Contents is the volume of water in a reservoir. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER OF LISTING GAGING STATIONS

Beginning with the series of reports for the water year ending September 30, 1951, the order of listing gaging-station records was changed. In this report, in a downstream direction along the main stem all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

The order of listing used before the publication of the 1951 report listed first all stations on the main stem from headwaters toward mouth, then all stations on the uppermost tributary to the main stem from the tributary's source to mouth, and then all stations from source to mouth of the uppermost tributary to the tributary.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of fluctuations. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge. Typical structures in use at gaging stations are shown in figure 1.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs, and by other methods), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of

A, South Platte River at South Platte, Colo.

B, Nishnabotna River Above Hamburg, Iowa.

C, Republican River at Trenton, Nebr.

FIGURE 1.—GAGING-STATION STRUCTURES.

frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is essentially the shifting-control method.

At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in determining discharge. Information requisite for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing state. If so, the rate of change in stage is used as a factor in the determination of discharge.

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins. If the stage-discharge relation is affected by ice, this information is given in a note to the table. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

The data herein presented generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge and runoff of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the water year 1953 is shown on page IV for the purpose of finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, general remarks, and notations of revisions of the previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "Location" for some stations, is that determined and used by the Corps of Engineers unless otherwise noted. Under "Records available" are given the periods for which there are published records generally equivalent to those at the present site. Under "Gage" are given the type of gage currently in use and the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of records available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). Unless otherwise qualified, the maximum discharge corresponds to the

crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are concerned in the revision, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the reports in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

Skeleton rating tables are published for all stations except those at which the daily discharge for the greater part of the open-water period was determined by the shifting-control method, the slope method, or other special methods involving an equivalent adjustment to the gage height of more than one-tenth foot. Skeleton rating tables are generally not published for stations on canals.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such fluctuation the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, an instrument for obtaining the daily mean discharge from a continuous gage-height graph and containing, as an essential element, a curve representing the stage-discharge relation at the station. For stations equipped with nonrecording gages, the table of daily discharge gives the discharge corresponding to once-daily readings of the gage, or to the mean of twice-daily readings, or to the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of daily discharge, the values for the maximum day and the minimum day for each month are underlined. If the value is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily values; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Runoff for the month may be expressed in cubic feet per second per square mile (line headed "Cfsm"), or in inches (line headed "In."), or in acre-feet (line headed "Ac-ft"). Values for cubic feet per second per square mile and runoff in inches are omitted if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches.

In the yearly summary below the monthly summary, the values of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights of most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man.

Footnotes to the table of daily discharge indicate periods when discharge was computed or estimated by unusual or special methods during periods of no gage-height record and ice effect, or by other effects that reduce the degree of accuracy of the records. Days on which discharge measurements were made are indicated by asterisk and footnote unless they were made at frequent regular intervals, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is usually given in the first report in which data for the reservoir are published, but it is omitted from succeeding reports.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description states the degree of accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more nearly accurate than the daily records.

Runoff at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, values of cubic feet per second per square mile and runoff in inches are not published unless storage or diversion records are included to indicate the extent of the regulation of diversion, or unless satisfactory adjustments can be made for changes in contents of reservoirs or for other changes incident to use and control. Evaporation from a reservoir is

not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur when relatively large negative adjustments are made or when evaporation is large in comparison with the observed discharge.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and therefore the discharge recorded does not actually show the water supply available at the stations for further development, because water must first be supplied to existing irrigation systems.

PUBLICATIONS

To facilitate publication of the annual series of reports, the area of the United States is divided into 14 parts whose boundaries coincide with certain natural drainage lines. Formerly, the results of streamflow measurements were published in 14 volumes, one for each of the 14 parts. Beginning with the reports for 1951, the records are published in 18 volumes, there being 2 volumes each for Parts 1, 2, 3, and 6. The boundaries of the various parts are indicated by the following list and the map in figure 2.

Part 1. North Atlantic slope basins, in two volumes:
- A, North Atlantic slope basins, Maine to Connecticut.
- B, North Atlantic slope basins, New York to York River.

2. South Atlantic slope and eastern Gulf of Mexico basins, in two volumes:
- A, South Atlantic slope basins, James River to Savannah River.
- B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.

3. Ohio River basin, in two volumes:
- A, Ohio River basin except Cumberland and Tennessee River basins.
- B, Cumberland and Tennessee River basins.

4. St. Lawrence River basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River basin, in two volumes:
- A, Missouri River basin above Sioux City, Iowa.
- B, Missouri River basin below Sioux City, Iowa.

7. Lower Mississippi River basin.
8. Western Gulf of Mexico basins.
9. Colorado River basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. Pacific slope basins in Washington and upper Columbia River basin.
13. Snake River basin.
14. Pacific slope basins in Oregon and lower Columbia River basin.

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be purchased or consulted as follows:

1. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, on application, furnish lists giving prices. A list of Geological Survey publications may also be obtained by applying to the Director, Geological Survey, Washington, D. C.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the offices of the Water Resources Division of the Geological Survey. Addresses of the offices in the area covered by this report are given on page 2.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams.

Streamflow data for the years 1884-1901, in reports of the Geological Survey

(A = Annual Report; B = Bulletin)

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information.....	1884 to September 1890.
12th A, pt. 2	....do.....	1884 to June 30, 1891.

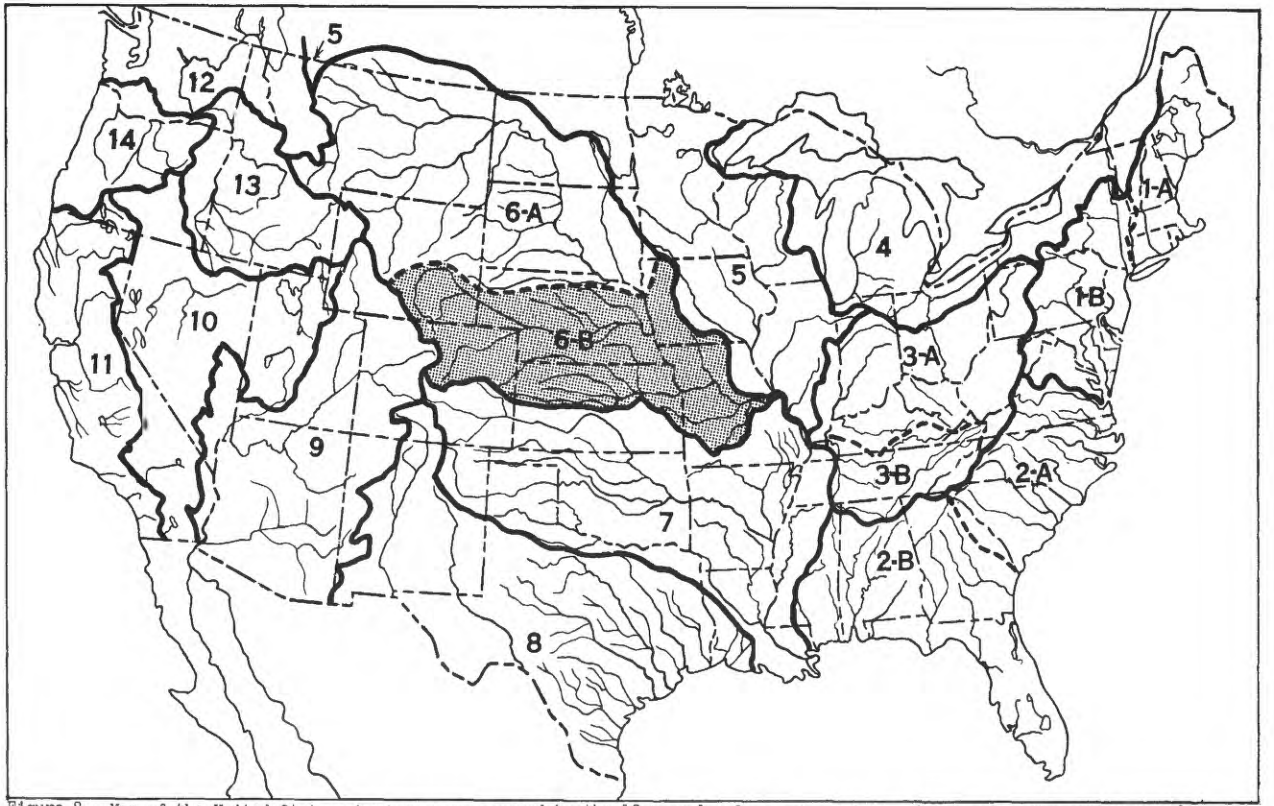

Figure 2.--Map of the United States showing areas covered by the 18 annual volumes on surface water supply. The area covered by this report is shaded.

Streamflow data for the years 1884-1901, in reports of the Geological Survey--Continued

(A = Annual Reports; B = Bulletin)

Report	Character of data	Year
13th A, pt. 3	Monthly discharge and descriptive information	1884-92.
14th A, pt. 2	Monthly discharge	1888-93.
B 131	Descriptions, measurements, gage heights, and ratings	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge.	1895.
WSP 11	Gage heights	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge	1895-96.
WSP 15	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
WSP 16	Descriptions, measurements, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge.	1897.
WSP 27	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
WSP 28	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge	1898.
WSP 35 to 39.	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
WSP 47 to 52.	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4.	Monthly discharge	1900.
WSP 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
WSP 75	Monthly discharge	1901.

Reports on surface-water supply containing records from 1899 to date for drainage basins in this report are listed below. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained. Before 1951, records for the Missouri River basin below Sioux City, Iowa, were included with those of the other rivers of the Missouri River basin.

Numbers of water-supply papers containing results of stream measurements in Missouri River basin below Sioux City, Iowa, 1899-1953

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1899	37	1911	306	1923	566	1934	761	1944	1006
1900	49,a50	1912	326	1924	586	1935	786	1945	1036
1901	66,75	1913	356	1925	606	1936	806	1946	1056
1902	84	1914	386	1926	626	1937	826	1947	1086
1903	99	1915	406	1927	646	1938	856	1948	1116
1904	130,b131	1916	436	1928	666	1939	876	1949	1146
1905	172	1917	456	1929	686	1940	896	1950	1176
1906	208	1918	476	1930	701	1941	926	1951	1210
1907-8	246	1919-20	506	1931	716	1942	956	1952	1240
1909	266	1921	526	1932	731	1943	976	1953	1280
1910	286	1922	546	1933	746				

a Loup, Platte, and Elkhorn Rivers and tributaries below Platte River.
b Platte and Kansas Rivers.

The records at most of the stations discussed in these reports extend over many years. Discharge measurements at many points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report. The streams and points of measurement are listed in the same order as the streams and gaging stations in the body of the report. An index of the records obtained before 1904 has been published in Water-Supply Paper 119.

Each of the reports on the surface-water supply for the year 1939 (Water-Supply Paper 876 for the Missouri River basin below Sioux City, Iowa) contains, for the area included in that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record had been collected. These summaries were reprinted separately.

Reports also have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the annual series of water-supply papers. The following table lists reports of this type for the Missouri River basin below Sioux City, Iowa.

Reports containing compilations of records by States and drainage basins

WSP	Period	Report
74.....	1884-1900	Water resources of Colorado.
230.....	1894-1906	Surface water supply of Nebraska.
469.....	1894-1921	Surface waters of Wyoming and their utilization.

Records of discharge have been published also in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The following table contains a list of these reports for the area covered by this report.

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Colorado.....	1881-1935	Water resources of Colorado, Appendix 2, Data on stream-gaging stations of Colorado. a/	State Planning Commission, Water Conservation Board, State Engineer.
Do.....	1881-1938	Water resources of Colorado, Appendix 3, vols. 1 and 2, Stream-flow data of Colorado.	Do.
Iowa.....	1873-1932	Streamflow records of Iowa.....	State Planning Board.
Do.....	1873-1940	Water-Supply Bull. 1, Summaries of yearly and flood flow relating to Iowa streams.	Iowa Geological Survey.
Do.....	1941-42	Water-Supply Bull. 2, Surface water resources of Iowa.	Do.
Do.....	1942-50	Water-Supply Bull. 3, Surface water resources of Iowa.	Do.
Kansas.....	1895-1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	1919-24	....do.....	Do.
Do.....	1924-28	Report of Division of Water Resources.....	State Board of Agriculture.
Do.....	1928-35	Streamflow data of Kansas.....	Do.
Do.....	1935-39	....do.....	Do.
Do.....	1939-41	....do.....	Do.
Minnesota.....	1909-12	Water resources investigation of Minnesota	State Drainage Commission.
Missouri.....	1857-1926	Vol. 20, 2d series, Water resources of Missouri.	Missouri Bureau of Geology and Mines.
Do.....	1927-39	Vol. 26, 2d series, Surface waters of Missouri.	Missouri Geological Survey and Water Resources.
Do.....	1940-49	Vol. 34, 2d series, Surface waters of Missouri.	Do.

a/ Contains records of yearly discharge only.

Note.--In addition to the records contained in the reports listed above, the following States have issued annual or biennial reports in which are contained records of discharge: Colorado, Kansas, Missouri, Nebraska, and Wyoming.

The reports listed in the foregoing tables contain the customary records of discharge collected during the systematic operation of gaging stations. Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey. The more recent of these special reports also contain other pertinent hydrologic information and analyses and compilations of data relating to earlier notable floods. The following list gives the numbers and titles of these reports.

WSP Report

96: Destructive floods in the United States in 1903.
147: Destructive floods in the United States in 1904.
162: Destructive floods in the United States in 1905.
520-G: Some floods in the Rocky Mountain region.
771: Floods in the United States, magnitude and frequency.
796-B: Flood on Republican and Kansas Rivers, May and June 1935.
847: Maximum discharges at stream-measurement stations through September 1938.
997: Floods in Colorado.
1137-D: Floods of May-July 1950 in southeastern Nebraska.
1139: Kansas-Missouri floods of July 1951.
1260-B: Floods of 1952 in the Missouri River basin.
1320-A: Floods of June 1953 in northwestern Iowa.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The Agricultural Research Service of the United States Department of Agriculture has collected records of runoff from 28 areas near Hastings, Nebr., beginning in 1938, 1 of 3,490 acres, 1 of 2,086 acres, 1 of 481 acres, 1 of 411 acres, and 24 of about 4 acres each. These records are in the files of the Agricultural Research Service.

HYDROLOGIC CONDITIONS

Runoff in the Missouri River basin below Sioux City, Iowa, during the 1953 water year ranged from well above normal in the north central part of the area to well below normal in the extreme western end and in the southeastern part of the area. Flash flood occurred in limited areas in north central Kansas late in May. Floods in June in northwestern Iowa are described in WSP 1320-A. Drought conditions developed in Kansas and Missouri in June and continued through the end of the water year. For three key gaging stations in the area covered by this report, a comparison of monthly and yearly mean discharge during the 1953 water year with the median for the 25-year period 1921-45 is shown in figure 3 on the opposite page.

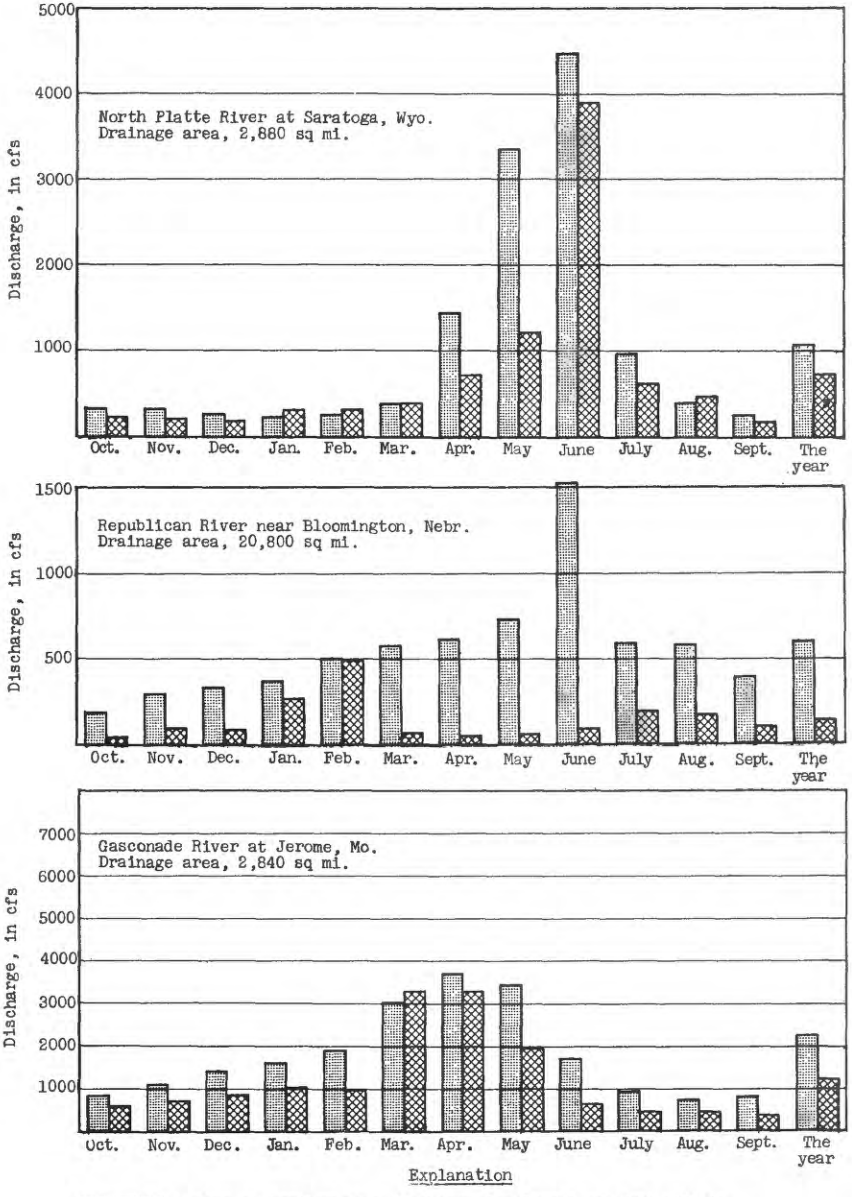

Figure 3.--Comparison of discharge at three key gaging stations during 1953 water year with median discharge of 25-year period.

MISSOURI RIVER MAIN STEM

Missouri River at Sioux City, Iowa

Location.--Lat 42°29', long. 96°25', in sec. 17, T. 29 N., R. 9 E., sixth principal meridian, on right bank on upstream side of bridge on U. S. Highway 77 at Sioux City, 2.5 miles downstream from Big Sioux River.

Drainage area.--314,600 sq mi, approximately.

Records available.--October 1897 to September 1953 in reports of Geological Survey (October 1897 to September 1928 and October 1931 to September 1938, monthly discharge only, based on record for station at Williston, N. D., in Circular 108). January 1879 to December 1890 (monthly discharge only) in House Document 238, 73d Congress, 2d Session. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 1,076.96 ft above mean sea level, datum of 1929. Sept. 2, 1878, to Dec. 31, 1905, staff, cable and chain gages at various locations within 1.7 miles of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, chain gage at present site and datum.

Average discharge.--18 years (1928-31, 1938-53), 31,130 cfs.

Extremes.--Maximum discharge during year, 109,000 cfs June 25; maximum gage height, 9.19 ft June 19; minimum daily discharge, 7,000 cfs Dec. 26, 27; minimum gage height, -1.08 ft Dec. 13.
1928-31, 1938-53: Maximum discharge, 441,000 cfs Apr. 14, 1952; maximum gage height, 24.28 ft Apr. 14, 1952; minimum discharge, 2,500 cfs Dec. 29, 1941; minimum gage height observed, -3.34 ft Dec. 27, 1946.

Remarks.--Records good except those for period of ice effect, which are fair. Low-water flow regulated by Fort Peck and Fort Randall Reservoirs. Discharge measurements generally made 6 times a month, 3 times a month during winter.

Revisions (water years).--WSP 716: 1929-30. WSP 876: Drainage area.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29,800	31,400	9,000	13,500	15,500	14,200	35,000	28,800	28,400	79,000	33,900	32,900
2	29,500	31,000	9,000	14,500	16,500	14,100	33,000	42,100	27,700	66,500	32,600	32,600
3	29,500	30,200	9,200	15,500	17,500	14,100	37,900	49,900	27,100	60,300	33,200	33,600
4	29,100	29,100	9,200	15,500	18,000	14,000	47,100	79,600	27,200	54,400	33,200	33,900
5	28,700	28,300	9,200	15,000	17,000	14,000	40,500	94,100	28,700	49,100	35,200	34,200
6	28,700	27,600	9,200	14,500	17,500	14,100	33,400	88,100	31,700	42,700	39,200	34,200
7	27,900	27,600	9,400	14,500	17,300	14,200	29,100	71,400	39,600	40,300	33,200	34,200
8	27,900	27,600	9,500	13,800	17,000	14,500	29,800	62,300	49,100	38,800	32,600	34,200
9	27,900	27,600	10,500	13,000	16,800	14,500	36,600	55,900	55,200	39,200	30,100	34,200
10	27,900	28,700	11,600	12,500	16,600	14,600	26,800	49,100	48,500	30,600	28,600	34,200
11	29,100	28,700	11,900	12,000	16,500	19,000	29,100	45,600	50,100	39,500	31,900	34,200
12	29,100	28,700	11,000	11,500	16,400	24,000	37,100	44,800	60,400	39,900	32,200	35,200
13	29,500	29,500	10,500	11,400	17,500	35,000	36,200	42,900	69,500	40,300	33,900	35,600
14	29,800	30,200	9,400	11,300	16,800	36,200	40,900	42,300	70,000	38,400	33,900	34,900
15	29,800	29,800	8,000	11,400	15,800	45,300	41,800	40,600	62,800	37,700	33,200	34,900
16	29,800	29,500	8,000	11,800	15,800	62,000	35,400	35,000	60,000	36,300	32,600	34,900
17	29,800	29,100	8,000	12,000	15,700	54,500	32,200	32,100	53,900	34,200	32,600	34,600
18	30,200	27,900	8,000	11,400	15,700	55,000	26,100	31,900	57,200	32,900	32,600	34,200
19	30,200	27,200	7,800	10,200	14,900	58,500	25,300	31,200	90,900	32,900	32,200	34,200
20	30,200	25,700	7,400	9,400	14,900	53,500	24,200	30,700	92,700	32,600	32,600	33,900
21	30,200	23,500	7,400	10,400	14,500	47,100	22,800	31,600	90,400	32,200	32,600	34,200
22	29,800	22,100	7,800	11,000	14,000	52,500	23,100	30,800	85,500	31,300	32,200	33,900
23	29,100	21,300	7,800	12,000	14,300	65,200	22,100	29,700	87,600	31,000	32,600	33,600
24	29,500	20,600	7,800	12,500	14,300	68,600	21,300	28,700	92,600	30,700	34,200	32,900
25	29,800	19,900	7,800	13,000	13,700	66,400	21,700	28,000	105,000	30,700	34,200	31,900
26	30,600	17,200	7,000	14,000	13,900	62,500	23,500	27,700	104,000	31,300	33,600	31,600
27	31,000	13,000	7,000	15,000	14,300	53,500	25,700	27,200	93,800	31,600	33,600	31,600
28	31,000	10,000	8,000	16,300	14,200	51,600	18,900	27,900	87,800	31,900	32,600	31,600
29	31,800	9,400	10,500	17,200	-	48,900	20,600	29,600	90,000	33,200	32,200	31,600
30	31,800	9,200	11,500	17,200	-	46,200	26,400	29,500	84,600	36,000	32,200	30,700
31	31,400	-	13,000	16,200	-	39,200	-	27,800	-	35,600	33,200	-
Total	920,400	741,600	281,400	409,500	443,700	#1,187	903,600	#1,316.9	#1,952	#1,231.1	#1,022.7	#1,008.4
Mean	29,690	24,720	9,077	13,210	15,850	38,290	30,120	42,480	65,070	39,710	32,990	33,610
Ac-ft	#1,826	#1,471	558,100	812,200	880,100	#2,354	#1,792	#2,612	#3,872	#2,442	#2,028	#2,000

Calendar year 1952: Max 438,000 Min 7,000 Mean 44,290 Ac-ft 32,150,000
Water year 1952-53: Max 105,000 Min 7,000 Mean 31,280 Ac-ft 22,650,000

Peak discharge (base, 80,000 cfs).--May 5 (10 a.m. to 2 p.m.) 94,800 cfs (7.30 ft); June 25 (7 p.m.) 109,000 cfs (9.16 ft).
Expressed in thousands.
Note.--Stage-discharge relation affected by ice Nov. 27 to Dec. 9, Dec. 14 to Mar. 13.