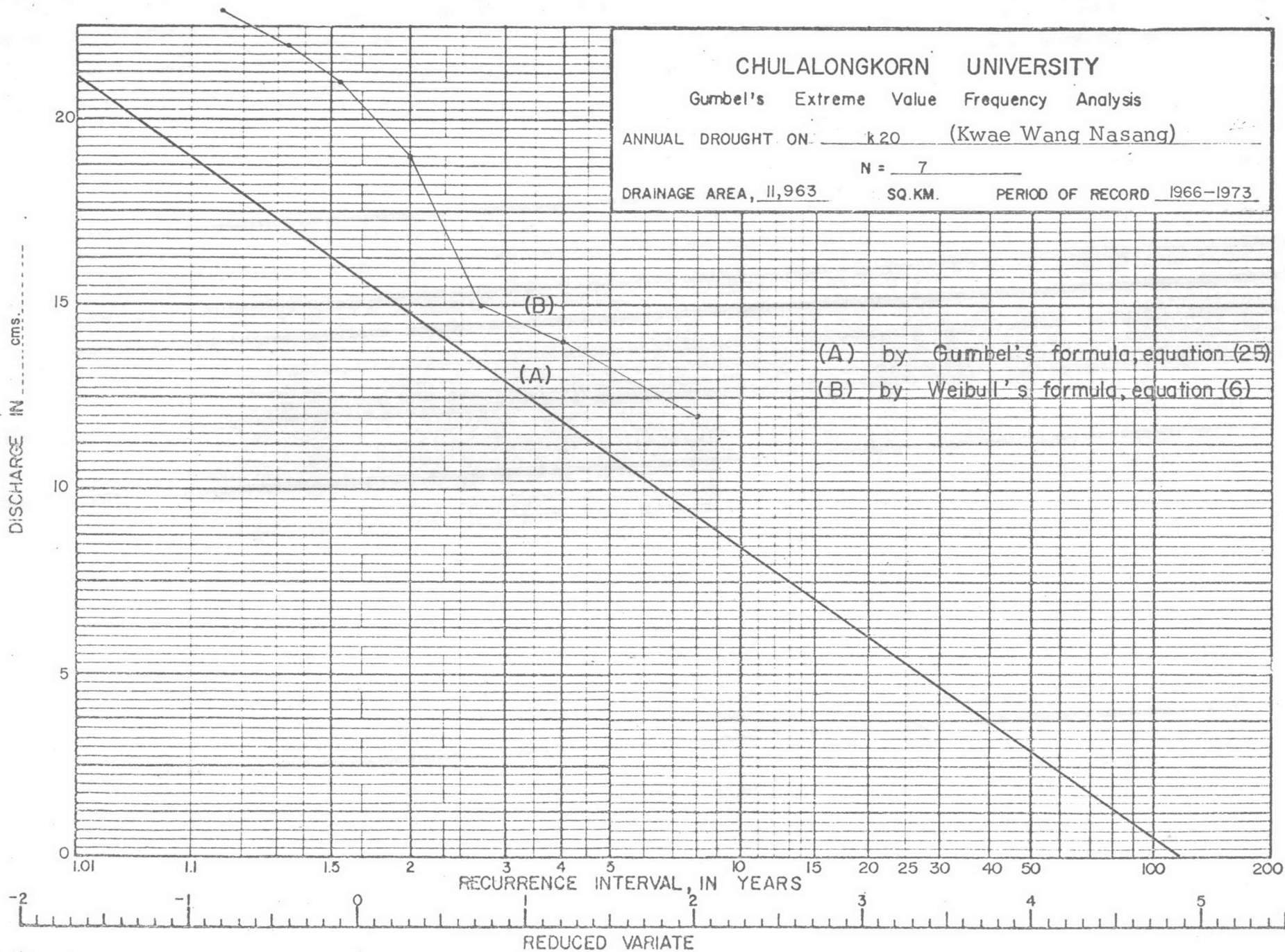


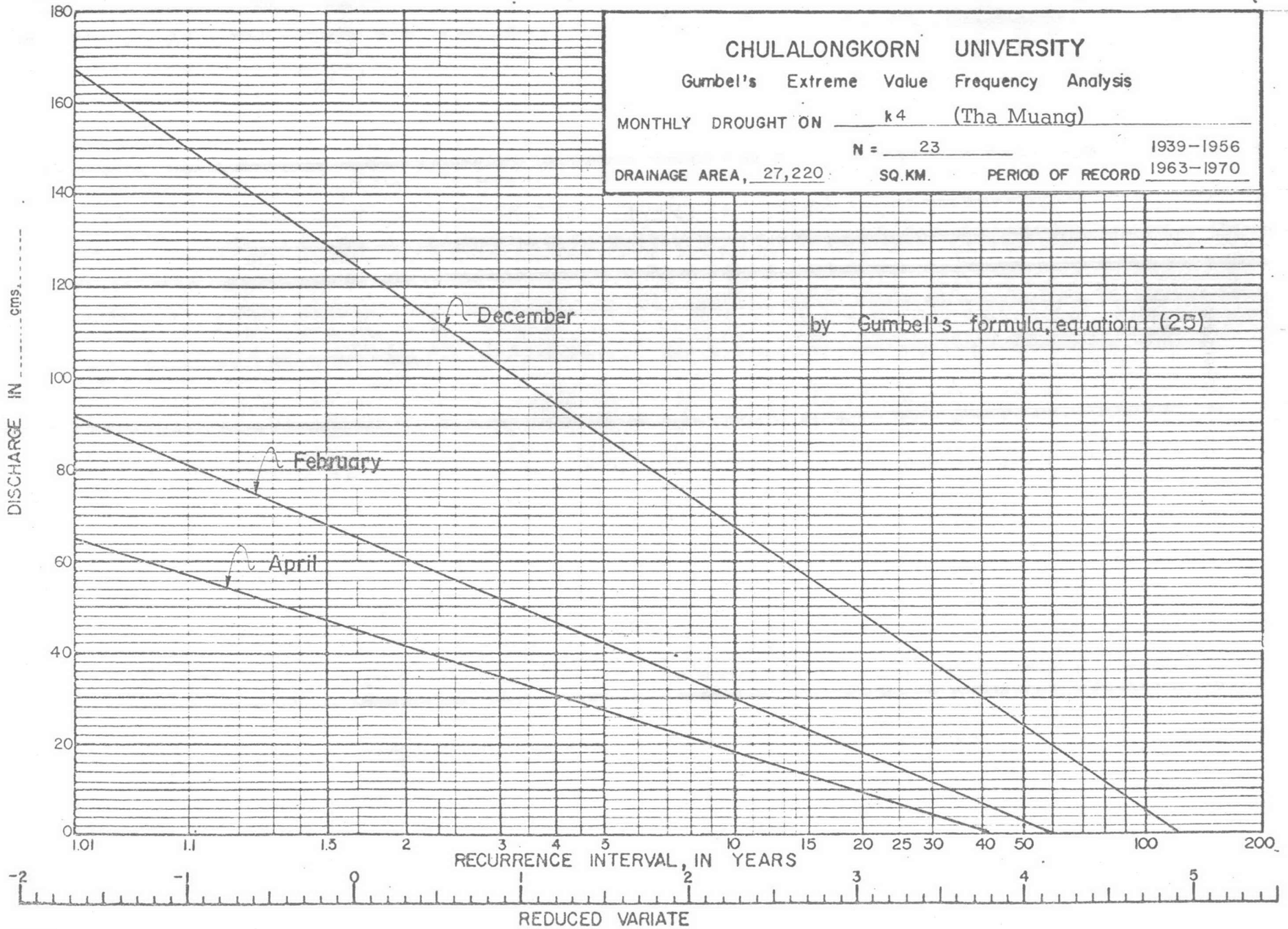


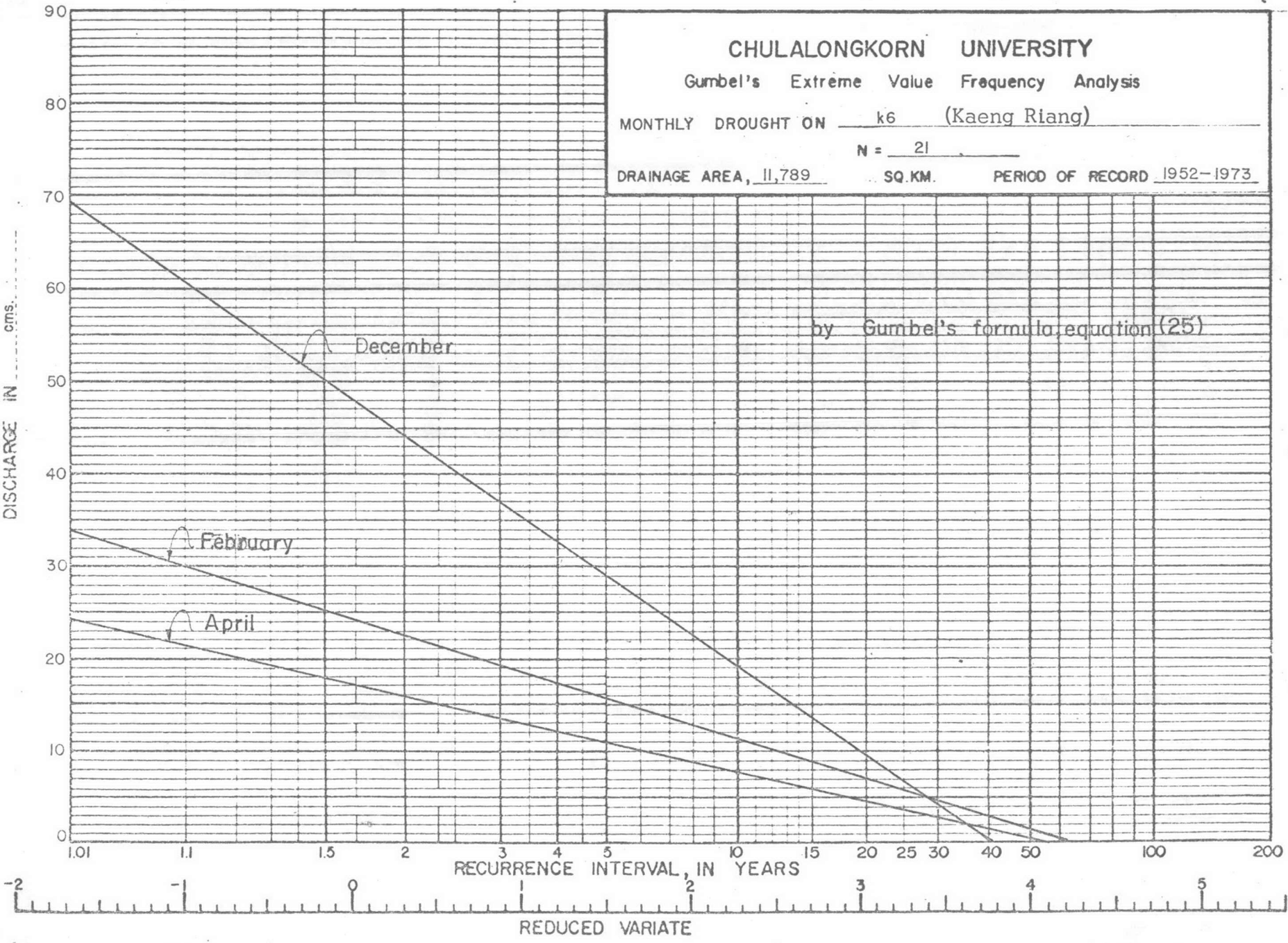


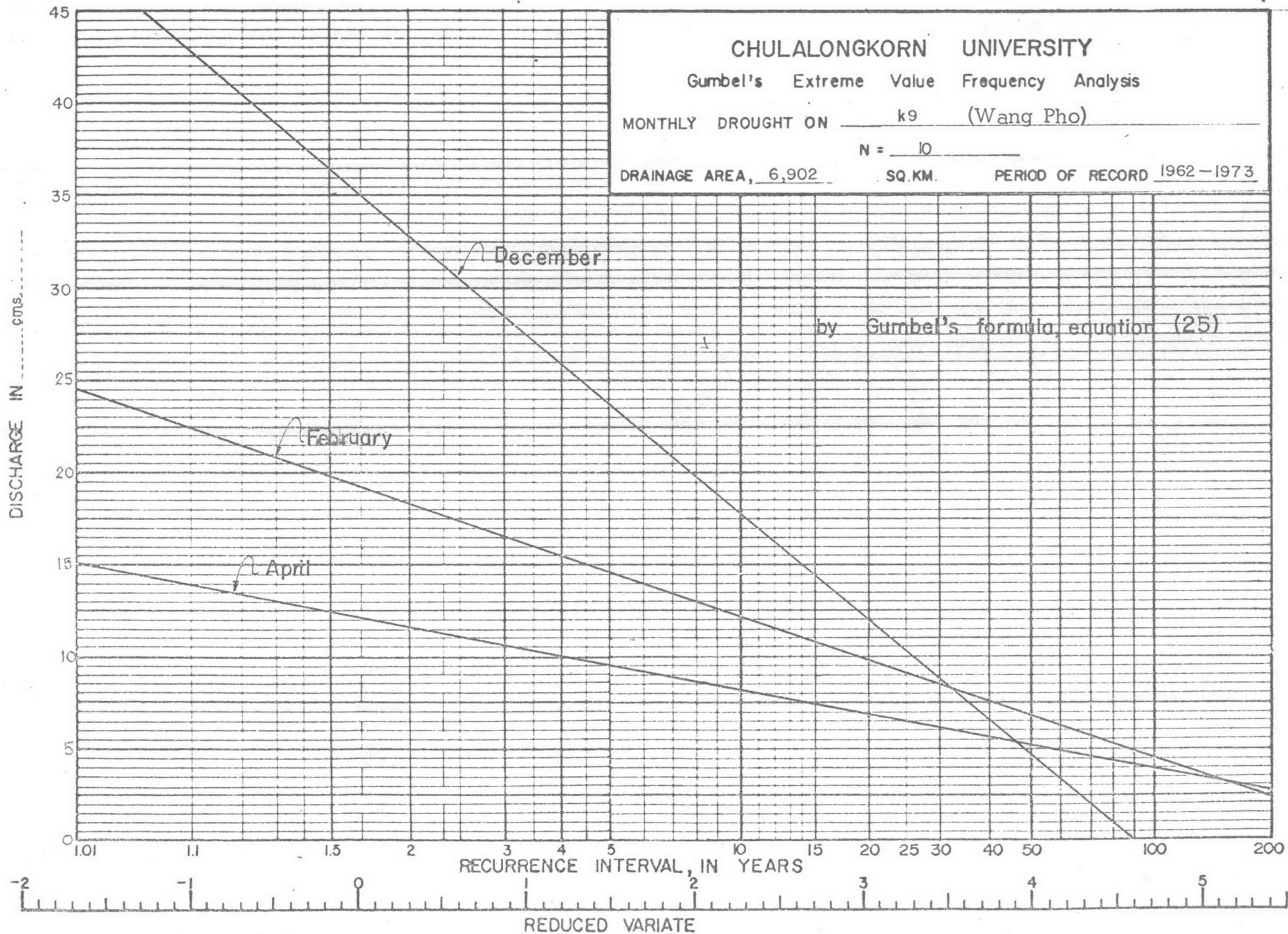


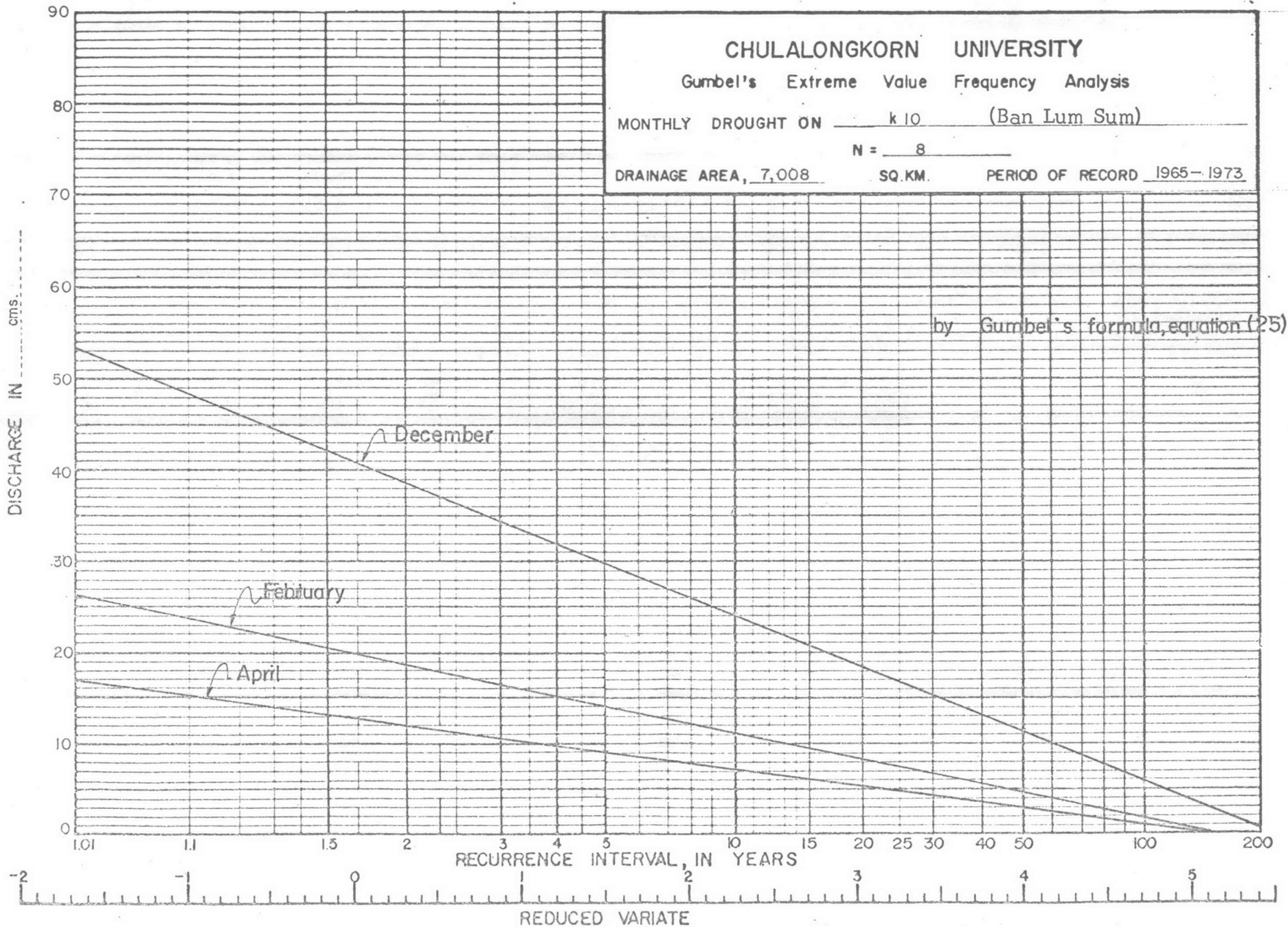


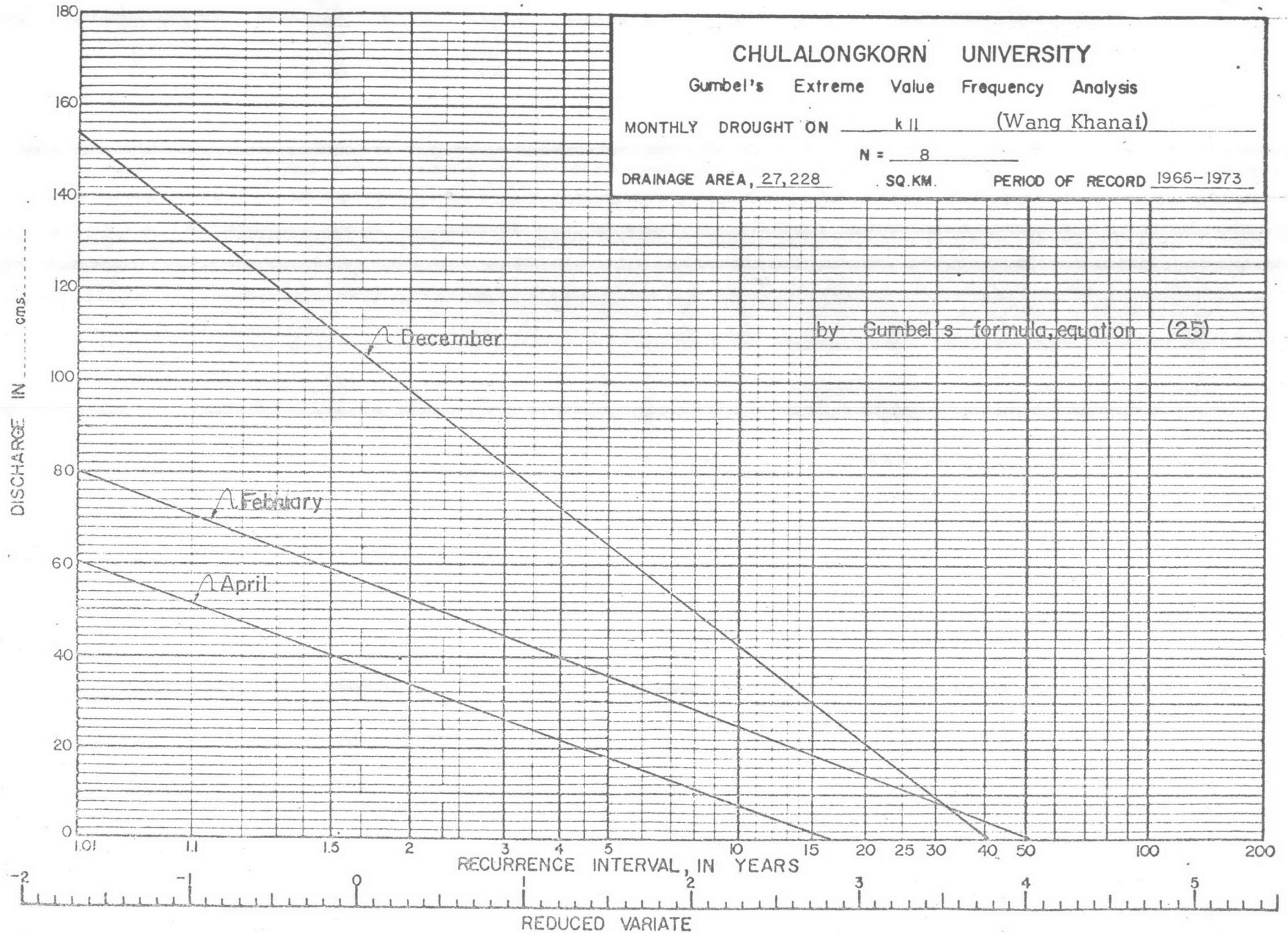


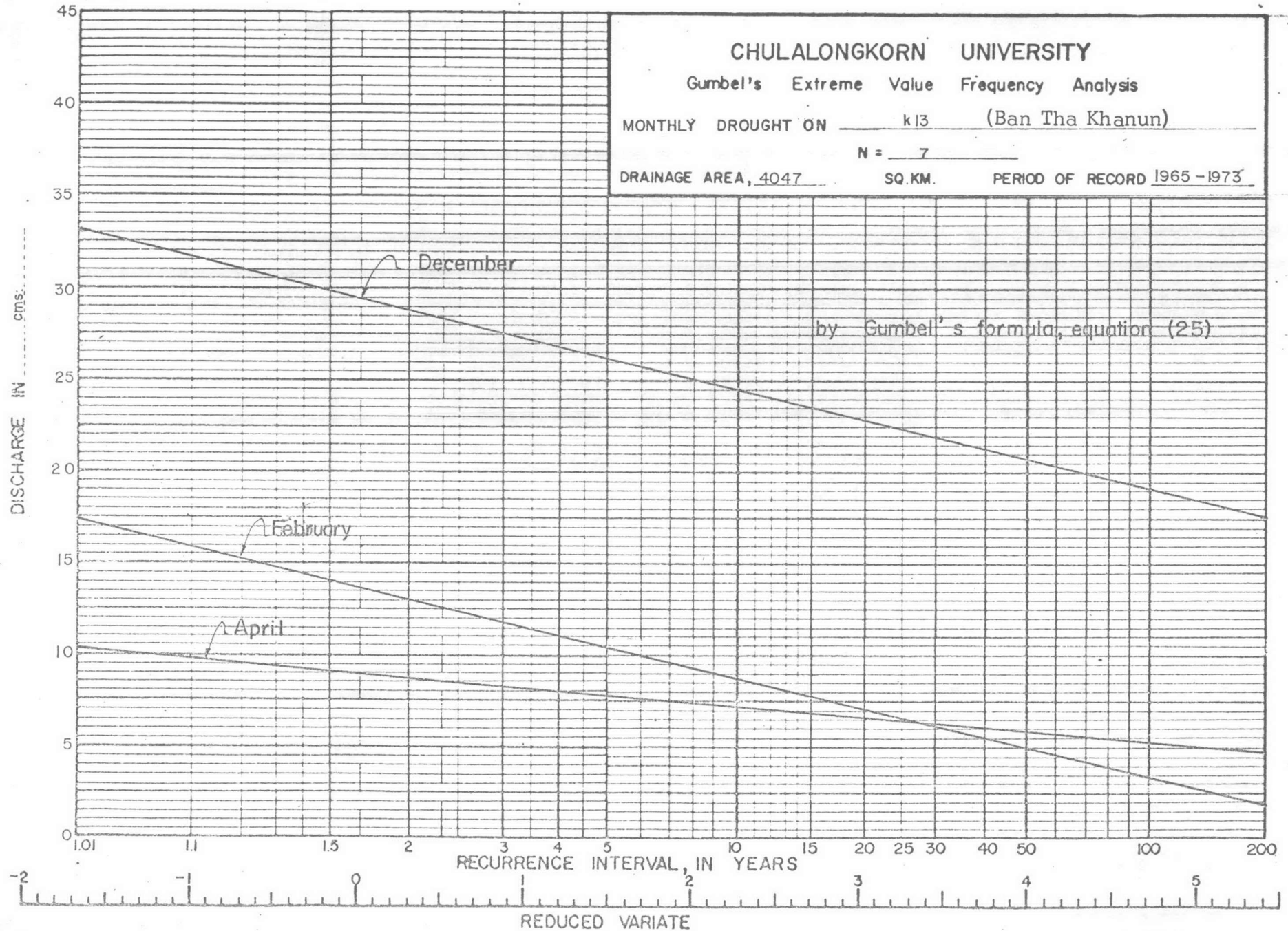












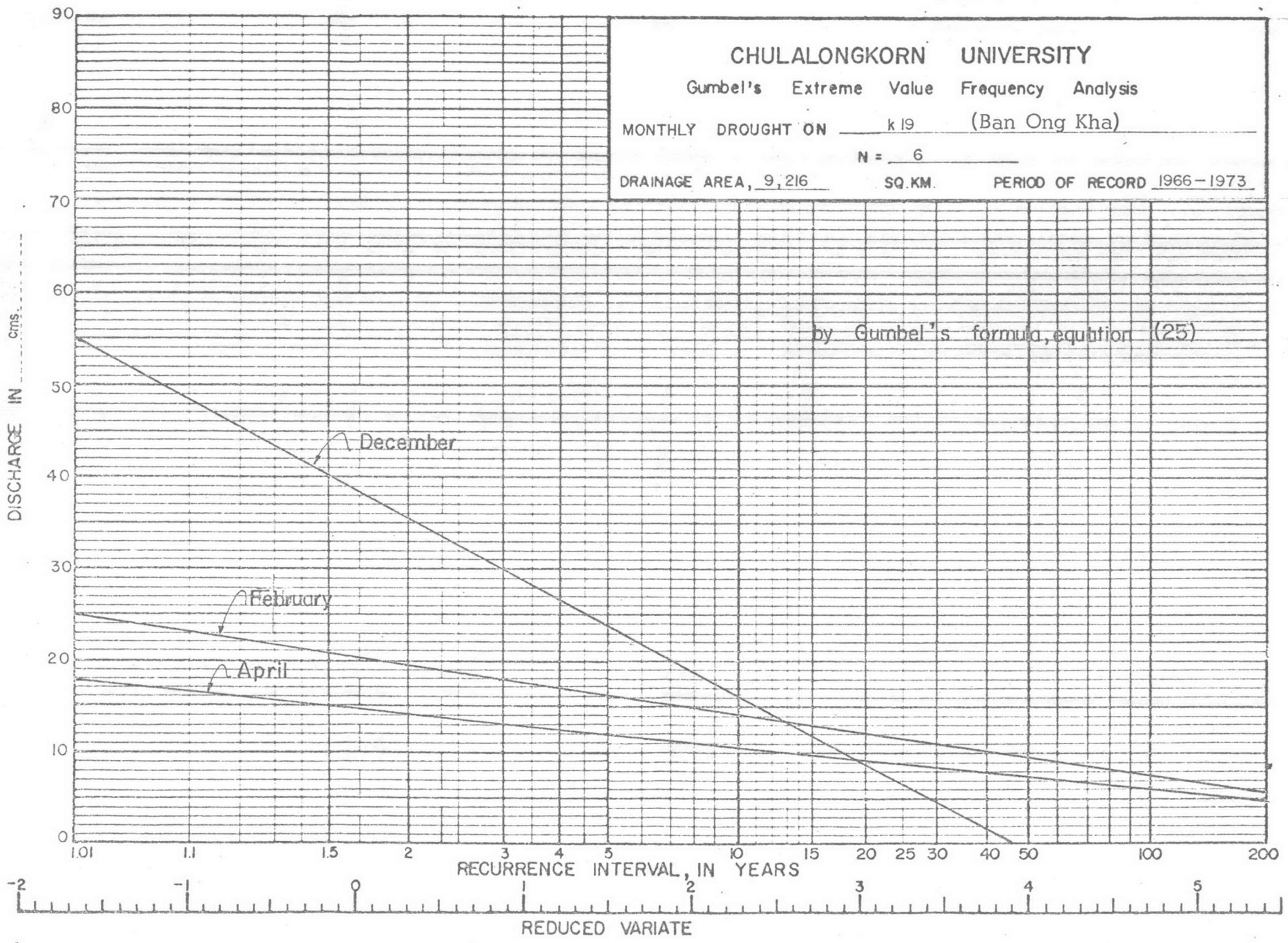
CHULALONGKORN UNIVERSITY

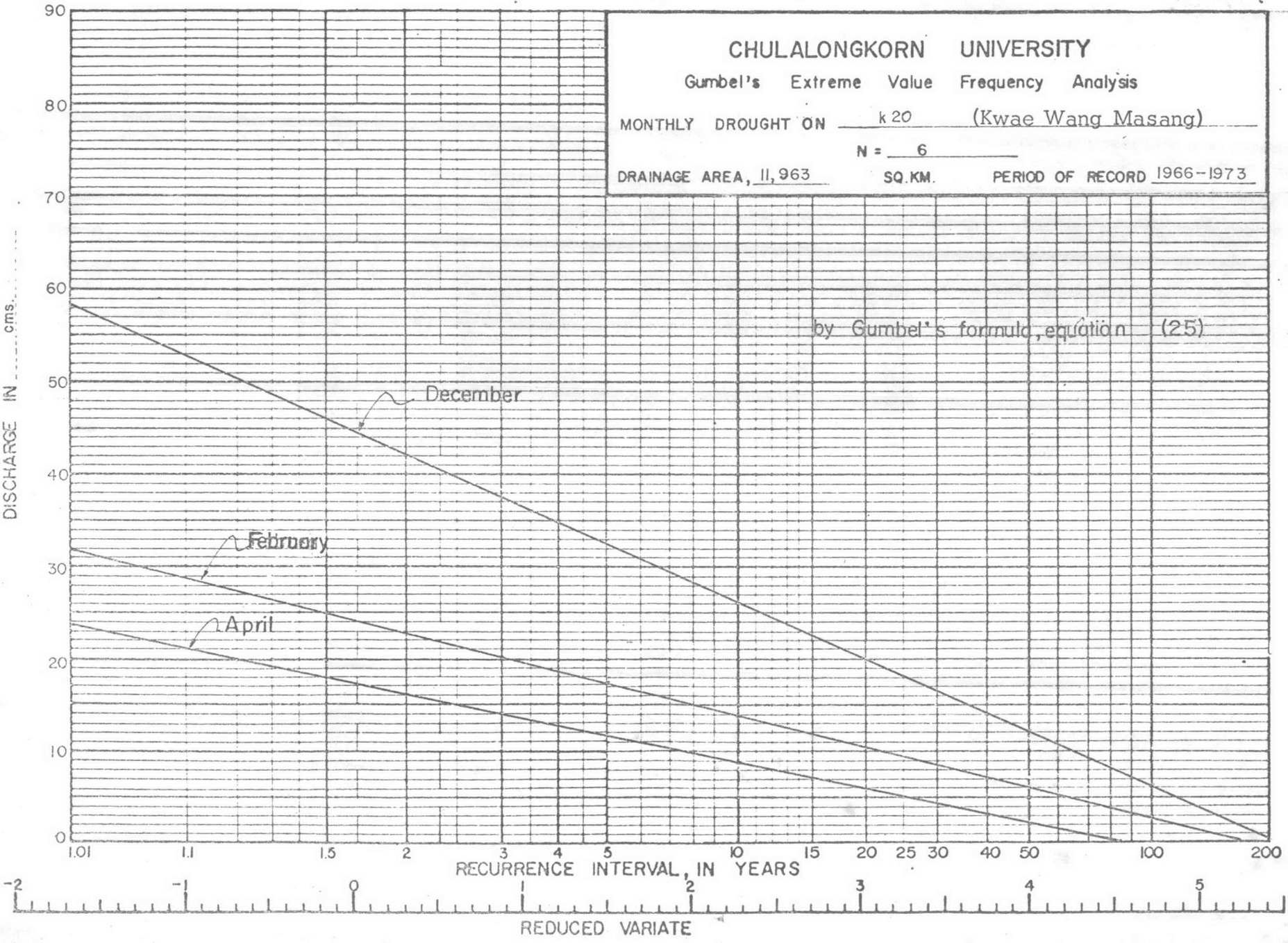
Gumbel's Extreme Value Frequency Analysis

MONTHLY DROUGHT ON k 19 (Ban Ong Kha)

N = 6

DRAINAGE AREA, 9,216 SQ. KM. PERIOD OF RECORD 1966-1973





APPENDIX IV

DATA

25% SECTION
EXCESS BASE
by
FOX RIVER

Average Monthly and Annual Flow (cms.) of Water Year 1966-1971

	K6	K9	K10	K12	K13	K17	K19	K20
Apr.	23.20	14.78	17.02	0.412 *	12.70	0.504 ***	19.22 ***	25.68 ***
May	27.27	25.68	30.97	1.08 *	16.25	1.742 ***	30.44 ***	38.84 ***
Jun.	67.40	105.25	120.5	0.316	116.1	1.62	58.66	68.72
Jul.	148.58	298.67	318.83	0.307 *	328.35	1.949	136.14	151.14
Aug.	305.33	565.5	627.67	0.35 *	569.33	3.062	237.79	256.07
Sept.	327.00	483.67	510.67	1.187 *	465.17	5.805	245.49	327.12
Oct.	233.83	222.5	249.50	4.747 *	206.17	18.778 ***	193.18	236.15
Nov.	108.60	78.23	99.38	1.113 *	75.93	6.084	93.71	116.21
Dec.	60.80	41.5	54.38	0.372 *	39.67	7.033	53.28	64.94
Jan.	40.42	27.5	35.07	0.237 *	25.07	1.320	34.52	42.87
Feb.	29.63	20.03	24.72	0.211 *	17.27	0.602	25.16	31.56
Mar.	22.95	16.10	19.64	0.492	13.42	0.476	19.98	24.79
Annual	117.67	161.83	176.33	0.856 *	159.00	5.448 **	100.44 ***	120.2 ***

* Average only 3 years (1966-1968)

** Average only 4 years

*** Average only 5 years

Average Maximum Monthly and Annual Flow (cms.) of Water Year 1966-1971

	K6	K9	K10	K12	K13	K17	K19	K20
Apr.	37.67	19.67	24.17	3.103	19.00	1.376	27.60	43.00
May	66.83	84.83	94.67	4.787	96.50	5.658	58.40	74.60
Jun.	124.50	263.00	278.17	1.457	275.00	7.950	114.00	130.40
Jul.	427.67	1026.00	1066.67	0.600	1071.33	11.360	391.00	428.33
Aug.	548.50	1213.33	1292.67	0.730	1174.50	12.720	493.83	562.00
Sept.	543.67	1022.00	1070.83	1.940	1218.33	19.407	481.33	538.50
Oct.	420.00	435.00	455.00	14.333	418.50	120.667	357.50	415.33
Nov.	221.00	125.33	154.33	2.600	115.50	45.400	192.33	227.67
Dec.	83.50	53.33	69.50	0.553	50.33	38.548	75.83	89.17
Jan.	48.17	33.17	42.50	0.280	30.67	2.100	42.67	50.67
Feb.	35.50	23.00	28.67	0.238	20.83	0.978	28.50	38.17
Mar.	28.67	20.83	25.00	2.829	19.67	1.600	24.67	31.00
Annual	693.33	1643.50	1728.82	14.333	1828.5	157.667	637.00	637.50

* Average only 3 years (1966-1968)

*** Average only 5 years

Average Minimum Monthly and Annual Flow (cms.) of Water Year 1966-1971

	K6	K9	K10	K12	K13	K17	K19	K20
Apr.	17.50	12.12	13.67	0.113	9.48	0.168	15.80	19.60
May	20.00	12.67	15.00	0.230	10.27	0.488	18.20	23.40
Jun.	42.50	33.50	42.67	0.171	34.50	0.414	33.20	40.40
Jul.	69.00	90.83	108.33	0.215	109.00	0.408	63.83	72.17
Aug.	175.83	275.83	308.17	0.261	294.67	1.018	154.17	179.50
Sept.	211.50	261.33	290.33	0.265	245.00	1.203	172.5	212.67
Oct.	318.17	119.33	144.67	0.673	114.33	3.863	116.00	145.17
Nov.	71.00	52.00	68.33	0.560	51.50	2.140	61.67	76.00
Dec.	47.83	33.50	43.00	0.267	31.17	2.090	41.00	50.17
Jan.	34.00	23.17	28.83	0.216	20.33	0.843	29.00	36.33
Feb.	25.67	18.33	21.33	0.169	14.67	0.387	22.00	27.17
Mar.	18.83	13.83	16.83	0.137	10.53	0.229	17.00	20.83
Annual	16.00	11.62	13.17	0.084	8.73	0.033	14.60	17.60

* Average only 3 years (1966-1968)

*** Average only 5 years

Maximum Annual Flow, Minimum Annual and Monthly Flow of Gaging Stations
in Mae Klong Basin

Station K4

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1939	2889	59	-	179	107
1940	2735	40	49	132	64
1941	2442	29	29	142	66
1942	2240	55	55	195	92
1943	2142	60	74	142	79
1944	2360	47	47	176	99
1945	1076	57	71	111	68
1946	2627	61	61	142	83
1947	2666	53	95	128	70
1948	2614	43	43	149	75
1949	2040	52	60	146	70
1950	1797	47	47	176	91
1951	2104	50	50	173	84
1952	2580	53	63	162	113
1953	6000	60	60	208	112
1954	1051	18	68	88	32
1955	930	34	-	73	46

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1956	1964	6	-	-	-
1957	2799	29	-	-	-
1958	1609	34	-	-	-
1959	3065	37	-	-	-
1960	1434	29	-	-	-
1961	4330	31	-	-	-
1962	3416	-	-	-	-
1963	3160	29	36	161	72
1964	2336	51	51	143	71
1965	2097	38	40	119	77
1966	2392	45	46	118	64
1967	2057	45	45	120	78
1968	1640	27	55	94	37
1969	-	-	23	-	-

Station K6

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1952	1547	20	22	59	41
1953	2128	27	27	114	50
1954	824	21	32	57	28
1955	597	17	22	49	22
1956	692	15	20	61	24
1957	1330	12	18	46	24
1958	804	19	19	45	22
1959	1628	16	18	48	23
1960	779	15	15	44	22
1961	1619	14	14	67	35
1962	2450	17	22	50	23
1963	2060	8	10	67	31
1964	1387	24	24	68	37
1965	766	19	31	47	29
1966	762	18	19	53	26
1967	583	17	17	48	29
1968	600	13	17	34	18
1969	950	10	10	48	26
1970	456	20	20	60	31
1971	809	18	22	44	24
1972	1568	21	21	82	-

Station K9

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1962	1982	18	-	47	25
1963	2157	10	15	62	28
1964	1354	18	18	51	26
1965	1584	12	14	37	24
1966	1996	12	12	34	19
1967	1576	12	13	37	21
1968	1078	11	13	27	17
1969	2286	8.7	8.7	39	18
1970	1135	13	13	35	19
1971	1790	13	13	29	16
1972	3060	9.6	13	45	-

Station K10

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1965	1775	18	19	43	29
1966	2233	11	11	39	16
1967	1668	12	12	52	25
1968	1094	10	13	35	15

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1969	2354	11	11	48	26
1970	1165	16	16	46	24
1971	1859	19	19	38	22
1972	3026	10	14	66	-

Station K11

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1965	2034	32	34	114	67
1966	2195	44	46	118	62
1967	1805	41	42	89	53
1968	1476	30	35	81	39
1969	2822	27	27	117	64
1970	1339	43	43	169	96
1971	2293	71	78	125	83
1972	2983	54	69	192	-

Station K12

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1965	43	0.11	-	0.44	0.15
1966	47	0.032	0.08	0.16	0.048
1967	14	0.0	0.04	0.04	0.02
1968	12	0.22	0.22	0.60	0.44

Station K13

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1965	619	13	-	30	18
1966	2983	9	10	31	17
1967	1877	10	11	34	18
1968	1073	8	10	26	10
1969	2177	9	9.5	33	15
1970	1096	8.4	8.4	34	15
1971	1765	8	8.0	29	13
1972	2808	5.6	9.2	-	-

Station K17

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1966	90	0.036	-	2.05	0.32
1967	59	0.04	0.04	0.96	0.36
1968	319	0.12	0.12	1.00	0.48
1969	122	0.0	0.32	2.1	0.36
1970	208	0.0	0.0	5.63	0.80
1971	148	0.0	0.36	0.80	0.0

Station K19

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1966	648	18	-	47	23
1967	533	17	18	41	24
1968	620	13	14	27	17
1969	814	12	12	45	25
1970	435	16	17	50	25
1971	752	15	18	36	18
1972	1550	12	16	69	-

Station K20

Water Year	Maximum Annual Flow (cms.)	Minimum Flow (cms.)			
		Annual	Apr.	Dec.	Feb.
1966	749	23	-	55	30
1967	591	19	22	44	26
1968	614	12	14	34	16
1969	989	14	14	54	31
1970	470	21	21	66	33
1971	412	22	27	48	27
1972	1350	15	21	-	-

Note Water Year start from 1 April to next year 31 March.

Monthly Flow of Gaging Stations In Mae Klong Basin in cms.

Station K1

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1965-6	49	75	634	785	931	718	723	256	146	102	78	51
1966-7	39.7	63.2	136	348	636	1005	438	201	125	72.4	56.6	

Station K2

1964-5	165	198	268	268	494	614	1024	349	190	152	133	129
1965-6	146	186	578	656	841	659	668	306	281	157	149	144
1966-7	-	-	-	327	626	940	504	271	227	184		

Station K4

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1939-40	-	-	-	-	1385	1622	790	383	237	149	116	80.6
1940-1	55	88.3	205	1174	1123	1352	636	272	161	110	80.6	50.2
1941-2	41.7	62.5	360	1325	1470	947	822	399	189	111	83.4	61.3
1942-3	67.5	180	307	462	1144	1219	636	796	274	156	107	80.7
1943-4	82.1	96.9	291	656	1180	1151	641	386	186	117	88	70.5
1944-5	57.2	101	375	961	1535	839	852	457	226	149	124	96.2
1945-6	94.1	121	233	378	401	740	477	201	131	95.7	75.5	64.8
1946-7	78.1	128	186	518	1321	1282	654	273	171	122	92.7	79.1
1947-8	130	118	410	1173	950	1101	803	347	163	110	81.2	63.5
1948-9	63.4	84.9	189	459	756	981	1266	379	187	123	89.4	75.6
1949-50	75.2	91.3	160	290	813	1091	848	379	189	119	80.7	59.3
1950-1	57.8	81.7	256	524	1161	975	954	641	236	147	109	79.7
1951-2	58.2	71.2	384	356	1136	960	850	467	238	137	97.9	97.5

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1952-3	78.2	76.5	262	502	1126	688	1134	592	201	129	127	107
1953-4	74.2	112	281	1068	2923	1200	978	692	313	171	124	99.5
1954-5	75.7	122	190	271	426	620	566	179	106	70.5	44.2	24.3
1955-6	-	-	115	280	271	662	529	303	104	76.0	50.9	39.5
1956-7	-	116	136	250	720	1258	-	-	-	-	-	-
1963-4	42.4	35.6	116	608	1075	1339	1434	537	213	128	83.7	59.6
1964-5	59.4	128	176	348	586	868	1137	380	192	115	83.1	70.3
1965-6	46	75.9	625	841	943	713	715	276	150	103	91.2	67.3
1966-7	54.2	80.3	148	413	716	1122	478	219	137	96.3	73.2	57.0
1967-8	55	78	158	233	1136	898	728	262	147	104	84.5	73.7
1968-9	63.9	110	103	223	879	759	505	191	110	81.6	42.8	32.5
1969-70	21.8	41.9	233	387	-	-	-	-	-	-	-	-

Station K6

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1952-3	27.13	28.84	61.83	131.52	280.65	196.67	496.00	201.97	74.45	50.39	49.00	40.13
1953-4	35.37	53.68	103.6	276.65	883.42	485.1	375.52	307.00	136.35	85.77	62.86	48.32
1954-5	38.83	69.77	108.13	143.68	226.19	346.2	341.77	113.6	68.35	37.68	31.18	24.19
1955-6	29.27	33.16	53.97	106.97	116.16	319.8	213.16	136.77	60.19	39.06	28.17	21.48
1956-7	29.93	80.77	76.50	123.23	237.52	348.67	314.97	117.60	70.13	51.74	34.29	24.52
1957-8	22.60	16.29	63.83	118.58	330.52	408.93	497.71	120.67	60.90	41.68	29.75	22.03
1958-9	23.3	28.97	65.73	214.52	198.74	445.87	272.19	103.07	55.87	37.65	27.36	20.94
1959-60	21.30	30.61	56.30	85.13	215.45	326.23	545.00	111.57	58.29	38.29	28.52	18.94
1960-1	17.73	26.48	31.00	37.84	218.10	174.53	308.81	89.13	69.94	36.06	26.75	20.06
1961-2	17.07	47.94	97.90	351.52	735.03	756.10	399.65	163.93	83.68	57.29	41.07	31.97
1962-3	28.53	35.52	67.83	163.87	330.77	625.30	357.00	111.23	61.42	39.68	27.04	21.61
1963-4	15.70	12.74	37.90	198.03	294.48	472.33	682.58	210.50	87.52	54.42	37.66	27.26
1964-5	28.17	65.29	63.83	124.74	221.35	393.77	543.84	170.33	90.08	55.29	42.21	41.65

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1965-6	32.33	48.77	179.17	249.48	301.90	244.87	268.68	107.30	57.81	43.16	36.89	25.68
1966-7	24.83	42.48	79.43	157.61	236.48	400.97	217.90	95.27	61.94	42.84	30.79	23.50
1967-8	24.90	37.80	58.70	91.30	337.00	332.00	306.00	102.00	59.00	40.70	32.70	26.80
1968-9	23.10	47.30	41.80	99.20	311.00	325.00	166.00	66.20	40.00	30.90	21.30	15.70
1969-70	13.60	26.40	71.90	148.00	475.00	464.00	263.00	139.00	60.90	41.90	30.50	22.80
1970-1	26.50	35.20	52.50	141.00	237.00	276.00	272.00	149.00	92.10	49.00	34.80	28.00
1971-2	26.30	34.80	101.00	254.00	235.00	250.00	178.00	100.00	50.80	37.20	27.70	20.90
1972-3	27.00	24.00	52.80	310.00	369.00	352.00	424.00	194.00	119.00	-	-	-

Station K9

1962-3	-	-	-	630.00	724.00	627.00	281.00	102.00	57.00	39.20	28.30	22.50
1963-4	17.10	13.20	82.20	467.00	770.00	851.00	568.00	173.00	80.80	49.80	33.50	23.60
1964-5	22.20	52.80	83.10	196.00	366.00	461.00	429.00	119.00	64.80	41.00	31.40	26.20
1965-6	16.60	25.50	469.00	611.00	527.00	403.00	303.00	92.20	47.30	32.90	27.30	20.80
1966-7	15.10	28.10	60.60	312.00	398.00	670.00	175.00	63.30	39.10	26.80	20.00	16.00

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1967-8	15.20	27.20	83.20	160.00	792.00	534.00	319.00	90.80	46.00	29.40	22.90	19.10
1968-9	15.50	28.30	43.10	121.00	380.00	480.00	195.00	60.00	33.60	23.30	18.80	13.10
1969-70	11.90	32.30	150.00	307.00	1030.00	479.00	264.00	107.00	48.30	33.10	22.10	16.20
1970-1	15.80	20.60	44.60	299.00	346.00	432.00	190.00	79.10	47.10	28.40	20.90	17.50
1971-2	15.20	17.60	250.00	593.00	447.00	307.00	192.00	69.20	34.90	24.00	15.30	14.70
1972-3	17.50	28.30	240.00	1173.00	805.00	617.00	339.00	121.00	61.50			

Station K10

1965-6	22.30	31.80	489.00	653.00	552.00	427.00	326.00	103.00	53.90	39.10	33.40	25.80
1966-7	14.40	29.90	66.80	329.00	424.00	714.00	193.00	73.50	45.90	29.70	20.10	14.30
1967-8	14.70	33.10	99.40	173.00	836.00	566.00	355.00	122.00	65.00	40.70	28.60	24.50
1968-9	16.60	33.90	55.90	150.00	601.00	513.00	235.00	80.30	44.50	29.60	18.10	12.40
1969-70	13.60	35.80	182.00	332.00	1082.00	497.00	290.00	135.00	62.70	40.80	29.50	23.10
1970-1	20.90	27.90	55.90	316.00	355.00	440.00	215.00	96.70	61.30	36.80	26.50	22.40

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1971-2	21.90	25.20	263.00	613.00	468.00	334.00	209.00	88.80	46.90	32.80	25.50	21.13
1972-3	20.60	39.70	284.00	1221.00	852.00	657.00	395.00	161.00	54.20			

Station K11

1965-6	41.20	71.90	624.00	842.00	951.00	723.00	719.00	267.00	144.00	96.70	83.00	59.80
1966-7	54.30	78.30	147.00	398.00	680.00	1067.00	467.00	219.00	138.00	93.50	69.70	54.20
1967-8	51.60	72.60	149.00	213.00	1042.00	848.00	672.00	230.00	117.00	75.00	58.30	55.30
1968-9	46.20	97.00	90.60	216.00	833.00	734.00	491.00	185.00	101.00	69.90	46.70	35.50
1969-70	33.00	54.20	242.00	403.00	1530.00	995.00	617.00	450.00	147.00	102.00	76.00	56.50
1970-1	55.00	64.30	103.00	418.00	616.00	782.00	546.00	318.00	254.00	146.00	109.00	96.00
1971-2	87.10	95.70	366.00	819.00	766.00	633.00	466.00	292.00	145.00	115.00	95.40	79.50
1972-3	83.60	82.20	319.00	1388.00	1244.00	1257.00	731.00	440.00	285.00			

Station K12

Year	Apr.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1965-6	-	-	-	-	-	8.61	9.59	3.11	0.69	0.27	0.19	0.13
1966-7	0.115	0.326	0.179	0.077	0.171	0.28	4.97	1.51	0.379	0.070	0.050	0.035
1967-8	0.451	0.442	0.198	0.095	0.069	0.070	5.00	0.28	0.056	0.031	0.034	0.02
1968-9	0.67	2.48	0.57	0.75	0.81	1.21	4.27	1.55	0.68	0.61	0.55	1.42

Station K13

1965-6	-	-	-	-	-	367.0	246.0	75.9	38.1	28.6	22.1	16.1
1966-7	12.9	28.7	73.5	396.0	390.0	709.0	166.0	60.9	37.7	25.4	19.5	14.5
1967-8	12.9	30.2	93.0	180.0	807.0	516.0	277.0	84.1	41.3	26.5	19.5	17.5
1968-9	13.2	25.5	56.3	162.0	567.0	458.0	194.0	68.7	33.5	21.5	12.8	10.2
1969-70	13.3	38.5	167.0	350.0	909.0	457.0	247.0	96.4	43.6	27.3	18.2	12.7
1970-1	13.0	19.3	52.4	294.1	342.0	380.0	177.0	79.6	46.5	27.2	17.9	13.9
1971-2	10.9	15.3	258.0	588.0	401.0	271.0	176.0	65.9	35.4	22.5	15.7	11.7
1972-3	13.2	34.2	285.0	1103.0	692.0	498.0						

Station K17

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1966-7	-	-	-	1.18	1.14	2.14	8.46	10.10	3.77	1.40	0.50	0.26
1967-8	0.48	1.48	1.91	0.87	6.06	2.42	13.50	4.20	1.72	0.71	0.48	0.48
1968-9	0.55	4.33	1.04	0.676	1.32	3.86	55.10	5.42	1.46	0.849	0.54	0.593
1969-0	0.62	1.40	1.25	0.96	5.75	4.06	21.41	-	3.44	1.43	0.77	0.19
1970-1	0.43	0.63	0.63	3.88	1.57	1.95	14.20	10.70	30.60	2.95	1.15	1.04
1971-2	0.44	0.87	3.27	4.13	2.53	20.40	31.40	14.20	1.21	0.58	0.17	0.29

Station K19

1966-7	-	-	-	159.39	219.71	348.93	186.10	87.33	56.00	38.03	27.20	22.00
1967-8	22.70	31.80	50.60	85.20	305.00	294.00	259.00	85.20	51.30	34.60	26.50	22.10
1968-9	17.40	40.40	36.50	91.50	287.00	195.00	132.00	56.50	32.40	24.10	18.70	14.60
1969-70	15.40	22.30	68.50	138.00	399.00	395.00	216.00	120.00	55.50	39.70	29.10	21.30
1970-1	19.40	27.40	46.90	116.00	216.00	240.00	227.00	129.00	81.80	40.80	28.10	23.20

Year	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1971-2	21.20	30.30	90.80	226.74	186.00	190.00	139.00	84.20	42.70	29.90	21.30	16.70
1972-3	19.90	19.40	37.50	241.00	296.00	482.00	345.00	172.00	99.40			

Station K20

1966-7	-	-	-	157.23	236.42	397.70	213.90	97.83	64.71	46.10	35.07	27.84
1967-8	28.80	36.70	56.90	89.60	332.00	327.00	304.00	102.00	58.20	37.00	29.90	24.60
1968-9	22.80	49.70	43.00	103.00	310.00	233.00	169.00	70.40	41.50	31.00	20.30	14.90
1969-70	18.20	30.00	78.60	152.00	486.00	471.00	268.00	161.00	67.90	48.30	35.80	26.60
1970-1	28.10	37.50	57.10	144.00	249.00	287.00	283.00	160.00	102.00	53.70	38.00	30.80
1971-2	30.50	40.30	108.00	261.00	233.00	247.00	179.00	106.00	55.30	41.10	30.30	24.00
1972-3	26.40	24.20	54.20	289.00	344.00	546.00	393.00					

VITA

Mr. Panich Pongpirodom obtained a Bachelor degree of Engineering from Chulalongkorn University in 1971. He has been working at National Energy Administration in the position of Second Grade Engineer, ever since his graduation. In 1973 he was granted a research scholarship by Chulalongkorn University Graduate School, which enabled him to carry out the study submitted herein.

