From the above, the efficiency in the operation of dual-purpose reservoirs is $\frac{75,160}{75,160 + 26,017} \times 100 = 74.28$ per cent.

5. Water Conservation Storage and Increased Flows

Excluding Fanshawe, the other five reservoirs when full have a total capacity of 64,500 acre feet. It is assumed that the reservoirs would be full at the end of the spring flood period and unless the month of May were dry they would remain full or nearly so until June 1. This is about the time when the flows in the rivers need to be increased and the impounded water in the reservoirs may then be released to sustain the flow.

All of the above potential storage is not available as conservation storage and deductions must be made for certain losses.

(a) Space for a hypothetical rainstorm.

(b) Loss by water surface evaporation and ice formation

(c) Dead storage

The above storage losses are shown in Tables H-3 and H-4 and an explanation of each follows:

(a) Space for a Hypothetical Rainfall

The hypothetical rainfall is a planned-for rain that might occur at any time after the spring freshet and for which space must be made available in the reservoirs as soon as possible after the spring run-off in the case that they have been filled to capacity or above the limiting stage. For such a rainfall the same pattern has been followed as for the spring floods, viz: a run-off volume 1-1/3 times the greatest run-off on record by rainfall only; the preparation of run-off graphs of the greatest rainfall run-off of record (for both branches at London); the construction of the hydrograph at the Forks; and from it the determination of the storage space to be made available for the hypothetical rainfall.

Although May on the average is not the wettest month, the greatest run-off on record resulting from rainfall occurred during that month. The run-off factor is not as high in May as in April, when the ground may be saturated and partly frozen, and provision must be made therefore for the hypothetical rainfall occurring in April after the spring freshet.

The possibility of heavy rain during the spring freshet has been already provided for in the hypothetical spring flood. During the summer months the water level of the reservoirs would be progressively lowered and would reach a stage when there would be no concern for the hypothetical rain. During the month of May the reservoirs would be filled to the determined level, and as it is often a wet month it is a time for caution. The critical time and one which causes concern and anxiety for the controller is the time immediately following the spring freshet. It is assumed that the snow melt will have been completed or nearly so and that the spring floods will have receded to base flow. The ground at that time would be saturated and partly frozen and with heavy rain the run-off factor would be very high. It is improbable that the hypothetical spring flood would be shortly followed by the hypothetical rainfall, but a condition is possible whereby, with a late spring and with a heavy snow blanket, the snow melt might be rapid due to a sudden rise in temperature and then the hypothetical rain might follow on the heels of the spring run-off. Space in the reservoirs is provided therefore for this contingency.

During the average spring freshet the reservoirs would not exceed the conservation level, but should they exceed the conservation level or be filled to capacity they would be dumped as soon as possible to that level and the space thus made available until about June 1. Normally June 1 is the beginning of the dry period when the impounded water is discharged to increase the low flows. At the approach of the spring freshet the reservoirs would normally be down to the dead storage level, but if not they would be lowered to that level.

For the average spring run-off period the dams can be operated so that the reservoirs will not exceed the conservation water level which will leave space at that time for the u predictable.

The greatest volume of flow recorded for rains on the North Branch (other than rain during the spring freshet periods) occurred in May 1945 (Fig. H-17), 4.215 inches of rain having fallen over a period of five days from the 14th to the 18th, with a maximum mean daily flow of 15,280 c.f.s. at Western University gauge and a volume above base flow of 64,155 acre feet or a run-off of 43.4 per cent.

The greatest volume of flow recorded for rain only on the South Branch also occurred in May 1945, 3.27 inches of rain having fallen over a period of five days from the 14th to the 18th, with a maximum mean daily flow of 6,570 c.f.s. at Ealing gauge and a volume above base flow of 30,030 acre feet or a run-off of 33.2 per cent.

Run-off graphs were prepared for the greater rainstorms for both the North and the South ranches and from them the North Branch for $80,985 \times \frac{3}{2} = 107,980$ acre feet shows a maximum mean daily of 26,800 c.f.s., and the South Branch for $44,450 \times \frac{3}{2} = 59,267$ acre feet shows a maximum mean daily of 12,140 c.f.s.

A hydrograph for the hypothetical rainstorm was constructed at th Forks by combining the abov flows on top of a base flow of 4,000 c.f.s., using the same tentative channel capacity at the Forks, viz. 31,725 c.f.s., the storage space to be held in reserve above London for a hypothetical rainstorm amounts to 7,876 acre feet. By applying the run-off ratios the distribution of the storage space would be:

Ac.Ft.		Ratio	
7,876	x	.6456	= 5,085 acre feet for the North Branch
and			
7,876	x	.3544	= 2,791 acre feet for the South Branch

This storage space provides for a storm equivalent to 4.41 inches of rain over the whole watershed with a run-off factor of 60 per cent and is equivalent to 2.65 inches of run-off. Increasing this to 75 per cent, as indicated by the average run-off factor for April, the storage amounts to

$$\frac{75}{60} \times 7,876 = 9,897 \text{ acre feet}$$

TABLE H-F

Monthly percentage of run-off to precipitation based on the monthly mean records for Western and Ealing Hydrometric Stations and London, Stratford and Woodstock Meteorological Stations.

Month	March	April	May	June	July
Precipitation Depth in inches Aver. 3 sta's	2.71	2.65	2.91	3.12	3.22
Run-off Depth in inches Aver. 2 sta's	2.45	1.99	0.75	0.41	0.27
Percentage Run-off	90	75	26	13	8

The proportion of storage space reserved for rain for the

North Branch: 9,897 x .6456 = 6,390 acre feet

South Branch: 9,897 x .3544 = 3,507 acre feet

This storage space provides for a storm equivalent to 4.41 inches of rain over the watershed with a run-off factor of 75 per cent and is equivalent to 3.31 inches of run-off.

(b) Loss by Water Surface Evaporation and Ice Formation

From the first of June to the end of September the water surface evaporation exceeds precipitation by about a foot in depth. During the other months there is little or no evaporation. If, however, storage is used to increase and sustain

low flows the year round, there is also a loss due to the formation of ice on the reservoirs, which could not be discharged before the spring break-up. The thickness of ice would vary with the temperature, snow cover and the periodic breakdown and submerging of ice as the water levels were lowered. The ice loss has been estimated at one foot.

The loss by evaporation in the reservoirs for an average summer period of 112 days is approximately 2,620 acre feet and the loss, including that for ice, of sustained flows for an average year for the 273-day period is estimated at 5,120 acre feet.

(c) Loss by Dead Storage

Dead storage has already been described and accounted for in sub-section (g)(2) of section 4.

(d) Conservation Storage Available for Increased and Sustained Flows at London

The above storage losses and the remaining conservation storage which would be available for increasing low flows for each of the reservoirs are shown in Tables H-3 and H-4. The sustained flows at London for both branches for a summer period of 112 days (June 1 to September 20 inclusive) and for a yearly period of 273 days (June 1 to February 28 inclusive) are also shown.

The storage capacities for all of the reservoirs and the area flooded by each at the various water levels are shown in Figures H-24, H-25 and H-26.

A diagram illustrating the various storage classifications and the allocation of the storage space for flood control and conservation purposes is shown in Figure H-27.

TABLE H-1

THE DISTRIBUTION OF THE REQUIRED 111,080 ACRE FEET
FLOOD CONTROL STORAGE ABOVE LONDON
AND THE CAPACITY AND SELECTION OF RESERVOIRS

Reservoir	Capacity in Ac.Ft.		Reservoir Selection		
	Top of Spillway	Max. Holding Storage	Above London Ac.Ft.	Above St.Marys Ac.Ft.	Above Woodstock Ac.Ft.
Glengowan	(1)26,954±	25,000±	26,954±	26,954±	
Wildwood	14,900	13,900	14,900	14,900	
Fish Creek	(2)11,753				
Fanshawe	38,880	(3)	(4)38,880		
Medway	(2)21,507				
Sub-total	113,994	38,900	80,734	(5)41,854	
Woodstock	5,152	4,300	5,152		5,152
Cedar Creek	7,728	5,600	7,728		7,728
Thamesford	17,466	15,700	17,466		
Sub-total	30,346	25,600	30,346		(5)12,880
Grand Total	144,340	64,500	111,080		
Required Storage			111,080	(6)57,300	(6)18,300

Notes

(1) Storage approximate. Contour survey was not completed.

(2) Reservoirs surveyed but not included in plan.

(3) No water conservation storage available from Fanshawe.

(4) Assuming that the 10,000 acre feet for the Fanshawe Recreational Lake will be lowered to the dead storage level prior to the spring break-up. Otherwise 4,070 acre feet short.

(5) Flood control storage short and to be supplemented by some local channel improvement work.

(6) This storage is tentative as it was deduced from channel capacity tests made in 1948. Results to be checked by further tests.

SUMMARY OF MEAN MONTHLY DISCHARGES

North Branch at WESTERN -- 1916 to 1950

SPRING RUN - OFF Accretion Period - Reservoir Filled 3 Months or 92 Days CUBIC FEET PER SECOND						RUN-OFF for the following SUMMER, FALL and WINTER Draft Period of Reservoirs - Flow in the River is increased and sustained 9 Months or 273 Days CUBIC FEET PER SECOND											YEAR CUBIC FEET PER SECOND	
YEAR	MAR.	APRIL	MAY	TOTAL FOR PERIOD	AV'GE FOR PERIOD	YEAR	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	TOTAL FOR PERIOD	AV'GE FOR PERIOD	TOTAL FOR YEAR	AV'GE FOR YEAR
1914						1914-15													
1915						1915-16													
1916	1261	2090	1074	4425	1475	1916-17	1080	147	27	23	37	70	159	391	89	2023	225	6448	537
1917	2475	1144	518	4137	1379	1917-18	551	1284	54	42	118	169	189	86	174	2667	296	6804	567
1918	2580	607	79	3266	1089	1918-19	63	26	26	81	33	75	1261	706	423	2694	299	5960	497
1919	1390	1413	1413	4216	1405	1919-20	132	30	33	30	95	414	309	69	71	1183	131	5399	450
1920	1728	835	174	2737	912	1920-21	60	159	56	49	97	569	1226	870	291	3377	375	6114	509
1921	2043	1366	357	3766	1255	1921-22	107	149	44	36	208	489	1331	423	1273	4060	451	7826	652
1922	1401	2510	170	4081	1360	1922-23	509	72	60	137	70	85	88	176	84	1281	142	5362	447
1923	2697	1856	1226	5779	1929	1923-24	455	72	44	149	61	190	1600	1097	382	4050	450	9829	819
1924	2300	1693	1156	5149	1716	1924-25	152	93	105	51	47	47	110	20	1097	1722	191	6871	573
1925	2090	284	81	2455	818	1925-26	44	32	30	34	50	70	451	286	262	1259	140	3714	309
1926	2569	2814	267	5650	1883	1926-27	114	30	372	550	852	2335	420	237	823	5733	637	11383	949
1927	2393	309	671	3373	1124	1927-28	184	881	90	51	61	439	1144	835	677	4362	485	7735	645
1928	2317	1051	168	3536	1189	1928-29	365	334	230	64	411	1471	1448	1109	259	5691	632	9257	771
1929	3923	1961	975	6859	2286	1929-30	110	71	44	37	46	77	62	1681	3222	5350	594	12209	1017
1930	1016	1203	299	2518	839	1930-31	223	76	32	53	49	35	113	41	69	691	77	3209	267
1931	1390	1530	354	3274	1091	1931-32	92	336	239	76	83	595	1027	1856	1103	5407	601	8681	723
1932	899	1138	536	2573	858	1932-33	148	124	111	194	246	1080	1284	666	549	4402	489	6975	581
1933	1045	1891	386	3322	1107	1933-34	105	55	54	50	56	227	465	870	260	2142	238	5364	447
1934	1459	2265	92	3816	1272	1934-35	51	48	39	46	—	—	—	—	—	—	—	—	—
1935	—	—	—	—	—	1935-36	—	—	—	—	48	584	362	188	231	—	—	—	—
1936	2884	1180	439	4503	1501	1936-37	270	19	12	25	60	139	776	1961	1238	4500	500	9003	750
1937	389	3409	543	4341	1447	1937-38	209	65	57	67	—	—	—	203	3351	—	—	—	—
1938	2137	539	244	2920	973	1938-39	100	35	47	33	30	35	47	184	654	1165	129	4085	340
1939	2008	2183	125	4316	1439	1939-40	70	48	46	35	56	111	75	75	104	620	69	4936	411
1940	203	4156	870	5229	1743	1940-41	491	186	195	381	439	940	1950	654	321	5557	617	10786	899
1941	811	1424	110	2345	783	1941-42	82	33	22	47	196	590	459	502	364	2295	255	4640	387
1942	2965	677	403	4045	1348	1942-43	381	62	32	590	718	1926	823	546	1903	6981	776	11026	919
1943	3351	1319	1529	6199	2066	1943-44	411	246	165	165	38	118	168	366	565	2242	249	8441	703
1944	1600	1670	472	3742	1247	1944-45	112	31	21	89	1640	655	494	54	105	3201	356	6943	579
1945	3450	1230	1940	6620	2207	1945-46	730	780	92	293	81	384	287	1440	965	5052	561	11672	973
1946	2670	248	269	3187	1062	1946-47	228	76	69	55	64	70	320	1610	590	3082	342	6269	522
1947	1970	4500	1060	7530	2510	1947-48	1910	408	110	199	68	99	780	270	894	4738	526	12268	1022
1948	4100	922	937	5959	1986	1948-49	99	63	45	16	41	208	198	1400	2280	4350	483	10309	859
1949	1670	507	111	2288	763	1949-50	31	35	16	26	83	82	—	2310	644	—	—	—	—
1950	2680	2310	173	5163	1721	1950-51	60	78	105	41	75	788	1574	1860	1678	6259	695	11422	952
1951						1951-52													
1952						1952-53													
Min. Year 1930	1016	1203	299	2518	839	Min. Year 1930-31	223	76	32	53	49	35	113	41	69	691	77	3209	267
Max. Year 1947	1970	4500	1060	7530	2510	Max. Year 1947-48	1910	408	110	199	68	99	780	270	894	4738	526	12268	1022
Av'ge Year	2055	1640	565	4260	1420	Av'ge Year	280	181	98	117	195	469	667	803	764	3574	397	7834	653

SUMMARY OF MEAN MONTHLY DISCHARGES

South Branch at EALING -- 1915 to 1950

SPRING RUN - OFF Accretion Period - Reservoir Filled 3 Months or 92 Days CUBIC FEET PER SECOND						RUN-OFF for the following SUMMER, FALL and WINTER Draft Period of Reservoirs - Flow in the River is increased and sustained 9 Months or 273 Days CUBIC FEET PER SECOND											YEAR CUBIC FEET PER SECOND	
YEAR	MAR.	APRIL	MAY	TOTAL FOR PERIOD	AV'GE FOR PERIOD	YEAR	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	TOTAL FOR PERIOD	AV'GE FOR PERIOD	TOTAL FOR YEAR	AV'GE FOR YEAR
1914						1914-15													
1915						1915-16	180	200	578	433	414	468	565	2140	719	5697	633		
1916	1200	1230	1210	3640	1213	1916-17	935	145	124	72	115	111	159	250	116	2027	225	5667	472
1917	1480	1080	705	3265	1088	1917-18	990	1200	166	115	270	289	209	116	995	4350	483	7615	635
1918	2070	453	246	2769	923	1918-19	115	37	26	161	128	174	585	535	318	2079	231	4848	404
1919	1200	900	1080	3180	1060	1919-20	159	67	63	77	166	314	260	87	93	1286	143	4466	372
1920	1560	660	228	2448	816	1920-21	113	165	138	71	136	348	625	570	240	2406	267	4854	404
1921	1280	1050	346	2676	892	1921-22	146	550	115	121	274	449	920	457	940	3972	441	6648	554
1922	865	1640	236	2741	914	1922-23	442	146	134	213	125	145	138	233	89	1665	185	4406	367
1923	1670	1060	487	3217	1072	1923-24	195	110	69	141	79	145	1200	880	342	3161	351	6378	531
1924	1660	1120	915	3695	1232	1924-25	258	154	213	105	112	99	148	99	1360	2548	283	6243	520
1925	1800	348	131	2279	760	1925-26	61	57	75	74	89	343	247	246	268	1460	162	3739	312
1926	2010	1810	292	4112	1371	1926-27	153	62	228	540	750	1690	396	232	665	4716	524	8828	736
1927	1610	494	635	2739	913	1927-28	218	575	123	86	118	437	950	705	575	3787	421	6526	544
1928	1010	860	241	2111	704	1928-29	545	243	173	96	253	720	730	850	245	3855	428	5966	497
1929	2220	1570	750	4540	1513	1929-30	161	105	79	67	80	174	93	1620	2130	4509	501	9049	754
1930	1020	750	239	2009	670	1930-31	183	71	55	63	64	67	94	69	113	779	87	2788	232
1931	695	615	239	1549	516	1931-32	106	182	100	107	94	197	555	1630	890	3861	429	5410	451
1932	610	780	670	2060	687	1932-33	299	199	165	184	191	675	855	600	520	3688	410	5748	479
1933	955	1380	234	2569	856	1933-34	90	78	77	67	74	157	281	750	341	1915	213	4484	374
1934	1240	1690	208	3138	1046	1934-35	84	83	86	130	94	146	121	725	530	1999	222	5137	428
1935	1630	222	250	2102	701	1935-36	163	69	66	56	62	170	183	126	260	1155	128	3257	271
1936	1910	750	256	2916	972	1936-37	64	22	26	32	40	90	202	1960	1380	3816	424	6732	561
1937	409	2710	565	3684	1228	1937-38	285	86	124	102	205	174	135	195	2490	3796	422	7480	623
1938	1260	540	273	2073	691	1938-39	132	55	103	74	58	75	89	185	835	1606	178	3679	307
1939	1330	1690	196	3216	1072	1939-40	89	68	76	57	66	67	68	72	73	636	71	3852	321
1940	203	2020	530	2753	918	1940-41	525	195	172	382	237	545	1300	520	248	4124	458	6877	573
1941	540	570	102	1212	404	1941-42	61	52	68	64	69	138	137	195	411	1195	133	2407	201
1942	1490	448	311	2249	750	1942-43	238	113	94	267	482	1010	735	750	1640	5329	592	7578	631
1943	1960	825	1270	4055	1352	1943-44	580	456	137	101	99	152	149	194	355	2223	247	6278	523
1944	935	895	354	2184	728	1944-45	169	82	75	139	93	88	100	49	130	925	103	3109	259
1945	1470	955	1160	3585	1195	1945-46	496	323	164	216	925	390	308	720	675	4217	469	7802	650
1946	1530	203	228	1961	654	1946-47	207	102	104	104	132	157	332	1050	430	2618	291	4579	382
1947	1360	2460	940	4760	1587	1947-48	1040	232	157	200	172	194	355	216	683	3249	361	8009	667
1948	1990	721	777	3488	1163	1948-49	184	303	152	103	116	243	233	787	1700	3821	425	7309	609
1949	1020	487	204	1711	570	1949-50	114	147	109	121	149	116	1145	1748	686	4335	482	6046	504
1950	1860	1541	226	3627	1209	1950-51	141	207	222	168	190	450	1015	1024	1468	4885	543	8512	709
1951						1951-52													
1952						1952-53													
Min Year 1941	540	570	103	1212	404	Min. Year 1941-42	61	52	68	64	69	138	137	195	411	1195	133	2407	201
Max. Year 1929	2220	1570	750	4540	1513	Max. Year 1929-30	161	105	79	67	80	174	93	1620	2130	4509	501	9049	754
Av'ge Year	1344	1043	478	2865	955	Av'ge Year	276	193	129	142	187	311	434	627	693	2992	332	5857	488

TABLE H-2

TABLE H - 3

NORTH BRANCH - THAMES RIVER

Losses in Reservoir Space Due to
Evaporation and Winter Ice
Dead Storage
and Reserved Space for a Hypothetical Rain Storm
and
WATER CONSERVATION AND SUSTAINED FLOWS
AVAILABLE AT LONDON

For a Summer Flow Period from June 1 to Sept. 20 - 112 days
and a Yearly Flow Period from June 1 to March 1 - 273 days

For the Driest Year since 1915 viz. the Summer of 1939 & Winter of 1940 and for the Average Period since 1915.

Reservoir	Mean Surface Area Acres	Losses in Reservoir Space Acre Feet				Holding Capacity Acre Feet	Water Conservation Storage Acre Feet	Average Discharge From Reservoirs C.F.S.	Average Run-off above London C.F.S.	Average Sustained Flow at London C.F.S.
		By Evaporation and Winter Ice	By Dead Storage Approximately	Space Reserved For Hypothetical Rain Storm	Total Loss in Reservoir Space					
For the Driest Year - Summer Flow - 112 Days										
Glengowan	600	670	300	3250	4220	25000	20780	93.5		
Wildwood	430	480	200	620	1300	13900	12600	56.7		
Fanshawe	710	790	800	2510	4100					
Total	1740	1940	1300	6380	9620		33380	150.2	51.1	201.3
For the Driest Year - Yearly Flow - 273 Days										
Glengowan	600	1180	300	3250	4730	25000	20270	37.4		
Wildwood	430	850	200	620	1670	13900	12230	22.6		
Fanshawe	710	1400	800	2510	4710					
Total	1740	3430	1300	6380	11110		32500	60.0	68.4	128.4
For the Average Year - Summer Flow - 112 Days										
Glengowan	600	390	300	3250	3940	25000	21060	94.8		
Wildwood	430	280	200	620	1100	13900	12800	57.6		
Fanshawe	710	460	800	2510	3770					
Total	1740	1130	1300	6380	8810		33860	152.4	173.1	325.5
For the Average Year - Yearly Flow - 273 Days										
Glengowan	600	760	300	3250	4310	25000	20690	38.2		
Wildwood	430	550	200	620	1370	13900	12530	23.1		
Fanshawe	710	900	800	2510	4210					
Total	1740	2210	1300	6380	9890		33220	61.3	394.3	455.6

Note: Space reserved for hypothetical rain storm is based on 4.41 in. with a run-off factor of 75 per cent prior to May 10.

TABLE H - 4

SOUTH BRANCH - THAMES RIVER

Losses in Reservoir Space Due to
Evaporation and Winter Ice
Dead Storage
and Reserved Space for a Hypothetical Rain Storm
and
WATER CONSERVATION AND SUSTAINED FLOWS
AVAILABLE AT LONDON

For a Summer Flow Period from June 1 to Sept. 20 - 112 Days
and a Yearly Flow Period from June 1 to March 1 - 273 Days

For the Driest Period Since 1915 viz. The Summer of 1939 & Winter of 1940 and for the Average Period since 1915.

Reservoir	Mean Surface Area Acres	Losses in Reservoir Space Acre Feet				Holding Capacity Acre Feet	Water Conservation Storage Acre Feet	Average Discharge from Reservoirs C.F.S.	Average Run-off above London C.F.S.	Average Sustained Flow At London C.F.S.
		By Evaporation and Winter Ice	By Dead Storage Approximately	Space Reserved for Hypothetical Rain Storm	Total Loss in Reservoir Space					
For the Driest Year - Summer Flow - 112 Days										
Woodstock	350	400	200	1420	2020	4300	2280	10.3		
Cedar Creek	700	800	200	460	1460	5600	4140	18.6		
Thamesford	550	630	400	1630	2660	15700	13040	58.7		
Total	1600	1830	800	3510	6140	25600	19460	87.6	73.9	161.5
For the Driest Year - Yearly Flow - 273 Days										
Woodstock	350	640	200	1420	2260	4300	2040	3.8		
Cedar Creek	700	1270	200	460	1930	5600	3670	6.7		
Thamesford	550	1000	400	1630	3030	15700	12670	23.3		
Total	1600	2910	800	3510	7220	25600	18380	33.8	70.4	104.2
For the Average Year - Summer Flow - 112 Days										
Woodstock	350	330	200	1420	1950	4300	2350	10.6		
Cedar Creek	700	650	200	460	1310	5600	4290	19.3		
Thamesford	550	510	400	1630	2540	15700	13160	59.2		
Total	1600	1490	800	3510	5800	25600	19800	89.1	188.4	277.5
For the Average Year - Yearly Flow - 273 Days										
Woodstock	350	640	200	1420	2260	4300	2040	3.8		
Cedar Creek	700	1270	200	460	1930	5600	3670	6.7		
Thamesford	550	1000	400	1630	3030	15700	12670	23.4		
Total	1600	2910	800	3510	7220	25600	18380	33.9	329.5	363.4

Note: Space reserved for hypothetical rain storm is based on 4.41 in. with a run-off factor of 75 per cent prior to May 10.

TABLE H-5

DAM AND RESERVOIR DATA FOR PROPOSED FLOOD CONTROL SCHEME

Reservoir	Length of Dam	Discharge Capacity not less than:	Elevation G.S.C.			Height above Stream Bed	Depth to Bed Rock	Height above Bed Rock	Storage	Cost	
			Bed of Stream	Top of Spill-way	Top of Dam					Total	Unit
	Feet	C.F.S.	Feet	Feet	Feet	Feet	Feet	Feet	Ac. Ft.	$	$/Ac.Ft.
Glengowan	1,200	68,000 45,000	1,007.0	1,065	1,071	64.0	4.0	68.0	26,954	2,020,000	75.00
Wildwood	1,790	12,000	1,018.0	1,065	1,071	53.0	4.0	57.0	14,900	1,407,000	94.50
Fish Creek ✱	980	7,000	940.0	975	981	41.0	-	-	11,753	-	-
Fanshawe	2,050	87,000	819.0	890	896	77.0	23.0	100.0	38,880	4,711,250	121.17
Medway ✱	950	14,000	810.0	880	886	76.0	-	-	21,507	-	-
North Branch Sub-Total									80,734	8,138,250	100.80
Woodstock	1,440	10,000	915.0	940	946	31.0	ø 10.0	41.0	5,152	760,000	147.50
Cedar Creek	1,100	6,000	928.5	950	956	27.5	ø 10.0	37.5	7,728	604,000	78.20
Thamesford	1,200	19,000 52,000.	916.5	960	966	49.5	ø 25.0	74.5	17,466	2,440,000	139.70
South Branch Sub-Total									30,346	3,804,000	125.68
Total									111,080	11,942,250	107.51

✱ Surveyed, but not included in scheme

ø Estimated

TABLE H-6

SUNDRY DRAINAGE AREAS & PERIODS OF GAUGE RECORDS

Tributaries		Places		Damsites		Hydrometric Gauges				
Name	Drainage Area Square Miles	Name	Drainage Area Square Miles	Name	Drainage Area Square Miles	Name	Drainage Area Square Miles	Period of Records		
								From	To	Years
North Branch		London at Forks	661.4	Fanshawe	560.2	Fanshawe	562.9	1915	1944	30
Medway R.	74.7	London	657.0	Medway	72.3	Western Univ.	657.2	1944	1950	7
Avon R.	59.1	Stratford	29.2			Medway	69.8	1946	1950	5
Trout Creek	64.8	St. Mary's Trout Cr.	64.0	Wildwood	54.6	Trout Creek	54.6	1946	1950	5
Fish Creek	58.7	St. Mary's North Br.	351.0	Fish Creek	56.3	Fish Creek	57.7	1946	1950	5
Whirl Creek	55.0	Mitchell	119.0	Glengowan	285.2	St. Mary's	416.0	1938	1950	13
Flat Creek	33.9									
South Branch		London at Forks	529.2	Woodstock	97.6	Ealing	519.1	1915	1950	36
Waubuno Cr.	39.3	London	517.6	Cedar Creek	31.4	Ingersoll	214.4	1938	1950	13
Cedar Creek	37.6	Woodstock	141.8							
Reynolds Cr.	58.7	Ingersoll	219.9							
Middle Branch	132.8	Thamesford	117.6	Thamesford (Upper)	112.0	Thamesford	117.6	1938	1950	13
				Thamesford (Lower)	112.2					
Total for Tributaries above London			1190.6			Kilworth	1250.0	1914	1922	9
						Byron	1203.4	1923	1931	9
Thames River - Upper Thames Watershed			1324.9					1938	1950	13

Note: For Gauge Locations See Fig. H-5

TABLE H-7

APPROXIMATE SPACE ALLOWANCE IN RESERVOIRS FOR DEAD AND BOOST FLOW STORAGE

And the space to be made available as soon as possible after every spring flood and reserved until May 10 for a hypothetical rainstorm of 4.41 inches over the whole Upper Thames Watershed, with a 75 per cent run-off factor which might occur during that period, and the space after May 10 for a similar storm with a 45 per cent run-off factor should rain after that date make it possible to reduce the space and increase the conservation storage.

Reservoir	Capacity Top of Spillway	Dead Storage	Boost Flow Storage	Total Dead & Boost Flow Storage	Depth of Water at Dam		Elevation Top of Spillway	Minimum Reserved Space until May 10 Made Available by Dumping after Every Spring Flood			Minimum Reserved Space after May 10 Should Rain Raise the Water Level in Reservoirs		
					For Dead Storage Only	For Both Dead & Boost Storage		Space	Depth below Spillway to Water Level:	Elevation of Water Level	Space	Depth below Spillway to Water Level:	Elevation of Water Level
	Ac.Ft.	Ac.Ft.	Ac.Ft.	Ac.Ft.	Ft.	Ft.	Ft.	Ac.Ft.	Ft.	Ft.	Ac.Ft.	Ft.	Ft.
Glengowan	26,954	300	1,600	1,900	13.0	21.0	1,065.0	3,250	2.5	1,062.5	1,952	1.5	1,063.5
Wildwood	14,900	200	900	1,100	10.0	17.5	1,065.0	620	0.9	1,064.1	374	0.5	1,064.5
Fanshawe	38,880	800	3,403	4,200	17.5	30.2	890.0	2,510	1.8	888.2	1,508	1.1	888.9
Woodstock	5,152	200	300	500	9.9	12.5	940.0	1,420	2.6	937.4	853	1.5	938.5
Cedar Creek	7,728	200	500	700	9.9	12.8	950.0	460	0.3	949.7	275	0.2	949.8
Thamesford	17,466	400	1,100	1,500	13.2	20.7	960.0	1,630	1.5	958.5	980	1.0	959.0
Total	111,080	2,100	7,803	9,900				9,890			5,942		

MONTHLY MAXIMUM, MINIMUM AND MEAN DISCHARGES

SOUTH BRANCH AT EALING DRAINAGE AREA = 519.1 SQUARE MILES

YEAR	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1915																287	68	180	565	60	200	1420	234	578	1530	162	433	705	198	414	1200	163	468	955	375	565
1916	6540	520	2140	4540	470	719	6330	470	1200	2890	520	1230	3120	455	1210	3170	280	935	246	72	145	105	55	124	148	50	72	267	64	115	227	38	111	239	104	159
1917	605	155	250	380	38	116	4770	352	1480	3460	396	1080	2450	215	705	3560	307	990	4560	215	1200	321	116	166	191	60	115	780	60	270	510	176	289	404	104	209
1918	176	55	116	6800	19	995	5130	580	2070	1030	221	453	780	101	246	306	28	115	101	7	37	60	2	26	359	28	161	278	74	128	227	132	174	1850	162	585
1919	2940	167	535	1350	88	318	5200	314	1200	2720	300	900	3220	308	1080	320	66	159	100	40	67	90	32	63	239	32	77	600	68	166	1410	173	314	925	110	260
1920	110	75	87	95	85	93	7810	100	1560	1410	382	660	515	110	228	178	63	113	675	80	165	500	48	138	100	48	71	403	52	136	745	188	348	1620	330	625
1921	2160	209	570	570	120	240	3280	200	1280	5360	329	1050	1060	160	346	269	97	146	6220	67	550	368	67	115	200	85	121	970	80	274	1520	117	449	6340	220	920
1922	2780	150	457	5510	150	940	2080	340	865	5830	322	1640	402	125	236	2400	105	442	297	83	146	325	70	134	565	58	213	208	75	125	169	112	145	301	92	138
1923	840	139	233	138	70	89	4000	105	1670	4590	280	1060	2480	178	487	448	95	195	343	51	110	133	37	69	440	62	141	103	59	79	382	91	145	3540	422	1200
1924			880			342	4720		1660	2870	382	1120	3500	282	915	426	138	258	263	76	154	700	61	213	207	58	105	214	71	112	147	67	99	266		148
1925			99	7260		1360	7630	540	1800	690	182	348	200	84	131	91	45	61	84	45	57	135	45	75	116	42	74	144	55	89	770	104	343	805		247
1926			246			268	9230		2010	6770	580	1810	805	135	292	109	40	62	790	58	228	1610	298	750	4060	705	1690			396							
1927			232			665	3630	362	1610	1120	302	494	1690	186	635	422	107	218	4270	74	575	318	80	123	114	64	86	215	86	118	3510	95	437			950
1928			705			575	4060		1010	2470	297	860	580	127	241	2260	109	545	760	120	243	685	86	173	120	80	96	635	86	253	2640	252	720			730
1929			850			245			2220	5520	455	1570	2420	262	750	375	90	161	132	90	105	90	60	79	77	53	67	157	60	80	395	90	174			93
1930			1620			2130			1020	2540	230	750	477	120	239	710	90	183	116	50	71	65	50	55	91	50	63	73	54	64	82	54	67			94
1931			69			113	3800		695	1370	146	615	560	101	239	317	57	106	720	57	182	122	82	100	243	73	107	107	88	94	545	91	197			555
1932			1630			890			610	1550	203	780	2450	188	670	1070	97	299	367	97	199	310	79	165	570	82	184	379	111	191	1220	282	675			855
1933			600			520	3630	317	955	3750	282	1380	355	111	234	134	62	90	118	57	78	107	57	77	88	57	67	111	57	74	367	55	157			281
1934			750			341			1240	4260	407	1690	435	134	208	134	62	84	122	50	83	101	73	86	218	82	130	124	54	94	212	89	146			121
1935			725			530	7390	468	1630	427	102	222	455	77	250			163			69			66			56			62	347	31	170			183
1936			126			260	5340	825	1910	1530	315	750	725	45	256	247	10	64	51	10	22	45	15	26	45	10	32	75	18	40	335	25	90			202
1937			1960			1380	1640	162	409	22160	307	2710	1830	285	565	550	102	285	190	41	86	365	36	124	297	43	102	845	43	205	285	102	174			135
1938			195	10930	285	2490	3000	365	1260	1450	215	540	515	180	273	295	48	132	91	41	55	278	56	103	107	53	74	84	45	58	135	41	75	165	35	89
1939			185			835	4060	320	1330	5150	425	1690	337	122	196	150	62	89	93	56	68	109	60	76	77	49	57	122	45	66	87	49	67	87	51	68
1940			72			73			203	8100	268	2020	1560	212	530	2070	185	525	535	75	195	1780	57	172	1000	207	382	545	154	237	1500	207	545			1300
1941			520			248	875	199	540	1260	151	570	138	68	102	92	35	61	78	29	52	103	46	68	99	38	64	92	35	69	240	92	138	370	80	137
1942			195			411	6280		1490	975	114	448	835	110	311	670	82	238	234	68	113	151	63	94	1470	46	267	1320	126	482	2670	412	1010			735
1943			750	5930	545	1640	9700	342	1960	1750	447	825	5760	482	1270	1960	82	580	2670	133	456	272	99	137	151	72	101	180	54	99	204	110	152	165	138	149
1944			194			355	2470	195	935	2590	360	895	695	99	354	458	92	169	110	72	82	92	54	75	377	72	139	151	54	93	110	54	88	133		100
1945			49			130	3850	377	1470	3830	272	955	6570	360	1160	1090	195	496	1180	151	323	219	138	164	675	114	216	5380	325	925	685	308	390	705	151	308
1946	2610	255	720	2000	325	675	5690	290	1530	290	126	203	715	103	228	493	92	207	126	72	102	126	81	104	151	63	104	360	63	132	219	114	157	1210	114	332
1947			1050			430	7250	204	1360	13450	570	2460	2940	395	940	5960	195	1040	465	165	232	290	114	157	447	126	200	231	138	172	225	165	194	835	210	355
1948	255	180	216	3040	225	683	8630	342	1990	1680	395	721	3420	195	777	342	138	184	588	146	303	308	103	152	114	92	103	146	92	116	528	92	243	622	138	233
1949	2450	378	787	8310	290	1700	4800	290	1020	1070	325	487	325	138	204	138	92	114	273	92	147	151	92	109	151	92	121	377	92	149	165	92	116	7175	165	1145
1950	7025	437	1748	1512	107	686	6890	395	1860	10036	395	1541	412	165	226	180	107	141	545	119	207	695	121	222	249	121	168	475	121	190	1488	152	450	4860	255	1015
MEAN			615			671			1345			1042			478			276			193			129			142			187			312			434

MONTHLY MAXIMUM, MINIMUM AND MEAN DISCHARGES

NORTH BRANCH AT WESTERN UNIV. DRAINAGE AREA = 657.2 SQUARE MILES

YEAR	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1915																323	41	93	1185	29	155	2604	158	718	1454	106	284	633	158	363	2977	93	799	1588	444	1009
1916	12656	1284	4133	1097	467	630	7320	285	1261	4670	706	2090	2744	385	1074	3853	420	1080	481	33	147	43	19	27	35	16	23	68	17	37	326	21	70	326	28	159
1917	1413	56	391	158	51	89	13824	106	2475	3853	307	1144	1553	143	518	1868	161	551	1576	97	1284	102	30	54	97	18	42	525	34	118	326	26	169	404	118	189
1918	154	39	86	479	37	174	8792	307	2580	2499	85	607	326	30	79	306	26	63	29	25	26	29	23	26	306	30	81	42	27	33	287	34	75	8021	57	1261
1919	3900	222	706	1786	117	423	3514	514	1390	5581	303	1413	6865	318	1413	258	39	132	69	13	30	76	15	33	114	2	30	397	40	95	4156	155	414	1284	98	309
1920	89	61	69	71	68	71	7005	71	1728	3269	302	835	550	54	174	95	44	60	946	54	159	138	35	56	76	30	49	210	40	97	1786	147	569	4565	473	1226
1921	4028	243	870	334	238	291	6223	406	2043	8091	358	1366	1331	132	357	230	49	107	841	33	149	68	29	44	49	33	36	677	55	208	2067	82	489	10391	194	1331
1922	3853	100	423	1100	114	1273	4367	418	1401	8465	362	2510	286	64	170	3794	42	509	191	32	72	203	19	60	660	14	137	118	29	70	144	48	85	151	65	88
1923	590	102	176	102	75	84	7425	114	2697	7507	351	1856	8628	134	1226	2569	65	455	444	19	72	91	21	44	1086	37	149	116	36	61	505	100	190	4939	581	1600
1924			1097			382	7460		2300	6491	314	1693	4495	269	1156	320	90	152	393	44	93	532	34	105	104	22	51	89	33	47	91	25	47			110
1925			20	6445		1097	12901	285	2090	730	109	284	113	50	81	77	25	44	47	16	32	49	15	30	70	11	34	134	26	50	3678	68	70	3526		451
1926			286			262	10706		2569	13882	736	2814	946	62	267	683	47	114	50	21	30	3433	37	372	3141	70	550	3853	183	852	11944		2335			420
1927			237			823	8523	259	2393	759	183	309	2931	88	671	544	72	184	9282	43	881	341	37	90	83	33	51	102	39	61	4647	40	439	2615		1144
1928			835			677	14606		2347	3164	274	1051	363	83	168	2965	60	365	1845	102	334	1051	68	230	89	40	64	2277	70	411	6176	386	1471			1448
1929			1109			259			3923	11267	343	1961	4226	231	975	208	68	110	105	50	71	62	32	44	43	32	37	79	35	46	168	46	77			62
1930			1681			3222			1016	5067	290	1203	718	134	299	881	70	223	167	33	76	69	7	32	81	27	53	78	25	49	48	13	35			113
1931			41			69	10788		1390	6036	219	1530	1027	107	354	188	54	92	1471	60	336	1600	33	239	130	29	76	116	53	83	3176	93	595			1027
1932			1856			1103			899	2627	183	1138	2487	109	536	420	67	148	287	57	124	458	41	111	1180	61	194	899	121	246	2627	396	1080			1284
1933			666			549	3304	258	1045	8733	236	1891	1693	142	386	170	68	105	88	43	55	104	40	54	74	36	50	119	40	56			227			465
1934			870			260			1459	12784	318	2265	230	54	92	82	42	51	60	39	48	46	29	39	58	35	46										
1935																														48	2253	65	584			362
1936			188			231	7262	1039	2884	3036	402	1180	3187	65	439	2662	27	270	39	12	19	29	8	12	54	14	25	106	30	60	517	57	139			776
1937			1961			1238	1413	146	389	24016	420	3409	1681	237	543	557	100	209	223	25	65	279	19	57	193	32	67										
1938			203	15446	613	3351	10881	642	2137	1518	196	539	724	110	244	236	40	100	43	27	35	103	26	47	43	25	33	35	25	30	54	27	35	112	20	47
1939			184			654	9399	410	2008	11593	319	2183	301	44	125	118	39	70	162	16	48	91	29	46	55	22	35	105	21	56	388	26	111	111	24	75
1940		33	75			104			203	18902	325	4156	5697	236	870	1728	134	491	759	65	186	1810	49	195	1203	179	381	2113	140	439	4974	253	940			1950
1941			654			321			811	4600	231	1424	203	55	110	423	30	82	67	22	33	31	14	22	124	14	47	1214	28	196	2008	266	590	2417	144	459
1942			502			364	15890		2965	1775	121	677	2592	76	403	2148	76	381	176	30	62	54	21	32	5616	21	590	2930	130	718	9013	490	1926			823
1943			546			1903	13076	368	3351	5184	370	1319	13345	321	1529	1670	139	411	1319	97	246	430	67	165	858	62	165	135	15	38	308	21	118	359		168
1944			366			565	4010		1600	6260	470	1670	1010	173	472	470	33	112	42	27	31	33	15	21	260	15	89	12400	470	1640	1130	413	655	755	359	494
1945			54			105	9340	441	3450	4720	260	1230	15280	470	1940	2750	173	730	6000	102	780	173	21	92	2090	21	293	173	35	81	935	91	384	620		287
1946			1440			965	18880	260	2670			248			269			228			76			69			55			64			70			320
1947			1610			590	13480		1970	26980	790	4500	3420	318	1060	12400	118	1910	4900	74	408	413	51	110	1470	51	199	173	33	68	135	51	99	3710	135	780
1948			270			894	22700	413	4100	3710	413	922	3940	154	937	173	51	99	135	33	63	154	21	45	21	15	16	74	21	41	755	21	208			198
1949	6910	530	1400	10300	720	2280	12800	359	1670	1620	294	507	308	51	111	51	20	31	135	16	35	21	12	16	60	15	26	413	21	83	173	27	82	4990	237	
1950	10420	413	2310	1475	344	644	17152	359	2680	21040	470	2310	470	74	173	102	31	60	237	35	78	610	22	105	80	26	41	215	20	75	3860	46	788	7120	260	1574
MEAN			803			764			2055			1640			565			280			181			98			117			195			469			667

Note: Flows recorded at Fanshawe Gauge 1915 - 1943
converted to Western University Gauge.

MONTHLY MAXIMUM, MINIMUM AND MEAN DISCHARGES

MAIN BRANCH AT BYRON DRAINAGE AREA = 1203.4 SQUARE MILES

YEAR	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
1915																															4641	323	1282	2882	442	1153
1916	17739	1133	7056	10236	387	1229	15702	442	2564	8944	1337	3299	11250	934	3210	6897	491	1863	423	73	265	231	81	124	231	72	111	423	73	190	577	53	179	1332	120	664
1917	1471		436	437		58	19280	525	5039	9699	674	2634	9789	139	2067	7354	495	2047	7702	178	2569	495	53	279	254	21	138	1560	53	483	1183	246	488	1232	254	650
1918	1212	370	800	3906	19	1953	16895	1943	6201	4517	577	1267	1521	379	644	804	139	343	294	21	126	139		44	805	12	386	538	53	246	760	380	522	9193	418	1868
1919	5476	396	1232	1898	418	804	16219	974	3627	7881	717	2266	10634	717	2703	717	178	405	217	12	87	217	12	67	457	12	102	635	148	241	3975	320	569	3250	227	525
1920	225	203	210	217	211	216	17660	217	4512	5466	949	1704	1386	188	471	227	148	167	1511	148	337	569	84	193	227	98	141	511	148	253	2444	320	838	4174	679	1729
1921	6181	369	1431	1232	268	491	16149	419	3677	14191	679	2559	2698	400	713	616	178	317	8666	96	842	226	134	174	308	134	187	1481	178	460	3533	227	890	19747	539	2231
1922	6003	227	881	14509	227	2251	5814	745	2087	15901	703	4144	745	253	486	6594	203	929	467	207	310	439	100	229	712	80	305	388	189	257	342	201	249	416	135	232
1923	1870	265	500	354	168	232	9380	306	4340	11980	690	2930	15050	324	1960	2870	189	630	756	150	213	300	162	200	1410	218	419	340	230	262	840	245	435	9560	1370	2890
1924	5910	585	1870	1640	433	725	12620	346	3870	8840	710	2830	7210	575	2080	750	240	404	760	206	315	1430	194	442	358	194	249	342	139	192	167	109	141			266
1925	177	103	129	15220	101	2480	16460	715	3670	1220	258	600																258	103	162	4490	204	1220	4060		680
1926			550			520	23190	645	5020	16670	1620	5060	2120	314	720	1530	157	348	167	96	115	3360	100	635	5540	200	1240	5450	525	1680	14150	1550	4170			835
1927			499			1430	11220	950	4040	1970	458	840	4460	300	1420	1090	185	409	13360	142	1430	760	154	241	258	130	183	1100	170	311	6350	185	845			2150
1928			1590			1220	13620		3060	5630	615	2110	880	208	431			1010			615			445			177			760	7440	735	2250			2230
1929			2000			494	26520		6530	18120	1100	3960	6490	690	1980	690	139	254			175			118			106			147			273			177
1930			3530			5360			2370	8520	515	2150	1020	204	487	2070	119	452	236	63	131			92			114	560	60	146			123			202
1931			120			183	14320		2090	7240	383	2340	1900	204	660	399		198			605			344			206									
1932	No records for the years 1932 to 1937 inclusive.																																			
1938				27410	565	6090	16430	610	3500	3040	422	1250	1260	330	550																					
1939										13990	815	4220	690	21	318																					
1940										20510		6310	6220	335	1440																					
1941										5110	355	2010																								
1942							17930	2200	5380	3350	260	1350													Flood discharges only recorded											
1943							30620	665	6160	5800	1100	2480													1938 - 1950											
1944							6220	325	2650	7100	1050	2550																									
1945							10970	795	4560	11370	530	2370																									
1946							21260	565	4320	464	236	328																									
1947							20840	1810	5090	42350	1010	7220	5760	620	1860																						
1948							35700	796	7030	6560	796	2040	8330	404	2120	434	236	351																			
1949							19400	752	3220	2830	464	1190	886	24	360																						
1950							25280			30500																										
MEAN									4184			2643			1270																					

Note: Flows recorded at Kilworth Gauge 1915 - 1922
converted to Byron Gauge.

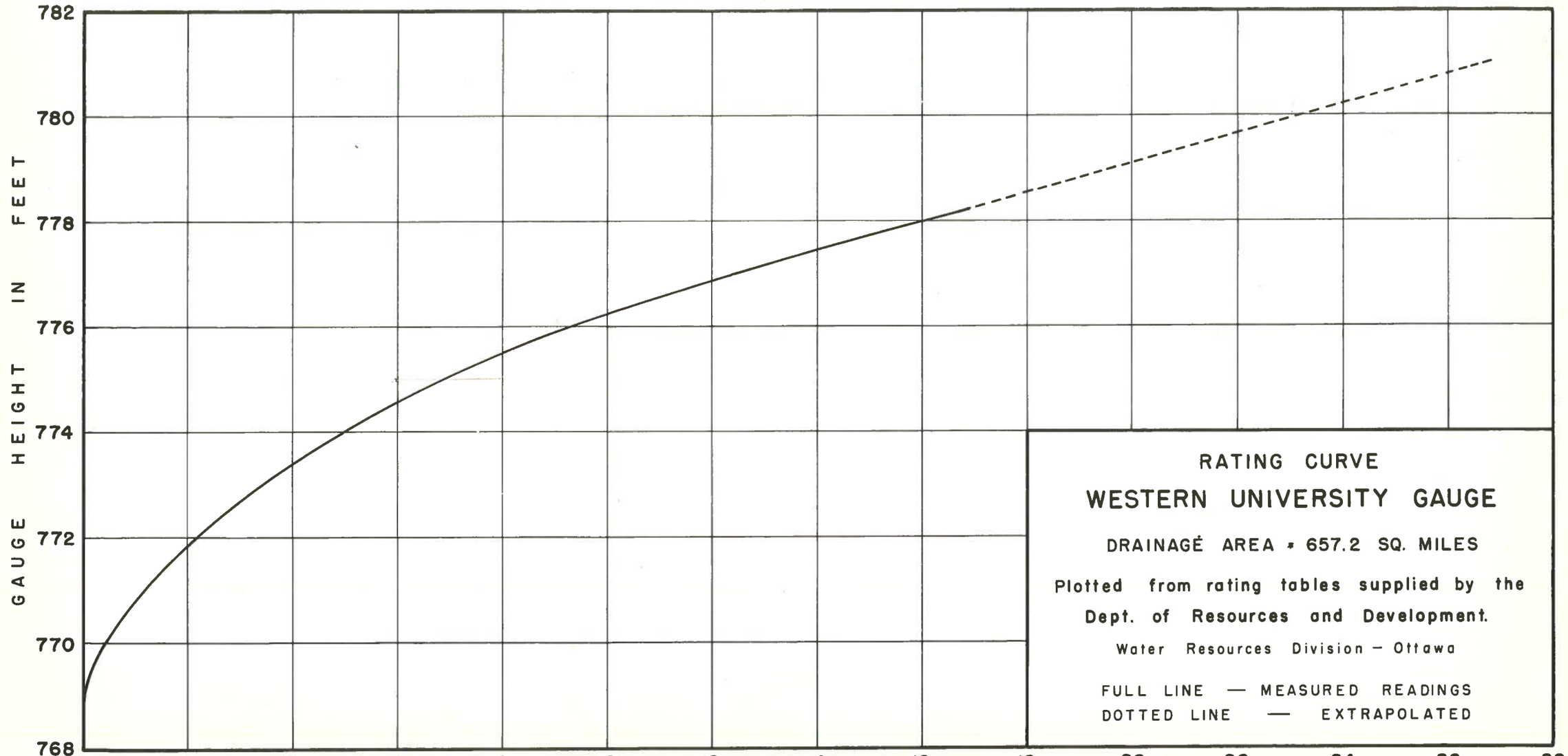
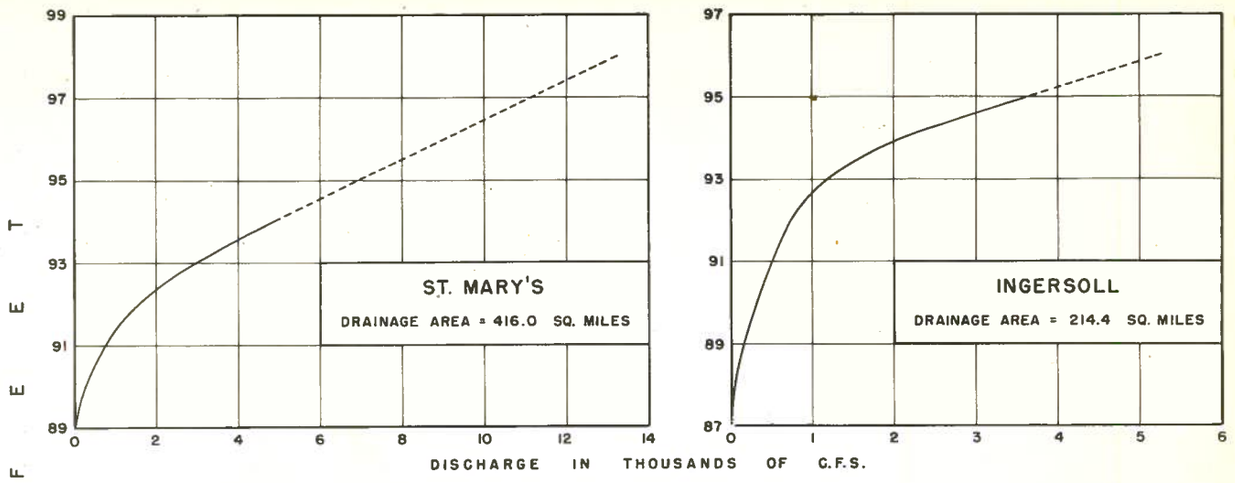
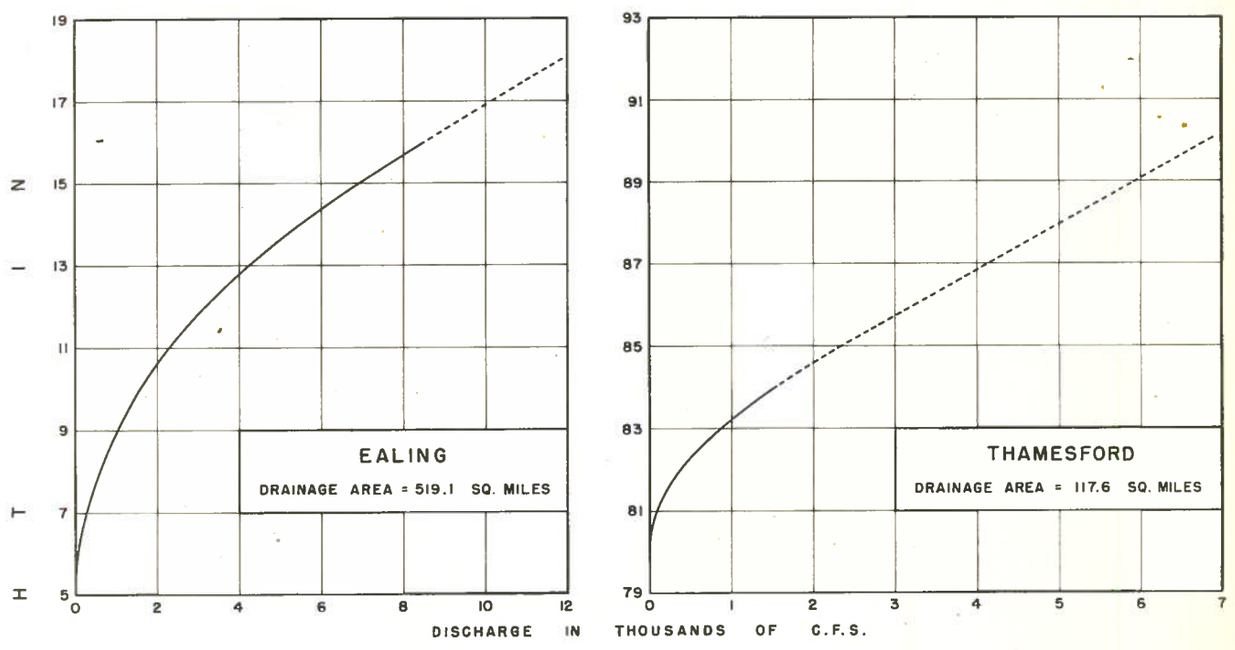
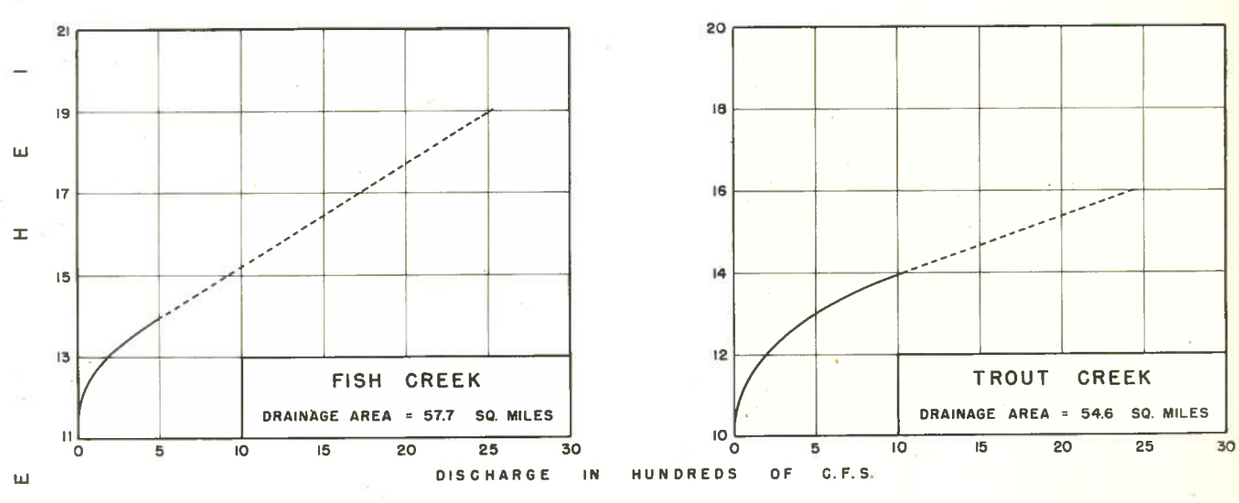
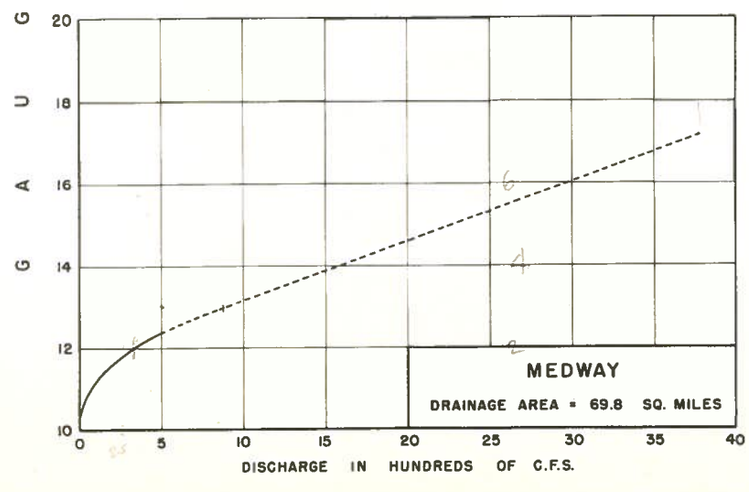

782
780
778
776
774
772
770
768
GAUGE HEIGHT IN FEET
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISCHARGE IN THOUSANDS OF C.F.S.
RATING CURVE
WESTERN UNIVERSITY GAUGE
DRAINAGE AREA = 657.2 SQ. MILES
Plotted from rating tables supplied by the Dept. of Resources and Development.
Water Resources Division – Ottawa
FULL LINE — MEASURED READINGS
DOTTED LINE — EXTRAPOLATED

FIG. H-11









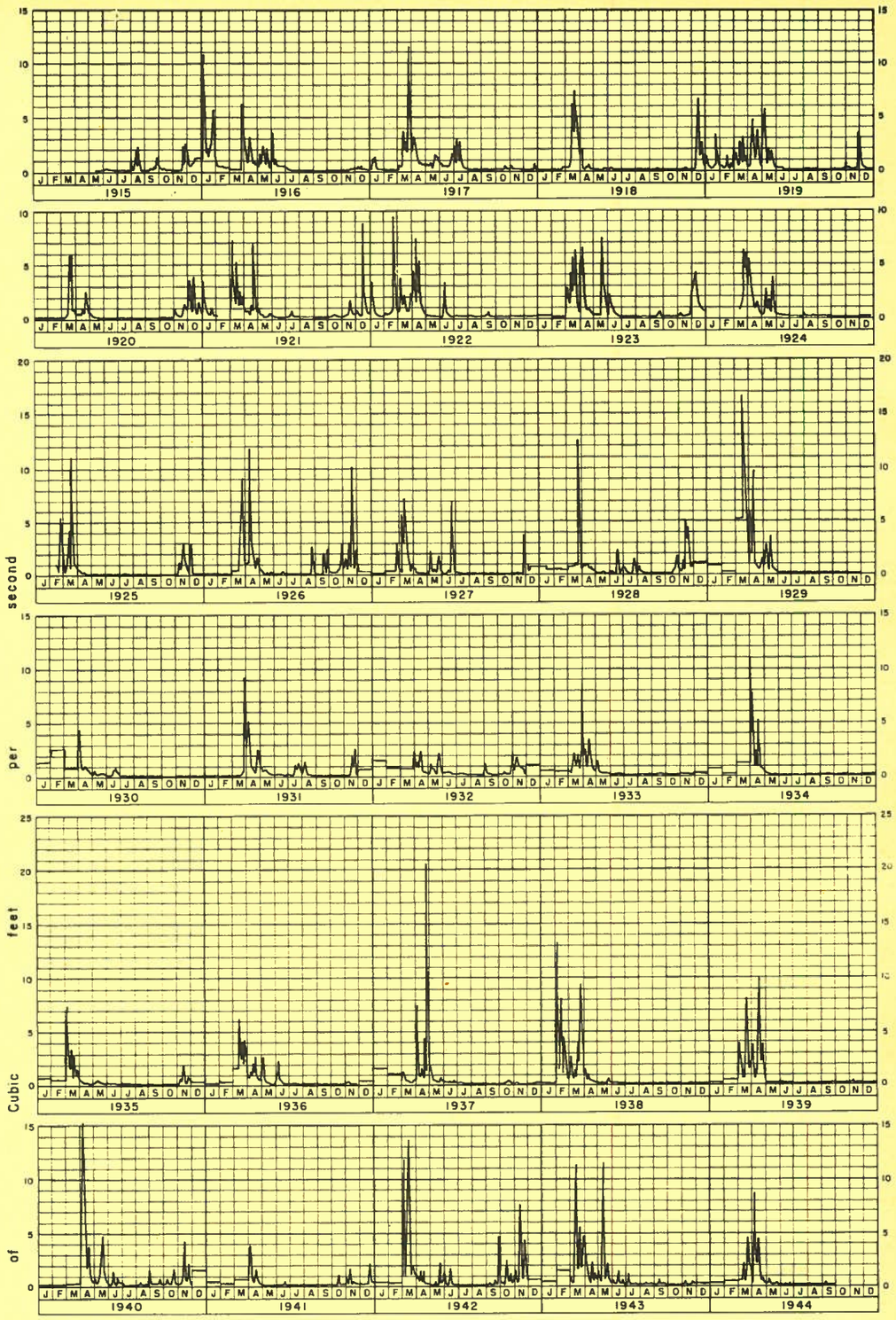
RATING CURVES FOR GAUGES

ABOVE THE CITY OF LONDON

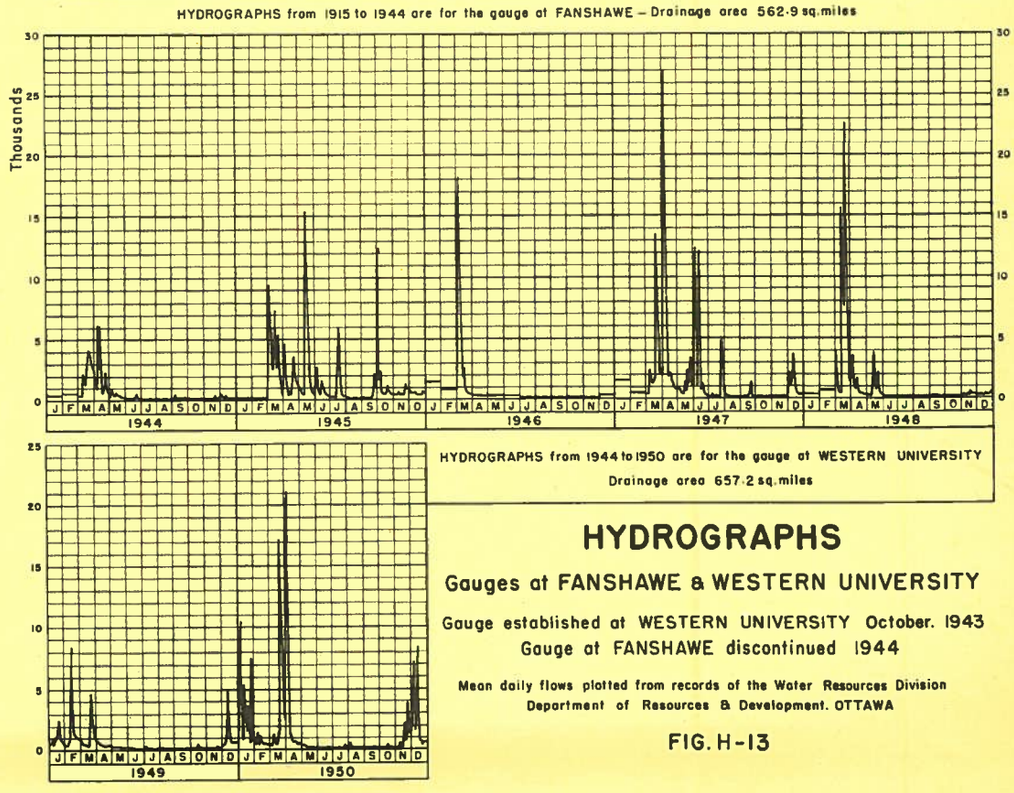
Plotted from rating tables supplied by the Dept. of Resources and Development.
Water Resources Division — Ottawa

FULL LINES — MEASURED READINGS
DOTTED LINES — EXTRAPOLATED

FIG. H-12



HYDROGRAPHS from 1915 to 1944 are for the gauge at FANSHAWE – Drainage area 562·9 sq.miles



HYDROGRAPHS from 1944 to 1950 are for the gauge at WESTERN UNIVERSITY
Drainage area 657·2 sq.miles

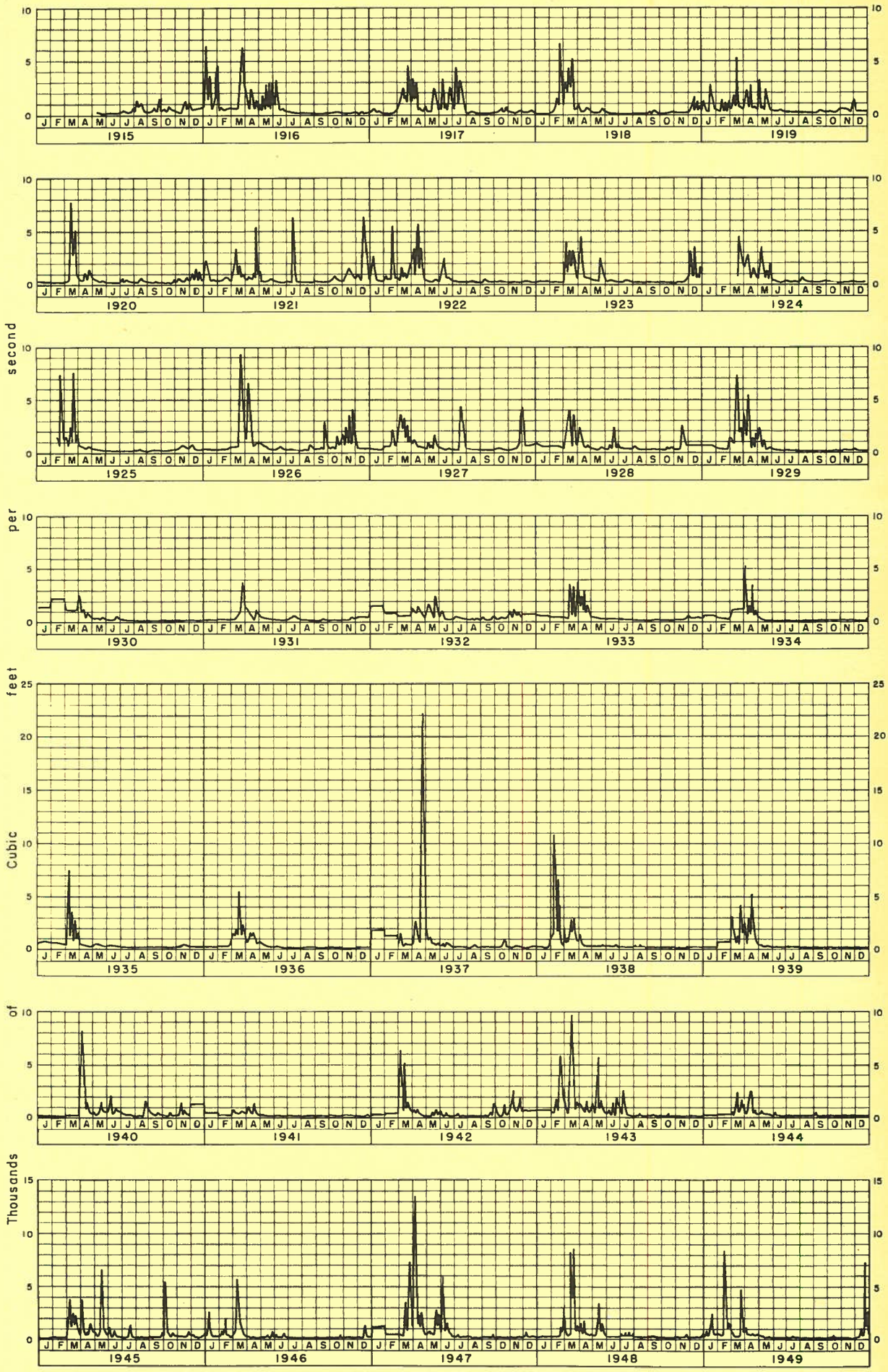
HYDROGRAPHS

Gauges at FANSHAWE & WESTERN UNIVERSITY

Gauge established at WESTERN UNIVERSITY October. 1943
Gauge at FANSHAWE discontinued 1944

Mean daily flows plotted from records of the Water Resources Division
Department of Resources & Development. OTTAWA

FIG. H-13

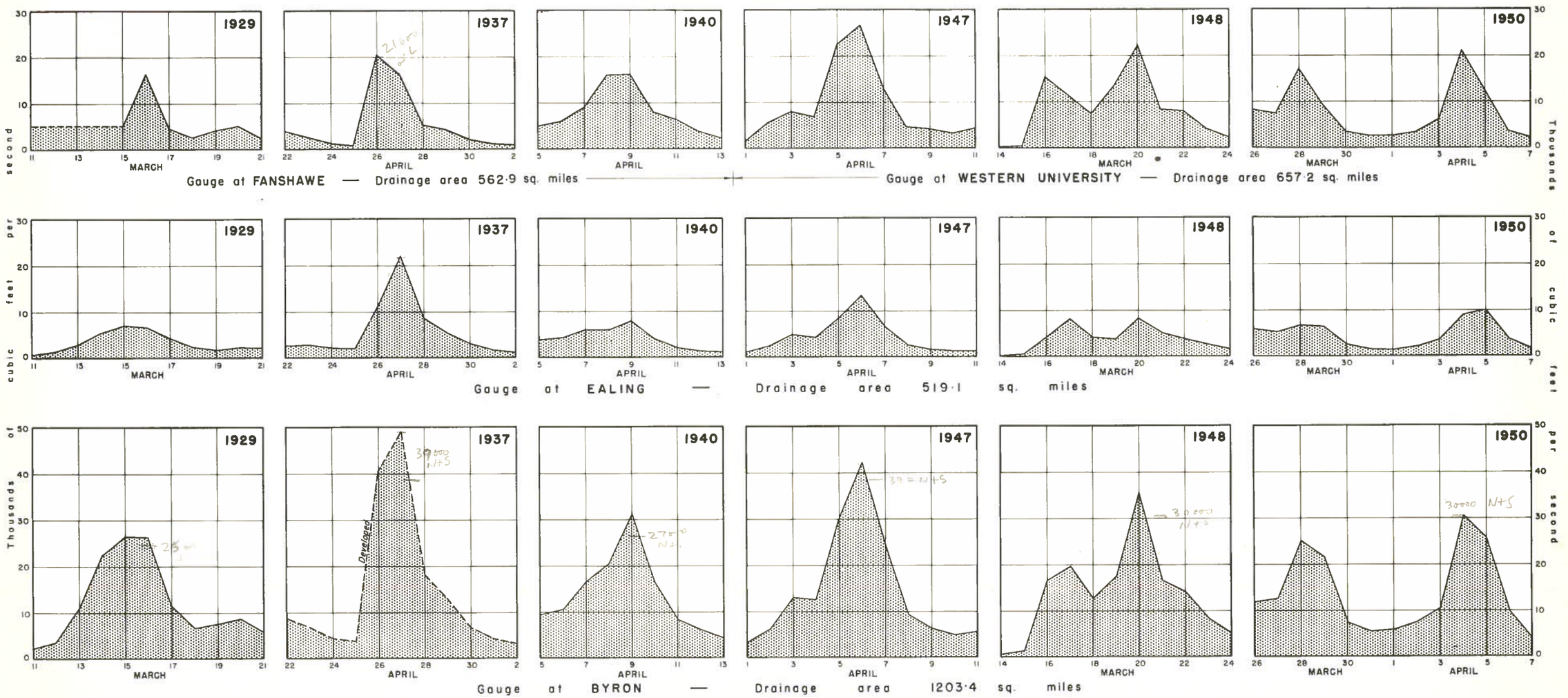


HYDROGRAPHS

Gauge at EALING – Drainage area 519·1 sq. miles

Mean daily flows plotted from records of the Water Resources Division
Department of Resources & Development, OTTAWA

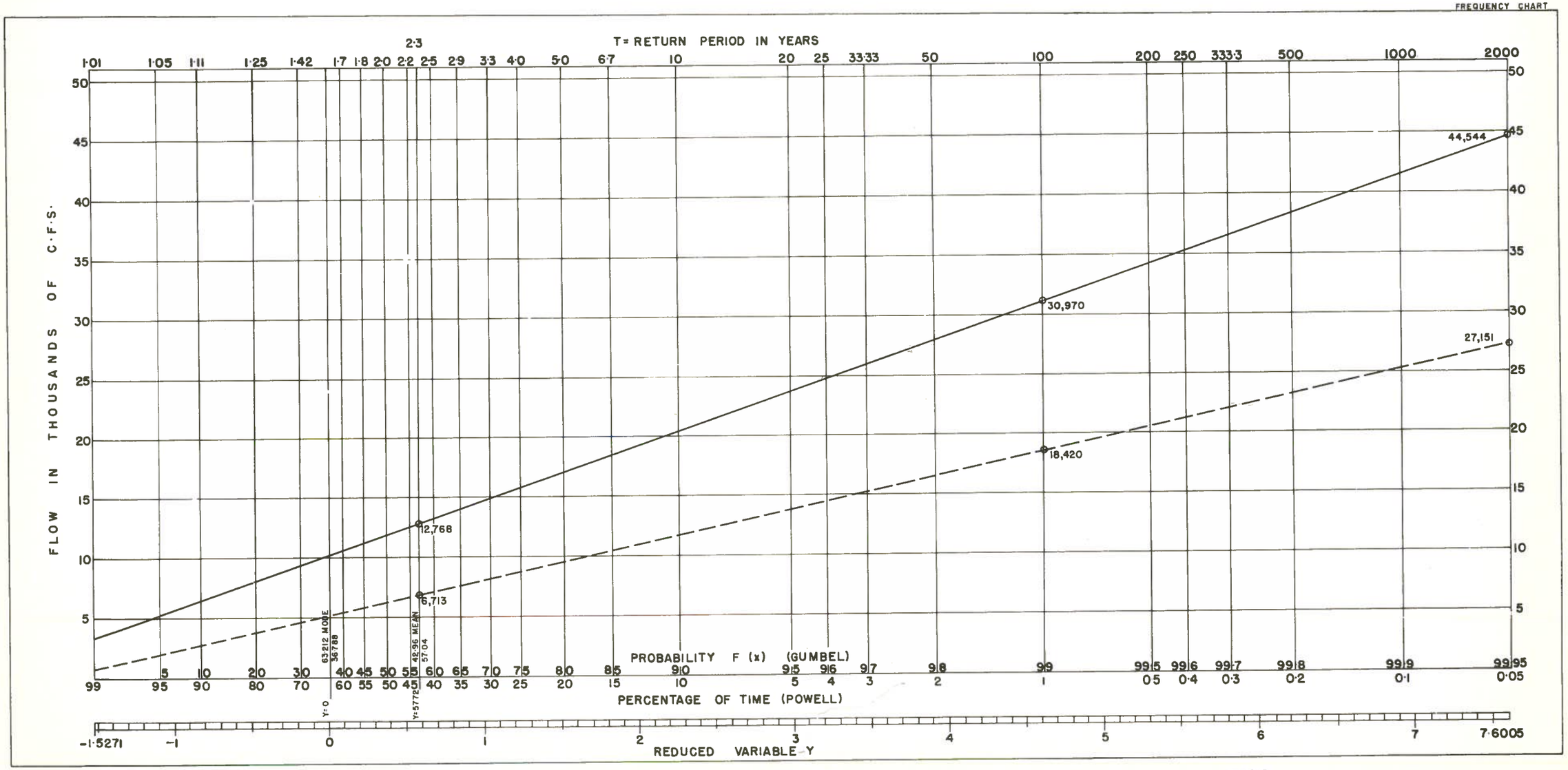
FIG. H-14



FLOOD HYDROGRAPHS

Mean daily flows plotted from records of the Water Resources Division, Department of Resources & Development, OTTAWA

FIG. H-15



NOTE
FANSHAWE DISCHARGES 1916 – 1943
CONVERTED TO WESTERN UNIVERSITY

FREQUENCY CURVES
MAXIMUM MEAN DAILY FLOWS
FIG. H-16

LEGEND
NORTH BRANCH AT WESTERN UNIVERSITY
SOUTH BRANCH AT EALING

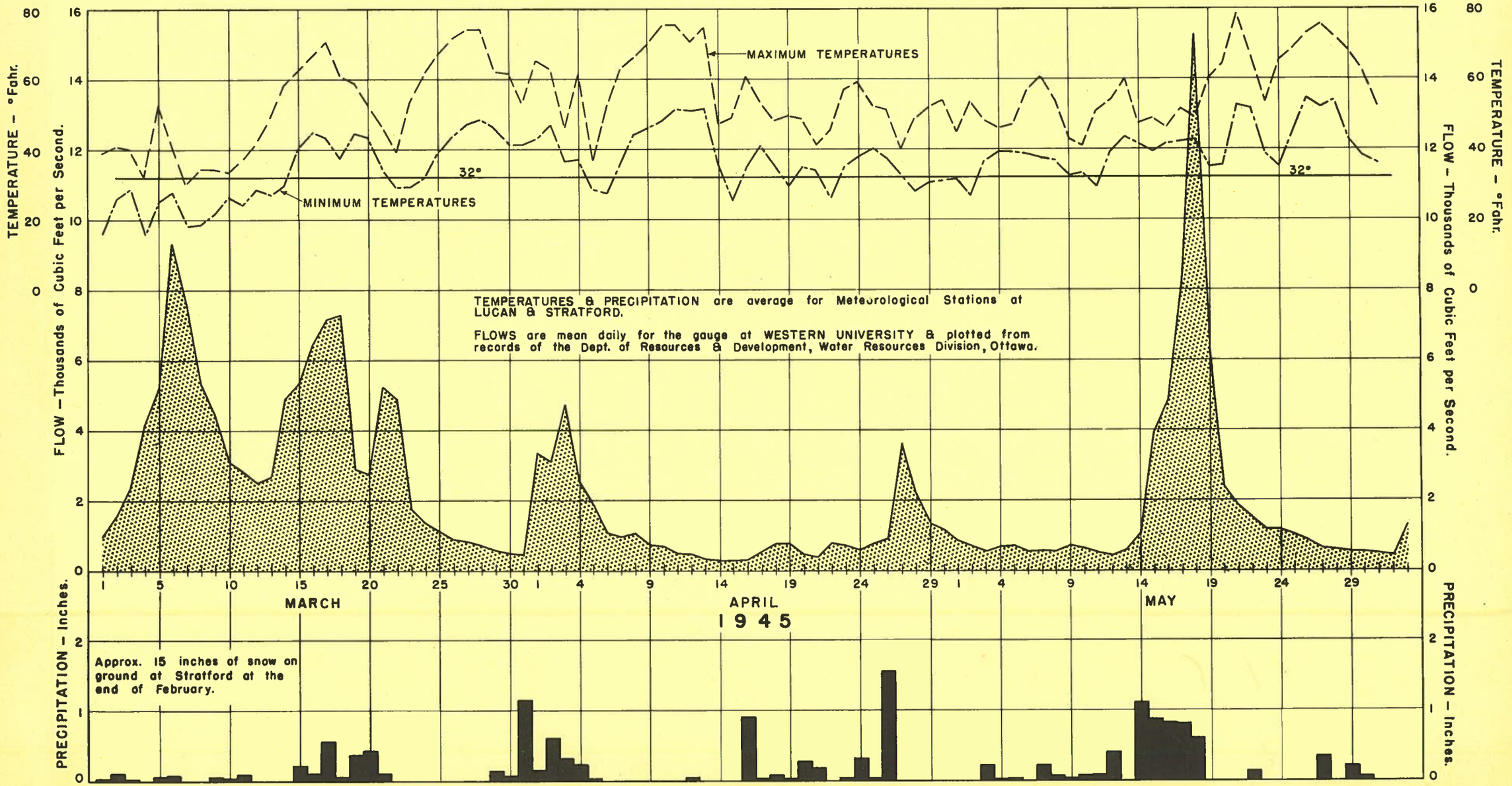
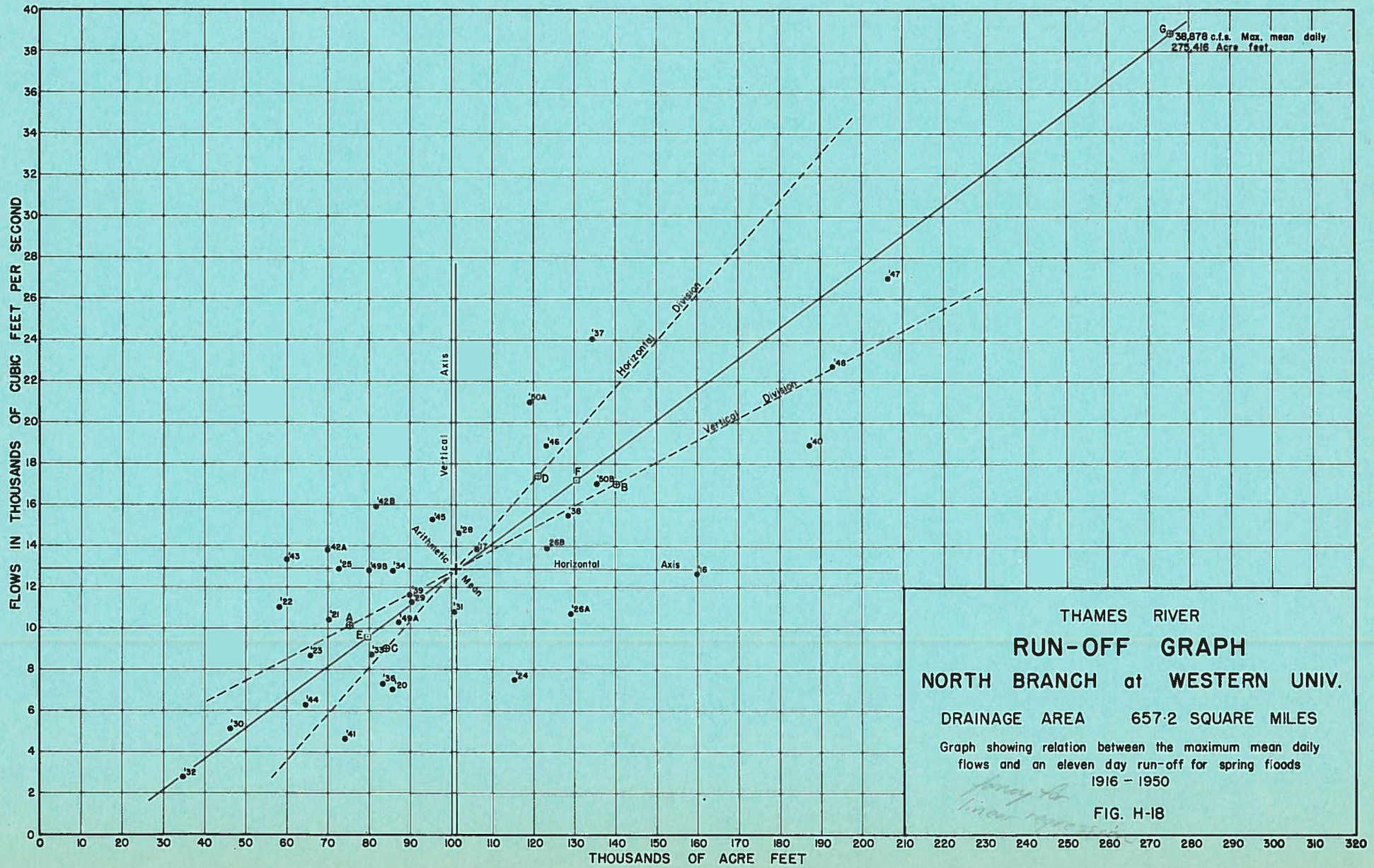


DIAGRAM SHOWING the INFLUENCE of PRECIPITATION and TEMPERATURE on RUN-OFF

FIG. H-17



THAMES RIVER

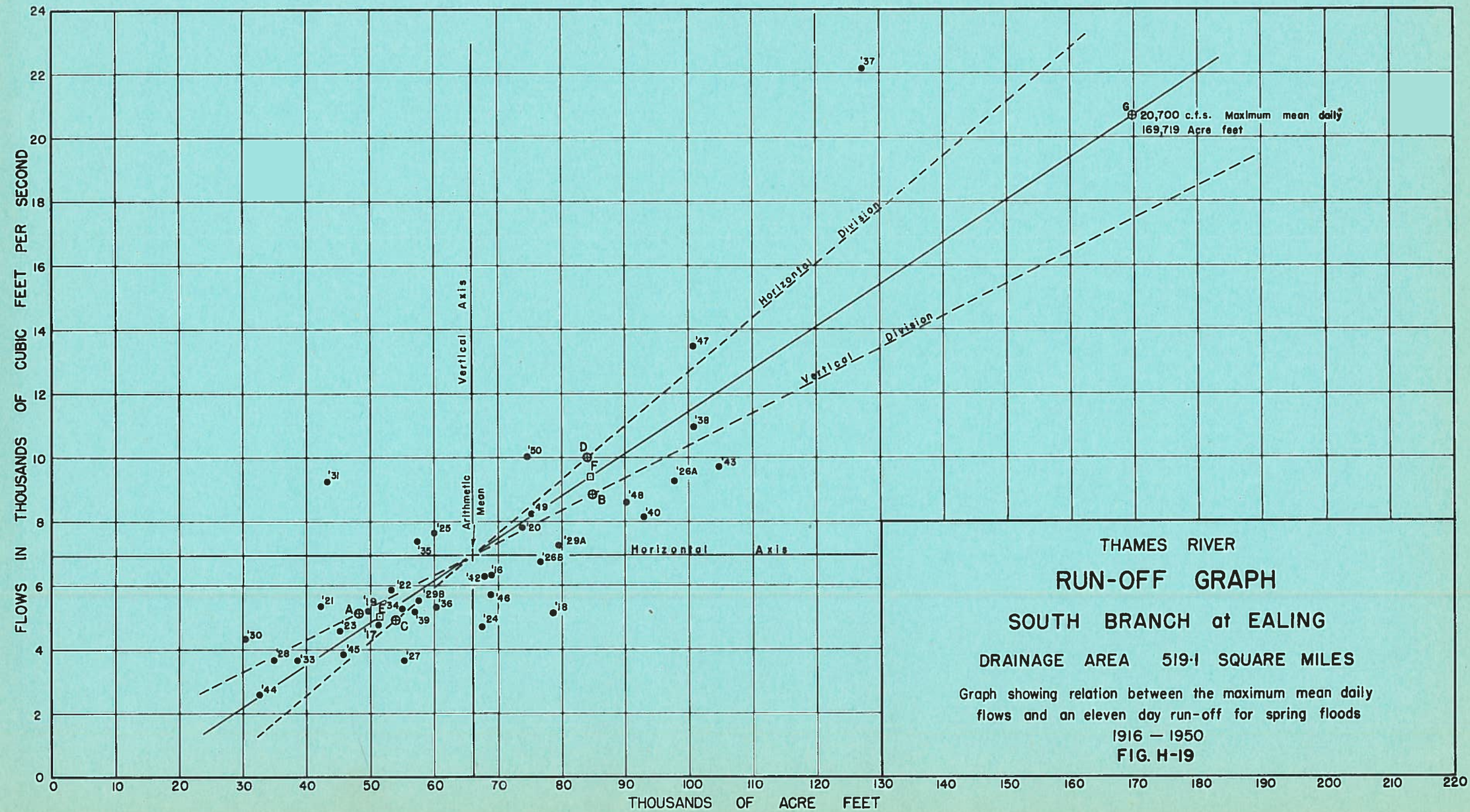
RUN-OFF GRAPH

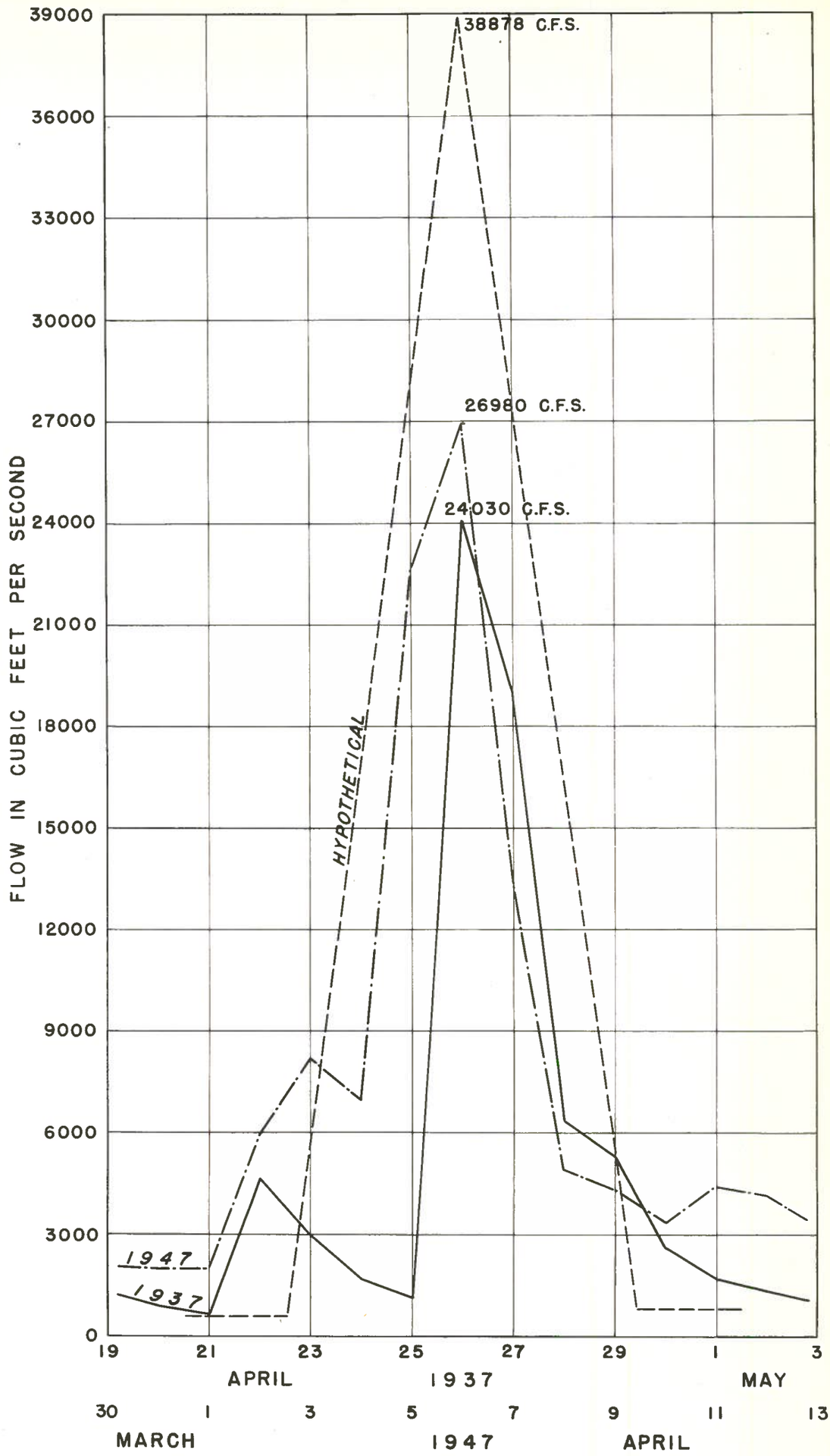
NORTH BRANCH at WESTERN UNIV.

DRAINAGE AREA 657·2 SQUARE MILES

Graph showing relation between the maximum mean daily flows and an eleven day run-off for spring floods 1916 – 1950

FIG. H-18


FLOWS IN THOUSANDS OF CUBIC FEET PER SECOND
THOUSANDS OF ACRE FEET
Vertical Axis
Arithmetic Mean
Horizontal Axis
Horizontal Division
Vertical Division
G 20,700 c.f.s. Maximum mean daily
169,719 Acre feet
THAMES RIVER
RUN-OFF GRAPH
SOUTH BRANCH at EALING
DRAINAGE AREA 519·1 SQUARE MILES
Graph showing relation between the maximum mean daily flows and an eleven day run-off for spring floods
1916 — 1950
FIG. H-19



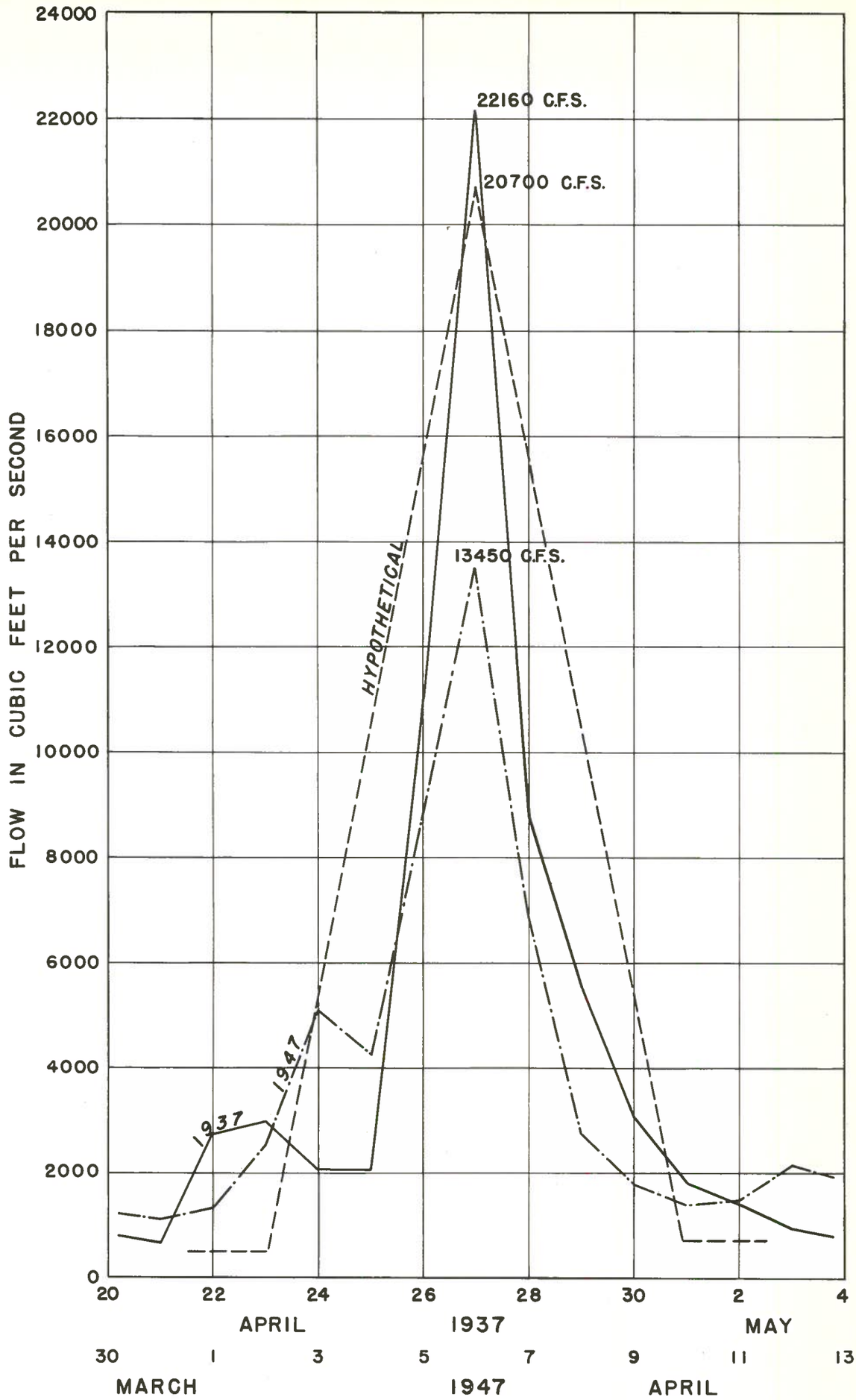
HYDROGRAPHS

NORTH BRANCH at WESTERN UNIV.

DRAINAGE AREA 657·2 SQUARE MILES

Mean daily flows plotted from Dept. of Resources & Development
Water Resources Division records.
(1937 Flow records for Fanshawe converted to Western Univ.)

FIG. H-20



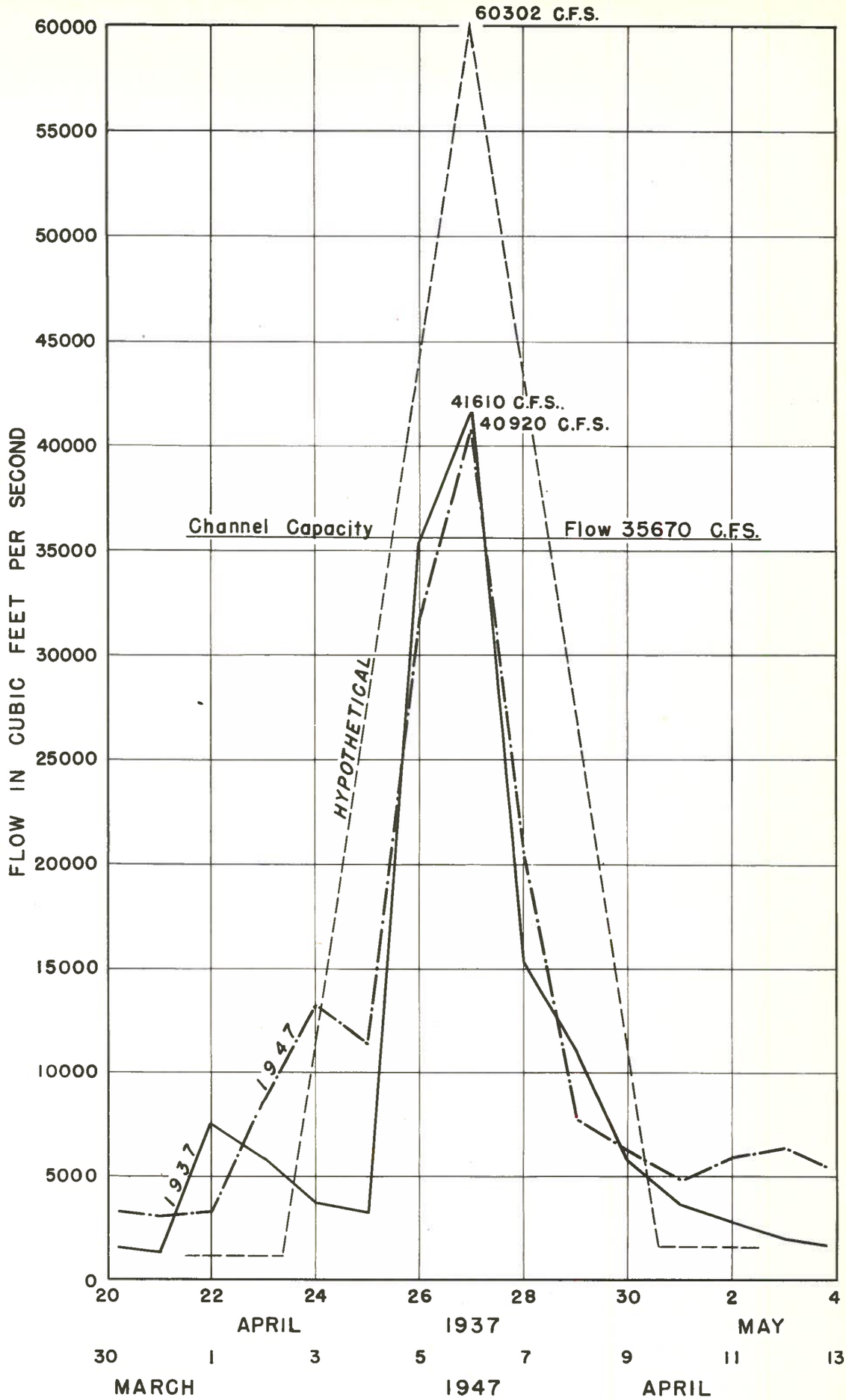
HYDROGRAPHS

SOUTH BRANCH at EALING

DRAINAGE AREA 519·1 SQUARE MILES

Mean daily flows plotted from Dept. of Resources & Development
Water Resources Division records.

FIG. H-21



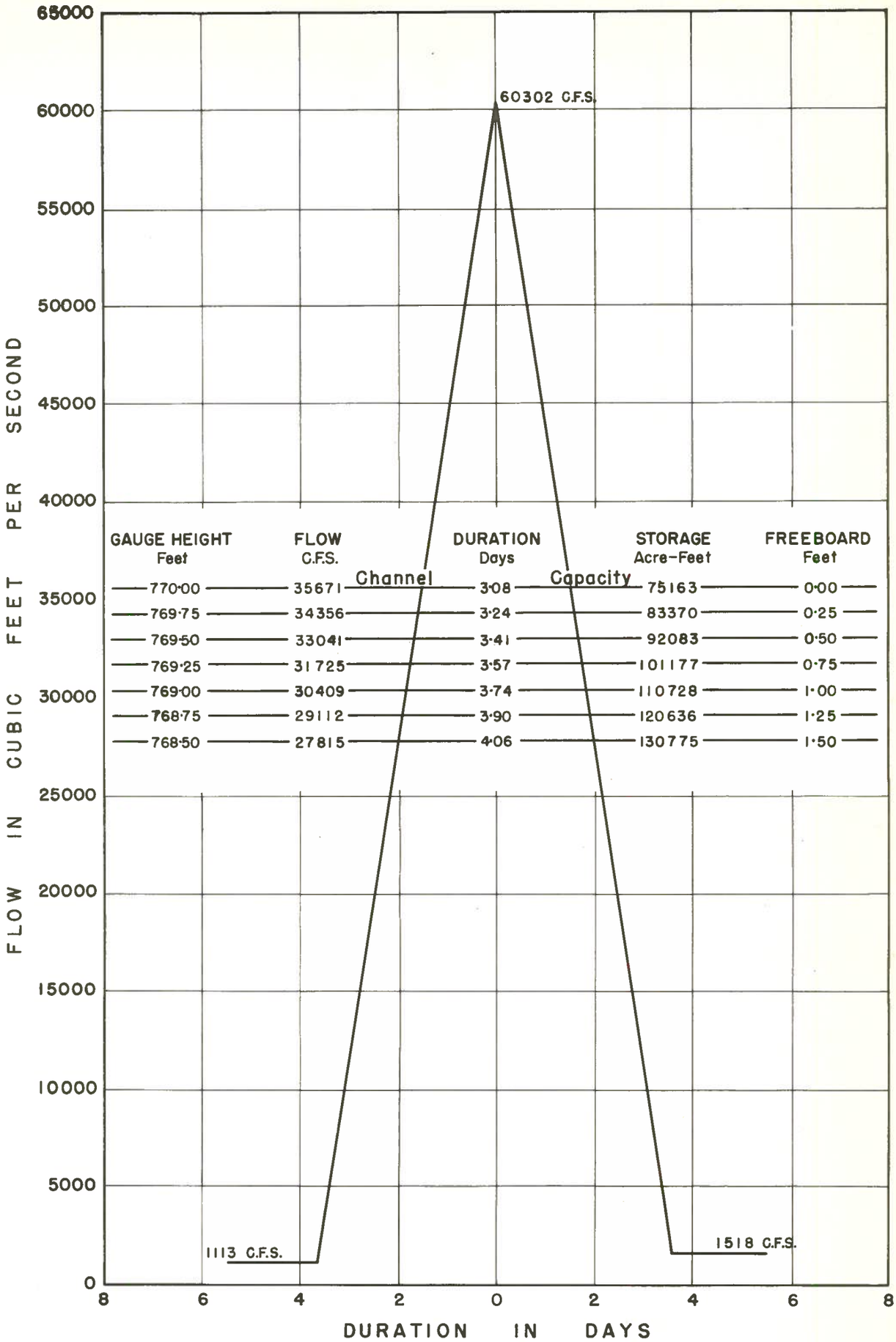
HYDROGRAPHS

CONFLUENCE of NORTH & SOUTH BRANCHES

DRAINAGE AREA 1190·6 SQUARE MILES

Mean daily flows at Ealing & Western Univ. combined & adjusted by ratio of areas to give approximate flow at Forks.

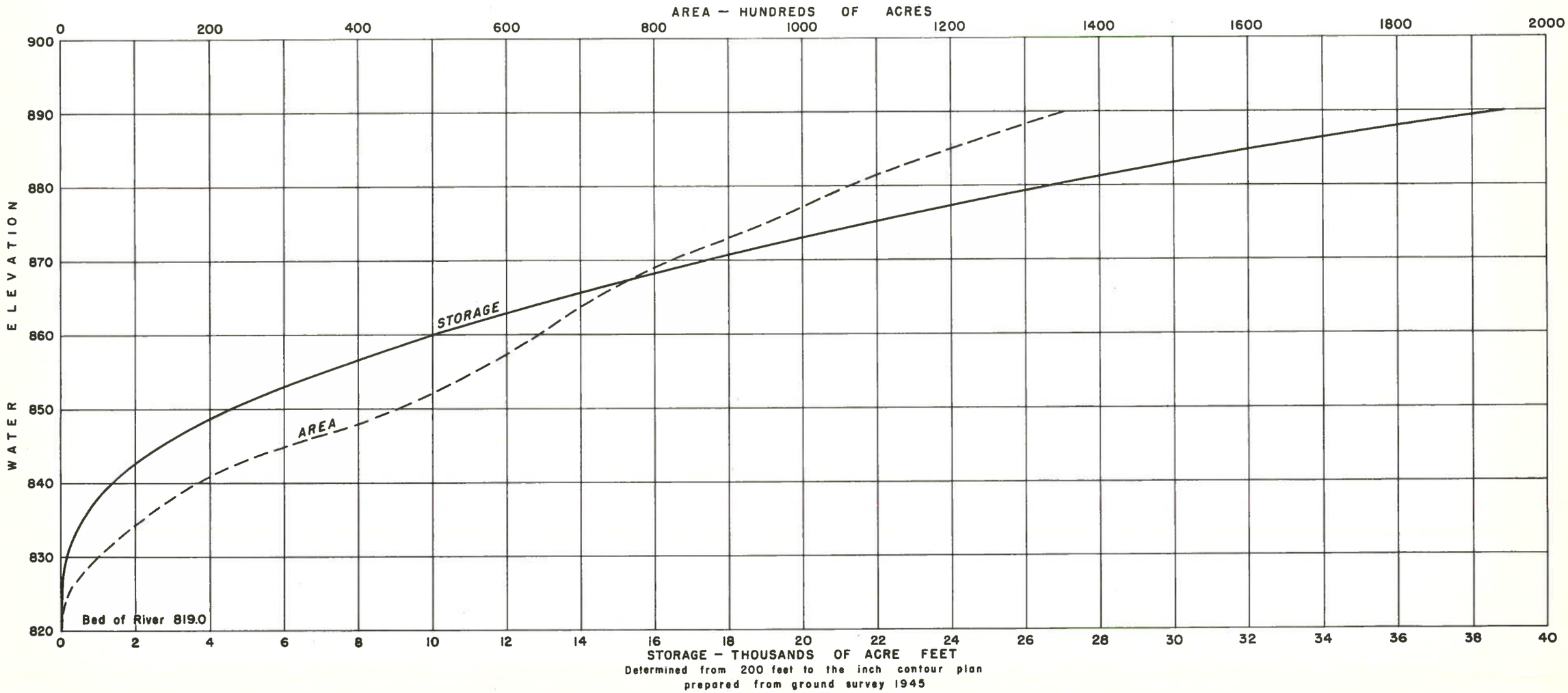
FIG. H-22



HYPOTHETICAL HYDROGRAPH for LONDON

Showing Storage required for Channel Capacity Flow and for various stages of Freeboard below the Channel Capacity Flow.

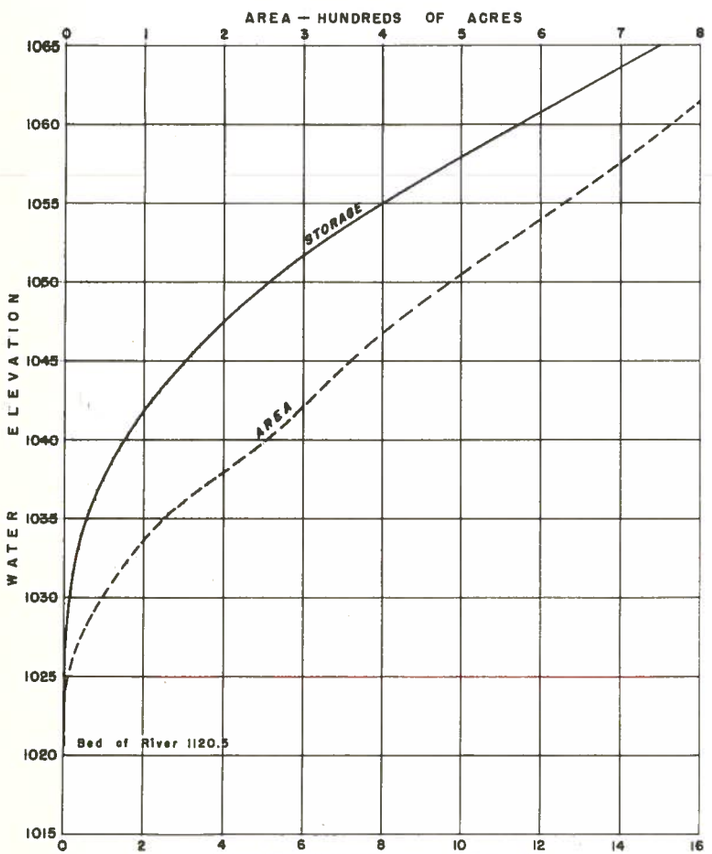
FIG. H-23



Determined from 200 feet to the inch contour plan prepared from ground survey 1945

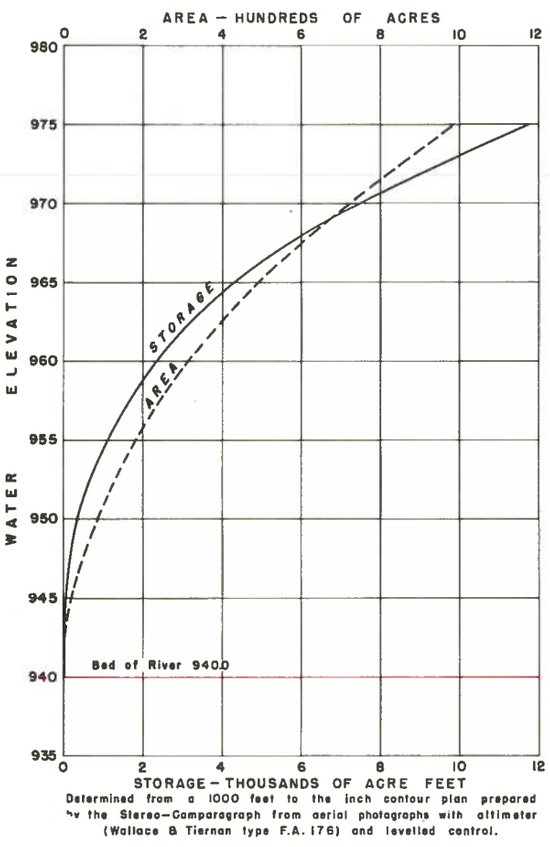
FANSHAWE RESERVOIR
STORAGE & AREA CURVES

FIG. H-24



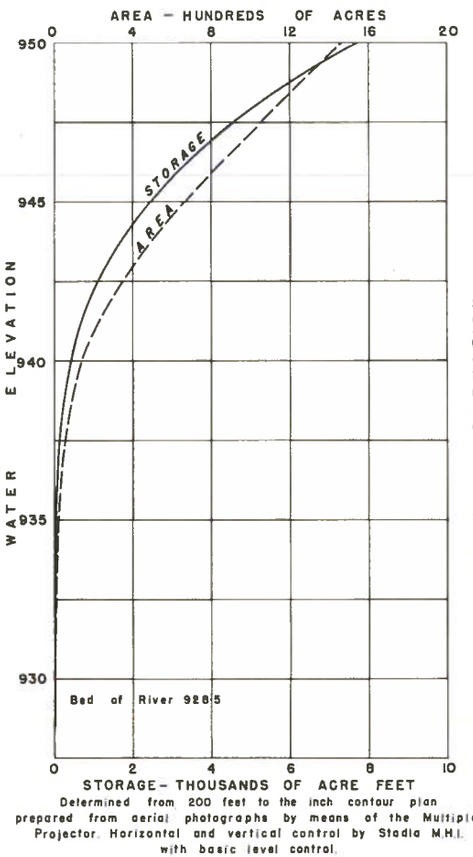
Determined from 200 feet to the inch contour pla prepared from ground survey 1945.

WILDWOOD RESERVOIR
STORAGE & AREA CURVES



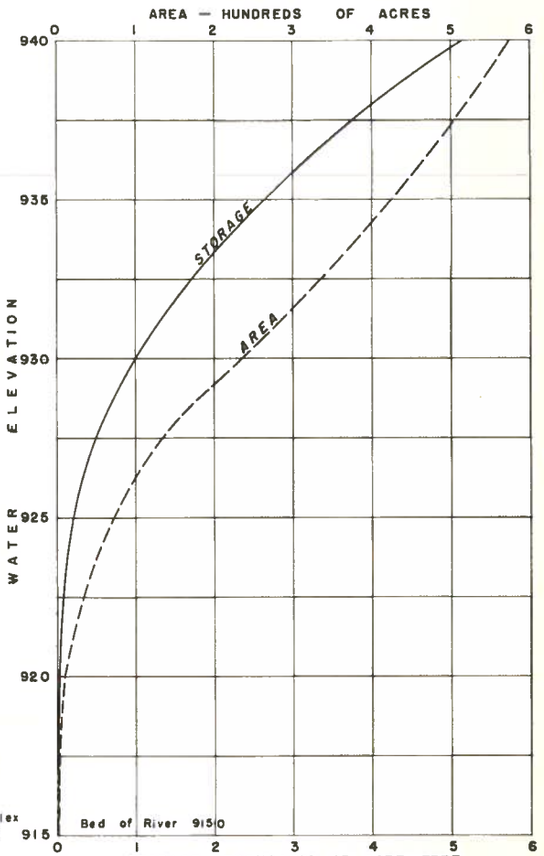
Determined from a 1000 feet to the inch contour plan prepared by the Stereo-Camparagraph from aerial photographs with altimeter (Wallace & Tiernan type F.A. 176) and levelled control.

FISH CREEK RESERVOIR
STORAGE & AREA CURVES



Determined from 200 feet to the inch contour plan prepared from aerial photographs by means of the Multiplex Projector. Horizontal and vertical control by Stadia M.H.I. with basic level control.

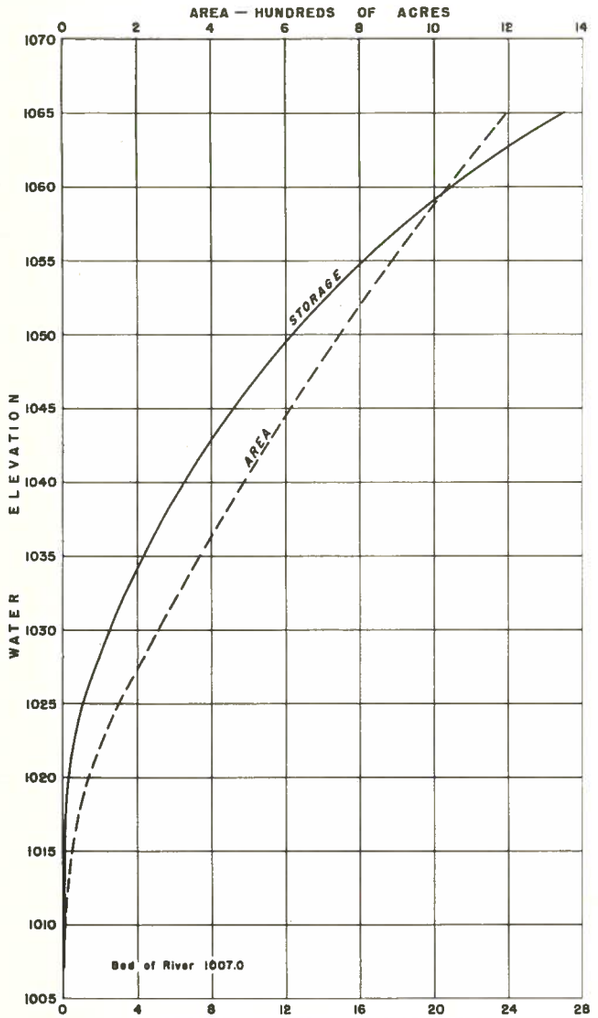
CEDAR CREEK RESERVOIR
STORAGE & AREA CURVES



Determined from 200 feet to the inch contour plan prepared from aerial photographs by means of the Multiplex Projector. Horizontal and vertical control by Stadia M.H.I. with basic level control.

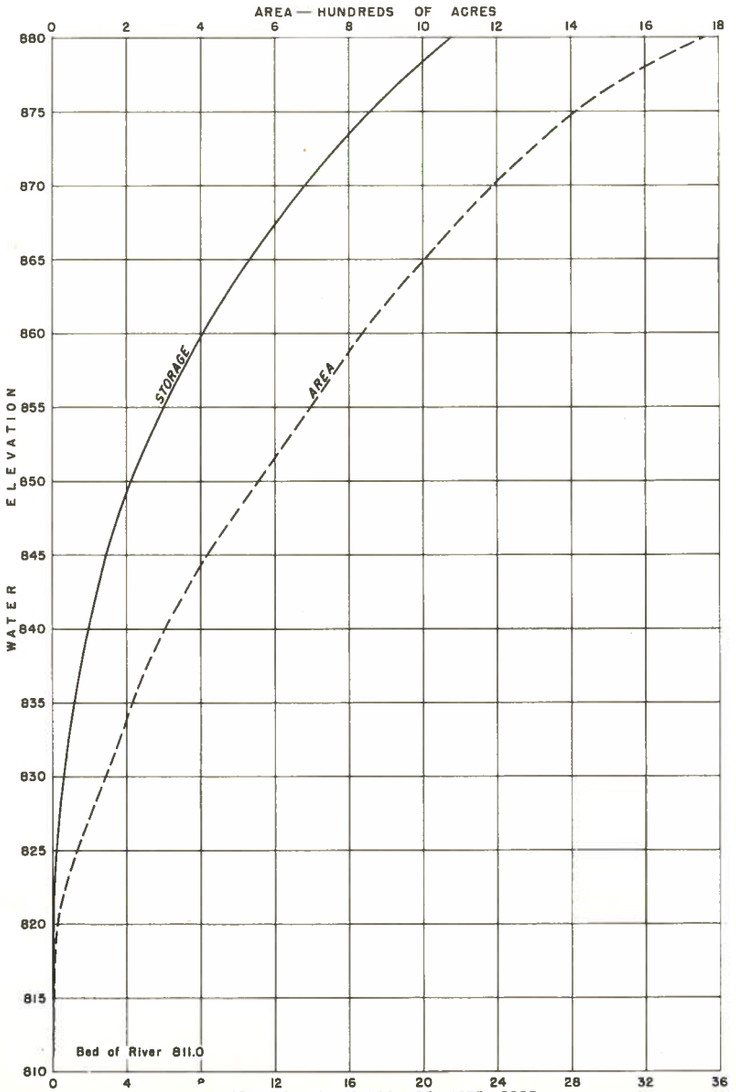
WOODSTOCK RESERVOIR
STORAGE & AREA CURVES

FIG H-25



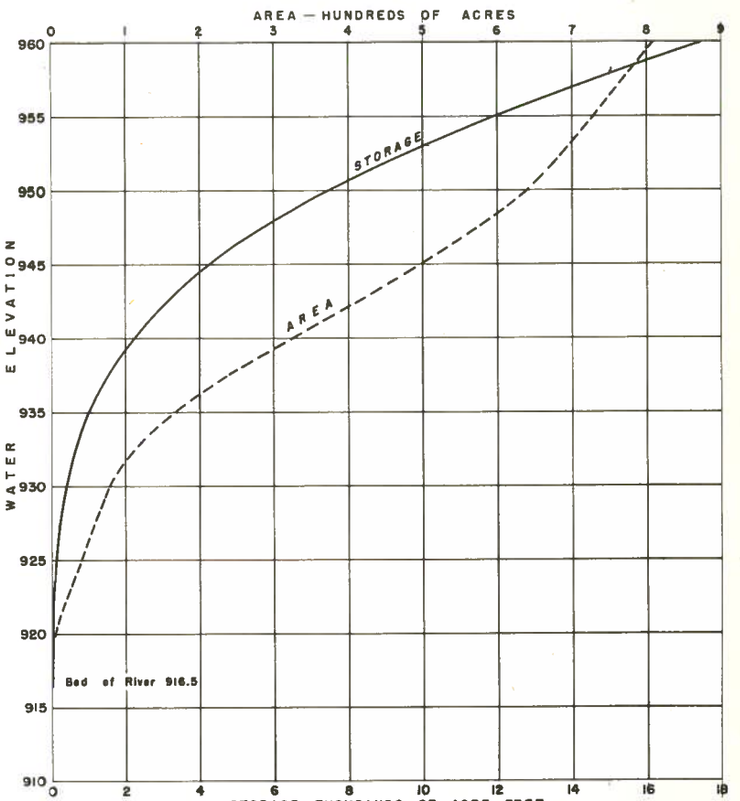
Storage and Area approximate only — determined from 1000 feet to the inch incompleted contour plan prepared by G.G. Reid, Consulting Engineer

GLENGOWAN RESERVOIR
STORAGE & AREA CURVES



Determined from 200 feet to the inch contour plan prepared from aerial photographs by means of the Multiplex Projector. Horizontal and vertical control by Stadia M.H.I. with basic level control

MEDWAY RESERVOIR
STORAGE & AREA CURVES



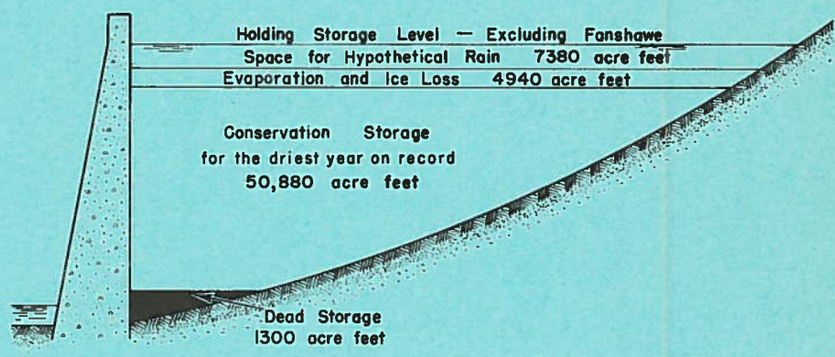
Determined from 400 feet to the inch contour plan prepared from ground survey 1945

THAMESFORD RESERVOIR
(LOWER DAMSITE)
STORAGE & AREA CURVES

FIG. H-26

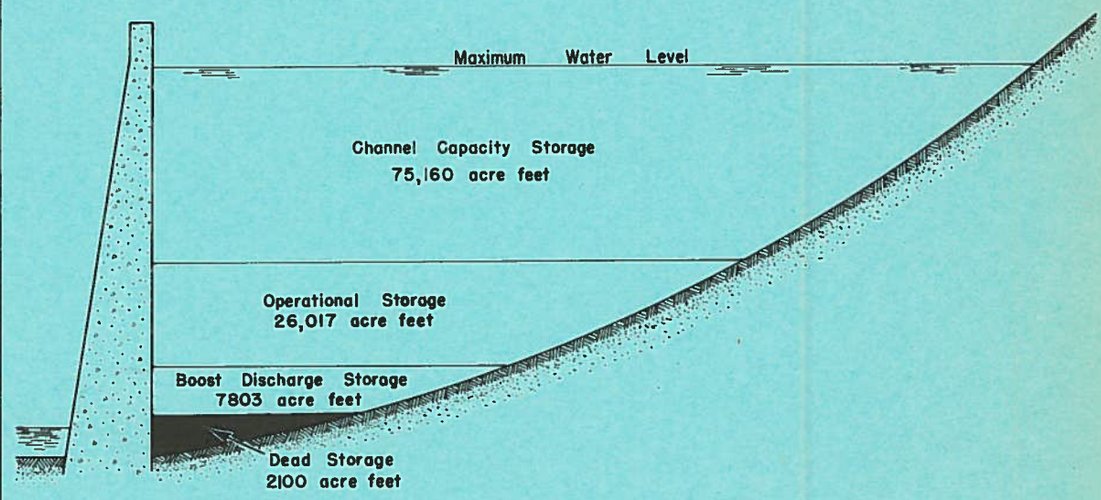
DIAGRAMS ILLUSTRATING THE TOTAL SPACE FOR:

CONSERVATION STORAGE



The Conservation Storage reserved space and allowances at the beginning of the Drawdown Period of 273 days for the driest year on record

FLOOD STORAGE



The storage classifications for the Spring Filling Period

FIG. H-27