UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GROUND-WATER RESOURCES OF THE ROGUE RIVER BASIN, OREGON

By

Richard A. Young

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ABSTRACT

The Rogue River basin, an area of about 5,060 square miles, comprises much of the southwestern corner of the State of Oregon. It is mountainous and its arable lands are largely confined to the valley floors along the middle reaches of the Rogue River and its main tributaries, the Applegate and Illinois Rivers and Bear Creek. In these valleys, level farming lands and an equable climate afford hospitable localities to a moderate population. Although mainly an agricultural economy, lumbering, mining, and tourist trade are also economic mainstays of the inhabitants.

The average annual precipitation on the valley floor is about 21 inches, but it is progressively greater with higher altitudes and reaches 87 inches in the Coast Range to at the west and 60 inches in the Cascade Range to the east. The frost-free season averages 176 days in the valleys with frosts seldom occurring later than May or earlier than October. The principal farm crop of the basin is soft fruit, mainly fancy pears. Beef and dairy herds are important in the Applegate and Illinois River valleys.

The rocks which underlie the basin range from Paleozoic to Recent in age. The best water-yielding rocks are the alluvial deposits of Pleistocene and Recent age and the weathered parts of several granitic masses.

Unpublished records subject to revision

Of 1,035 wells visited, only 52 were drilled exclusively for irrigation. Due to the inadequate yield, a number of these wells were not in use at the time of the field investigation.

The quality of the shallow ground waters is generally good, but the deeper ground waters in many places are too saline for common use. The boron and fluorine content of the ground water from some of the deep wells in the Umpqua and Chico formations is sufficient to render it unsuitable for some uses.

Properly constructed and developed wells in the Agate Desert gravels and in the older alluvium of the Illinois River valley will yield small and moderate supplies of ground water for irrigation. The younger alluvium in places will yield moderate amounts of water to large open wells, locally called "sumps." The weathered part of the granite rock underlying the Grants Pass and Tolo localities yields water sufficiently for small and moderate irrigation and industrial supplies. The other rock formations of the basin commonly yield water sufficient only for domestic supplies. In many places these rocks are so lacking in permeability that many drilled wells have failed to obtain even adequate yields for household supply.

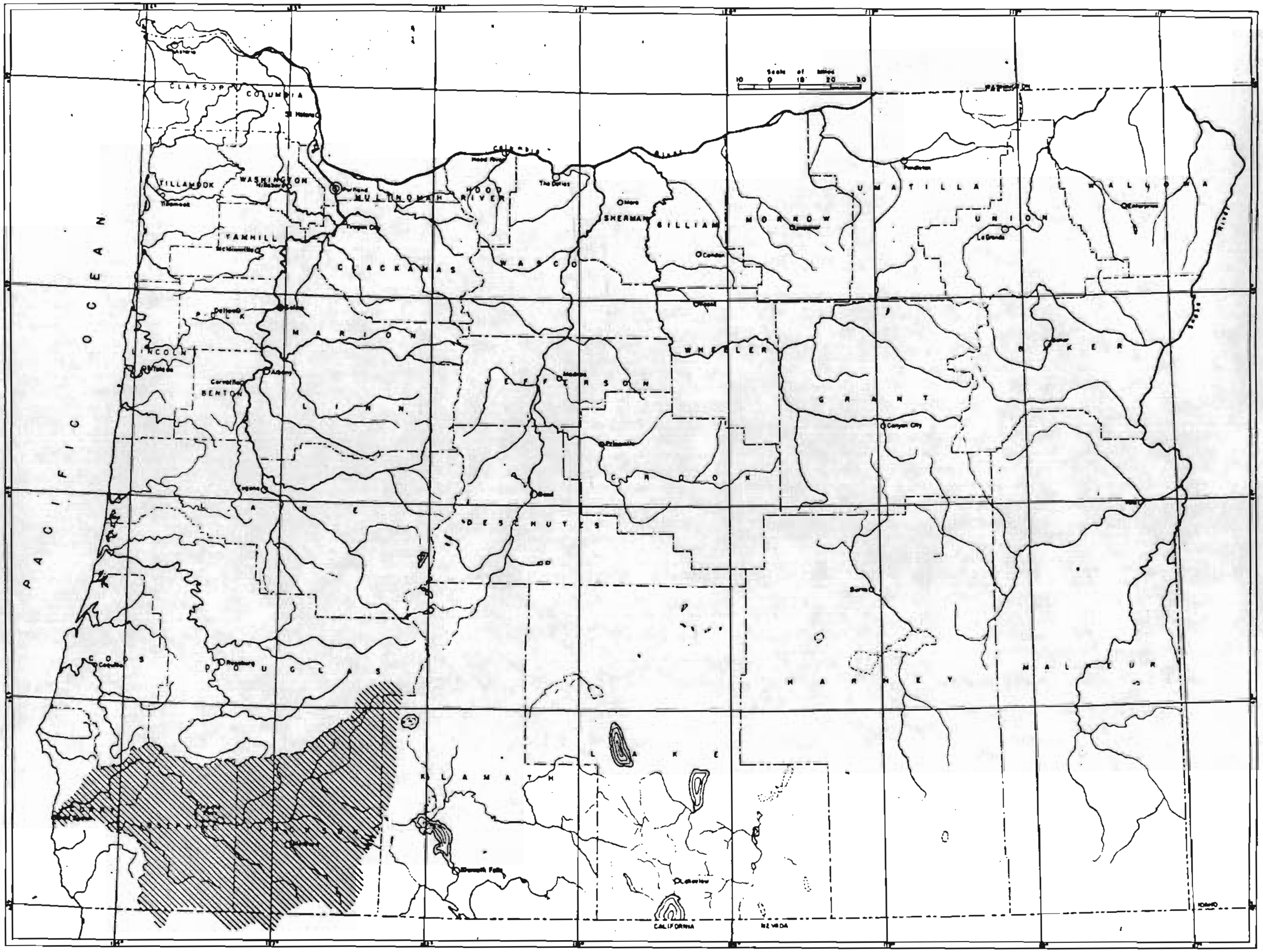
INTRODUCTION

Purpose and Scope of the Investigation

This investigation was made as a part of the water-resources inventories of the Department of the Interior with the special mission of determining if ground water is present to meet some of the irrigation needs in the Rogue River basin. Representative data on ground water was collected and incorporated in the tables and text. The geological information was assembled to portray the basic rock fabric from which the ground water of the area must be developed. The geologic maps of Wells (1939, 1940, 1949, 1953, 1955) were used as the basis of much of the geologic work. The investigation was made concurrently with studies conducted by the Bureau of Reclamation, the Bureau of Mines, the Surface Water Branch of the Water Resources Division of the Geological Survey, and the Fish and Wildlife Service.

Location of the Area

The Rogue River basin comprises an area of 5,060 square miles in southwestern Oregon (see pl. 4A). The river receives the drainage from a part of the western slope of the southern part of the Cascade Range and from the northern part of the Klamath Mountains. The drainage basin lies between longitudes 122°21' and 124°25' west and latitudes 42°00' and 43°10' north. The altitude of the terrain ranges from sea level at the mouth of the Rogue River to about 6,000 feet at the drainage divide of the Cascade Range. The highest peaks in the basin are Mount McLoughlin (9,760 feet) in the Cascade Range and Mount Ashland (7,530 feet) in



Map of the State of Oregon showing area covered by this investigation

PLATE IIA

UNITED STATES DEPARTMENT OF THE INTERIOR
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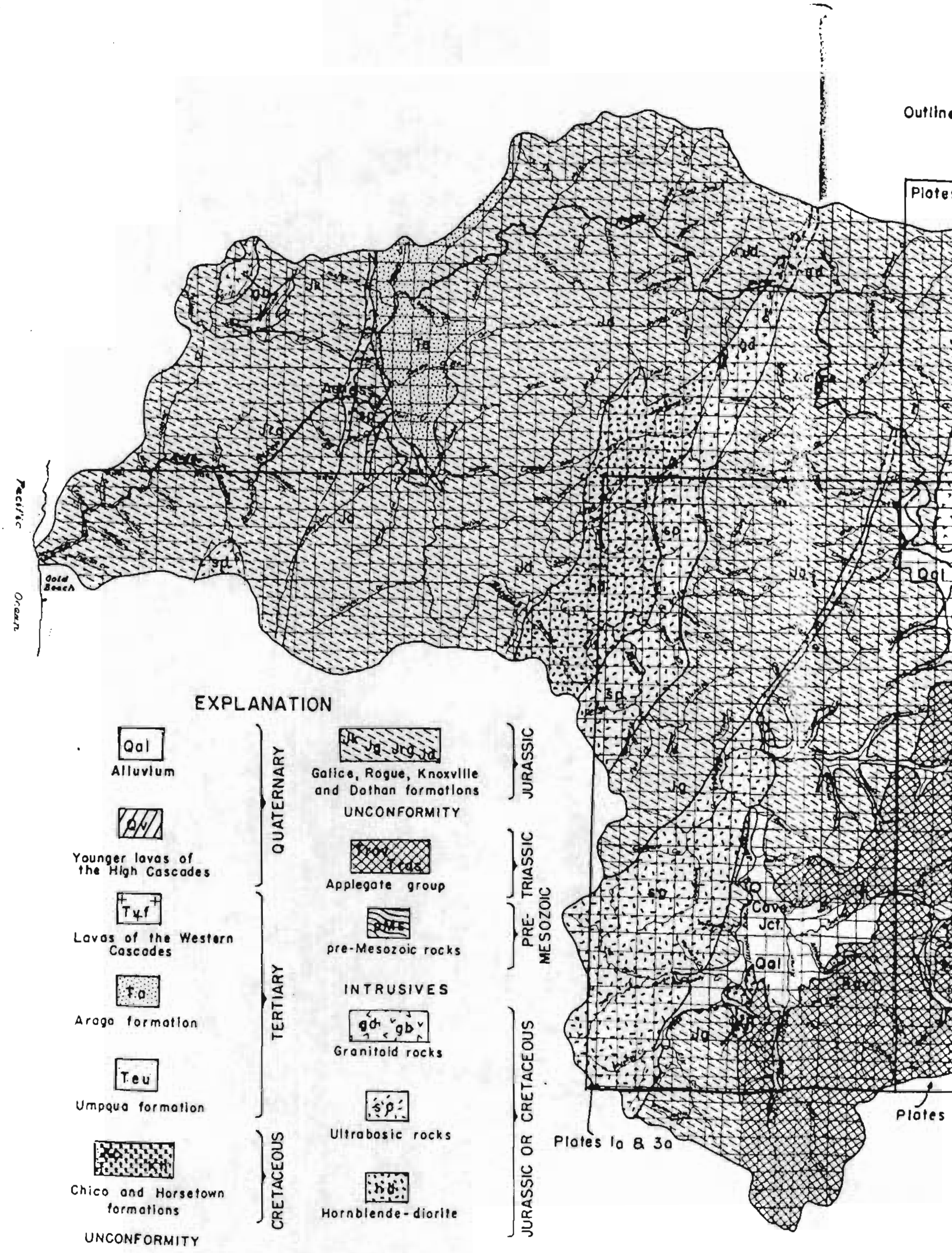
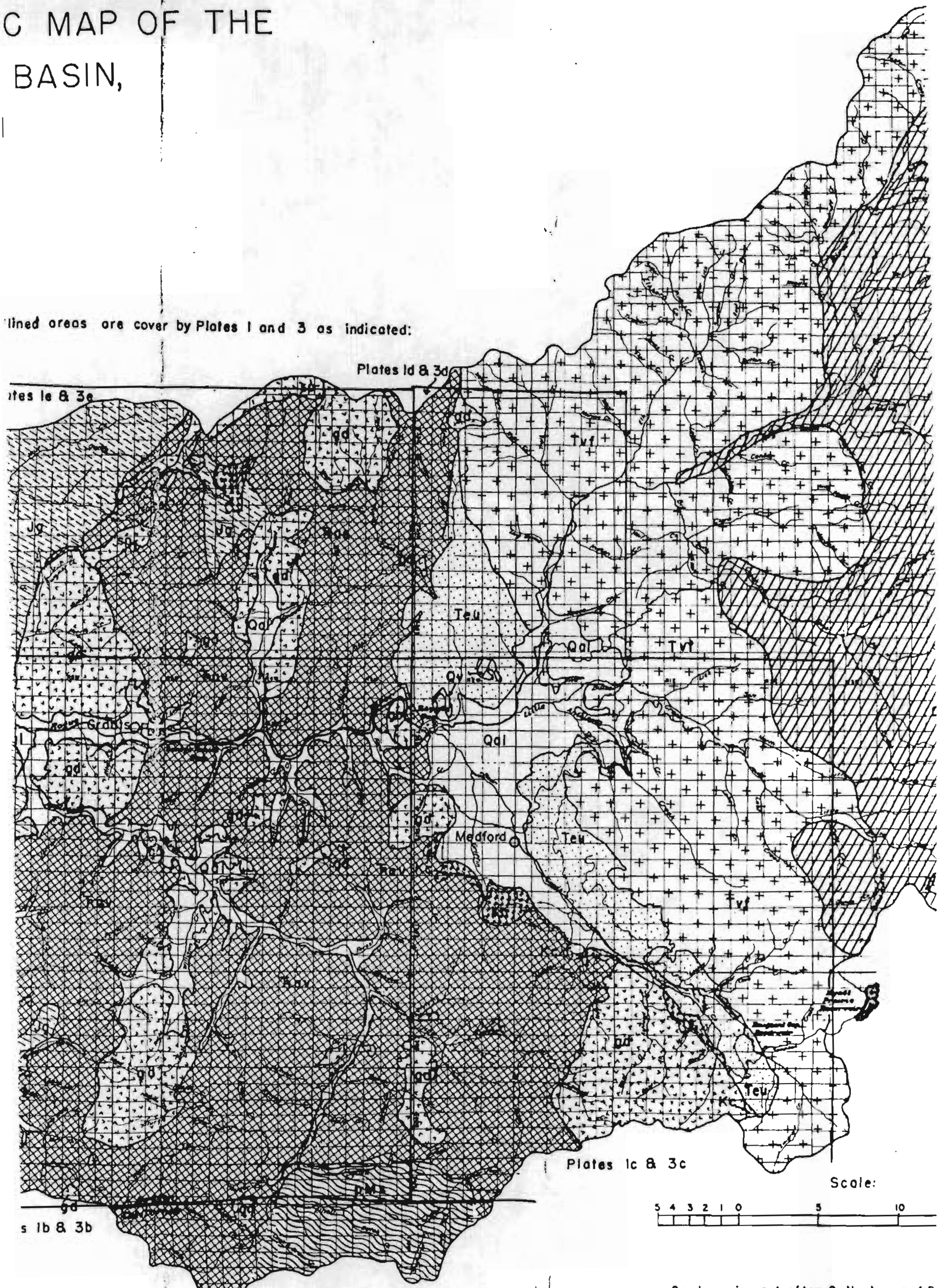
GENERALIZED GEOLOGIC
ROGUE RIVER B
OREGON



C MAP OF THE
BASIN,

lined areas are cover by Plates 1 and 3 as indicated:



Geology in part after Callaghan and B
Diller, 1903 and 1924; Wells, 1939, 1940,
Wilkinson, 1941; and Youngberg, 1947.

the Klamath Mountains. The lowest parts of the irrigable land lie at about 850 feet near Robertson Bridge on the Rogue River about 14 miles below Grants Pass. The highest irrigable land is at about 3,000 feet altitude in the upper part of the Bear Creek valley south of Ashland. The largest irrigable areas of the valley, those near Medford in the Bear Creek valley and those near Grants Pass on the main stem of the Rogue, lie at about 1,300 feet and 950 feet altitude, respectively.

This report treats mainly the central,and most populous, part of the Rogue River basin. A narrow fringe along the crest of the Cascade Range and the deeply canyoned lands along the lower part of the Rogue River are shown on plate 4B and mentioned only briefly in the text. The ground water of the volcanic rocks of the high area along the crest of the Cascade Range is of special significance to the base flow of the streams and to the Butte Springs sources of the city of Medford. Otherwise, it is used butlittle and is largely out of reach of the inhabitants of the basin.

In this report the name Klamath Mountains is used for the mountains which lie west of the Cascade Range. This inclusive name, Klamath Mountains, is more commonly used by geologists than by other people or the inhabitants. The Klamath Mountains (Fenneman, 1931, p. 465) include the Siskiyou and Rogue River Mountains and other local ranges. They include the various mountain areas north beyond the Rogue River valley. The name, Klamath Mountains, is more commonly applied in California than in Oregon, where a confusion of names (including Coast Range) are applied to this mountain area.

Previous Investigations

The only previous ground-water work in the area was done for the U. S. Soil Conservation Service by R. A. Work in 1930 as part of a drainage study of the Bear Creek valley. Some of the well data obtained at that time by Mr. Work are incorporated in this report.

Geologic reports over parts of the basin have been made by Diller (1903) and Kay (1924), Callaghan and Buddington (1938), Wells (1939, 1940, 1949, 1953, and 1955), and Wilkinson, et al. (1941). The geologic maps of this report were largely adapted from their work.

Acknowledgments

An appreciation for help freely given is due many of the residents of the Rogue River basin. Special thanks is expressed for the assistance of W. J. Attridge and staff of the Medford field office of the Bureau of Reclamation, Professor F. C. Reimer, retired Superintendent of the Southern Oregon State Experimental Farm, R. A. Work, W. T. Frost, Clemmons Ault, and Lloyd Burnett of the Soil Conservation Service, and many well drillers in the area, particularly the firms and individuals including R. H. Coleman, Deister and Cech, Goff Bros., Virgle Gribble, J. H. Mann, and Paquin and Storey.

Well-Numbering System

In this report each well and spring is designated by a number which indicates its location according to the official rectangular survey of public lands. For example, the number 38/2W-4R1 refers to a well in sec. 4, T. 38 S., R. 2 W. The letter after the section number refers to a 40-acre subdivision of the section according to the following diagram, and the number (1) refers to the first well visited in that particular 40-acre tract. The townships are all south of the Willamette Base line and the ranges are east or west of the Willamette Prime meridian. Range numbers with the following "W" refer to ranges west of the Willamette meridian.

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

In the tables the wells and springs are grouped for each sub-basin area and are listed in order below a center heading giving range and township. The extent of each sub-basin, for which the well and spring data are grouped in the tables, is shown on plate 4B. On the well and spring location map (pl 3) the wells are identified by the letter and serial number, as the township, range, and section are determinable from the map.

GEOGRAPHY

Surface Features

The topography of the basin is characterized by three significantly distinct units: The Klamath Mountains, the western slope of the Cascade Range, and the relatively small areas of the valley lowlands.

The land forms reflect the characteristics of the underlying rocks and the tectonic and erosional history. In general, the terrain is rugged in areas underlain by volcanic and metamorphic rocks and is more gentle in areas underlain by sedimentary rocks, alluvial deposits, and granitic intrusive rocks.

The Klamath Mountains

The present topography is in the stage of early maturity. The higher mountain peaks are steep and fairly sharp. The streams flow in deep canyonlike valleys, flattening and broadening abruptly where they traverse the softer rocks of Jurassic age. Comparatively recent uplift in the coastal portions of the Klamath Mountains has resulted in the incision of the sharp inner canyon 500 to 1,500 feet deep through the western part of the Klamath Mountains, downstream from near Grants Pass on the Rogue and near Kerby on the Illinois River. That uplift also steepened stream gradients and caused canyon cutting by the tributary streams in the Illinois River valley below Kerby and in the Rogue River valley below Robertson Bridge. The mountains forming the drainage divide between the Rogue River basin and the Klamath River basin to the south and extending west in this investigational area as far as about longitude

Siskiy Mtn

123°00', are known as the Siskiyou Mountains. Other parts of the Klamath Mountains have recognized and local names for rather poorly defined and obscurely limited subranges.

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The Cascade Slope

The slope of the Cascade Range from an altitude of 5,000 down to 3,000 feet is a series of poorly developed benches and intervening slopes formed upon lava flows most of which dip gently eastward. Above the 5,000-foot contour the surface is an irregular plateau floored by lava flows. The young volcanic cones rise above the upland plateau; most prominent of these cones are Mount McLoughlin and Mount Mazama, the volcano whose caulders is now occupied by Crater Lake. From these youthful cones and other vents came the lava which underlies much of the present surface of the upland of the Cascade Range.

The streams of the Cascade Range descend gently on the surface of the upland plateau but plunge rather steeply down the western slope. The steep gradient of the western slope has resulted in deep canyons, cut mostly in jointed lavas. During Pleistocene time the upland valleys were followed by mountain glaciers which descended the slopes from the higher eminences of the Range and deposited a blanket of glacial till in many of the upland valleys. Subsequent volcanic eruptions blanketed the Cascade upland with pumice; some areas of which were covered by lava flows in Recent(?) time (Callaghan and Buddington, 1938, p. 8).

The Lowland Valleys

The valley of Bear Creek is mainly an erosional lowland whose long axis parallels the strike of the relatively nonresistant strata of the Umpqua formation. East of Bear Creek and south of Roxy Ann Peak the floor of the valley is rolling and hilly, cut with the minor valleys of streams which flow intermittently. The soil is thin and bedrock formations crop out extensively. Cliffs and cuesta-shaped hills are prominent at elevations from 900 to 1,000 feet above the valley plains. Along the east bank of Bear Creek between Ashland and Medford a line of hills across the valley flow marks the outcrop of a more resistant sandstone which is about 400 feet thick.

Beginning just north of Medford and extending to the Rogue River is a cobble-strewn plain known locally as the "Agate Desert." The Agate Desert is underlain by a deposit of older alluvial gravels which were laid down by the ancestral Rogue River, Bear Creek, Antelope Creek and Little Butte Creek. Patches of similar gravels occur beneath terraces along the Rogue River and in the area lying between the Rogue River and Little Butte Creek.

Alluvium of Pleistocene age also occurs in a relatively thin layer 5 to 30 feet thick, west of Medford beneath the flood plains of Jackson and Griffin Creeks, two western tributaries of Bear Creek.

Terraces underlain by alluvium of Pleistocene age become more numerous down valley to the west. They form most of the alluvial plains in the Illinois River valley, in the Applegate River valley, and in the Rogue River valley as far downstream as Galice.

Drainage

The main stem of the Rogue River, with the two larger tributaries, the Applegate and the Illinois Rivers, are the major streams of the basin. Important smaller streams in order downstream are Trail, Big Butte, Little Butte, Bear, Evans, Louse, Grave, and Wolf Creeks flowing into the Rogue; Thompson and Williams Creeks flowing into the Applegate; and Sucker and Deer Creeks flowing into the Illinois.

The regularly maintained gaging stations are located sufficiently far upstream that they do not measure the entire surface-water discharge from the basin. The average discharges of the three principal streams during the 10-year period October 1, 1939, to September 30, 1949, are shown in the following table (as taken from records giving the observed flow at these stations):

Station	Annual average discharge (cfs)	Area drained (sq mi)
Applegate River at Wilderville	639	694
Rogue River at Grants Pass	2,953	2,420
Illinois River at Kerby	1,137	363
Total cubic feet per second,	4,729	

Water from snowmelt swells these streams and results in the peak discharge occurring annually in May or June. Streamflow is maintained at a fairly strong level in the summer and fall months on the upper reaches of the Rogue River by late snowmelt and by the discharge of ground-water stored in the lavas and fragmentary volcanic deposits which absorb and delay the infiltrated water. In the upper reaches of the Applegate and Illinois Rivers the late summer flows are maintained largely by snow melting on the north slopes of the higher parts of the Klamath Mountains, and by small additions of inflow from ground water.

Climate

Mild, wet winters and warm, dry summers are the predominant characteristic of the climate. The prevailing winds in the summer are from the north and northwest, and drying northerly winds are a usual feature. There is much south and southwest wind in the winter, but the winds seldom reach destructive force.

The precipitation received by various parts of the Rogue River basin differs from place to place and this difference at any one particular station is roughly proportional to the altitude and to the nearness to the coast. In 1951 the recorded precipitation ranged from 18.67 inches at Ashland to 104.93 inches at Illahe in the Klamath Mountains (records of the U. S. Weather Bureau).

During the 25-year period October 1, 1920, to September 30, 1945, the average annual precipitation at seven stations was as follows:

Ashland	20.35 inches	Modoc Orchard	21.15 inches
Grants Pass	27.90	Prospect	38.57
Lake Creek	27.59	Talent	18.06
Medford	17.79		

The average monthly precipitation for July and August for the above seven stations are as follows:

Station	July	August	December
Ashland	0.21	0.11	2.85
Grants Pass	.16	.11	5.23
Lake Creek	.19	.09	3.87
Medford	.18	.05	3.08
Modoc Orchard	.25	.05	3.70
Prospect	.28	.04	5.94
Talent	.37	.10	7.66

Unpublished records subject to revision

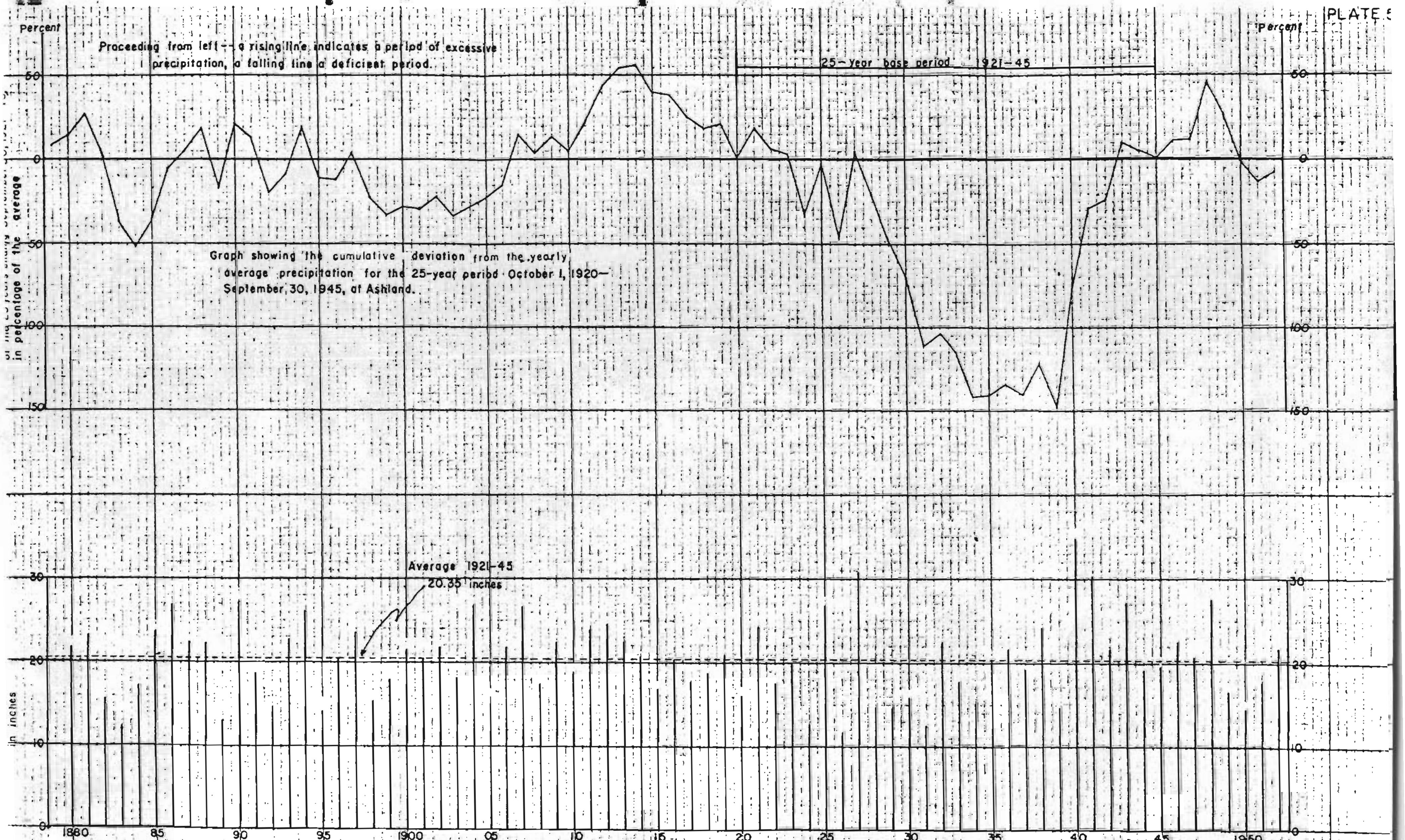
The average total annual precipitation for the calendar years 1939-51 at Illahe was 87.60 inches. December is commonly the month of the greatest precipitation, although in 1950 (1951 water year) October was by far the wettest month, owing largely to a heavy storm on the 28th and 29th of that month.

Below 2,500 feet altitude most of the precipitation falls as rain. The only stations above 2,500 feet which record both rain and snowfall are Crater Lake and Fish Lake at 6,475 feet and 4,847 feet, respectively. Those stations report about half the precipitation falls as snow.

The precipitation recorded for Ashland, Grants Pass, Medford and Prospect is shown on plates 5, 6, 7, and 8. The upper graph on those plates has the accumulated deviation from average plotted so as to make a direct comparison with the average for the base period during the water years 1920-45 inclusive. That type of plotting gives a line that most nearly approximates the manner and direction in which the quantity of ground-water storage, and the water table itself, responds to long-term trends in the precipitation. The distribution of precipitation within the year is shown on plate 9.

The average annual lowest temperature reading for six stations for the period 1921-51 was 14°F, the average highest was 102°F.

Frost-free periods for the valley plain areas of the basin average 176 days. In favorable years the frost-free growing season may be as long as 250 days, but artificial aids, such as smudge pots, are necessary to prevent damage to soft fruit during some days of most years. Frost has occurred as late as June and as early as September--June 12, 1917 and September 13, 1921 being respectively the latest and earliest frosts on record at Medford.



Graph showing the cumulative deviation from the yearly average precipitation for the 25-year period October 1, 1920–September 30, 1945, at Ashland.

Graph showing precipitation at Ashland during climatic years ending on September 30 of each year 1880–1952.

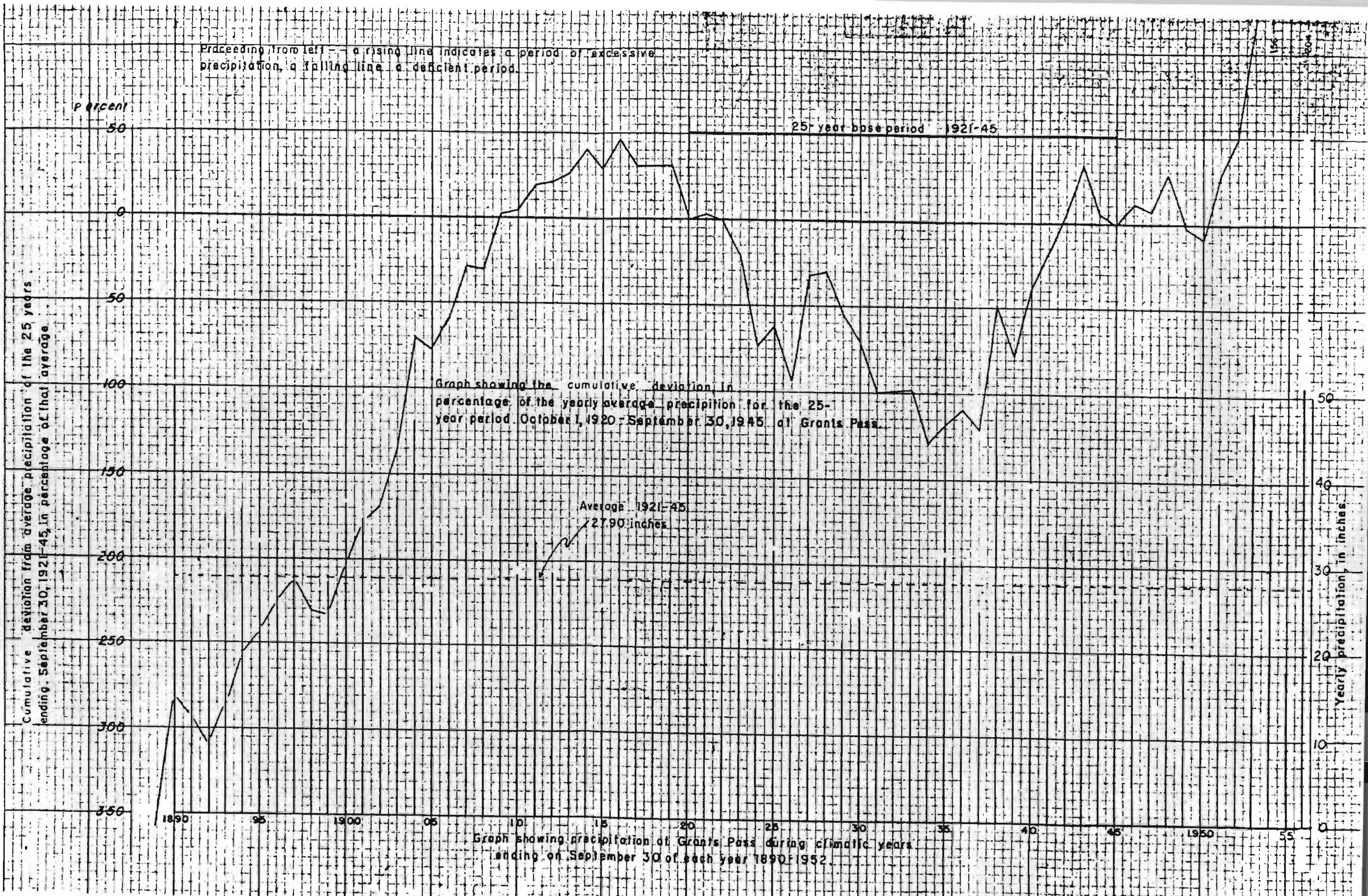
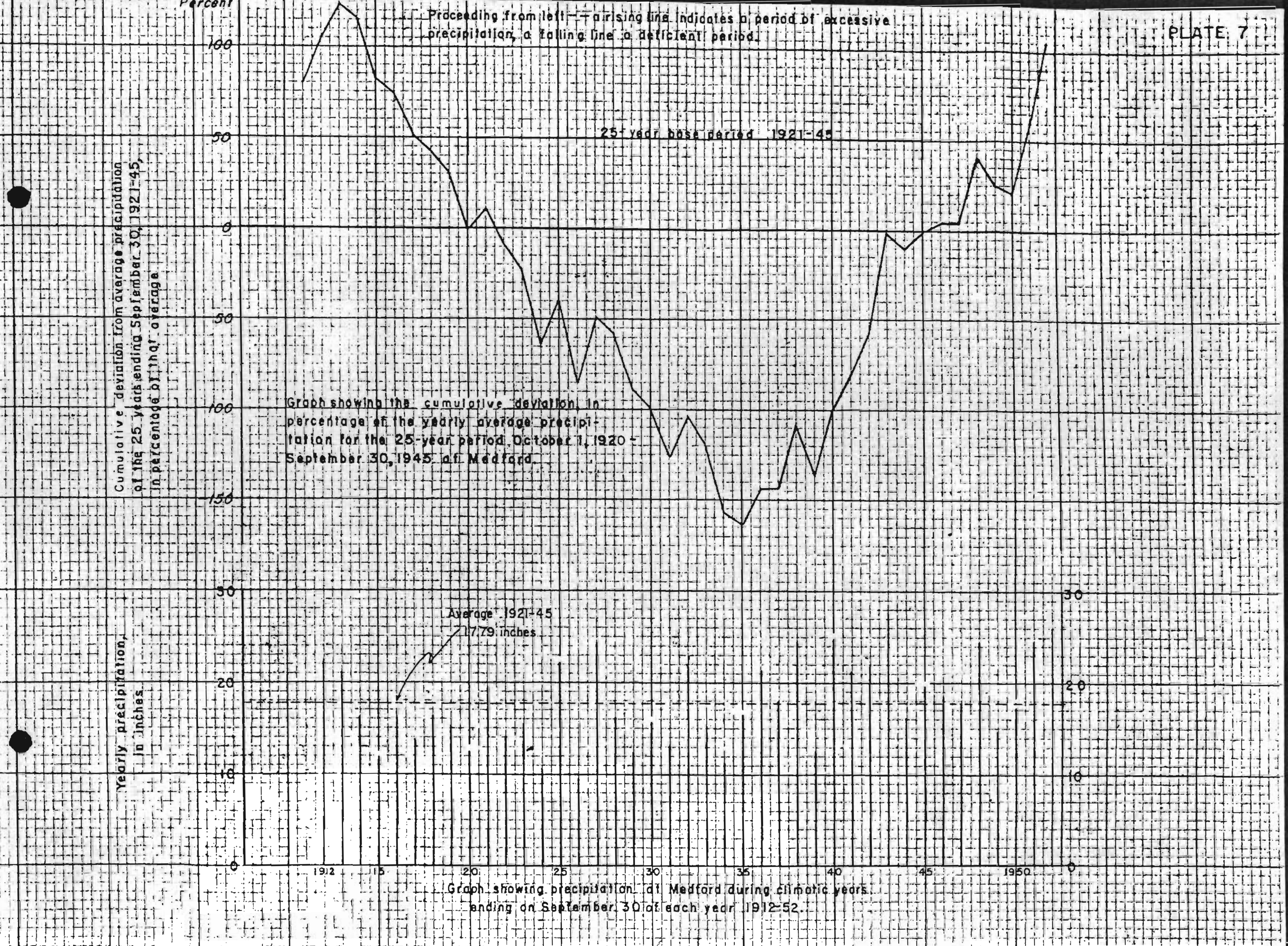

Proceeding from left - - a rising line indicates a period of excessive precipitation, a falling line a deficient period.
Percent
50
0
50
100
150
200
250
300
350
25-year base period 1921-45
Graph showing the cumulative deviation in percentage of the yearly average precipition for the 25-year period October 1, 1920 - September 30, 1945 at Grants Pass.
Average 1921-45
27.90 inches
Cumulative deviation from average precipitation of the 25 years ending September 30, 1921-45, in percentage of that average.
Yearly precipitation, in inches
50
40
30
20
10
0
156
204
1890
95
1900
05
10
15
20
25
30
35
40
45
1950
55
Graph showing precipitation at Grants Pass during climatic years ending on September 30 of each year 1890-1952.

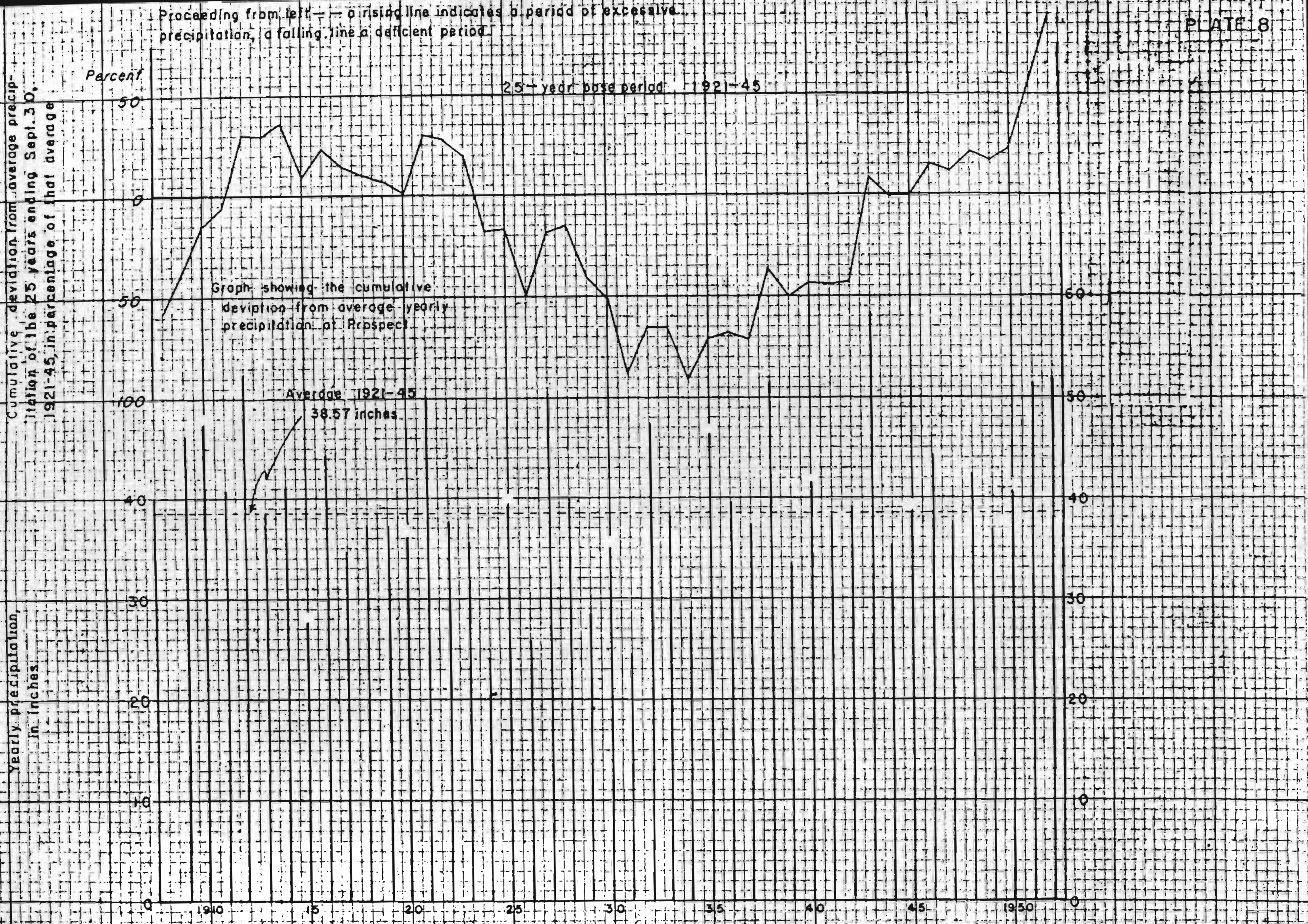
PLATE 7



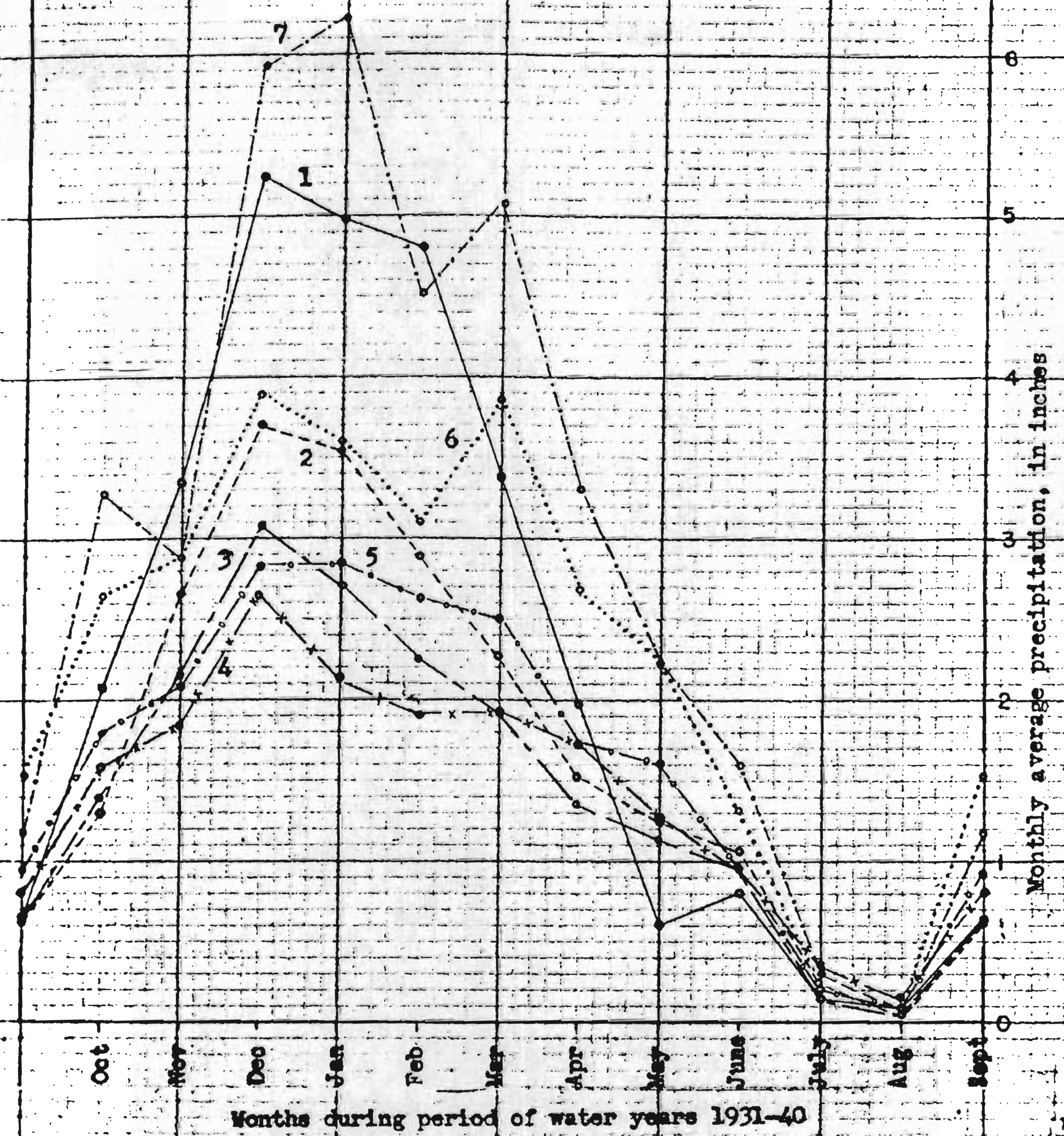
Graph showing the cumulative deviation, in percentage of the yearly average precipitation for the 25-year period October 1, 1920 - September 30, 1945 at Medford.

Graph showing precipitation at Medford during climatic years ending on September 30 of each year 1912-52.

PLATE 8



Graph showing precipitation at Prospect during climatic years ending on September 30 of each year 1909-52.



	Station	Altitude (feet)
1	Grants Pass	940
2	Modoc Orchard, 3 miles n. of Medford,	1,270
3	Medford	1,425
4	Talent	1,575
5	Ashland	1,970
6	Lake Creek, 17 miles ENE of Medford,	2,000
7	Prospect, 16 miles ENE of Trail,	2,475

DISTRIBUTION OF PRECIPITATION WITHIN THE YEAR AS RECORDED AT SEVEN STATIONS

The evaporation rate is moderate, the average annual rate of pan evaporation for five years at the Medford Experimental Station was 43.78 inches. December has the least evaporation, with an average of 0.54 inch, and July has the greatest amount, with an average of 8.59 inches for the years 1943 to 1952.

Characteristics of the Industries

Agriculture

A great variety of the crops common to a temperate climate and varied moisture conditions are grown in the Rogue River basin. Within some of the sub-basins, certain crops are grown predominantly. The Bear Creek valley is devoted principally to pears, the Applegate River valley to pasture, the Illinois River valley to forage grasses for seed and pasture, the valley of the main stem of the Rogue River below Grants Pass to hops, and the Louse Creek valley to cherries. Minor crops are strawberries, cane berries, peaches and grapes in most all the subvalleys. Specialty crops, like gladiola bulbs, are popular along the Rogue River near Grants Pass. Most of the farms are of small acreage and relatively intensive cropping. For the most part they are tended by the owner and his family, the exceptions being the larger pear orchards and the cattle ranches which are farmed with seasonal employes.

Most crops are dependent upon the supplies of irrigation water obtained almost wholly from surface flow. In addition to the land adequately irrigated, the following table shows the arable land in each sub-basin inadequately irrigated and ~~and~~ dry-farmed.

Sub-basin	Acreage irrigable	
	Inadequately irrigated	Dry farmed
Rogue River Unit (Bear Creek valley)	13,200	33,300
Talent Unit (Bear Creek valley)	10,400	4,700
Grave and Jump-Off Joe Creek valleys	800	7,500
Illinois River valley	5,400	17,200
Applegate River valley	9,500	7,000
Main stem of the Rogue River		1,500
	40,300	73,500

(Extracted from the table following page 37, "Alternative Plans for Development of the Water Resources of the Rogue River basin, Oregon" U. S. Bureau of Reclamation, Region I, 1948.)

Cattle raising, both dairy and beef types, utilizes a large part of the valley area. Dairying is the principal occupation in the Applegate River valley and is important in the rest of the basin. Most herds range from 10 to 150 head. Grass and clover combinations are grown for pasture. The larger herds of beef cattle are located in the Bear Creek valley or in the Cascade foothills district to the east. Many of the ranchers on the higher slopes drive their cattle to the plateau along the summit of the Cascade Range or to the Klamath basin for summer pasture. Beef herds are also located in the Illinois River valley.

Lumbering and Mining

The principal industries of the basin include lumbering and mining. Fir, Douglas fir, pine, cedar, hemlock, and spruce grow in the uplands, and although small private timber stands have been depleted rapidly, much timber still remains in the larger holdings and in the forest reserves. Some of the larger interests are cutting under the "sustained yield" plan. Harvesting of mature trees is being done in the National Forests and in Federal lands under the control of the Bureau of Land Management.

Chrome ore is the main product of the mines in and adjacent to the Rogue River basin. Copper, gold, platinum, and tungsten are produced in small amounts. The major paying mineral products are sand and gravel used for concrete and road metal, and limestone used for the cement and lime products.

Enough limestone is mined from the lenses in the Applegate group to supply a cement plant at Gold Hill. Much of the limestone of those lenses is too impure to be an economic source of agricultural lime.

Low grade coal, which occurs in seams from a fraction of an inch to 2 feet in thickness, occurs in the Umpqua formation. That coal is extremely high in ash and bone and is of little or no economic value at present.

Carbon dioxide is obtained from mineral waters taken from wells near Ashland (see well 39/2-7N11, table 1) and is used to make dry ice.

Tourist Trade

One fifth of the income in retail trade and service establishments in the basin is derived from tourist trade, according to the Bureau of the Census. Particular points of tourist attraction are Crater Lake National Park and the Oregon Caves National Monument. Sport fishing, principally for salmon and trout, on the world-famous Rogue River and its tributaries, and the scenic grandeur of nearby Crater Lake, account for a large share of the tourist interest.

Transportation

A branch line of the Southern Pacific Railroad running from Eugene, Oregon to Weed, California traverses the basin and serves the main cities--Grants Pass, Medford, and Ashland. Towns serviced by the railroad are Wolf Creek, Leland, Hugo, Merlin, Rogue River, Gold Hill, Central Point, Ashland, Phoenix and Talent. The rest of the area depends upon commercial truck lines for freight service. Passenger service is supplied by two motor bus lines and two airlines.

Five state and federal highways cross through or originate in the basin. Highway 99 parallels the railroad and connects the larger cities of the basin with the Willamette Valley to the north and with California to the south. Highway 199 passes southwest from Grants Pass to Crescent City, California, and Highway 66 extends southeast from Ashland to the Klamath River valley. Highways 234 from Gold Hill and 62 from Medford lead northeastward to Crater Lake National Park and other highways.

GEOLOGY

Description of the Rocks

Sedimentary Rocks

Rocks of Paleozoic age.- Partly metamorphosed sedimentary and volcanic rocks with a schistose cleavage crop out over an area of about 29 square miles in the headwaters of the Applegate River and ~~has~~ have been designated as Silurian in age (Wells and others, 1951). ~~Previous to the work of Wells (1951) these rocks had been called pre-Cambrian (Diller, 1909).~~ The most common petrologic type is a medium-to-dark-green plagioclase-hornblende schist presumably derived by the alteration of andesitic or basaltic tuffs. No stratigraphic thickness is known for these rocks, but they probably make up most of the central part of the Siskiyou Mountains. The dense and nonporous nature of these rocks precludes any considerable importance as ground-water reservoirs.

Rocks of Mesozoic age.-- A large part of the Rogue River basin is underlain by metamorphic rocks of Triassic age, which are called the Applegate group (Wells, 1951). These rocks comprise a great thickness of metamorphosed volcanic rocks, originally mainly andesitic lavas, containing interbedded argillites, quartzites, cherts and lenses of limestones. In general, the stratification dips from 45° to 85° to the southeast. The area in which they crop out is approximately 35 miles wide extending from the quartz diorite mass near Ashland northwestward to the mouth of the Applegate River (see pls. 1-A and 1-B). How much duplication in beds exists, due to faulting and close folding, is not known, but the true thickness may be estimated in tens of thousands of feet. Wells (1951) states that the younger beds of the Applegate group lie to the southeast which position indicates overturning, as the younger beds of Jurassic age lie to the northwest. Presumably the orogenic movements, which first deformed the rocks of the Applegate group, occurred near the end of the Triassic period. Though some small supplies of ground water occur in fractures, a low degree of permeability characterizes the rocks of this group.

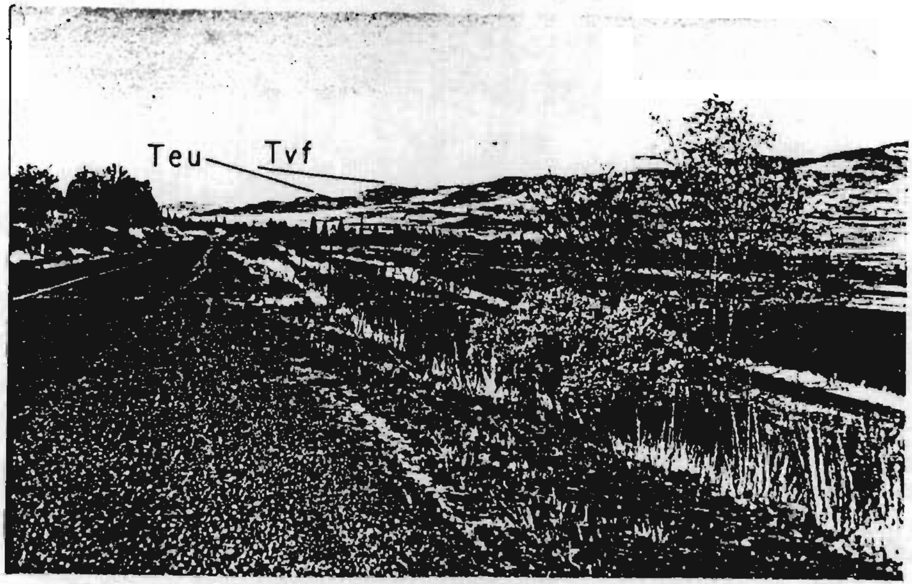
A series of shaly slates, grits, and conglomerates that occur at the mouth of Galice Creek on the Rogue River were named the Galice formation. Along with these rocks Wells (1951) has included in one map unit, a group that contains volcanic rocks of rhyolitic and andesitic composition as well as interlaminated tuffaceous strata of corresponding types. The Galice formation is considered to be upper Jurassic in age (Diller, 1907),(Taliaferro, 1942), ~~and~~ (Wells, 1949). These rocks were deposited unconformably over the highly deformed rocks of the Applegate group. For the two parts of the Galice formation, Wells (1949) places the thickness of the volcanic lava rocks and tuffs at about 10,000 feet and the thickness of the sedimentary rocks at 15,000 feet. Cementation of the conglomerates and sandstones by siliceous material has rendered most of the formation impermeable, making it an unlikely source of any but the smallest supplies of ground water.

Unconformably overlying the Triassic and Jurassic formations are marine sedimentary beds of the Horsetown and Chico formations of Cretaceous age. Beds of the Horsetown formation occur in the south central part of the Kerby quadrangle (see pl. 1-A) where approximately 5,000 feet of sandstones and conglomerates overlie the Galice formation and where their general strike is N 30°W and the dip 30°NE. Farther east they are in fault contact with serpentine. The Chico formation crops out along the western border of Bear Creek valley (pl. 1-C), where there are two small areas shown in the eastern part of the Grants Pass quadrangle (pl. 1-B) ,and also crops out in an area of about six square miles on upper Grave Creek in the Riddle quadrangle (pl. 1-D). In the Medford area the Chico beds dip from 10° to 45° to the northeast, and the dips become steeper toward the southern end of the Bear Creek valley. In the exposures shown on the Grants Pass quadrangle map the dips are about 10° in a northward direction. Dips ranging from 13° (to the northeast) to 90° have been observed in the outcrop area on Grave Creek. These beds are mainly sandstones and sandy shales with lenses of conglomerates near the base. In the Rogue basin, the Chico formation contains the oldest beds known to have numerous and well preserved fossils--fossils indicative of middle and upper Cretaceous age. Wells (1951) states the maximum thickness of the Chico formation to be about 600 feet. Although these rocks are well cemented, some ground water may be produced from the poorly cemented beds and from the joints and crevices. No large yields of water have been obtained from wells in the formation. The Chico formation may be the source of some saline water that is derived from wells near Phoenix and Talent (see section on quality of water).

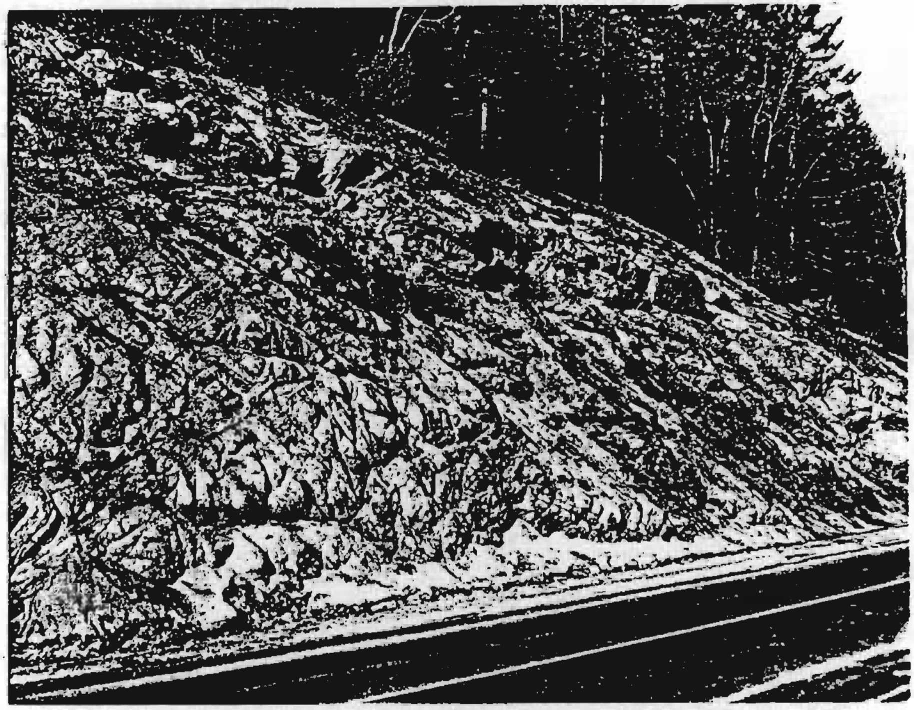
<u>Rocks of Cenozoic age</u>.- Disconformably overlying the Chico formation is the Umpqua formation whose age is middle Eocene. The Umpqua formation consists mostly of an alternating succession of beds of shale and sandstone. The thickness of the individual beds ranges from an inch to

several feet. In the few beds of conglomerate the larger particles range in size from pebbles to boulders. With the exception of fragmental plant material, the Umpqua formation contains very few fossils. The carbonaceous plant material, together with numerous seams of impure subbituminous coal, indicate at least a partial freshwater origin for the formation in the Bear Creek valley area. A total thickness of 8,000 feet for the Umpqua formation was estimated by Wells (1939). A zone of massive sandstone, estimated to be 400 feet thick, underlies a series of low hills that continue longitudinally in the upper Bear Creek valley from Medford to near Ashland. As the sandstone members of the formation are formed of poorly sorted grains and contain little open pore space, the formation does not afford good yields of water to wells. There are numerous wells in the Umpqua formation but very few have total capacities of more than five gallons of water per minute. At depth within the Umpqua formation the ground water is saline and of inferior quality as described in the section on quality of water.

Overlying the Umpqua formation with slight angular unconformity is a series of waterlaid tuff beds and thin lava flows called by Wells (1939) "waterlaid volcanic sedimentary rocks." See pl. 10-A. Fossil plant leaves collected by the writer from a fine gray tuff bed about 150 feet in thickness in sec. 13, T. 35 S., R. 1 W. (see pl. 1-E), approximately 500 to 600 feet above the top of the Umpqua formation, were examined by R. W. Brown of the Geological Survey. Mr. Brown in his report states:



A. View north along Highway 99 south of Ashland showing, in skyline, the difference in dip between the Umpqua formation (Teu) and the overlying lavas of the Western Cascades (Tvf).



B. Inclined strata of Chico formation overlying granodiorite in cut of Highway 99 in the SW$\frac{1}{4}$NW$\frac{1}{4}$ sec. 21, T. 40 S., R. 2 E.

"Locality, 35/1W-13-14. South half of center line between secs. 13 and 14, T. 35 S., R. 1 W. On hillside above railroad, 3.3 miles due east Dodge Bridge, in ashy gray and buff tuffs, Trail quadrangle.

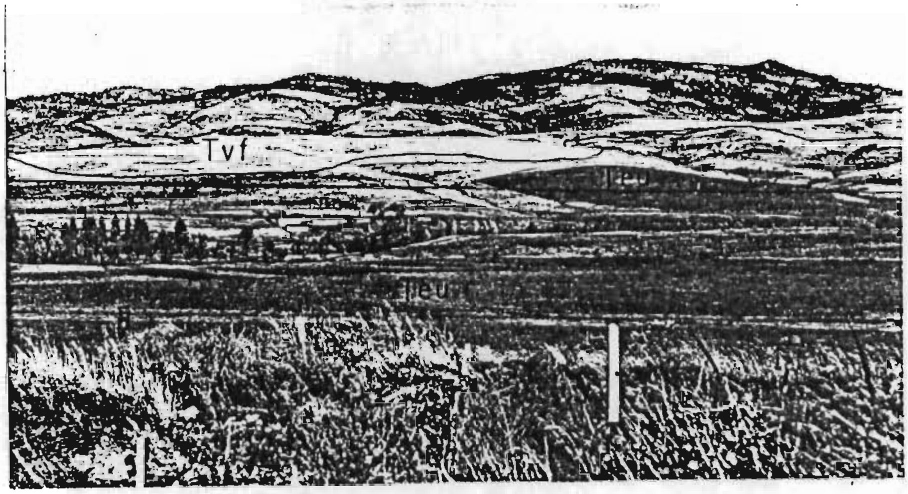
Pinus sp. (cone, seeds, and needles of a white pine)
Metasequoia occidentalis (Newberry) Chaney
Thuites sp.
Alnus sp.
Liquidamber sp.
Fragments of other dicotyledonous leaves.

Age: Late Eocene or early Oligocene."

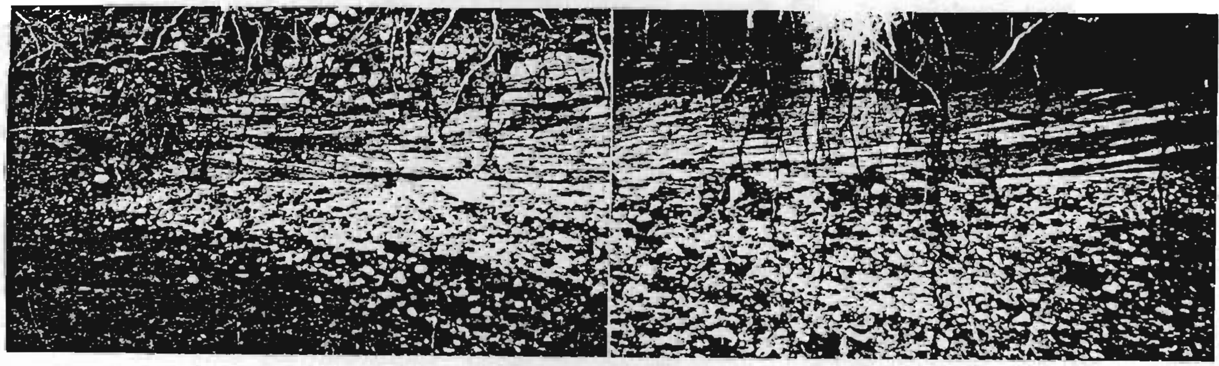
The thickness is stated by Wells to be about 2,000 feet. The lava rocks are dense and tight and generally of low permeability. A small amount of ground water occurs in the joints and in some outcroppings shows up as seepage along the top of underlying tuffaceous beds. The included tuffs are impermeable for the most part.

The larger valleys of the Rogue River basin are underlain by alluvial deposits of clay, silt, sand, gravel, and boulders, unsorted or rudely sorted. These deposits in some places extend to considerable depth and have been divided into five formations by previous investigators. Four of these formations lie above the elevation of the present main streams. From the degree of their surficial weathering and the depth of cementation they all appear to be Pleistocene in age and are herein referred to generally as older alluvium.

Along the present stream channels, within the reach of the flood waters, the older gravels have been reworked and other material incorporated to comprise gravelly and bouldery deposits covered in some instances by thin soil. The alluvial deposits now within the range of floods are designated as younger alluvium in this report.



A. View eastward across Bear Creek valley north of Ashland showing parts of the valley underlain by eastward-dipping strata of the lavas of the Western Cascades (Tvf) and the Umpqua formation (Teu).



B. Close-up of an exposure of Agate Desert gravels showing bedding features, silt bed and the caliche lenses. Section in photo about 4 feet high.

The older alluvium includes the Agate Desert gravels that underlie the Bear Creek valley plain and benchlands north of Medford. They also include the bench gravels near Grants Pass, in the Illinois Valley, in Louse Creek valley, and the auriferous gravels and the Llano do Oro formation underlying the terraces south of Cave Junction. Their permeability is generally low but differs greatly both horizontally and vertically. The degree of permeability seems to be determined largely by the type and quantity of interstitial filling present at each place (pl. 11-B). The older alluvium may in places be as much as 300 feet thick; the Agate Desert gravels and Llano de Oro formation both have a maximum thickness of about 100 feet (see table 3). Where they occur below the level of the water table, the gravels of the older alluvium are probably the most productive aquifers within the valley areas of the basin. At other levels, or where they contain excessive interstitial filling, they supply only small quantities of water to wells.

In general, the younger alluvium is surficial and is important as an aquifer only in the few places where it extends below the level of the water table.

Igneous Rocks

Intrusive rocks of Mesozoic age.- Throughout the area underlain by formations of Mesozoic and earlier ages, there are many intrusive igneous rocks ranging in petrographic types from ultrabasic to granitic. Some, such as the granitic mass west of Ashland and the granitic body in the Grants Pass area, are of batholithic proportions. Others, that are smaller, may be only the upper parts of large deeply seated intrusions.

The long axes of the intrusive masses all trend northeast-southwest, and all cut across formations that are known to be older than the Cretaceous. In petrographic types, the ultrabasic rocks range from dunite and saxonite to serpentine, and the granitic rocks range from tonalite through diorite to granite. In the areas south of Grants Pass and east of Gold Hill are several masses of hornblende gabbro that apparently originated as differentiations from the granitic magma.

The top of the granitic mass in the Grants Pass area and of that west of Central Point are deeply weathered and the granular weathered materials constitute fairly permeable aquifers.

Intrusive rocks of Tertiary or Quaternary(?) age.- Many small igneous dikes, sills, and plugs of Tertiary age cut the Umpqua formation and the volcanic formations of Tertiary age (pls. 1 and 10). Most of these dikes are composed of tight and dense rock which has a low permeability. In general they do not serve as aquifers.

Extrusive igneous rocks of Tertiary and Quaternary age.- The large-scale occurrences of mainly extrusive igneous rocks in the Rogue River basin are the rocks grouped and termed the "lavas of the western Cascades" (Wells, 1939) and "volcanic rocks of high Cascades" (Callaghan and Buddington, 1938, pl. 1). These rocks form most of the west slope and the crest of the Cascade Range. Their outcrop area extends eastward generally from the Bear Creek valley, Sams Valley and upper Evans Creek (pls. 1c and 1e).

Wells (1939) used some of the general terms and groups of Callaghan and Buddington (1938) but mapped the rock groups and their divisions more extensively in the Rogue River basin. The lavas of the western Cascades

(Wells, 1939) overlie the "waterlaid volcanic sedimentary rocks" referred to above under "Rocks of Cenozoic age." The lava rocks consist of lava flows, breccias, and agglomerates of andesite, basalt, and rhyolite interbedded with waterlaid tuffs and beds of pumice. The lower flows lie essentially level, or show but a slight dip to the east (pl. 9-A). The total thickness was estimated by Wells to be between 3,000 and 5,000 feet. The rocks of this accumulation of volcanic flows are tight and compact, and offer little space for ground water transportation or storage.

For the most part the "volcanic rocks of high Cascades" (Callaghan and Buddington, 1938) are olivine basalt and are of Pliocene and Quaternary age. They consist of flows of blocky lava rock and have a generally horizontal attitude in the Rogue River basin or dip at low angles generally to the east. The earlier sequences of these volcanic rocks have been mildly displaced in block-faulting structures and the latest sequences possess many initial slopes and dips which were incident to their extrusion. They underlie the volcanic cones, plateaus, and ridges at the top of the Cascade Mountains. That they are highly conducive to the collection and storage of ground water is evidenced by the many strong springs which flow from their lower parts and by the more stable regimen of streams that originate in areas underlain by these rocks.

Metamorphic Rocks

All formations older than the Cretaceous period show extensive metamorphism. The "older schists" of Silurian age, which occur in the headwaters areas of the Applegate River, are so altered as to make difficult the full determination of the original rocks. The rocks of the "Applegate group" of Triassic age have undergone dynamic regional metamorphism plus contact alterations where they border the intrusive rocks. The Galice formation of Jurassic age, underwent regional metamorphism, especially affecting the former shale beds which are now sandy slate, as well as contact alterations along the margins of the granitic body that underlies the Grants Pass area. Compaction and metamorphism have destroyed whatever effective porosity and permeability that may have originally existed in these formations and they now possess water-bearing capabilities only near the surface where partly opened joint planes afford a low degree of permeability.

Low-grade metamorphism in the deposits of Tertiary age is confined to the immediate vicinity of intrusive dikes and sills and to the materials between lava flows. Apparently it is of too limited extent to have an important bearing on the water-bearing capacities of the rocks.

Structure

Folding

All the formations older than the Cretaceous have been subjected to strong northwest-southeast compression resulting in folding with some overturning and thrust-faulting. Inclinations of bedding in the "Applegate group" vary from 10° to vertical with the strike in most places trending northeast.

The Galice formation has been deformed by similar northwest-southeast compression. Presumably the Triassic "Applegate group" received folding and overturning before the Jurassic Galice formation was deposited.

Subsequently the "Applegate group" was in places overthrust onto the Galice formation but has been eroded off except for one remnant just west of the Oregon Caves National Monument (pl. 1-b).

The main bodies of the Chico and the Umpqua formations have a monoclinal tilt to the east, but are free from the intense folding which marks the pre-Chico rocks.

Faulting

Several systems of faults cut the formations of the Rogue River basin. Along the west side of the Illinois River valley, the contact between the Galice formation and the serpentine is a thrust fault with the serpentine overriding the Galice. Similarly, the contact between the Jurassic Galice formation and the Triassic "Applegate group" is a thrust fault, giving the Galice formation the position of a depressed block.

A system of faults cuts across the Umpqua formation and the lavas of the western Cascades in the Bear Creek valley. One shear zone trends north-northwest from Buckhorn Springs at least as far north as Walker Creek. Its presence is indicated by a linear depression that crosses the foothills and by the highly silicified nature of the rock in the fault trace. Near Buckhorn Springs the fault is intersected by a generally east-west fault, shown by Wells (1939), which separates the lavas of the western Cascades and the isolated patches of Umpqua formation from the Ashland granodiorite at the head of the valley above Steinman (pl. 1-c). This cross fault divides near Colestin and one fork crosses the granodiorite to Beaver Creek on the California border.

Another fault was mapped by Wilkinson and party (Wilkinson, et al., 1941) along the east fork of Evans Creek (pl. 1-d). Movement along the fault has caused the uplift of the Applegate group to a position abutting against the Umpqua formation. Many other faults of lesser displacement are known to occur in the Applegate group and in the volcanic rocks of the Cascades and are shown on plate 1. The block-faulting system prominent in the Klamath Basin to the east also cuts the rocks of the Cascade Range and in lesser intensity displaces the lava rocks of the high Cascades and the lava rocks of the western Cascades in the Rogue River basin.

Summary of Geologic History

The area that is now the Rogue River basin was, during Triassic time, a part of a subsiding basin on the north flank of an old upland from which it received much sediment. These sedimentary deposits and intermingled volcanic materials, which were deposited under both subaerial and submarine conditions, formed the sequence known as the "Applegate group." Between the Triassic and middle Jurassic times sufficient crustal movement took place to fold the rocks of the Applegate group.

During the middle and upper Jurassic period parts of the area subsided enough to allow the deposition of many thousands of feet of sedimentary and volcanic rocks now known as the Galice formation. Later these, in turn, were deformed. After the Jurassic beds were deposited, but before the later part of lower Cretaceous time, the intrusion of basic and granitic rocks occurred and these intrusions were bared by erosion. Subsidence in the Cretaceous period allowed the deposition of the marine

Horsetown and Chico formations. That parts of the Chico formation were derived directly from the Ashland granodiorite is shown by the lithology of the pebble conglomerate at the contact exposed in a cut on Highway 99 in sec. 21, T. 40 S., R. 2 E. (pl. 10-b). The basal bed in that outcrop of the Chico formation is composed almost entirely of debris from the granodiorite.

The thinness of the Chico formation indicates that it was uplifted and eroded before the deposition of the overlying Umpqua formation of middle Eocene age. The disconformity between the Chico and the Umpqua formations is evident largely by the lack of any known deposits of lower Eocene age between the two formations. The presence of numerous thin seams of coal in the Umpqua formation indicates an estuarine or lagoonal type environment where subsidence did not entirely keep pace with deposition.

Conglomerates with well rounded quartzite pebbles and boulders in the upper parts of the Umpqua formation are evidence of accelerated erosion and reworking of the outcropping rocks of the Applegate group and the Chico formation.

Toward the end of Eocene time increased volcanic activity produced the effusive volcanic ejecta and clastic materials that formed the water-laid volcanic sedimentary rocks. A progressively increasing number of lava flows were being deposited in the eastern part of the Rogue River basin. Both the waterlaid volcanic sedimentary rocks and the lava flows were deposited lapping up against the eastwardly inclined slope of the Umpqua formation.

By the end of the Pliocene epoch or soon thereafter, the Rogue River had probably acquired its present general watershed, although it channel was still at least 600 feet above its present bed in the part above the mouth of Bear Creek. If the basalt tablelands known as Upper and Lower Table Rock north of the present river are intracanyon flows, as they are assumed to be, then the Rogue River had not yet cut entirely through the waterlaid volcanic sedimentary rocks at this point, as shown by the presence of these volcanic sedimentary rocks directly under the Quaternary caprock lavas at the southernmost extension of Lower Table Rock.

After glaciers of the Pleistocene epoch had cut the volcanic upland and entrenched the streams of the Cascade Mountains, renewed volcanic activity sent narrow trains of basaltic lavas coursing down the main valleys toward the Bear Creek valley and down the headwater streams of the Rogue River. Presumably one of those streams of lava was the source of the lavas which cap the Table Rocks. Several of these trains of lava followed the valleys as far as Prospect and other places well down on the lower slopes of the Cascade Range. They now underlie flattish floor segments of the valleys and have been trenched by youthful stream canyons. Important amounts of ground water flow from springs, like Big Butte Springs, at their lower end. During Pleistocene(?) time there was apparently some resurgence of mountain building deformation. The belt of older rocks crossed by the Rogue River below Grants Pass must have been uplifted several hundred feet and the drainage ponded, or at least slowed, in the Grants Pass and Illinois Valley areas. Alluvium accumulated in these valleys and has been only partially removed since the river carved its canyon headward to drain those valley areas.

WATER RESOURCES

Surface Water

Headwaters of the River

The North and South Forks gather the runoff of a number of creeks which drain the western slope and upland of the Cascade Range. The North Fork is commonly termed the continuation of the main stem of the river. The Middle Fork flows into the South Fork which, in turn, joins the North Fork below Prospect. Below that confluence the Big and Little Butte Creeks enter from the southeast. These four streams constitute the principal headwater sources of the Rogue River and deliver essentially all the runoff that comes from the Cascade Range. Elk Creek and Trail Creek from the north and Bear Creek from the south enter below the confluence of the North and South Forks. Bear Creek also receives runoff from a small part of the Cascade slope but much of that flow is impounded and used for irrigation.

The North Fork alone and the combined flow of all the upper branches--where those discharges are measured at Prospect and Dodge Bridge, respectively--show similar annual runoff characteristics. The highest rate of runoff comes during the snowmelt period from March to May and continues high into June. Early winter, the snow-storage months, November to January, produce a lesser proportional runoff than occurs on the more southern tributaries, Butte and Little Butte Creeks.

Of the headwater drainage areas, the North Fork, the Rogue River proper, at the gaging station below Prospect has the most uniform discharge/within the water year. Records of the monthly discharge for the water years 1946-50 show the rate of flow during the three months of greatest discharge (February to April) and during the three months of least discharge (July to September) differ by the ratio of only

Unpublished records subject to revision

3.2 to 1. The water yield of the headwater streams, in cubic feet per second per square mile of drainage area, when computed as an annual average discharge for the water years 1946-50, ranges from 2.9 for the Rogue River near Prospect, through 2.1 for the Rogue River at Dodge Bridge, 1.5 for Elk Creek near Trail, 1.2 for Big Butte Creek at McLeod, and 0.72 for Little Butte Creek at Eagle Point.

Though storage as ground water in the permeable materials of the volcanic rocks of the high Cascades has an equalizing effect on the runoff of the North and South Forks, its additions to stream runoff are partly masked by the storage effect of the snow accumulations in the headwaters areas of these northern and higher tributaries of the Rogue River. Undoubtedly, the less permeable volcanic rocks of the western Cascades, which form the entire drainage basin of Elk Creek, and a large part of the basins of Little and Big Butte Creeks, account for some of the flashy, rapid character of the runoff from these tributaries, but the present data do not permit more than a qualitative and comparative evaluation of any ground-water storage effects of the volcanic rocks of the high Cascades.

The broad band of relatively soft and poorly permeable sedimentary rocks, which underlie the north-northwest-trending lowland at the western foot of the Cascade Range (Bear Creek valley and Sams Valley) is drained northward to the Rogue River by Bear Creek and southward to the Rogue River by Snider and other small creeks. These streams are partially regulated for irrigation, the bedrocks and the soils (both residual and alluvial) discharge only small quantities of ground water, and the stream runoff lacks any significant ground-water contribution.

The combined flow from the main river and these valley tributaries is measured at the gaging station at Ray Gold and the runoff above the canyon through which the Rogue River leaves the Bear Creek Valley is commonly termed the headwaters of the river.

Middle Course of the River

The 15-mile-wide north-south-trending band of metamorphic, sedimentary and igneous rocks, which is crossed by the river in a terraced gorge below Ray Gold, (Rogue River?) has a medial strip of granitic rock on which relatively gentle topography is drained southward to the Rogue River by Evans Creek and northward by Williams Creek. The latter is a tributary of the Applegate River which enters the Rogue at the west edge of the Grants Pass lowland, also underlain by granitic rock.

The upper tributaries of the Applegate River gather drainage off the north slope of the Siskiyou Mountains at the south side of the Rogue River basin. Other tributaries drain a dissected, mountainous topography whose principal valley area is formed on granitic rock and extends northward along the Williams Creek valley across the Applegate to the Evans Creek valley farther north. The annual runoff of Applegate River has characteristics similar to that of the lower streams of the Rogue River headwaters. The annual high rates of discharge come in the period December to April and the ratio of the discharge in the three months of highest flow (January to March) to that in the three months of lowest flow (July to September) is in the order of 8 to 1 at Ruch and 15 to 1 at Wilderville. The annual average water yields, in cubic feet per second per square mile, were similar to those of Big Butte Creek basin--1.3 at Ruch and 1.05 at Wilderville during the years 1946-50. The average annual discharge at Wilderville for those years was 728 cubic feet per second, which is about 75 percent as large as the same discharge for the Rogue River at Prospect.

After turning northward along the west side of the granitic lowland of the Grants Pass area, the Rogue River receives the discharge of Jump Off Joe Creek, which drains the north part of the lowland. Near the mouth of this creek and 13 miles northwest of Grants Pass the river enters a gorge through mountainous terrain in which it continues for 50 miles to the mouth of the Illinois River at Agness. In this reach Grave Creek is the largest tributary. It drains the northern central part of the basin, north of the Grants Pass lowland, and joins the River below Galice.

The Illinois River is formed by the two forks (East and West) which receive the creeks draining into the lowland Illinois valley south of Kerby. About 2 miles north of Kerby the Illinois River leaves the valley area, underlain by rocks of the Galice formation, and crosses through a canyon traversing mountainous terrain for 52 miles to its junction with the Rogue River. Near Kerby is the point farthest downstream at which measurements of the Illinois River are made.

The 364 square miles of drainage basin above that gage had an average water yield of 3.8 cubic feet per second per square mile during the water years 1946-50. This is a greater yield than the corresponding figures of 2.1 for Rogue River at Dodge Bridge and 1.05 for the Applegate

River at Wilderville and illustrates the greater precipitation, which falls largely as rain, on the mountains nearer the coast. The annual peak discharge of the Illinois River occurs relatively early in the water year, usually in January or February, and the ratio between the total average runoff during the three months of high (January to March) and the low three months (July to September) was 33 to 1 during 1946-50--much higher than for any of the headwater streams of the Cascade Range. The moderately permeable alluvium of the valley area south of Kerby contains ground water which drains to the Illinois River during late summer and fall. However, this ground-water body does not have discharge volume sufficient to increase materially the low flow of the river during that period when little ground-water inflow is coming from the poorly permeable rocks of the rest of the basin.

Lowest Course of the River

For all except the last few of the 28 miles to the ocean at Gold Beach, the Rogue River traverses a narrow canyon similar to much of that above Agness, but especially characterized by a sharp inner canyon, 400 to 500 feet deep.

The discharge of the Rogue River in its lowest reach has not been measured. The probable total amount of the basin's average runoff can be roughly approximated by proportional comparison with the part of the basin for which river discharge has been measured. The average combined flow at the lowest gaging stations on the principal streams, Rogue River at Grants Pass, Applegate River at Wilderville, and Illinois River at Kerby, was 4,730 cfs--or about 3,343,000 acre-feet per year--for the 10-year period 1939 to 1949. The combined drainage area above

Unpublished records subject to revision

these stations, as shown in unpublished records of the Geological Survey, is approximately 3,460 square miles and indicates the average yield for the period is 1.36 cfs per square mile. If a similar yield is postulated for the additional 1,600 square miles below these three gaging stations, an average annual discharge of 6,890 cfs in the Rogue River at it mouth would have been indicated for the 10-year period.

A gross estimate from the base flow, or low flow, stage of the streams, would suggest something in the order of 10 percent of this annual discharge would have been effluent from ground water.

Uses of the Surface Water

Municipal and domestic water.- Grants Pass, Gold Hill, Medford, Central Point, Eagle Point, Jacksonville, and Ashland take their municipal water supplies from surface water sources. Grants Pass and Gold Hill take water from the Rogue River, and Ashland from Ashland Creek. The other towns get water from the Big Butte Springs, the source of the Medford distribution system. These springs flow into Big Butte Creek from ground water stored in the volcanic rocks of the high Cascades. Though the water flows from springs and is in part intercepted before it reaches the surface, such spring discharge is commonly administered legally as surface water.

Irrigation.- All of the present irrigation districts draw their supplies from surface water. The Talent Irrigation District takes water from Emigrant Reservoir on Emigrant Creek; the Rogue River Irrigation District and the Eagle Point Irrigation District from Little Butte Creek; Modoc Orchard and vicinity from the Rogue River; the Evans Creek District from Evans Creek; the Lower Rogue River District from several ditches on the Rogue River; the Williams Creek, the Applegate River, and the Deer Creek areas from their respective streams, and the Illinois River valley districts from Sucker Creek and Rough-and-Ready Creek. A large number of small private ditches draw water from local streams so that almost all available surface water is drawn upon to its maximum seasonal capacity. Approximately 64,000 acres are irrigated at present, though much of it receives an inadequate supply (U. S. Bur. of Reclamation, 1948, p. 4).

Industrial.- Seven hydroelectric plants located along the Rogue River from above Prospect to the Savage Rapids dam near Rogue River city, constitute the principal industrial nonconsumptional use of surface water in the basin. These plants have an aggregate generation capacity of 47,260 kilowatts, with an average annual output of 329 million kilowatt hours (U. S. Bur. of Reclamation, 1948). Little water is lost in the maintenance of ponds for lumber mills and in the limited placer mining operations.

Recreational.- The propagation of game fish and the utilization of stream edges for fishing and recreation are other nonconsumptive uses of surface water.

Ground Water

Source

The low permeability of the rocks forming most of the drainage divides, the eastward dip of the lava rocks in the slope of the Cascade Range and the lack of significant springs near the drainage divide, all indicate that little, if any, ground water reaches the Rogue River basin by underground diversion from other watersheds. Likewise, little, if any, leaves the basin by underground diversion to other drainage basins. The saline content of some ground water from the Applegate group, Galice, Chico, and Umpqua formations indicates the possibility that a small amount of connate water may rise from deeper formations. However, infiltration of precipitation is essentially the sole source of the fresh ground water in the basin.

Hydrostatic Conditions

Perched ground water.- Water which has infiltrated into pore spaces in the rocks below the land surface and produced a permanent local saturated condition of the earth materials above the true regional water table is called perched ground water. It occurs most commonly in porous materials which receive recharge from the surface and overlie materials of such relative impermeability that the water cannot descend to the level of the regional water table at a rate equal to the rate of recharge.

Unconfined conditions.- The ground water tapped by most of the shallow wells in the basin occurs under unconfined, or water-table con-conditions. In this type of occurrence the water does not rise substantially above the points at which it is first encountered by a well. The water table, at which level the water stands in the wells, is at or slightly above the level of the nearby drainage and slopes upward beneath the valley sides. The rate of its rise outward from the level of its surface drain is commonly determined by the permeability of the materials through which it must move to the drain and by the amount of water being recharged to the ground-water body. Nearly all the wells in the alluvium and the shallower wells in the Umpqua formation, the waterlaid volcanic rocks and lavas, the Chico formation, and the Applegate group draw from unconfined ground water which does not rise substantially above the point at which it is first encountered by a well.

Confined (artesian) conditions.- Some of the deeper wells in the Umpqua formation, several deep wells in the Applegate group, and many wells in the granitic masses obtain water with a relatively high static level due to local confining conditions. Artesian, or confined ground water, occurs where the water in a permeable stratum passes laterally under a less permeable and sloping layer which prevents the ready escape of the water upward. Under such conditions the ground water will be confined and will occur under hydrostatic pressure which in places may be sufficient to cause it to stand high in a well or even to flow from a well. In many of these wells the pressure is not sufficient to cause the wells to flow at the surface. A few flowing wells are present; most of these discharge less than 5 gallons of water per minute and do not yield substantially more water when they are pumped.

Water-Bearing Characteristics of the Rocks

Consolidated rocks.- The schistose rocks of Silurian age and the metamorphic rocks of Triassic age have low permeability due to the mineral realinement and crystallization that has marked several stages of their metamorphism. In such altered rock porosity sufficient for the transmittal of even small amounts of water is commonly present only in joints, cleavages, and cracks opened by weathering processes near the surface. The consolidated and partly metamorphosed rocks of the

Galice formation are likewise of low permeability due to closure of the pore space by compaction and cementation and by some mineral realinement. Rocks of this group likewise yield small amounts of water only to wells which penetrate the near-surface rock.

Many of the domestic wells which tap small supplies of water in the Umpqua, and older formations, obtain the ground water from joint cracks and weather openings in the shales or partly cemented sandstones. Shale beds in the Chico formation are thin and unproductive of water. In the Applegate group and in the Galice formation beds dip steeply, vertically, or almost vertically, and wells started in shale zones commonly continue in the same lithologic zone for some depth. As these shales are very tight, such wells commonly result in dry holes or, at best, in wells of very small yield. Wells 39/7W-26H1 and -26Q1 are examples of such wells drilled in shale of the Galice formation to depths of 200 and 290 feet, respectively. Neither hole furnished enough water for the needs of its own drilling.

With the exception of the sandstones of the Chico formation, the sandstones of most of the formations in the basin are rich in feldspar amphibole, pyroxene pyrene, or other minerals that break down to clayey minerals. Most all the sandstones have their interstices filled with clayey material and cemented with iron or calcium carbonate. The sandstones of the Chico formation are well cemented, mainly with calcium carbonate. These sandstones are poor aquifers and what water is obtained from them by wells comes largely from fractures. As the sandstones of the Chico and Umpqua formations have been only slightly deformed, the joints are relatively few, are tight below the surface zone, and yield little water. The sandstones of the Applegate group and of the Galice formation, while well fractured, are of low permeability and dip so steeply that they have a small area of outcrop and limited opportunity for recharge by precipitation.

Several wells produce mineralized waters from a conglomerate in the upper part of the Umpqua formation and are being utilized for the extraction of carbon dioxide and the subsequent manufacture of dry ice. The water from this zone is potable, but too saline for ordinary domestic use. The basal conglomerate of the Chico formation may, in places, contain small amounts of water, but no wells are definitely known to penetrate this member or to substantiate this implied capacity to transmit water which might be potable in the near-surface zone.

Semiconsolidated and unconsolidated rocks.- The unconsolidated rocks of the valley consist of alluvial deposits which are described above as the older and younger alluvium. They consist of moderately well sorted and poorly sorted sands, silts, clays, cobbles, and gravels. In outcrop the coarser-grained materials exhibit conspicuous cross bedding (pl. 11). Many of the deposits have so much clayey material as to fill the interstices and give the otherwise coarse-grained beds a low degree of permeability. Other coarse-grained beds are compacted and cemented by calcium carbonate, silica, and iron compounds. In many of their occurrences these alluvial deposits are in positions to receive and retain infiltrating water, and the water table stands close to the surface. Areas such as the Agate Desert are underlain by older alluvium which will afford small to moderate supplies of ground water to properly constructed wells. The younger alluvium occurs principally along the stream channels, and although its basal part is commonly saturated, in many places it is too thin to accommodate wells other than very shallow wells or the open pits called "sumps."

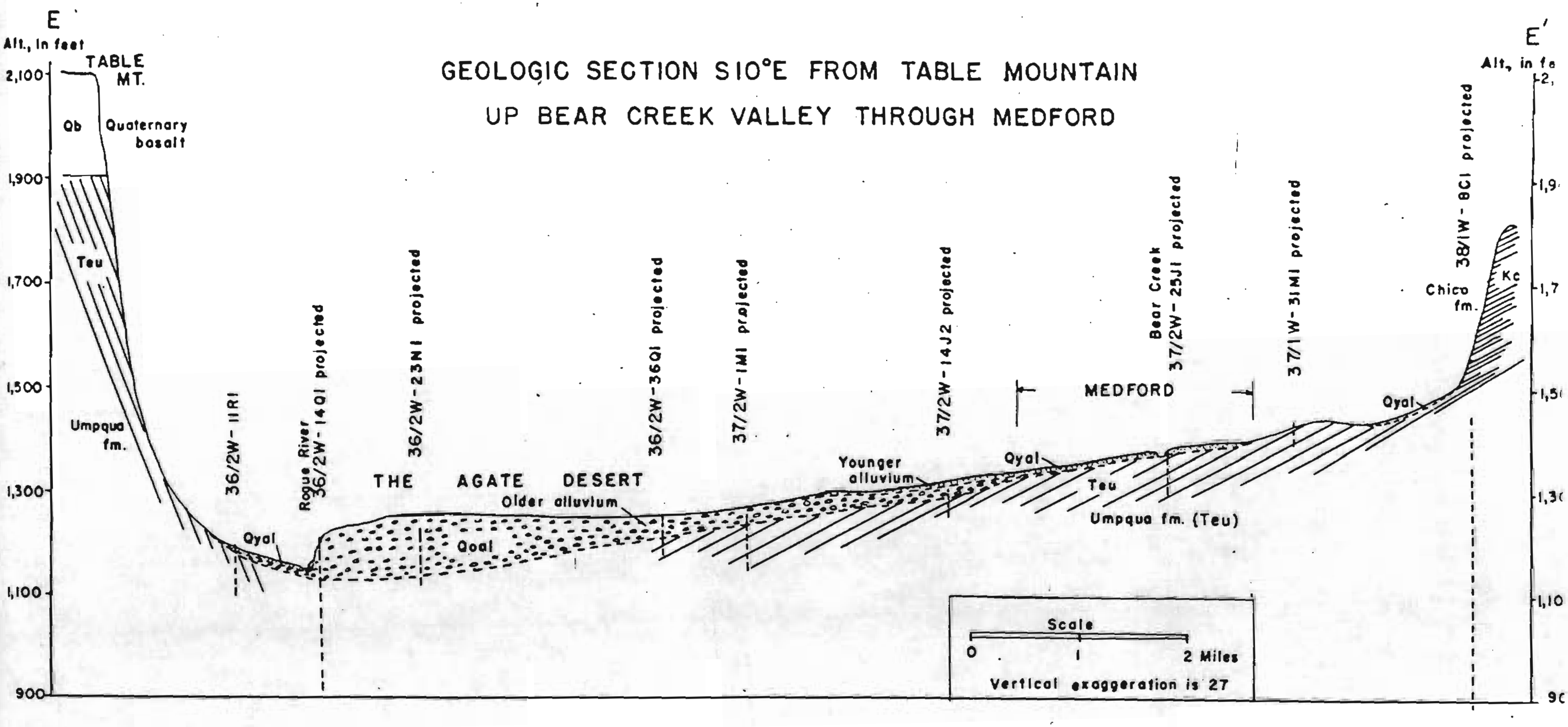
Water-Bearing Formations

With the exception of some of the shales in the Umpqua and Galice formations and in the Applegate Group, all the rock units of the Rogue River basin yield ground water at least in very small amounts. Generally wells obtain enough water for most domestic needs in all but a few small areas of the basin.

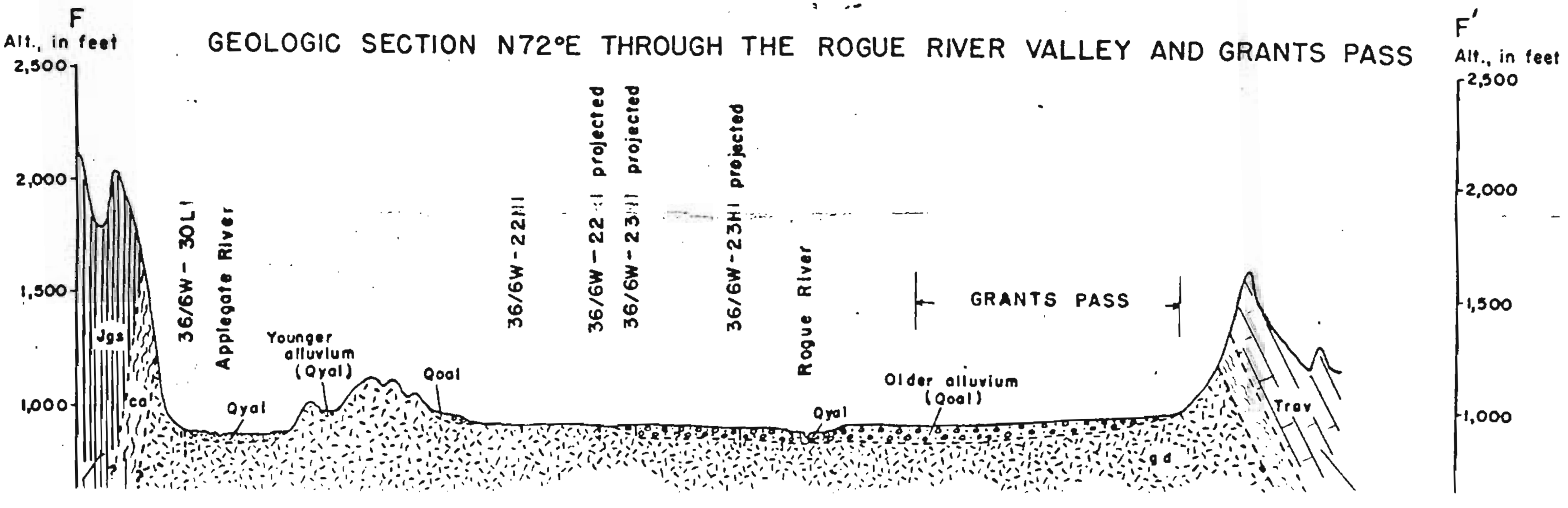
The only rock units that yield sufficient water for irrigation are the older and younger alluvial materials in the lower levels of two of the subvalleys and the more deeply weathered granitic rocks and associated alluvium in two other valley areas. See pl. 11C.

Llano de Oro formation.- This formation is a part of the older alluvium and underlies about 42 square miles of the Illinois River valley upstream from Eight Dollar Mountain. Three distinct terrace levels are cut across these deposits. In sec. 34, T. 38 S., R. 9 W., where an exploratory well (38/9-34L1) was drilled by the Geological Survey, the Llano de Oro formation was 108 feet thick and some water entered the well throughout its bore from a depth of 10 feet downward to the bedrock base with the exception of the 12-foot bed of clay occurring at 14 to 26 feet of depth (see log in table 2). The well of 6-inch diameter, was drilled to test the water-bearing capacity of the formation. It was subjected to an aquifer-performance test by pumping 46 gallons of water per minute

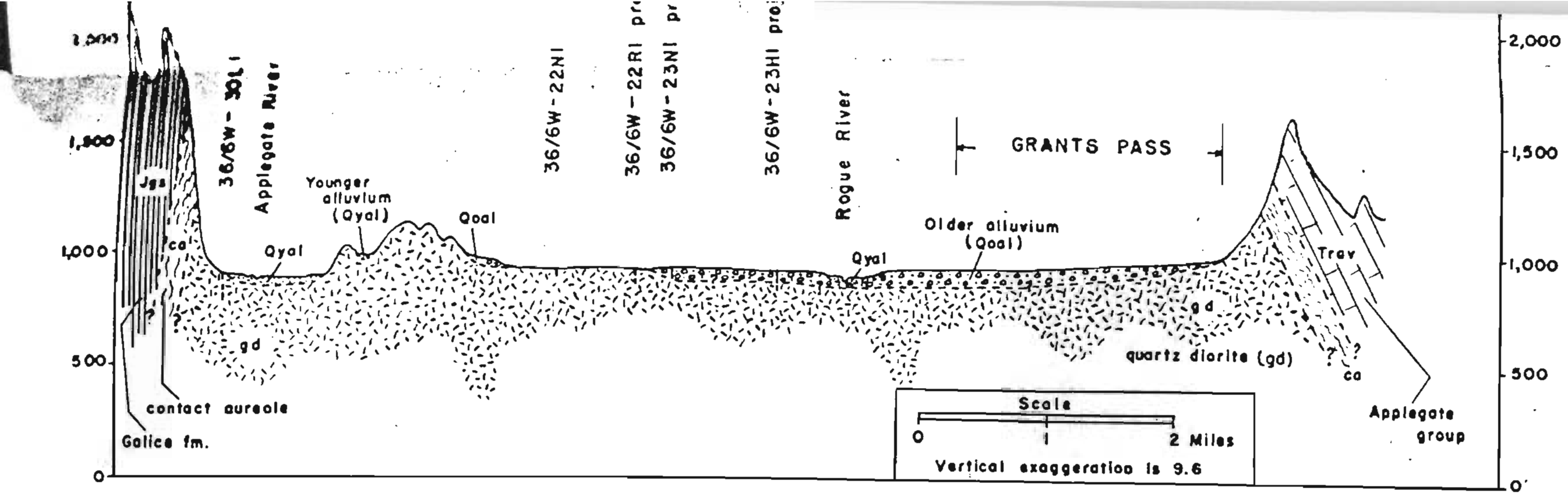
PLATE 11C



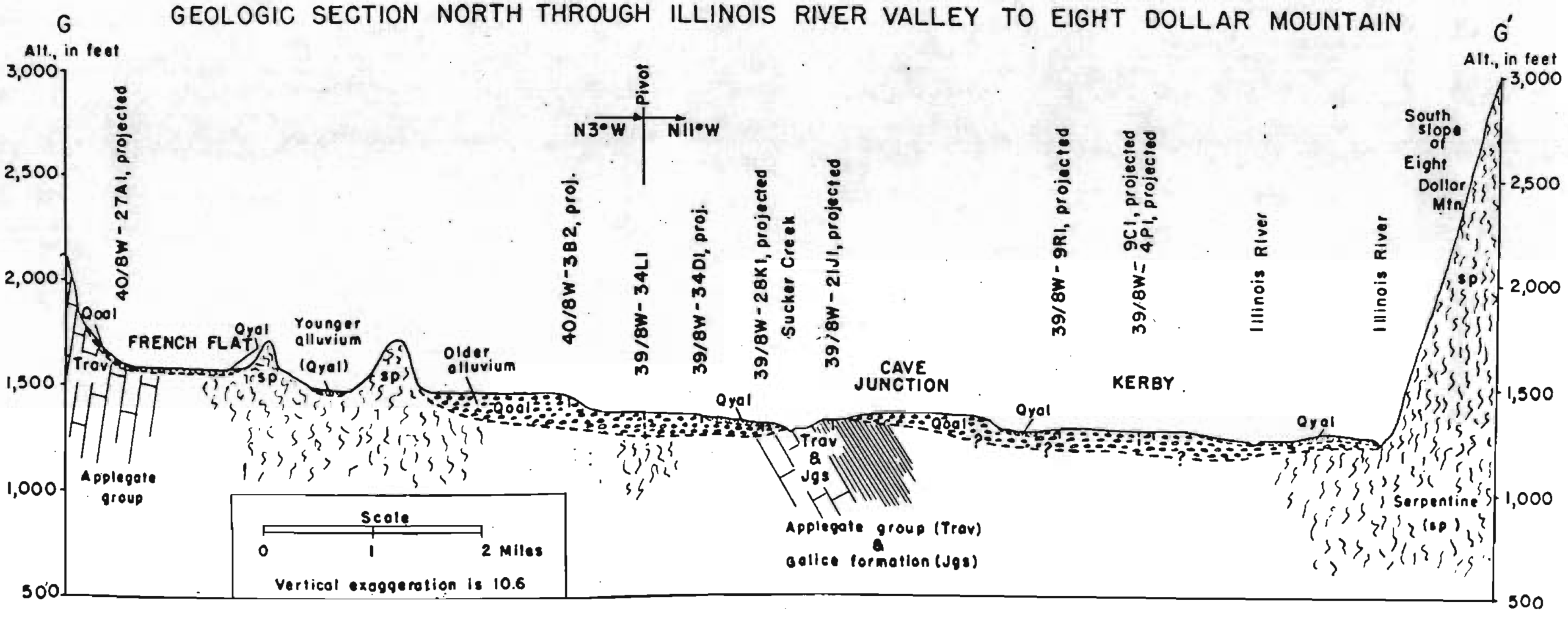
GEOLOGIC SECTION S10°E FROM TABLE MOUNTAIN UP BEAR CREEK VALLEY THROUGH MEDFORD



GEOLOGIC SECTION N72°E THROUGH THE ROGUE RIVER VALLEY AND GRANTS PASS



GEOLOGIC SECTION NORTH THROUGH ILLINOIS RIVER VALLEY TO EIGHT DOLLAR MOUNTAIN



See plates 1C and 3C, 1B and 3B, 1A and 3A for location of sections E-E', F-F', and G-G', respectively.

continuously for 49 hours. At the end of the test the pumping level of the water in the well was 10.74 feet lower than the static water level at the start of pumping. This is a yield of about 4.25 gpm per foot of drawdown and indicates a possible normal capacity on the order of 200 gpm. Such a water yield should be adequate for the irrigation of 20 to 40 acres of land. While the test is directly applicable only to the area immediately surrounding the pumped well, the character and extent of the formation and the data on other wells, less adequately constructed, indicate that much of that valley area is underlain by materials having similar capacity for ground-water withdrawals.

The Agate Desert gravels.- About 14 square miles in the lower part of Bear Creek valley are underlain by a particular phase of the older alluvium, an alluvial fan deposit called the Agate Desert gravels. The deposit tapers to a feather edge just north of Medford and thickens to about 100 feet just south of the Rogue River. These gravels overlie an eroded surface on the Umpqua formation and consist of pebble and cobble gravels, bouldery gravels, sands, silts and clays. The materials are rudely sorted, cross bedded, and in places cemented and compacted. Part of the strata yield water in moderate amounts. An 8-inch exploratory well (36/2W-23N1) drilled as a part of this investigation to test the water-yielding qualities of the deposits, penetrated 104 feet of the Agate Desert gravels before reaching the Umpqua formation (see table 2). The static water level stood 6.5 feet below the land surface.

A deep well turbine was installed with the intake at 95 feet depth and the well was pumped at the rate of 42 gpm for 11 hours and 40 minutes after which time the pump broke suction. A three-step drawdown test was made also. The pump-test data indicate part of the resistance to the entrance of water into the well may have been due to inadequate perforation and development of the well itself, a construction defect which could have been corrected if time and funds had permitted. The pumping test data indicated the well is capable of a sustained yield of 25 gpm, sufficient water to irrigate 4 or 5 acres.

A short pumping test was run on the C. M. Graves well (36/1W-30L1) 2½ miles southeast of well 36/2W-30L1, to test the yield of the 20 feet of Agate Desert gravels that are saturated in the upper 24 feet of this well. The well yielded 50 gpm with a steady 18 feet of drawdown after 4 hours pumping. This yield is sufficient to irrigate about 5 to 10 acres of land. The tests on these two wells indicate that properly constructed wells in the Agate Desert gravels should obtain sufficient water for irrigating small tracts.

The extent of other alluvial deposits along the Applegate and Rogue Rivers and along Evans Creek, Pleasant Creek, Louse Creek, Deer Creek, and Williams Creek are shown on plate 1. These deposits yield water to wells at various rates. In these deposits wells that are but tens of feet apart in some places have vastly different capacities because of variations in the permeability of the deposits and because of differences in the effectiveness of the well construction and development. An example of the different water capacities in nearby wells in this alluvium is given by well 37/5W-20M2 and an adjacent better well in the Applegate River valley. This well (-20M2) was drilled to 90 feet in cemented gravel and opened up so little water it was not completed The driller then moved about 75 feet away and finished another 61-foot well that yields ample water for the household. Both wells are of the same diameter, were drilled by the same driller, and penetrated the same alluvial deposit. Apparently the gravel beds encountered by the second well were less compacted and cemented.

The coefficients of transmissibility/ determined for these older formations differ from 4,000 gallons per day per foot of aquifer in the Llano de Oro formation (well 39/6W-34L1) to almost zero in some other wells, such as well 36/6W-32D2 in some of the older alluvium of the Applegate River valley.

Granitic rocks.- The top part of many of the granitic batholiths and stocks, which are exposed in the Rogue River valley, is deeply weathered. The weathered zone of most of these granitic rocks commonly affords wells with sufficient water for domestic uses, and in places enough water for limited irrigation. The weathering has apparently progressed fastest along joint planes, some of which lie horizontally, so that in drilling it is commonly found that hard, unweathered layers are interspersed with sheetlike soft layers of granular, permeable material. The soft, or sand-and-gravel-like layers yield water readily to wells. The principal areas where water is obtained from weathered granite are the low hilly lands around Grants Pass and to the west, northwest and southwest thereof (shown as qd on pl. 1B) and lesser areas west of Central Point and Tolo (shown as qd on pls. 1C and 1B).

/ The coefficient of transmissibility may be defined as the number of gallons that will move in one day through a section of the aquifer 1 foot wide under a hydraulic gradient of 100 percent. It is equivalent to the permeability, for like units of measure, times the saturated thickness of the aquifer.

The weathered granitic rock near Grants Pass is also overlain by some sandy alluvial deposits from which water is obtained by wells. Some of these alluvial sand layers are composed of reworked granitic materials and in drilling samples are difficult to distinguish from weathered granitic material still in place.

Hydrologic Features

Recharge.- The rise and decline of the water levels in most wells in response to infiltration from precipitation or from surface runoff attests to the primary influence of precipitation in the recharge of the ground water (pls. 13 to 31). Most of the records of water level in wells show a rise after the start of the rainy season in November and show a decline starting as the rains lessen in the spring months. In most wells the annual low water levels are reached in late summer and early fall. The water levels in wells, which show ground-water recharge by late snowmelt and by the infiltration of the surface runoff from higher levels, have some variations from characteristic annual water-level fluctuations that are due entirely to direct infiltration of local precipitation.

Infiltration by water used for land irrigation causes a summer rise in the level of the water of some wells in areas such as Bear Creek valley and the terrace lands along the main stem of the Rogue River. No artificial recharge has been practiced as in other water-deficient areas. The lack of development and use of ground water in the few areas where ground water occurs in important quantities and the absence of sizable aquifers has so far precluded interest in using artificial recharge to augment the ground-water supplies that are present.

Discharge.- Under natural conditions the ground water which is not withdrawn by evaporation or transpiration percolates down gradient in the aquifers until it emerges on the surface in the streams or elsewhere as spring seepages onto the land surface. The largest springs discharge from the most permeable rocks which are the volcanic rocks of Pliocene and Quaternary age, known as "volcanic rocks of high Cascades." The largest single spring area is Big Butte Springs, with an average discharge of 53 cfs. Similar and smaller springs feed the North Fork and other headwater tributaries, particularly those rising in the area of the young volcanic rocks on the norther part of the slope of the Cascade Range. The rest of the basin has much fewer and smaller springs. Table 2 gives data on some representative springs. Many more springs occur; the water from some of them is utilized, but from the majority of the springs the water only helps maintain stream flows or is consumed by evapotranspiration.

Fluctuations of water level.- Changes in the static level of water in wells are direct indications of the amounts of water in storage and in transit in the aquifer. As such the changes show many significant hydrologic features of the ground water. Commonly, natural changes in water levels include long-term fluctuations due to draining and filling of the aquifer which may be related to long-term climatic conditions. They may include shorter fluctuations owing to seasonal changes in the infiltration during the dry and wet seasons of the year, as well as diurnal or other short-term fluctuations due to changes in barometric pressure.

Unpublished records subject to revision

R. A. Work of the Soil Conservation Service maintained a record of water-level measurements on a number of wells in the Bear Creek valley in 1929-30. A few of the wells on which records of water level were recorded by Work were relocated during this survey (see table 1). Three wells used by Work for observation wells also were utilized as observation wells during this investigation. Of these three wells (39/1-14Q2, -15C1, and 37/2W-4B1) only one (39/1-15C1) shows a lower water level in 1952 than for comparable months in 1929. This well was occasionally used to irrigate about half an acre of home garden in 1952 and this greater use may have been responsible for the lower water level in 1952. Well 39/1-14Q2 shows a 6- to 20-foot higher level at present than during 1929. The reason for this higher water level in 1952 probably lies in the fact that the well was being used in 1929 and was unused in 1952. Well 37/2W-4B1 shows approximately the same levels during comparable periods--indicating much the same use and about the same amount of water stored in the aquifer in 1952 as in 1929-30.

A comparison of the 1929 and 1952 water levels in these wells indicates that there is little grounds for the belief of many long-term residents that the water table is declining. A more likely explanation for lower water levels in some domestic wells would be the present increasing withdrawal of water from each well for greater domestic uses. The graphs of the long-term precipitation (pls. 5-A, B, and 6 and 7) show that the decline in the average annual precipitation was great and was basinwide during the dry years from about 1926 to 1940. Since 1940 the precipitation (and by inference, the ground-water storage) rose to an average or above average condition in the period 1950-52.

Seasonal fluctuations vary in magnitude in different aquifers but are similar in general pattern, showing high levels of the ground water in December, January, or February, owing to infiltration of the heavy winter rains, and in May or June, owing to infiltration of water from snowmelt or a secondary rainy season.

During 1952 the water levels in many of the wells in the upper Bear Creek valley near Ashland had declined from February until May, at which time infiltration from irrigation and from greater runoff from melting snows in the upper parts of the water shed contributed to a high level of the water table early in June. The water levels then continued to drop, wherever they were not raised by deep percolation from irrigation, until the end of the observations in August 1952. Levels of the ground water in other parts of the Rogue River basin where they have been measured since August 1952, show that this drop continued into the month of December as the winter rains did not start in 1952 until the middle of December. With the onset of the winter rains, the level of the ground water took an upsurge and reached an annual high in February 1953. Comparable water levels in 1953 averaged about one foot higher than in 1952.

In well 36/2W-23N1 in the Agate Desert gravels, an automatic water-level recorder was operated for nine months. Fluctuations of the water level occurred in response to differences in the barometric pressure. Because the barometric efficiency of the well was about 60 percent, the average daily water level variation amounted to about 0.06 foot during the month of August 1953. As reflected by the water level in the well, the times of the daily high barometric pressure effect generally occurred between midnight and 10:00 a.m. and the low barometric pressure effect between 3:00 p.m. and 8:00 p.m.

Present Development of the Ground-Water Resources

Springs.- Most of the utilized springs have been improved by excavation and the construction of concrete tanks which furnish a reservoir for water storage and a cover for the spring orifice. Thirty-four springs were inspected in the Rogue River basin. Of these, 13 apparently were flowing from unconfined ground water at the level of the water table, 10 were flowing from perched zones of ground water, and 9 were flowing from confined or artesian ground water. The amount of flow from the individual springs differed greatly--from one with a yield of 1,200 gpm to one with a yield of but 0.1 gpm. The average yield of the springs was about 10 gpm.

*Big Butte Springs, which lie outside the mapped area, and which supply water for Medford's municipal water system, yield about 22,440 gpm from a number of openings in the lower part of the lavas of the higher Cascades. Springs, such as Pompadour Spring (39/2-7N13) and Buckhorn Spring (40/2-12G1) yielding water with carbon dioxide, unusually high temperatures, and other aberrant characteristics. They occur along the lines of faults where some of the water could have risen from great depths.

Wells.- The drilling of water wells in the Rogue River basin is exclusively by percussion methods (cable-tool drills). As the majority of the wells are in consolidated rock, the holes are deepened until joint

*Located near quarter-corner of Secs. 20 + 21, T.35S, R.3E. on Rustler Peak quad.

planes or permeable granular materials are encountered and provide the needed amount of water--which for a domestic supply is usually a short-term pumping capacity of 5 to 10 gpm. As most of the wells in bedrock have rock walls which will stand without support, casing is commonly driven only to bedrock. Certain wells, such as those in the weathered zone of the granitic rocks or in the alluvium, are cased to the bottom. Only a few wells have casings perforated to develop water from several separate aquifers in order to obtain water from more than one water-yielding layer. Generally, the wells are cleaned and developed only by bailing with a dart-valve type of bailer. Most wells are tested for capacity only by bailer tests. Very few pumping tests have been run to evaluate the productiveness of wells. Recently detergents, such as sodium metahexaphosphate, have come into very limited use to assist in the removal of clay from the aquifer and enable a better cleaning of the aquifer materials adjacent to the well. The test well (39/8W-34L1) drilled by the Geological Survey south of Cave Junction was developed by perforating the casing opposite several water-bearing layers, by extensive surging and bailing, and by cleaning with metahexaphosphate washes. It has one of the highest rates of water yield among the wells in the Rogue River basin. Its successful testing furnished data for the planning of the still larger well (39/8-28K1) of the town of Cave Junction.

Inspection of the wells which draw water from the unconsolidated materials impresses one with the obvious need for better perforation of the casing, emplacement of well screens in some instances, and better cleaning and development of the wells so as to obtain more efficient and effective results from well construction.

Unpublished records subject to revision

Most domestic wells are equipped with centrifugal water-jet pumps run by electric power. A few deep-well submersible turbine-type centrifugal pumps are in use. Most pump motors average 1/4 to 1/2 horsepower with 7.5 horsepower motors used for pumps on the largest of the wells in the basin. Some of the shallow open wells (sumps) are pumped for irrigation by centrifugal pumps powered by gasoline engines.

Sumps, or shallow open wells, are used extensively as sources of water for irrigation in places where the water table is within about 15 feet of the land surface. Such open wells--or sumps, as they commonly are called--are an effective means of securing ground water from a thin layer of permeable alluvium which overlies less permeable bedrock, but are not an efficient method of obtaining water from formations like the Llano de Oro south of Cave Junction where the most productive gravel layers occur from 26 to 100 feet below the surface.

<u>Use of ground water in the basin</u>.- Of the 1,035 wells visited, 43 were used exclusively for irrigation, 25 primarily for stock, 42 for industrial purposes, 4 for public supply, and 13 for observation of water levels. The remaining 908 wells either were used primarily for domestic purposes, many of these were also used for the irrigation of lawns and gardens, small industrial supplies, livestock, or were unused.

The 43 wells (table 1) and one spring (table 3) listed as exclusively used for irrigation supplied most of the ground water used for irrigation in the Rogue River basin. All but a few of the irrigation wells are of small yield; water from over half of them is used only to irrigate gardens or lawns of less than 1 acre. Ground water was used to irrigate a total of about 250 acres in 1952, and, except for lawn and garden watering incident to domestic uses, probably no more than 400 acre-feet of water was withdrawn from wells for this purpose. A small part of the water was withdrawn at scattered localities and from various types of rock through a number of wells of small capacity. About one-half of the 400 acre-feet of water was withdrawn from the shallow open wells, called sumps, in the alluvial deposits of the Applegate, Illinois, and Deer Creek valleys; about one-third was withdrawn from the sumps and shallow dug wells in the alluvium of the lower part of Bear Creek valley, and about one-sixth was pumped from drilled wells in the alluvium and weathered granite near Grants Pass and Tolo.

Using the average of 300 gallons per day for domestic and associated uses of water in suburban and rural homes, for an estimated total of 5,000 domestic wells and 150 springs in use in the basin, an estimate of 1,536,000 gallons per day, or 1,670 acre-feet of water per year, is derived as the average annual withdrawal for domestic, stock, and associated purposes.

Exclusive of the strong Butte Creek spring supply which is utilized by the Medford city water system to supply the Medford area and the towns of Jacksonville, Phoenix, Central Point, the Camp White Installation of the U. S. Veterans Administration, and other outlying places, the use of ground water for public supply is largely confined to the towns of Talent and Cave Junction. Their four wells withdraw about 1,000 acre-feet per year from the alluvial deposits in the Bear Creek and Illinois River valleys, respectively.

The wells listed for industrial use afford supplies of water for air conditioning, fire protection, filling mill ponds, cooling, and the production of carbon dioxide. On the basis that the 42 industrial wells visited (table 1) are using about 1,900 acre-feet of ground water per year and comprise about 75 percent of the industrial wells in use, it is estimated that 2,500 acre-feet of ground water is withdrawn by industry each year in the basin. Most of this withdrawal for industrial use occurs in the Bear Creek valley near Medford and Ashland and along the Rogue River near Grants Pass. The principal aquifers are the alluvial deposits of the Bear Creek valley, the Umpqua formation, and the alluvium and weathered granitic rocks near Grants Pass.

In summary tabulation, the estimated withdrawal of ground water in 1952 in the Rogue River basin was approximately 4,600 acre-feet as follows:

	Acre-feet
Domestic and stock and associated uses . . .	1,670
Irrigation	400
Industrial	2,500
Total acre-feet,	4,570

QUALITY OF THE GROUND WATER

Samples were taken and 32 comprehensive analyses made by the Geological Survey on water from 30 wells and 1 spring. Eighteen analyses of water from 14 other wells and 2 springs were obtained from other agencies (table 4). In addition, 473 samples of water from wells were analyzed for hardness and 471 for chloride content by field methods (table 1) and samples of water from 14 springs were analyzed by field methods (table 4).

In general the chemical quality of the ground water differs in the various geological units in which it occurs. The ground water in the alluvial deposits, the younger lava rocks, the weathered granitic rocks, and the more crystalline metamorphic rocks is of general good quality. The ground water at depth within the Umpqua and Chico formations in most places is of poor quality, and that from the serpentine rocks and the "volcanic rocks of western Cascades" in places is of inferior quality.

Except for the water occurring at depth in the Umpqua and Chico formations beneath the Bear Creek valley and Sams Valley to the north, the chemical quality of the ground water is satisfactory in most places for ordinary uses. This deeper water in the Umpqua and Chico formations is the principal occurrence of water unsuitable for most uses. Much of it is hard, saline, high in dissolved solids, and contains detrimental amounts of minor constituents such as boron and fluoride.

Hardness

The hardness of a water is usually expressed as the amount, in parts per million, of calcium carbonate equivalent to all the calcium, magnesium, and other hardness-forming chemicals. It is approximately a measure of the soap-consuming character of the water. The following scale gives the description commonly applied to the ranges of hardness:

Hardness range	Degree of hardness
0 to 60	Soft
61 to 120	Moderately hard
121 to 200	Hard
201 and over	Very hard

Most of the ground waters of the basin fall in the moderately hard and hard ranges. Of the hardness determinations in 537 analyses of both comprehensive and field types, the hardness ranged from 4 to 1,500 ppm and averaged 122 ppm. Of the 49 waters for which comprehensive analyses were obtained the average carbonate hardness was 282 ppm. However, this is not representative as many of these waters were selected for comprehensive analysis because they were unusually high in dissolved mineral matter.

Carbonate hardness is sometimes referred to as temporary hardness in that it may be removed by boiling. Hardness that is called permanent is noncarbonate hardness due most commonly to calcium sulfate and chloride. Of the 17 water analyses having noncarbonate hardness the average noncarbonate hardness was 353 ppm. These ground waters are mostly from the deep saline waters in the Umpqua and Chico formations of the Bear Creek valley.

Suitability of Water for Irrigation

According to the Department of Agriculture (Richards, 1954), the characteristics of a water that show its chemical suitability as an irrigation water are: (1) the total concentration of soluble salts, (2) the relative proportion of sodium to other cations, and (3) the concentration of boron.

Electrical conductivity, because of the accuracy and ease of its determination, is the simplest means to approximate the concentration of soluble salts in water. It is generally called the specific conductance and is expressed in micromhos per centimeter at 25°C. It is a measure of the salinity hazard present in an irrigation water.

The sodium (alkali) hazard of an irrigation water is the proportion of sodium to that of the other principal cations, calcium and magnesium. Before the sodium adsorption ratio was developed, the relative proportion of sodium to other cations in an irrigation water was expressed in terms of the soluble-sodium percentage (percent sodium). The sodium-adsorption ratio of a soil solution is simply related to the adsorption of sodium by the soil; consequently, this ratio is advantageous as an index of the sodium, or alkali, hazard of a water. The ratio may be determined by the following formula where all cations are expressed in equivalents per million:

$$\mathrm{SAR} = \frac{\mathrm{Na}^{+}}{\frac{\mathrm{CA}^{++} + \mathrm{Mg}^{++}}{2}}$$

If the proportion of sodium to calcium and magnesium is high, the alkali hazard is great.

The plotting of the sodium-adsorption ratio against the electrical conductivity provides a graphical basis for assigning irrigation suitability classes to different waters (pl. 12). This diagram classified

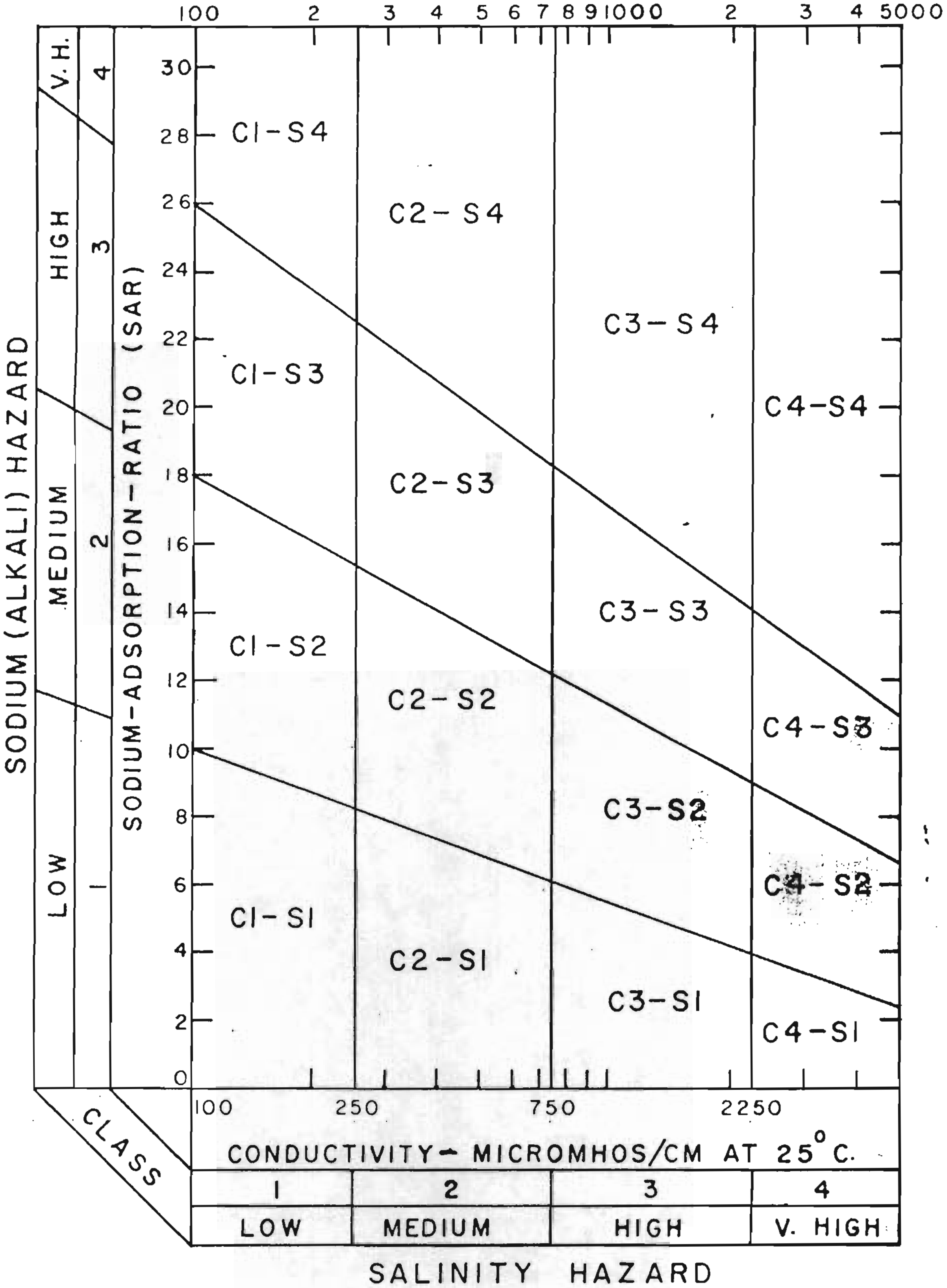


DIAGRAM FOR THE CLASSIFICATION OF IRRIGATION WATERS
(Taken from U.S. Dept. of Agri. Handbook no. 60, issued Feb. 1954)

irrigation waters from low salinity (C^1) and low sodium (S^1) to very high salinity (C^4) and very high sodium (S^4). A water classified as C^1-S^1 is an excellent irrigation water and can be used on practically all soils and crops with little danger of damage. However, a water classified as C^4-S^4 is, in general, unsuitable for irrigation except under special conditions. The irrigation suitability of waters which fall into one of the other 14 classifications depends on the permeability of the soil, the drainage conditions, the type of crops to be grown, and other factors.

Of the 49 samples on which comprehensive analyses were obtained (omitting the anonymous analysis of the Lithia spring) the sodium adsorption ratio ranged from 0.08 on a water sample from the alluvial material of the Illinois River valley to 49 for a water sample from the Chico formation in the Bear River valley. The sodium adsorption ratios of the comprehensive analyses show the following averages for the different formations from which the water samples were derived:

Aquifer	Number of samples	Sodium Ad. ratio	Dissolved solids-ppm	Class from diagram
Recent alluvium	5	.44	440	C^2-S^1
Colluvium	1	3.9	250	C^1-S^1
Older alluvium	1	.36	180	C^1-S^1
Llano de Oro formation	2	.17	123	C^1-S^1
Agate Desert gravels	5	2.15	455	C^2-S^1
Lavas of Western Cascades	4	5.93	1,235	C^3S^1
Umpqua formation	18	13.5	2,430	C^4-S^4
Chico formation	6	16.3	1,080	C^3-S^3
Gabbro intrusive	1	.15	355	C^2-S^1
Galice formation	1	.50	400	C^2-S^1
Applegate group	4	10.9	2.865	Unrated

The table indicates that the ground waters from the alluvial deposits, the intrusive igneous rock and the Galice formation were of good quality and those from Applegate group and the Umpqua and Chico formations were

Unpublished records
subject to revision

of poorer quality for irrigation, so far as dissolved solids and sodium adsorption hazards are concerned.

Salinity

The average chloride content of the 471 samples analyzed by field methods was 11 ppm. In the 49 comprehensive analyses the average chloride content plainly differs with the formations from which the water is withdrawn. From the alluvial deposits, 12 samples had chloride content that ranged from 2 to 32 ppm, while one sample from colluvium had 155 ppm. The samples from the consolidated rock formations show a variety of chloride concentrations and range from 4 to 3,320, but on the whole, are considerably higher in chlorides than the water from the alluvial deposits. The samples from the Umpqua formation show the most uniformly high chloride content but range from 6 to 2,740 ppm and average 662 ppm for 17 samples. Eight of these contain more than the 250 ppm recommended (Public Health Service standards, 1946) as the limit for good drinking water.

Most of the waters are relatively low in dissolved sulfates but 4 wells, one each from the Applegate group, Chico and Umpqua formations, and the lavas of the western Cascades, yield water containing over 150 ppm sulfates. Two of these (36/5W-33E1 and 38/1W-6F1) contain more than the 250 ppm recommended for good drinking water.

The nitrate content is exceptionally high in water from 6 wells (35/1-30G1, 36/2W-21R1, 37/2W-15P1, 38/1-30E1, 38/1W-16B3, -26G1). Of these six waters, three are from shallow dug wells in the valley alluvium and three are from drilled wells in the alluvium, Umpqua shale and lavas of the western Cascades.

Hydrogen-ion Potential

The acidity, or its counterpart, the basicity, of a solution is expressed in terms of hydrogen-ion concentration called pH. On the common scale, a pH of 7 is taken as a condition which is neither acid nor alkaline; figures over 7 express an alkaline condition, those under 7 express an acid condition. A water with a pH of 6.8 would be slightly acid; one with a pH of 9.5, strongly basic. The pH of the 49 waters for which comprehensive analyses were obtained, ranges from 6.5 to 9.3 with only three having a pH of less than 7. Thus, the analyses indicate the ground waters have a general alkaline, or basic, reaction.

Important Minor Chemical and Physical Characteristics Of the Ground Water

Boron

In very minor amounts, boron is a necessary constituent to any soil. In ground waters from certain types of rock, boron exists in such large amounts as to be detrimental to many field plants. The Department of Agriculture gives 3.75 ppm as the top limit for boron in water for irrigating even tolerant plants (Wilcox, 1948). Thirteen of the water samples show boron in amounts far above the upper permissible limits. None of these waters are now used for irrigation. Twenty-nine other samples contain boron in amounts from 0.01 to 2.5 ppm.

A number of theories have been propounded to explain the primary source of boron occurring in the ground waters. The following are among the most commonly postulated sources: (1) Buried salts high in borate; (2) concentration of borates in connate waters;[/] (3) concentration from the weathering of minerals such as borosilicates or the minerals biotite and hornblende, which may accommodate boron in their crystal lattice; (4) decay of certain swamp plants which may be high in boron; and (5) contamination by rising juvenile or magmatic waters.

Of the 13 ground-water samples containing excess boron in the Rogue River basin, five were from sources in the Umpqua formation, three were from wells started in the Umpqua but probably finished in the underlying Chico formation, three were from the Chico formation, one was from the Applegate group just below the contact with the Chico formation, and one was from a shallow well in colluvium overlying the Umpqua formation. The highest concentration (95ppm) was from the Ashland "Lithia" spring (39/2-7N13) which water apparently rises along a fault cutting the Umpqua formation. The one boron-high well (38/1W-27E2) in the Applegate group penetrates rock which is topographically above but near to outcrops of the Chico formation. Possibly its water could come from the Chico through fractures, or the boron might be derived from the greenstone of the Applegate group. The well in the colluvium overlying the Umpqua formation is close to the fault zone near the Ashland "Lithia" spring and in part may have a similar source as the "Lithia" spring water.

[/] Water in which sedimentary rocks were originally deposited becomes incorporated in the intergranular spaces and some remains in the rock--this water is called connate.

The majority of the wells having water with a boron concentration higher than 3.75 ppm are located along the western side of Bear Creek valley.

Fluoride

In domestic water supplies fluoride in amount of about 1.0 ppm is considered beneficial for the proper growth and health of teeth, but concentrations much in excess of 1.5 ppm may have detrimental effects. In waters used for spraying fruit trees, an excess may, through reaction with arsenate sprays, result in "burning" of the foliage/. All the high-boron ground waterslisted in table 4 also have excess of fluoride, with the exception of wells 35/2W-33D1, 39/2-7N13, and -32D2. It seems apparent that high fluoride and high boron contents commonly go together in the ground waters of the Rogue River basin, leading one to suspect that the source is the same. Of the 10 water samples containing high fluoride content, 3 came from the Umpqua formation, 5 from the Chico formation, and 2 are samples taken 17 years apart from the same well which penetrates rocks of the Applegate group.

Several methods of removing excess fluoride from a domestic water supply are listed in water-engineering literature (Smith and Smith, 1938; Fink and Lindsay, 1936). The method used by Smith and Smith is performed by passing the water through beds of specially prepared bone material. Some removal of excess fluoride may be necessary to make some high-fluoride ground waters from the Umpqua and Chico formations satisfactory for domestic and other uses.

/ Oral communication from F. C. Reimer, retired superintendent of Southern Oregon Agriculture Experimental Station, Talent, Oreg.

Iron

It is commonly accepted that iron, in excess of about 0.2 ppm, may be undesirable in a domestic water supply. Above that concentration it may stain laundry and plumbing fixtures. It may also be detrimental to such industrial uses as the manufacture of some types of paper and dye materials. Manganese has a similar effect, so that in a manganese-bearing water the iron and manganese are commonly grouped in assessing the degree of this hazard. Their dual content should be under 0.2 ppm in waters used, without iron-removal treatment, for domestic and some industrial purposes.

Water of 10 of the samples analyzed comprehensively was found to carry over 0.2 ppm of iron; 4 of these also contain manganese. Two of the 4 wells, 36/2-19J1 and 37/2W-1M1, are used for domestic water supply and their waters have an iron-manganese content of 0.89 and 0.46 ppm respectively. Waters from the other 2 wells, 36/2W-20P2 and 37/8W-35G1, have iron-manganese contents of 10.3 and 2.44 ppm, respectively, but are used for mill-pond maintenance and for fire protection.

Many waters containing iron may be rendered suitable for most uses by treatment in a commercial or improvised iron-removal system. Many pamphlets and bulletins are available in the libraries for guidance on the iron-removal problem.

Gaseous Constituents

A number of the wells and springs in the basin emit air, hydrogen sulfide, carbon dioxide, and possibly other gases. Such gas-emitting wells include 36/1-14C1, 37/2W-3L1, -3N2, 38/1W-8C1, -22Q1, -22W2, -27E2, and 39/2-7N11. Gas was noticed to emanate from many other wells in the area.

Well 39/2-7N11 is one of 16 wells drilled for water in order to extract carbon-dioxide for the supply of a dry-ice plant. The 16 wells were drilled in the vicinity of the former Ashland "Lithia" spring (39/2E-7N13) which no longer flows. From about 1940 to the present time those wells have produced a carbon-dioxide-bearing water which enters the wells from a conglomerate of the Umpqua formation. They are located near the plane of a fault which cuts the Umpqua formation and at intervals along which are located small linear bodies of intrusive igneous rocks. The wells also give off a slight amount of hydrogen sulfide. Carbon dioxide is present also in the water flowing from springs in sec. 28, T. 39 S., R. 2 E., and in sec. 12, T. 40 S., R. 2 E. These three spring areas are alined along a fault shown on plate 1.

Temperatures of the Ground Water

The observed temperatures of the ground water range from 49° to 95°F. The mean annual temperature recorded at Medford for the years 1910 to 1953 was 54°F.

Generally, an overall average increase in rock temperatures of 1.8°F occurs for each 100 feet below the first 100 feet. Such temperature increase with depth is not sufficient to explain the difference between the mean annual temperature and the inferred rock temperatures where some ground water occurs within the Rogue River basin.

The temperature of warmer ground waters is not related directly to the depth at which the water enters the well. The two warmest spring waters (from springs 38/1-31K1, 39/2-7N13) possessed temperatures of 95°F and 86°F, respectively. The water of each spring rises along the line of inferred fault zones. The first spring, 38/1-3K1, rises along an inferred fault at the contact of the Chico formation with the Ashland granodiorite and the latter one formerly flowed along a fault zone in the Umpqua formation. An igneous intrusion (Ti on pl. 1C) also occurs near spring 39/2-7N13 in that fault zone. As the granodiorite is of Mesozoic age and the intrusion into the Umpqua formation is presumably of early Tertiary age, it seems improbably that residual igneous heat would be present to heat the water of these two springs. It seems more likely that the heat of the rocks through which the water passed would be due either to the mechanical heat of rupture along the faults or to the great depth from which the waters might rise.

Of the four wells in which the water was observed to be cooler (49° to 52°F) than the above mean annual temperature, three were shallow wells on which temperature observations were made in the spring months when these water temperatures may have reflected the recent infiltration of cool water. The fourth is located in the Illinois valley where the mean annual temperature may be lower than that given for Medford. Of the remaining 31 water-temperature observations in wells, most of which are in the Bear Creek valley, 14 readings ranging from 58° to 65°F were too high to be accountable by the above-mentioned normal average earth temperature increase with depth. Possibly the earth temperature gradient at places in the Bear Creek valley is greater than the common average.

SUMMARY

The rocks which underlie most of the Rogue River basin are metamorphic, igneous, or old sedimentary and volcanic rocks which have a low permeability and yield very small quantities of water to wells. Only the younger lava rocks, known as "volcanic rocks of the high Cascades" lying at the headwaters of the river in the Cascade Range, the deeply weathered zones of the granitic rocks near Grants Pass and Tolo, and the thicker sections of the alluvial deposits in part of the Rogue River valley at Grants Pass, in the Illinois River, Applegate River, Deer Creek, and Bear Creek valleys are sufficiently permeable to afford moderate yields of water to wells. Ground water sufficient for domestic uses may be obtained from wells located in the lower parts of all the valleys, but moderate amounts of ground water for irrigation and most industrial purposes can be obtained only in the alluvial deposits of the Bear Creek valley north of Medford, the alluvium and the weathered granite near Grants Pass, and the alluvial fill of the Illinois valley above Cave Junction. The ground water beneath the valley floor south of Cave Junction offers the greatest opportunity for use in the irrigation of land. The ground water in the Agate Desert gravels north of Medford affords yields in sufficient quantities for the irrigation of 2- to 10-acre tracts from each of the better wells. The ground water in the young lavas high in the Cascade Range is important largely for the reservoir effect by which it sustains stream flows during the dry months of the year.

In general, the quality of the ground water is good in the alluvial deposits and in the weathered zone of granitic rocks but is of inferior quality in some of the older rocks. The Chico and Umpqua formations beneath Bear Creek valley contain small quantities of ground water which at depth in most places is too saline and contains so much detrimental chemical that it is unfit for some uses.

Beyond, in this report, the tables give the characteristics of representative wells and springs, drillers' logs of wells, and chemical analyses of the sampled waters.

DESCRIPTION OF THE TABLES

For each well visited, the basic data is condensed in table 1. These wells were selected as representative of the wells in each locality. Most all the really deep wells were included in order to obtain the maximum amount of information on the rocks and ground water at depth beneath the basin. The headings on the first page of the table give the features of the wells on which information was collected or measurements secured. The last column contains references to other tables and plates where additional information is given on some of the wells or on the water they contain.

In tables 1 and 2 the wells and springs are arranged by subdivisions of the Rogue River basin. On table 1 these subunits are listed as follows: Bear Creek valley, pages 68 to 98; the lands along the main stem of the Rogue River, pages 99 to 111; Illinois River valley, pages 112 to 119; and Applegate River valley pages 120 to 128.

The basic data for each spring visited is condensed in table 2. As with the wells in table 1, the springs are listed in order by townships, range, and section within each sub-basin unit. In the Bear Creek valley sub-basin the townships having ranges east of the Willamette meridian follow at the end of the townships located west of the meridian.

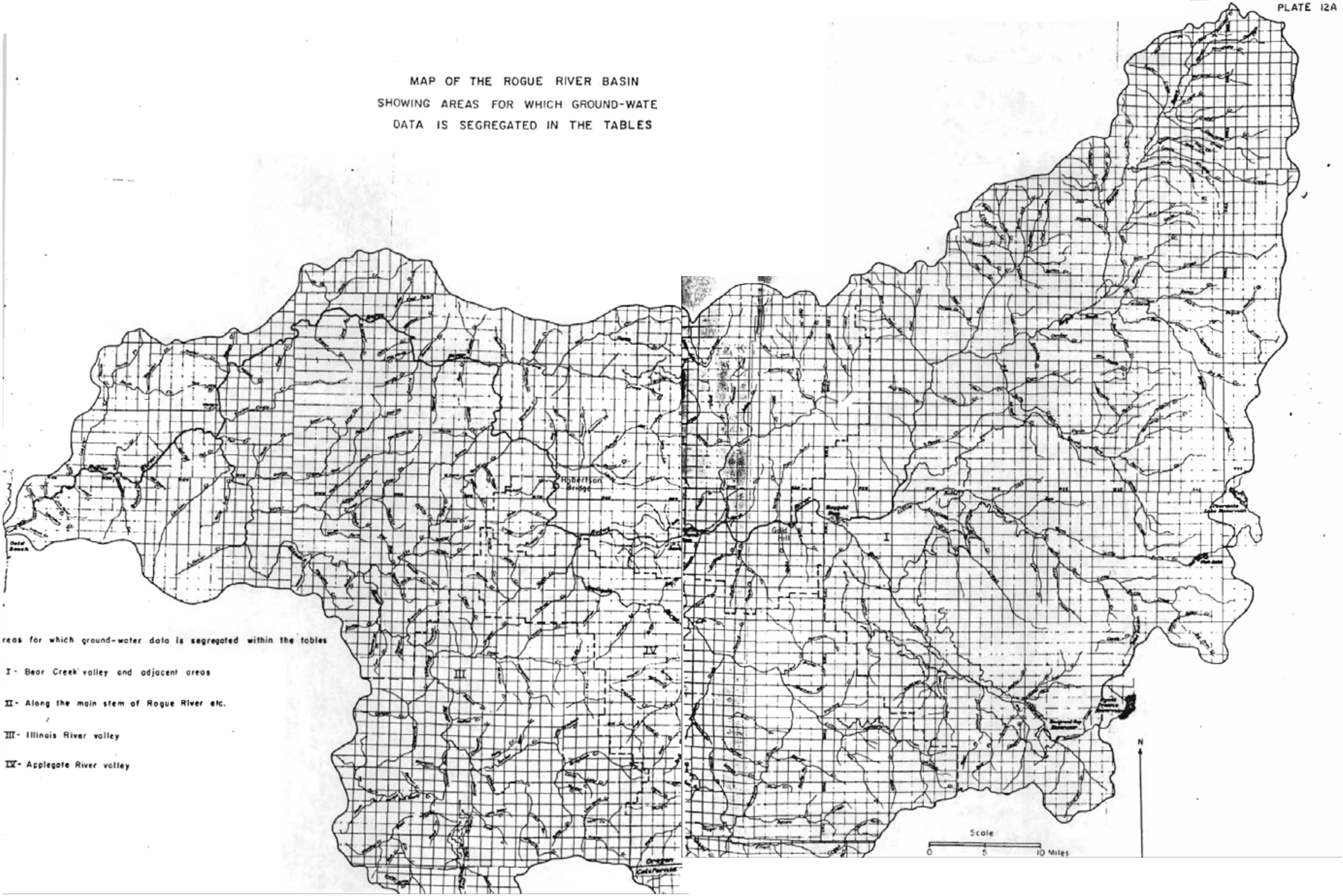
Unpublished records subject to revision

Table 3 contains the few reliable drillers' logs that could be obtained. They are listed in the same order of township and ranges within sub-basins as is used in tables 1 and 2. Stratigraphic designations have been inserted by the writer.

Table 4 lists the comprehensive analyses secured on samples of the ground water of various wells and springs. The samples are listed by the number of the source well or spring in the same order as tables 1 and 2--by townships which have west ranges in the Bear Creek valley followed by the townships with east ranges in that valley, and in turn, the analyses from wells and springs along the main stem of the Rogue River, the Illinois Valley, and the Applegate Valley are similarly arranged.

Plate 12A shows the location and extent of each sub-basin unit within which the well, spring, and water-analysis data are listed numerically.

MAP OF THE ROGUE RIVER BASIN SHOWING AREAS FOR WHICH GROUND-WATE DATA IS SEGREGATED IN THE TABLES



reas for which ground-water data is segregated within the tables

I - Bear Creek valley and adjacent areas

II - Along the main stem of Rogue River etc.

III - Illinois River valley

IV - Applegate River valley

Graphs showing water level fluctuations in wells

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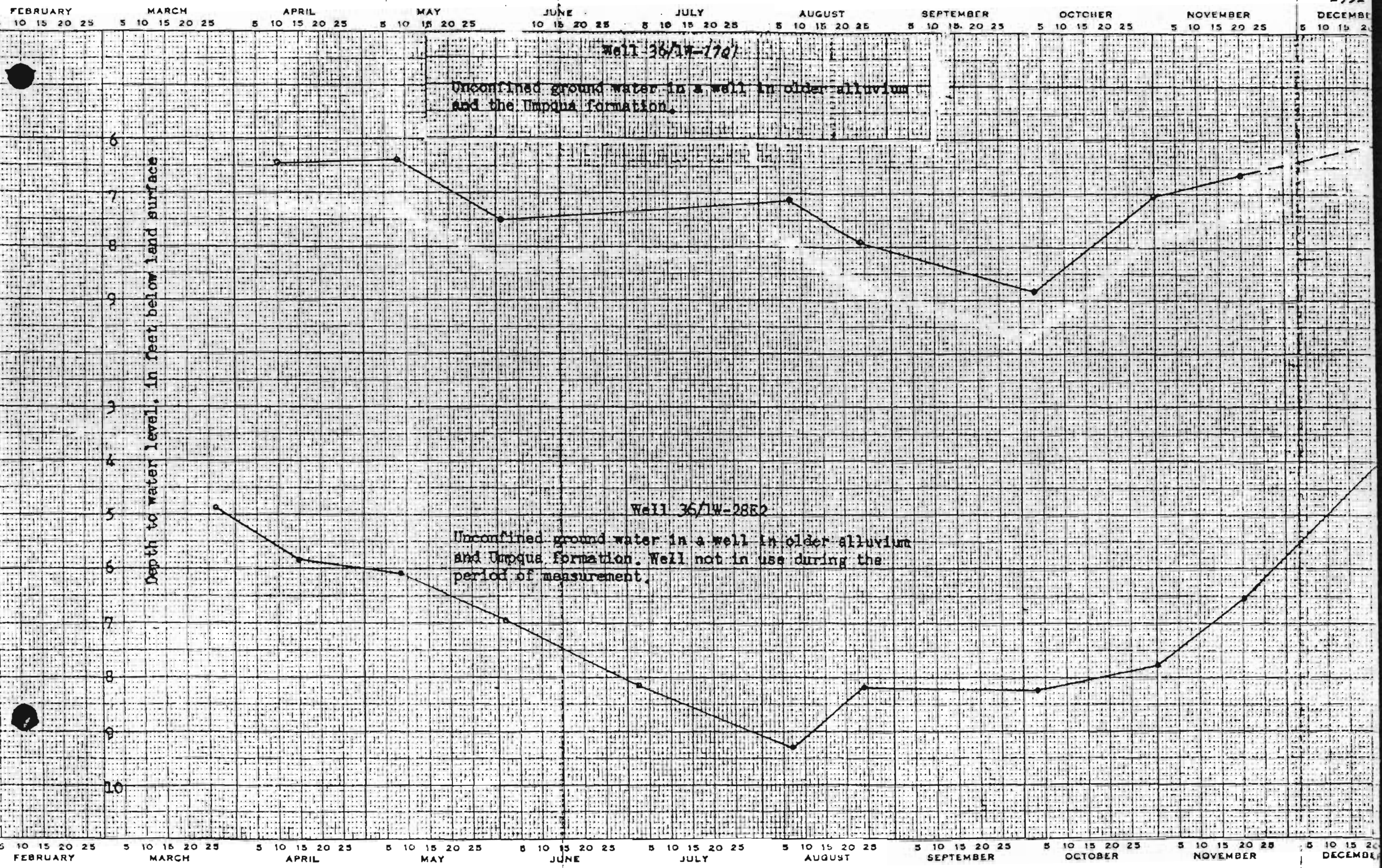
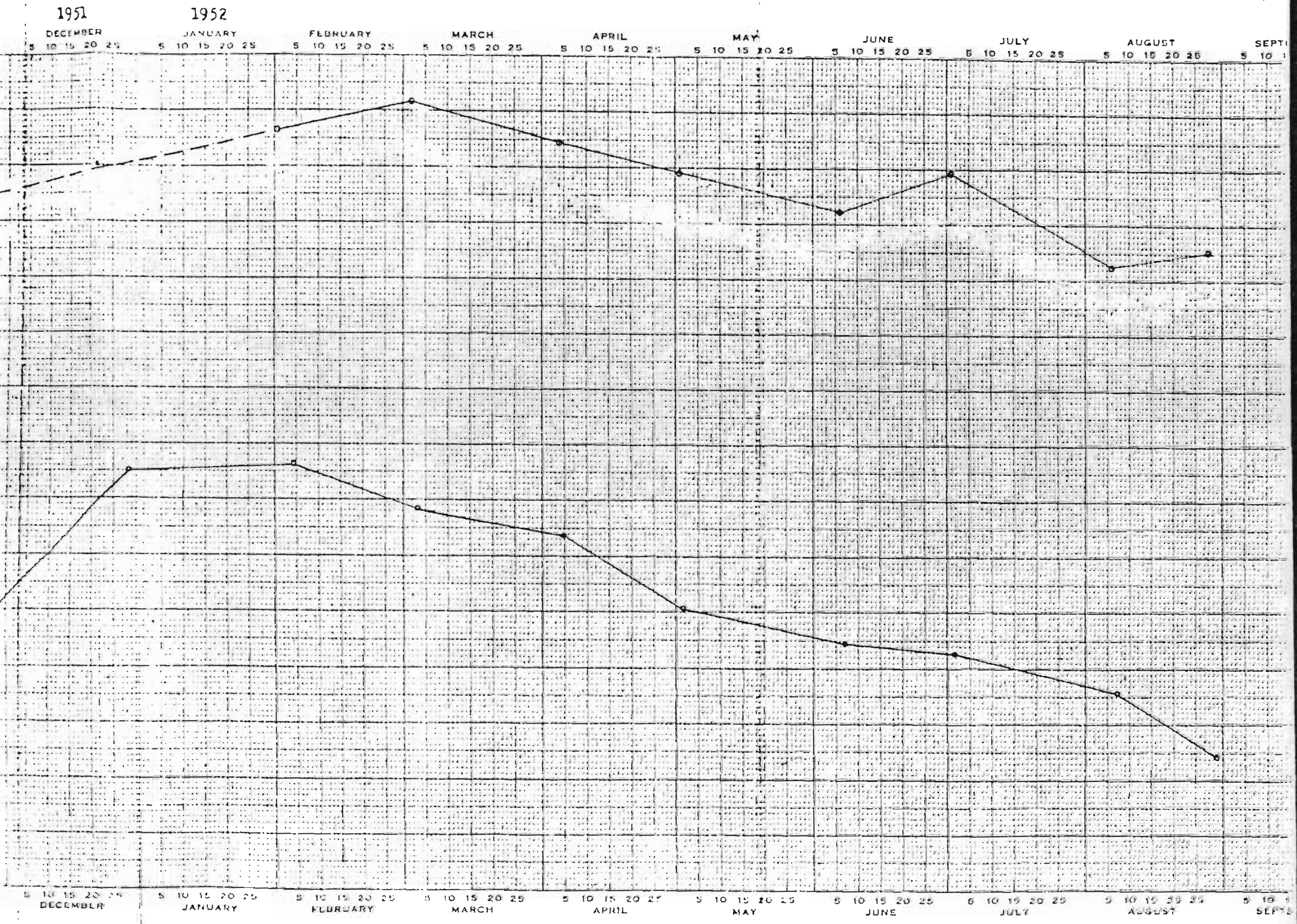


Well 36/1W-17Q1

Unconfined ground water in a well in older alluvium and the Umpqua formation.

Well 36/1W-28E2

Unconfined ground water in a well in older alluvium and Umpqua formation. Well not in use during the period of measurement.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Graphs showing water level fluctuations in wells

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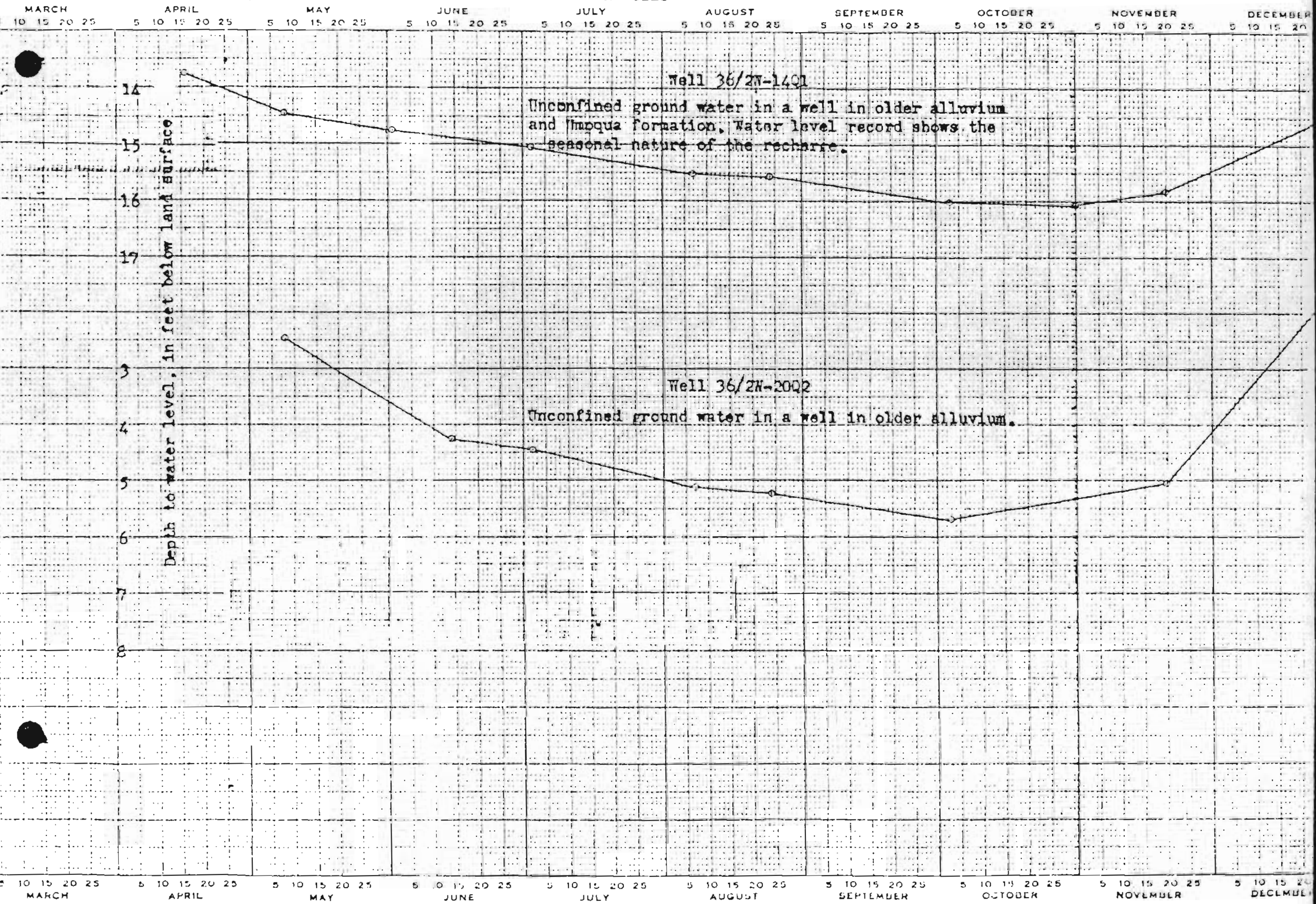

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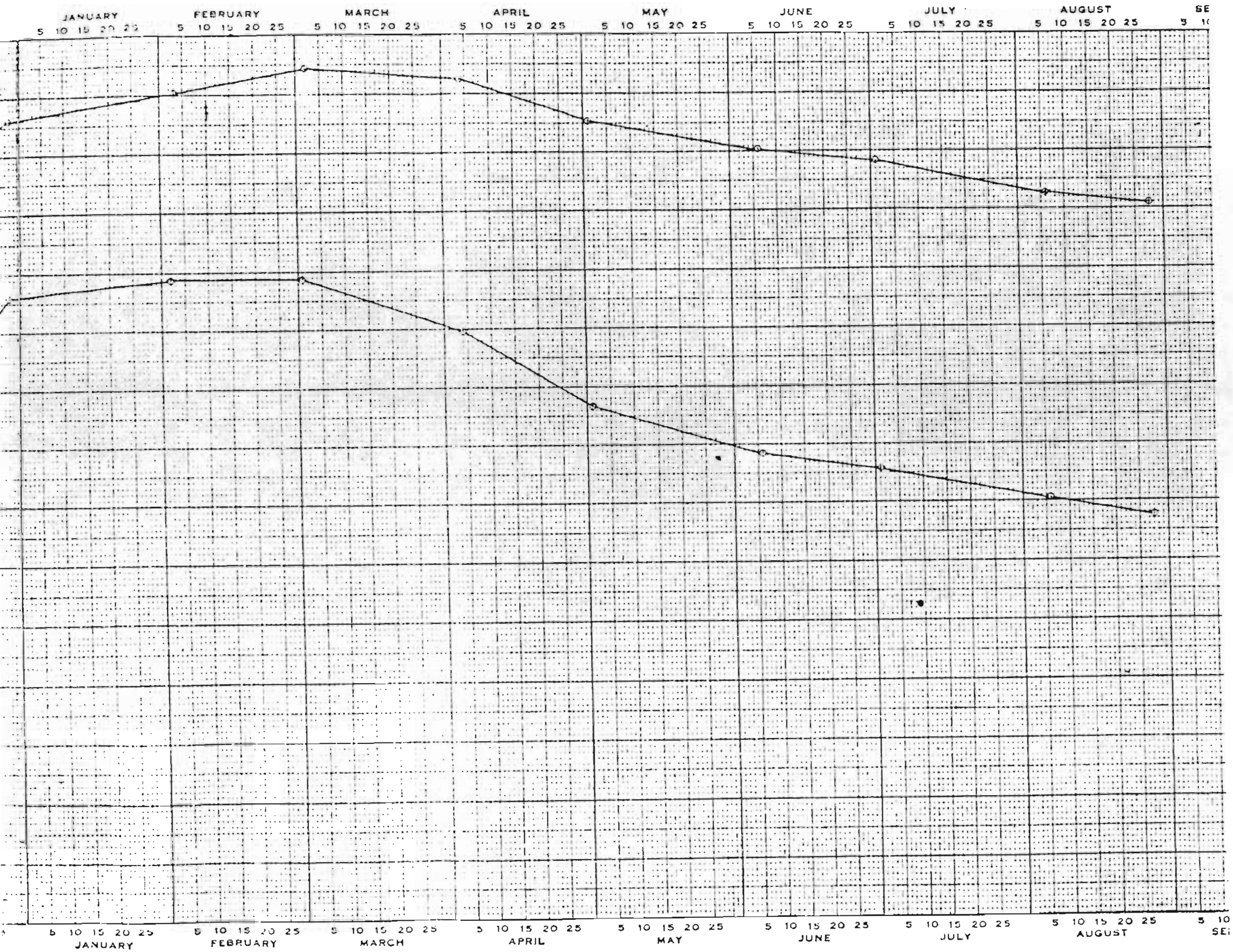
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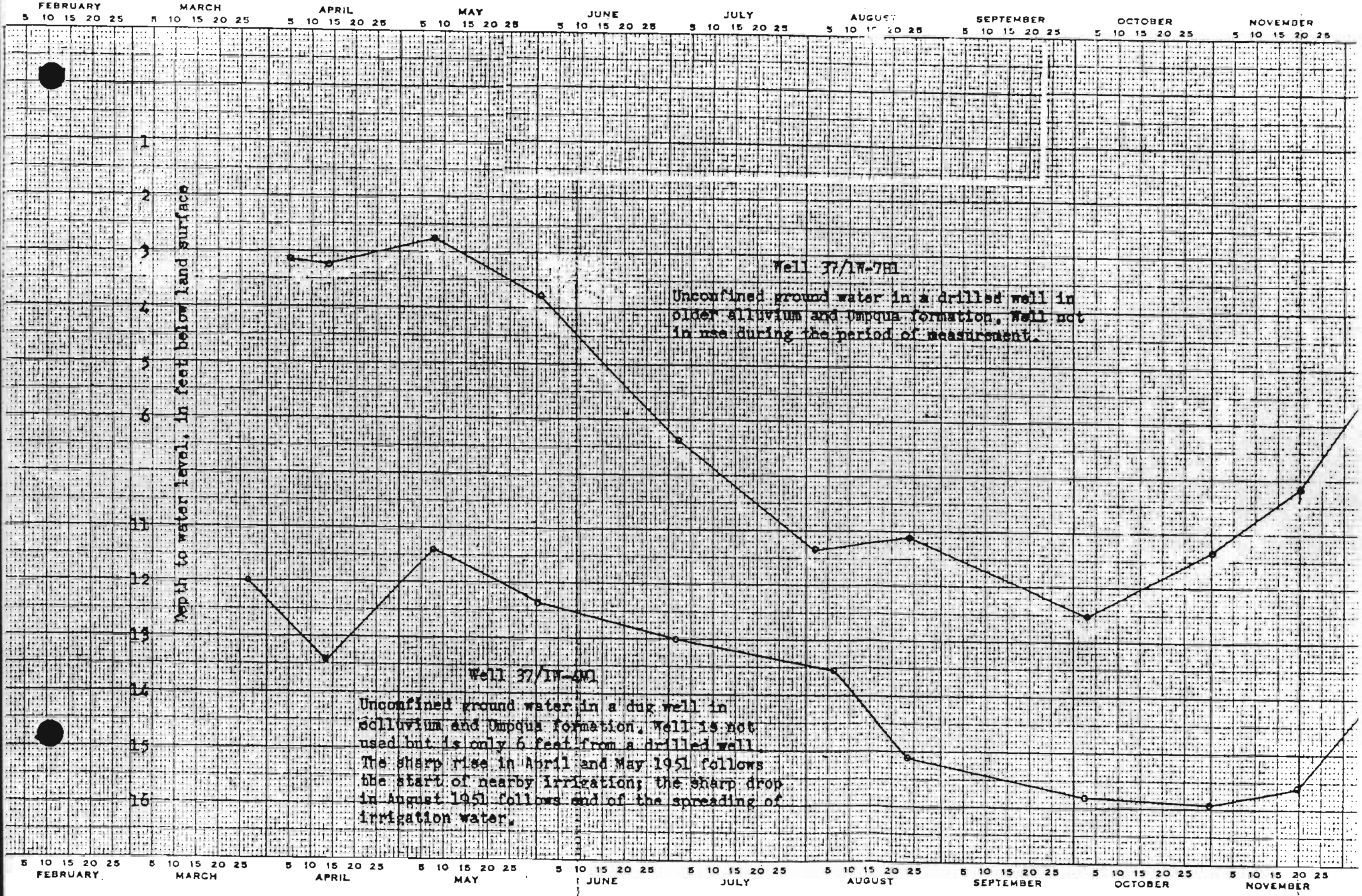
Graphs showing water level fluctuations in wells



Well 37/1W-7H1

Unconfined ground water in a drilled well in older alluvium and Umpqua formation. Well not in use during the period of measurement.

Well 37/1W-6M1

Unconfined ground water in a dug well in colluvium and Umpqua formation. Well is not used but is only 6 feet from a drilled well. The sharp rise in April and May 1951 follows the start of nearby irrigation; the sharp drop in August 1951 follows end of the spreading of irrigation water.

PLATE 15

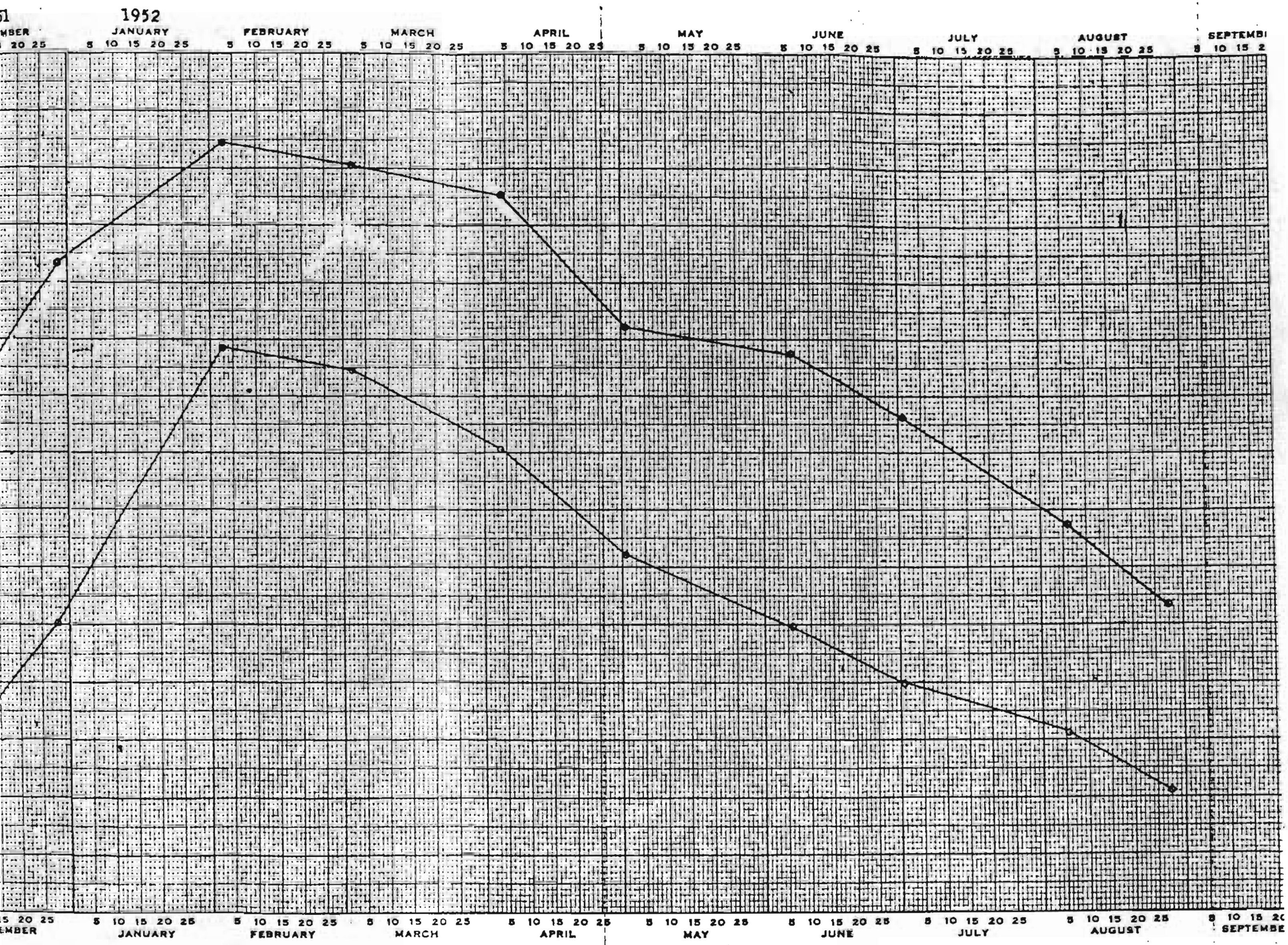

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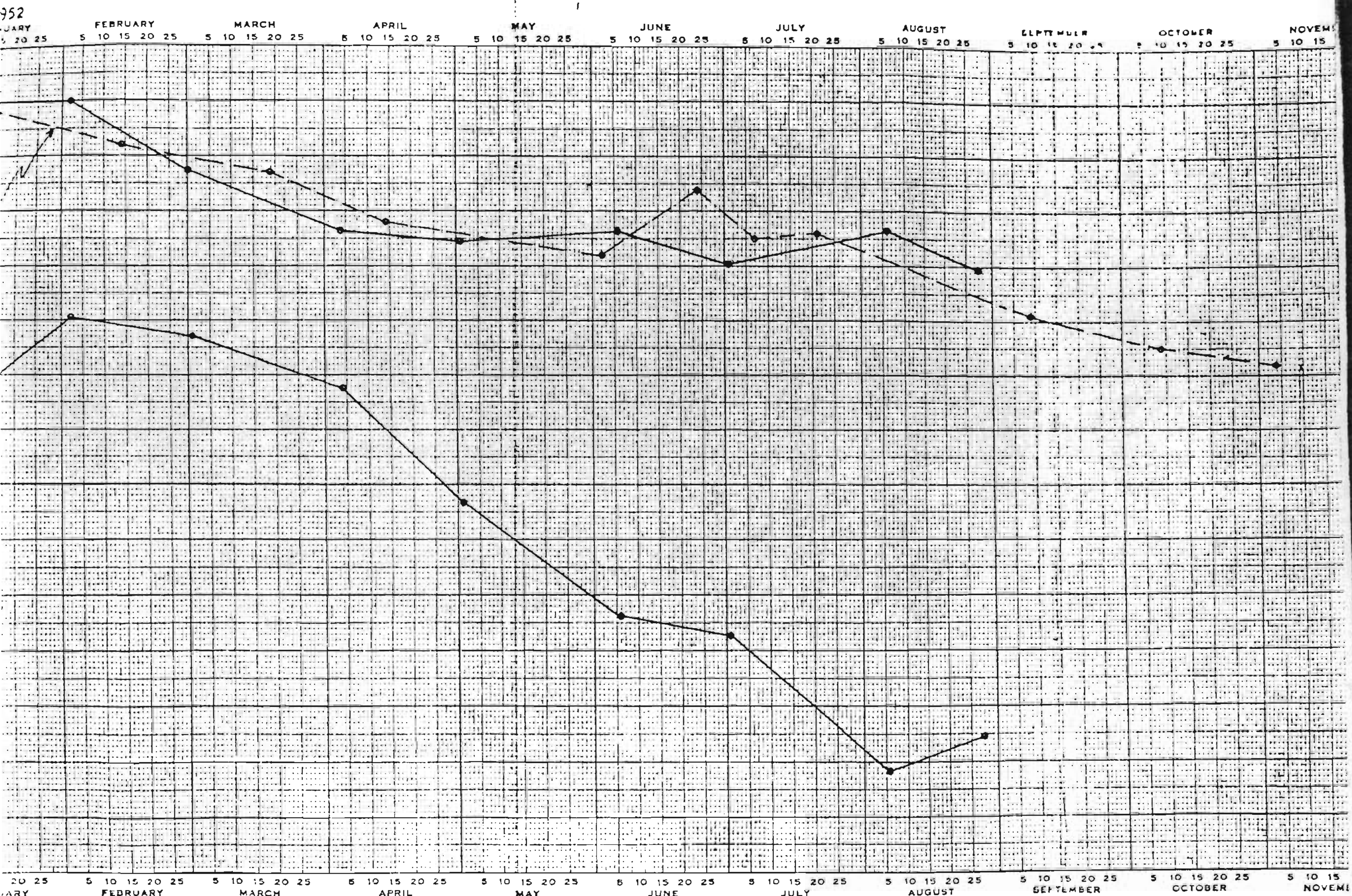
PLATE 16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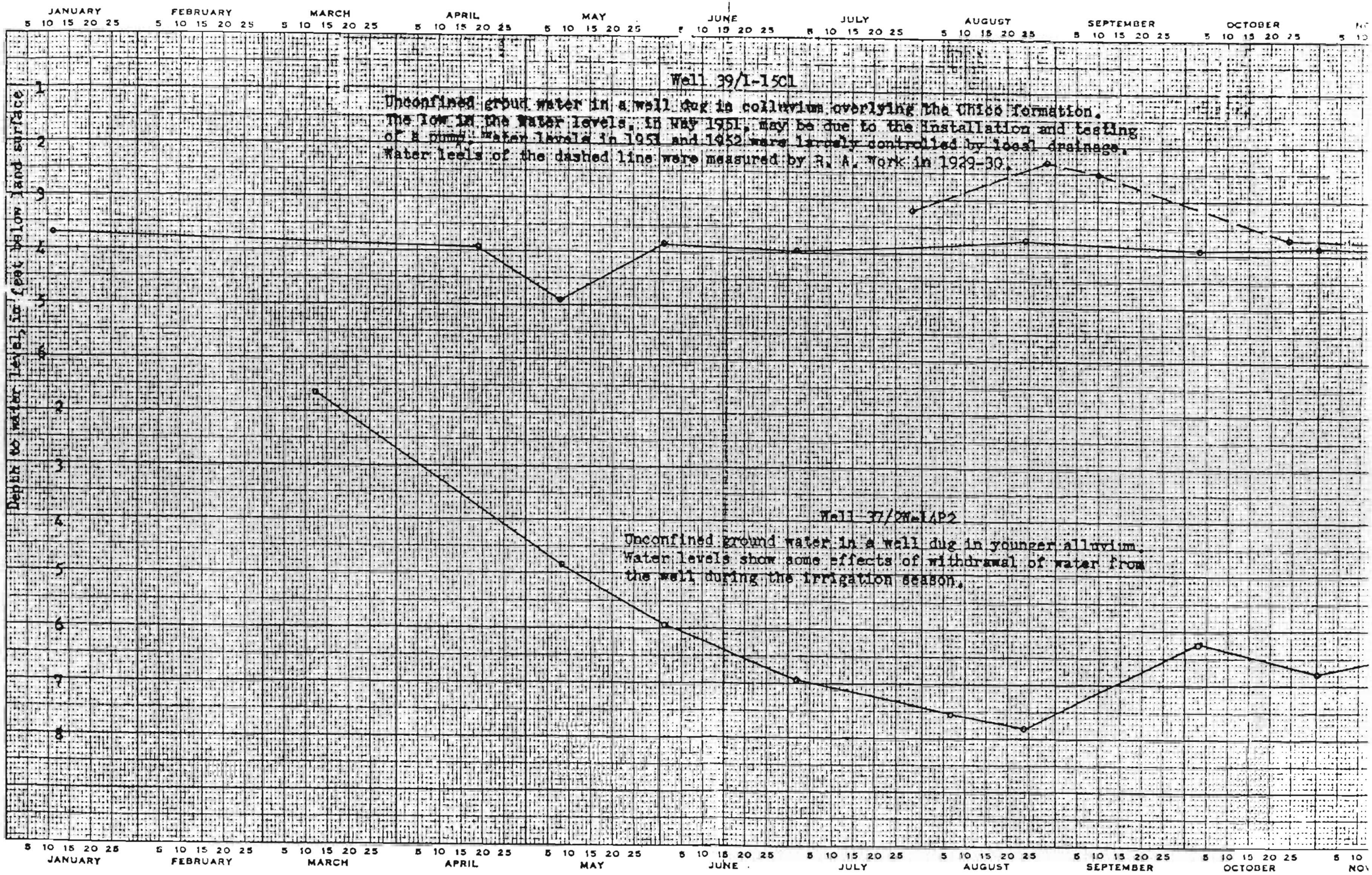
CODEX BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS. PRINTED IN U.S.A.

117. ONE YEAR BY DAYS X 130 DIVISIONS.



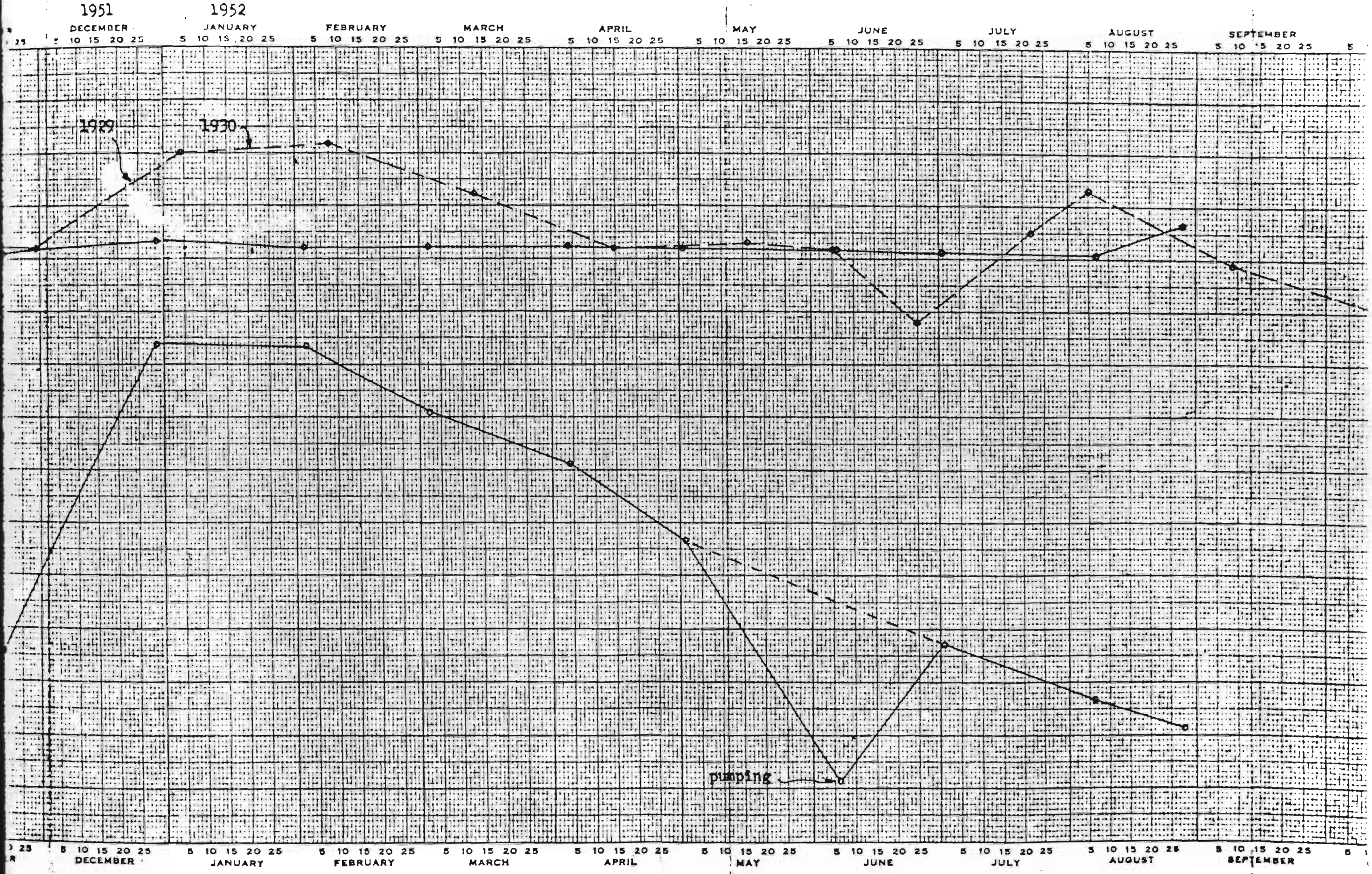
Well 39/1-15C1

Unconfined groud water in a well dug in colluvium overlying the Chico formation. The low in the water levels, in May 1951, may be due to the installation and testing of a pump. Water levels in 1951 and 1952 were largely controlled by local drainage. Water leels of the dashed line were measured by R. A. Work in 1929-30.

Well 37/2W-14P2

Unconfined ground water in a well dug in younger alluvium. Water levels show some effects of withdrawal of water from the well during the irrigation season.

PLATE 17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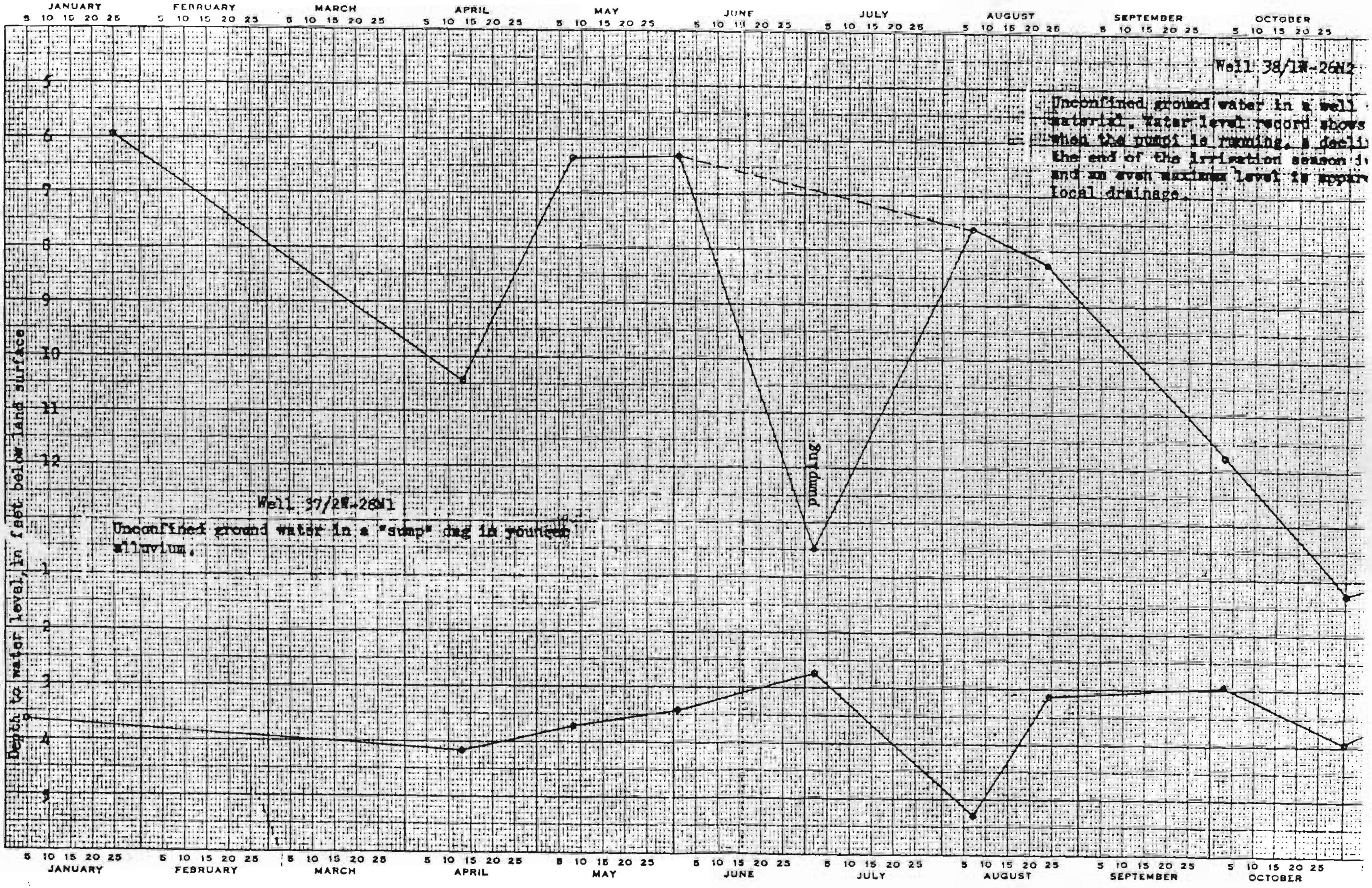
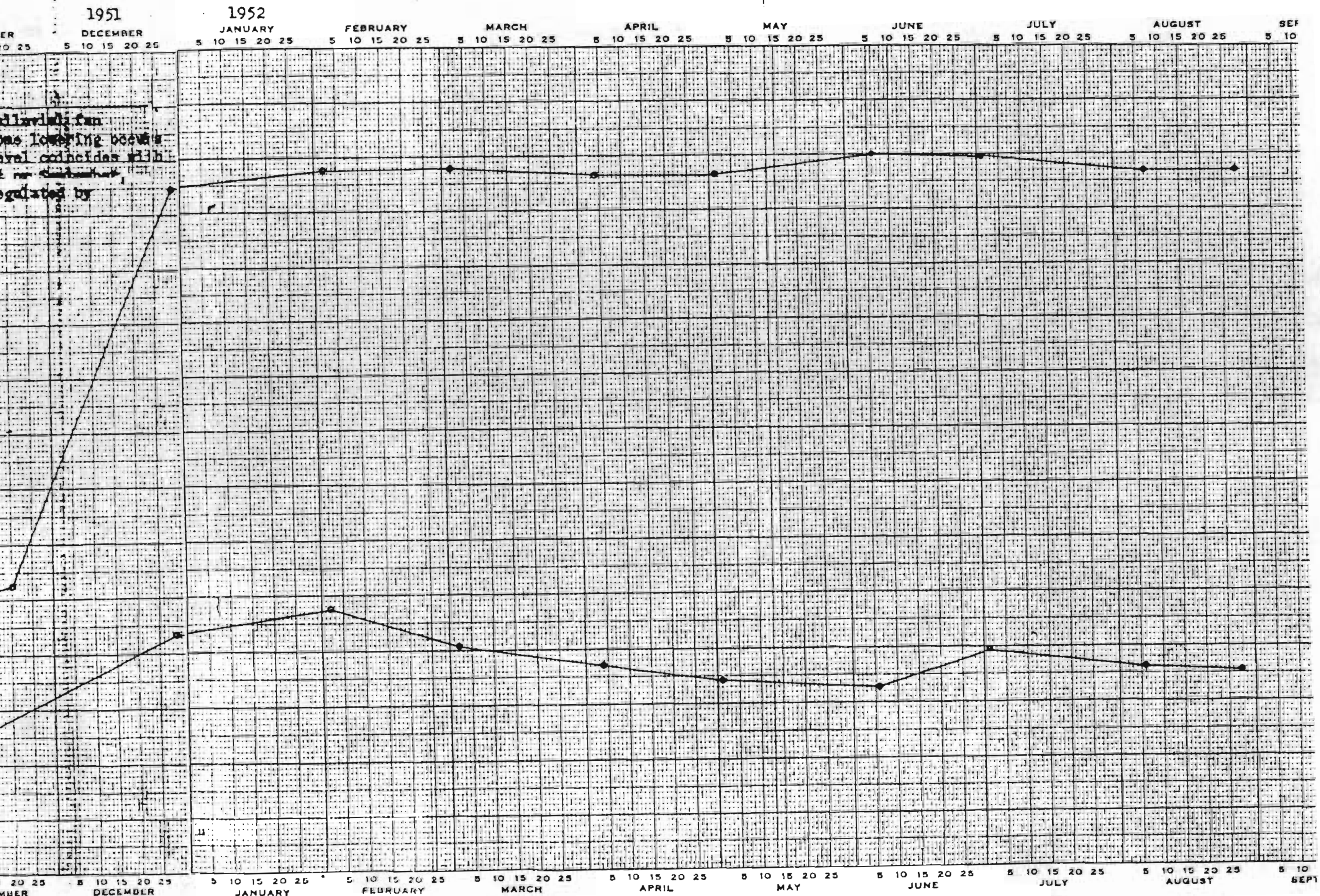
Graphs showing water level fluctuations in wells



CODEX BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS. PRINTED IN U.S.A.
NO. 4117. ONE YEAR BY DAYS X 130 DIVISIONS.

PLATE 18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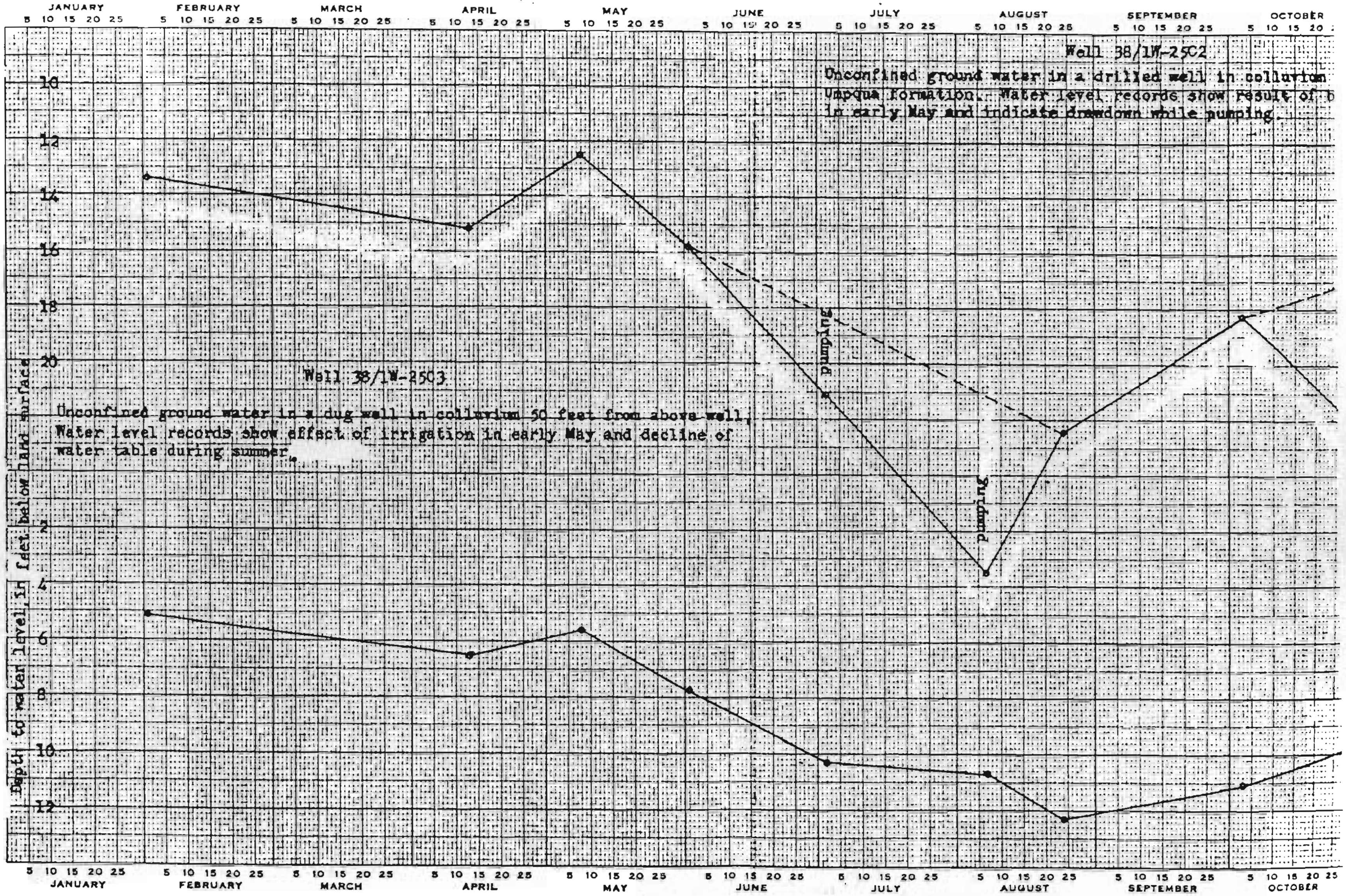
Graphs showing water level fluctuations in wells



Well 38/1W-25C2

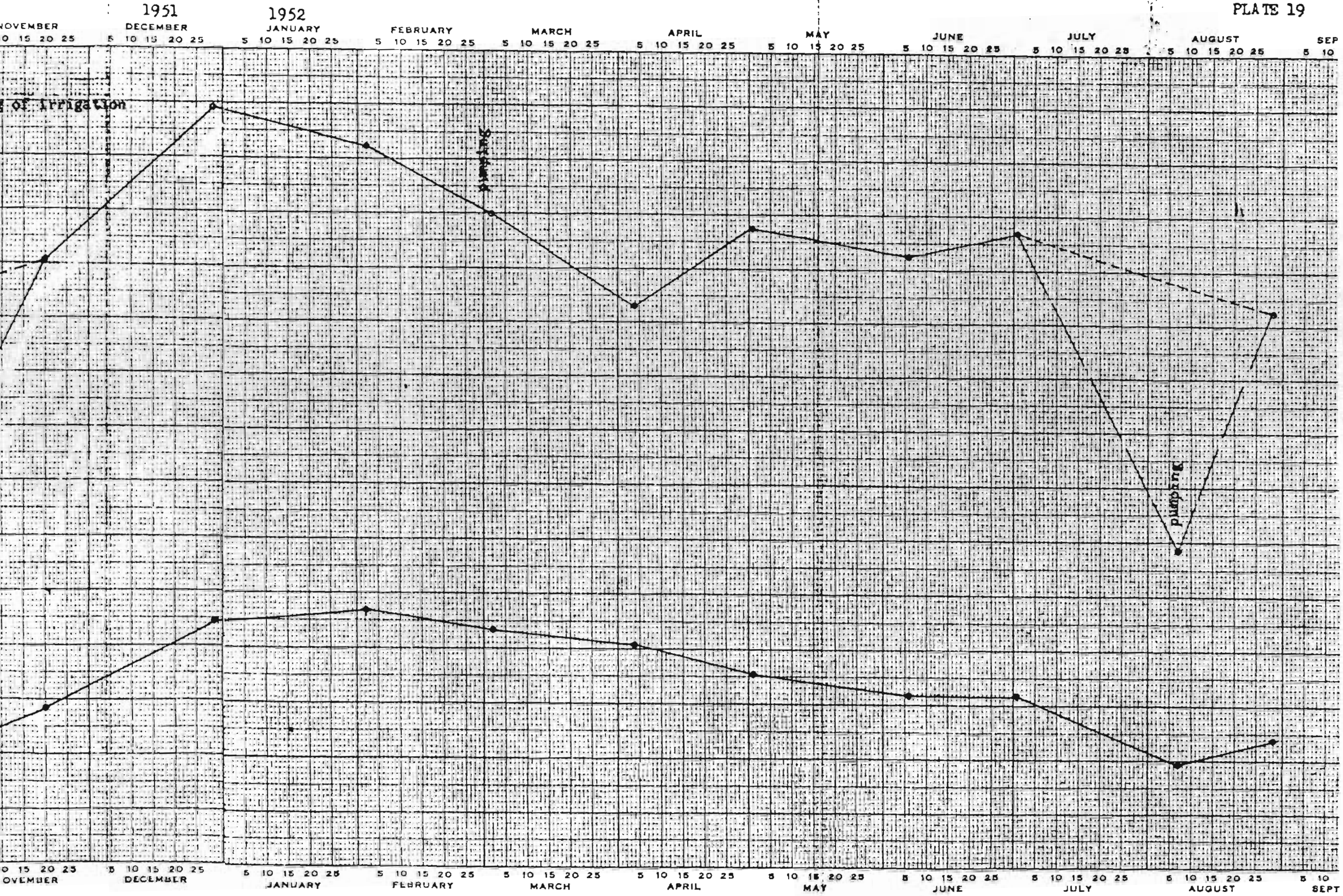
Unconfined ground water in a drilled well in colluvium
Umpqua formation. Water level records show result of b
in early May and indicate drawdown while pumping.

Well 38/1W-25C3

Unconfined ground water in a dug well in colluvium 50 feet from above well.
Water level records show effect of irrigation in early May and decline of
water table during summer.

CODEX BOOK COMPANY, INC., NORWOOD, MASSACHUSETTS. PRINTED IN U.S.A.
NO. 4117. ONE YEAR BY DAYS X 130 DIVISIONS

PLATE 19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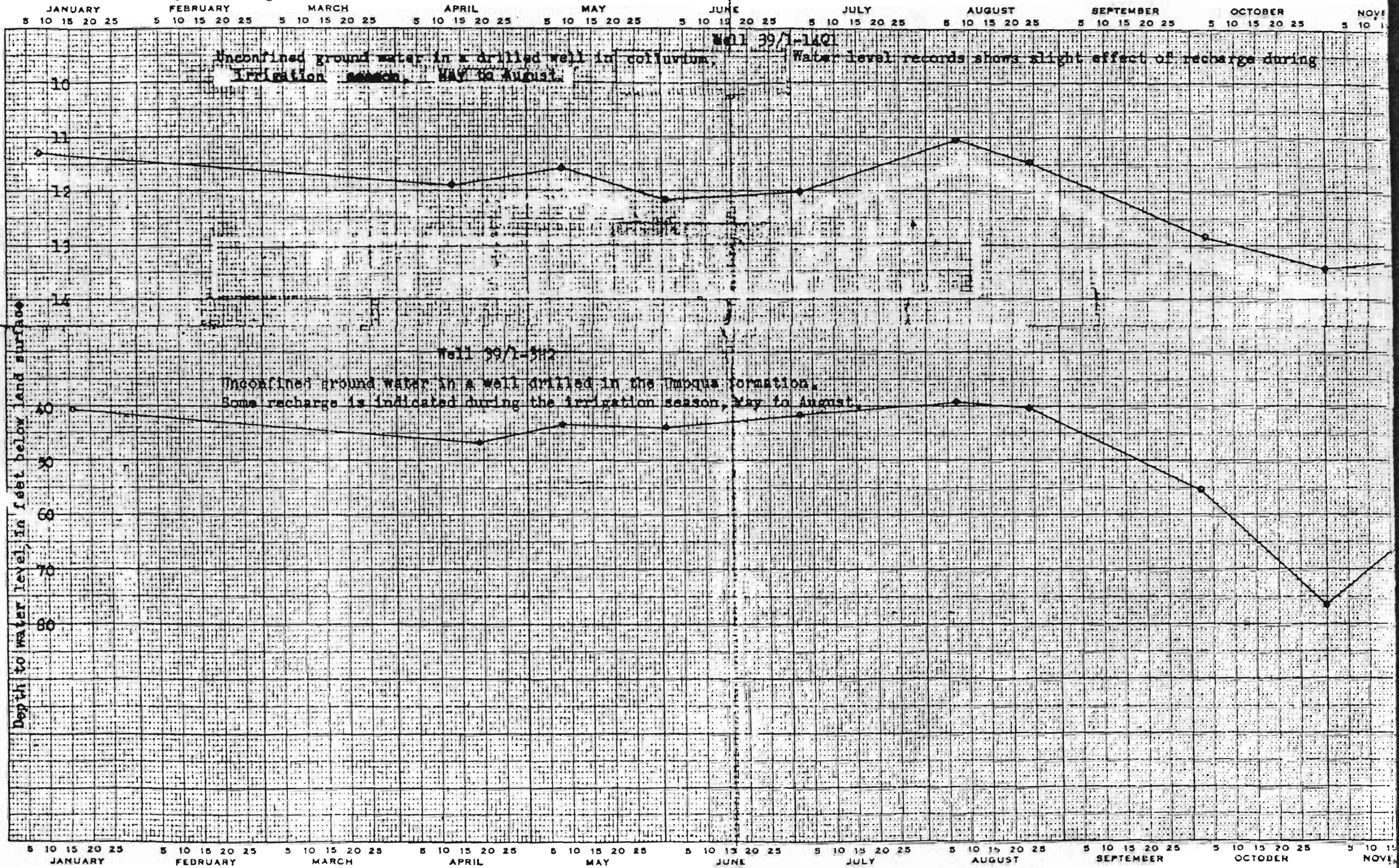
Graphs showing water level fluctuations in wells



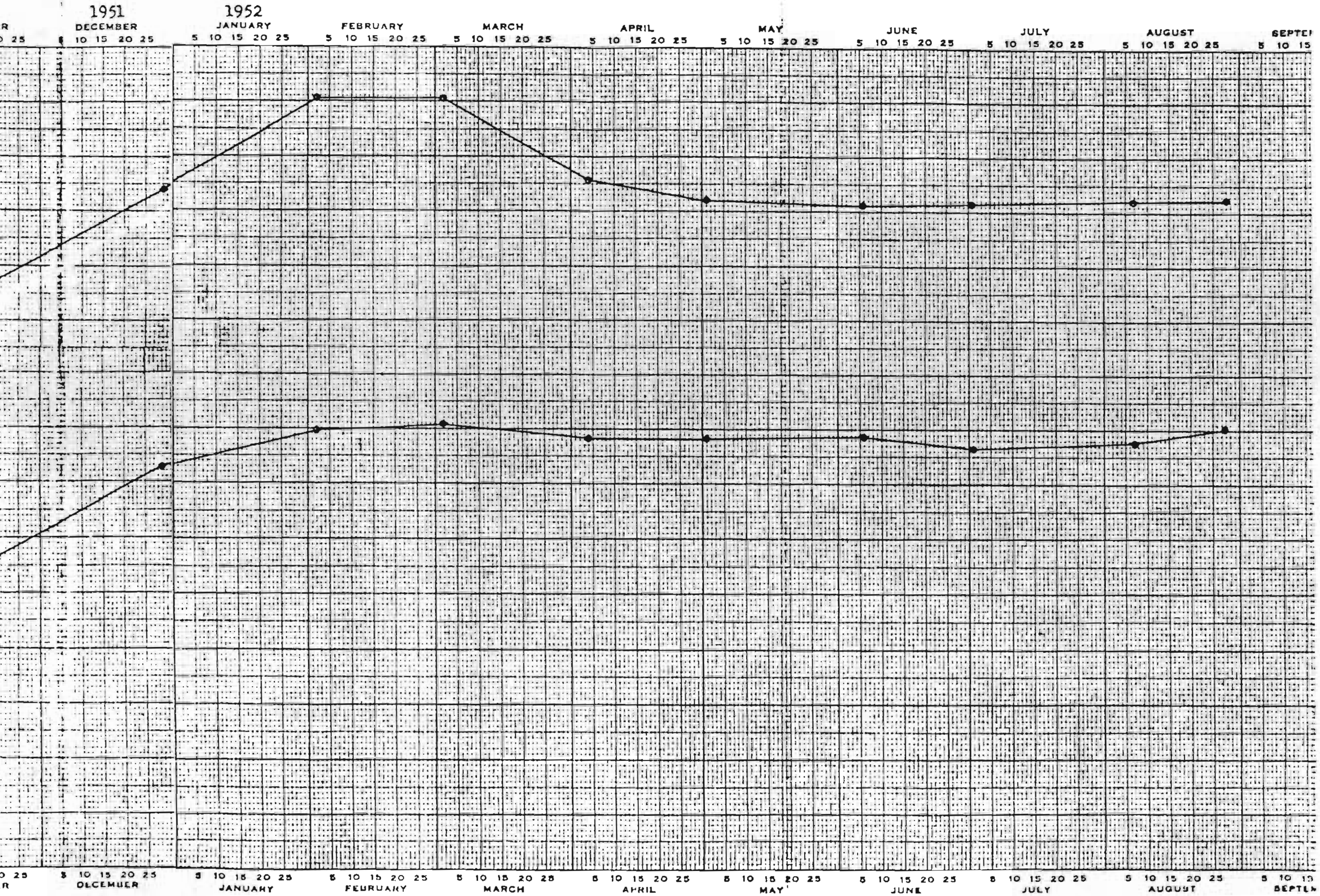
Well 39/1-14Q1

Unconfined ground water in a drilled well in colluvium. Water level records shows slight effect of recharge during Irrigation season, May to August.

Well 39/1-5H2

Unconfined ground water in a well drilled in the Umpqua formation.
Some recharge is indicated during the irrigation season, May to August.

PLATE 20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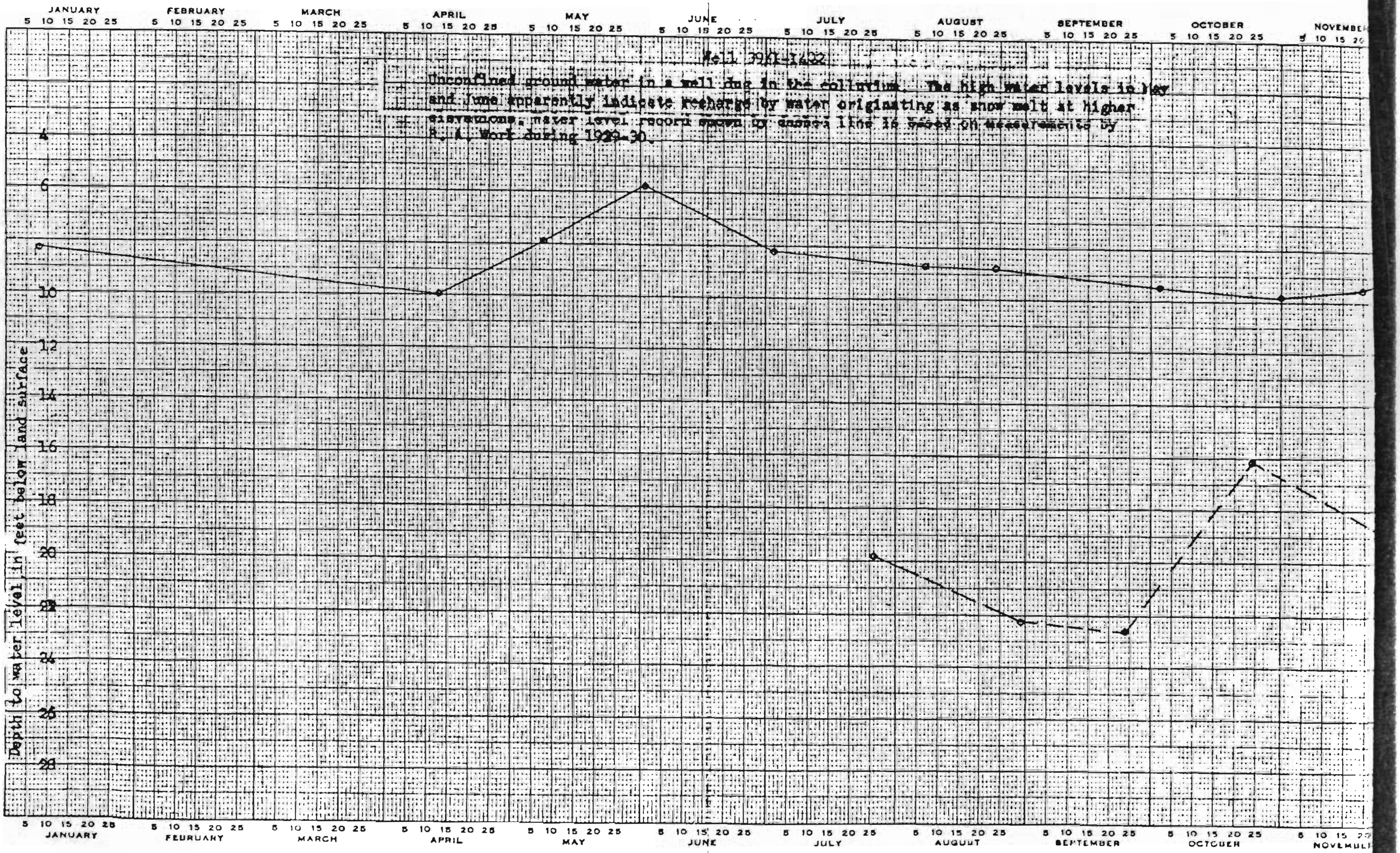
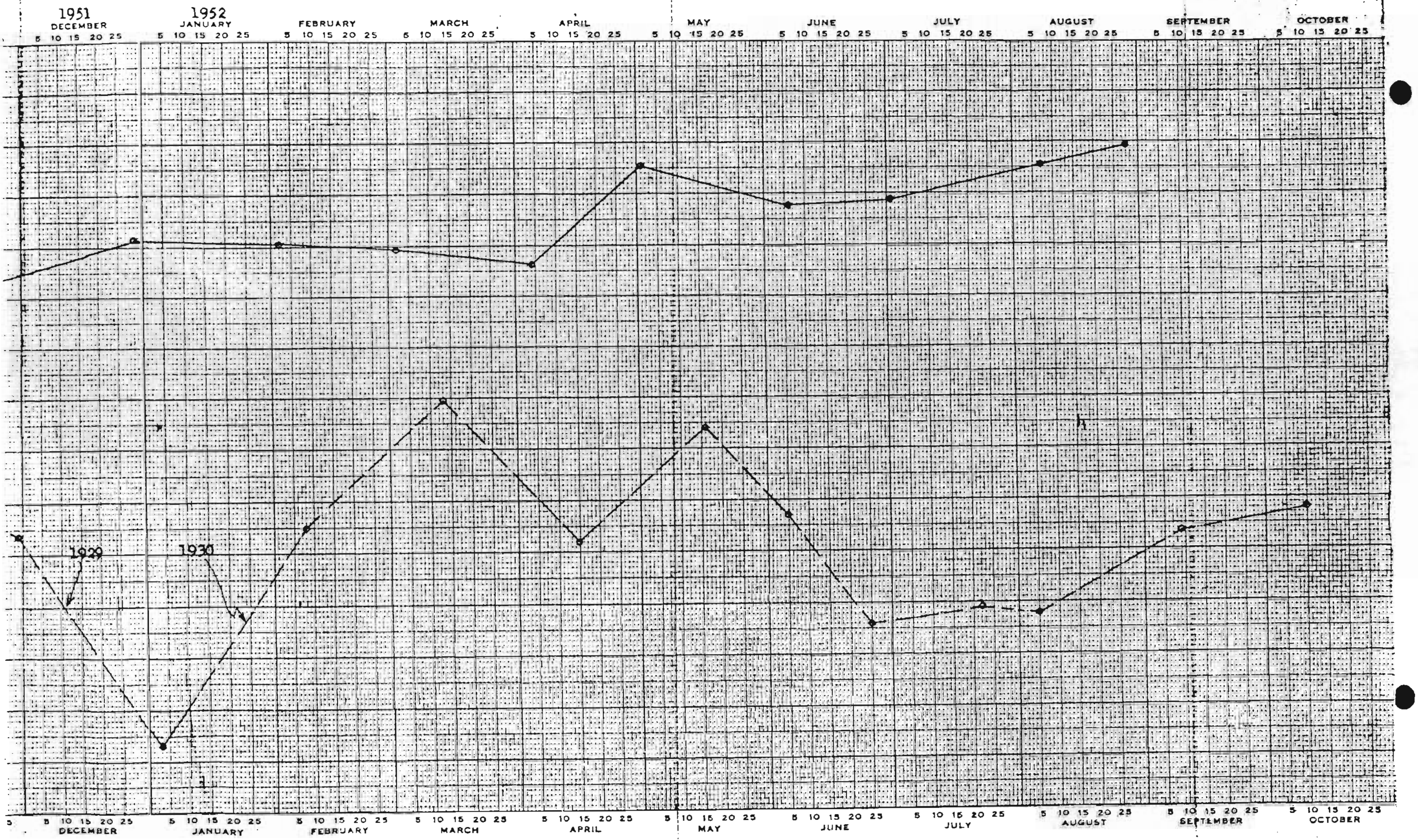
Graphs showing water level fluctuations in wells



Well 39N1-1402

Unconfined ground water in a well dug in the colluvium. The high water levels in May and June apparently indicate recharge by water originating as snow melt at higher elevations. Water level record shown by dashed line is based on measurements by R. A. Work during 1929-30.

PLATE 21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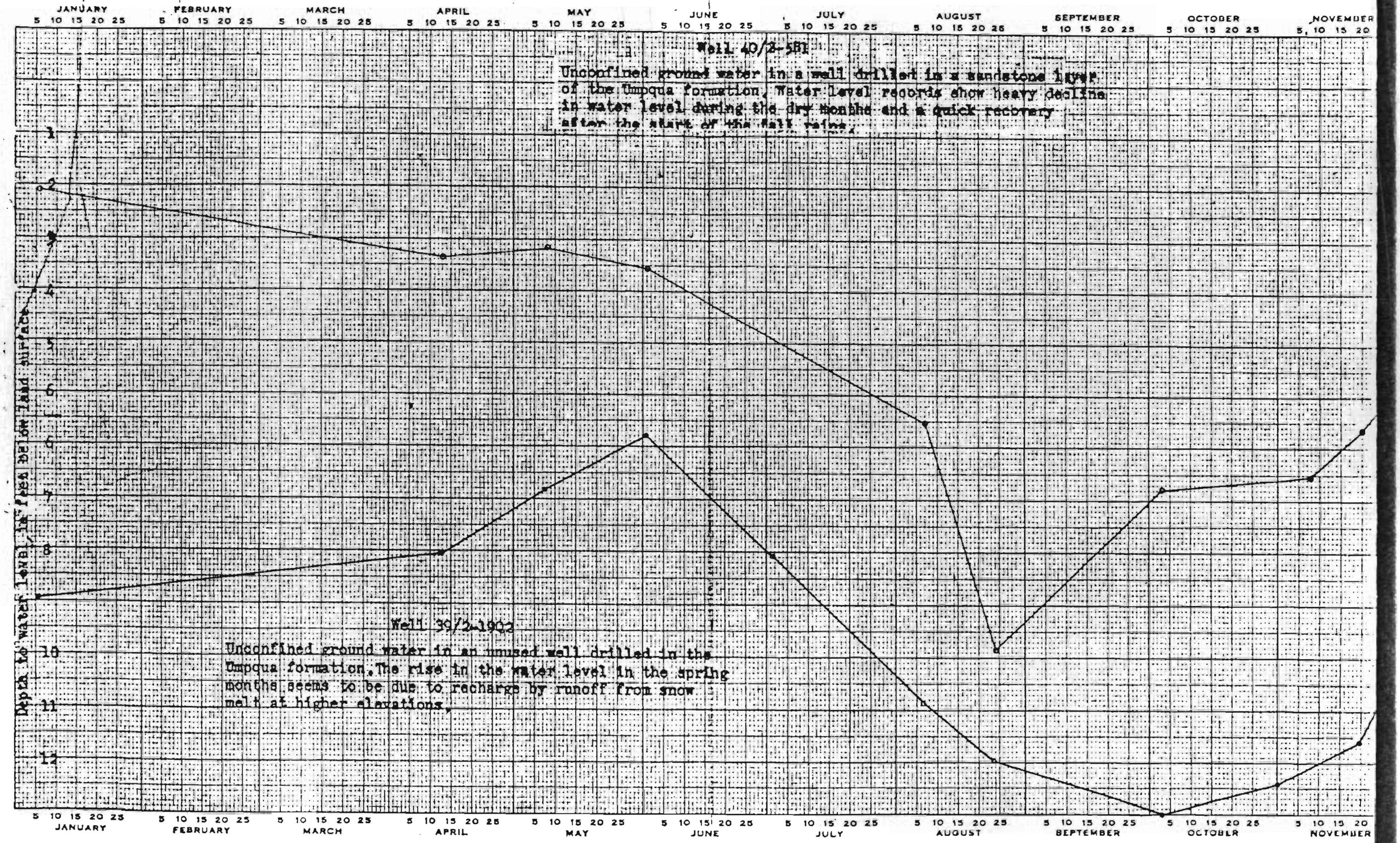
Graphs showing water level fluctuations in wells



Well 40/2-5B1

Unconfined ground water in a well drilled in a sandstone layer of the Umpqua formation. Water level records show heavy decline in water level during the dry months and a quick recovery after the start of the fall rains.

Well 39/2-19Q2

Unconfined ground water in an unused well drilled in the Umpqua formation. The rise in the water level in the spring months seems to be due to recharge by runoff from snow melt at higher elevations.

PLATE 22

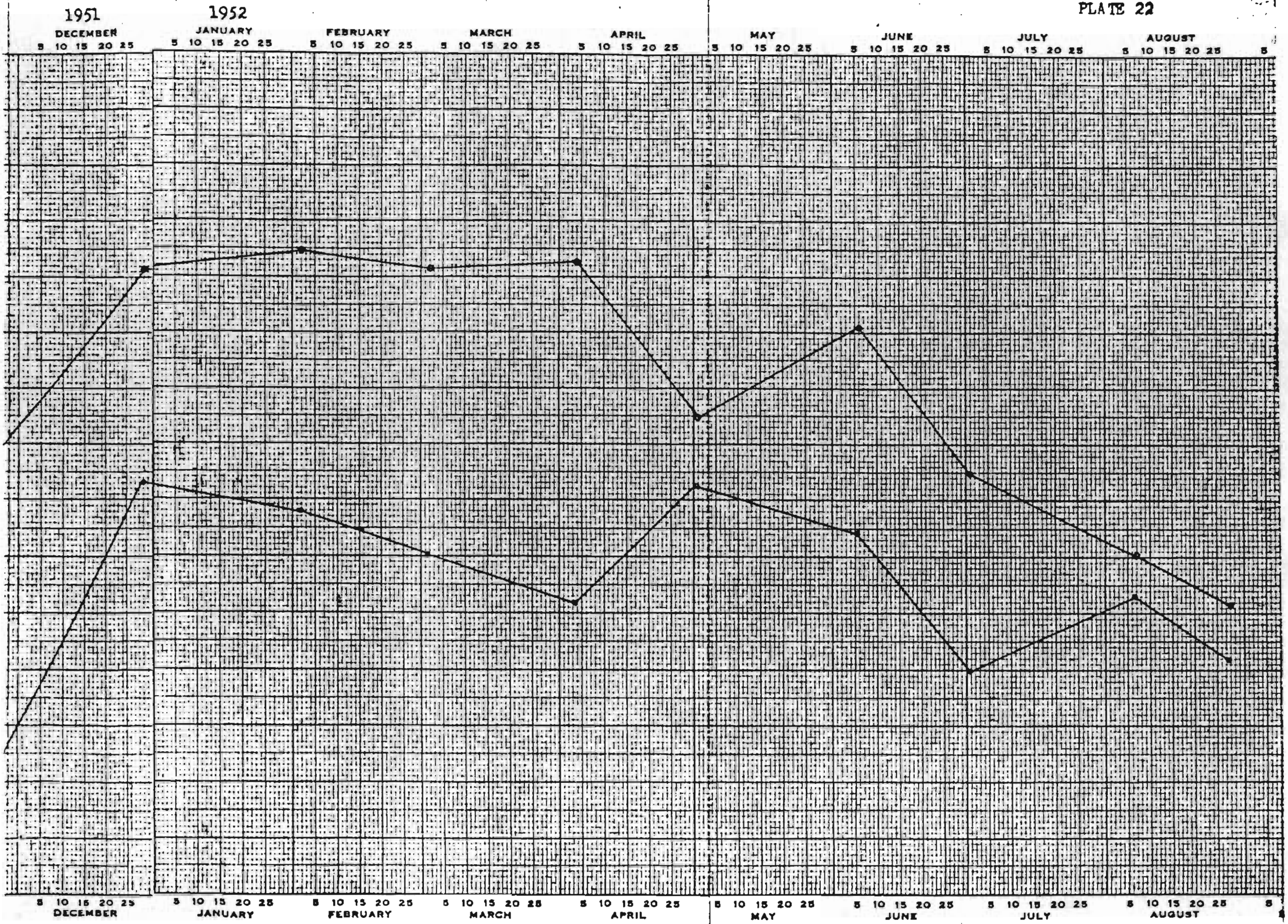

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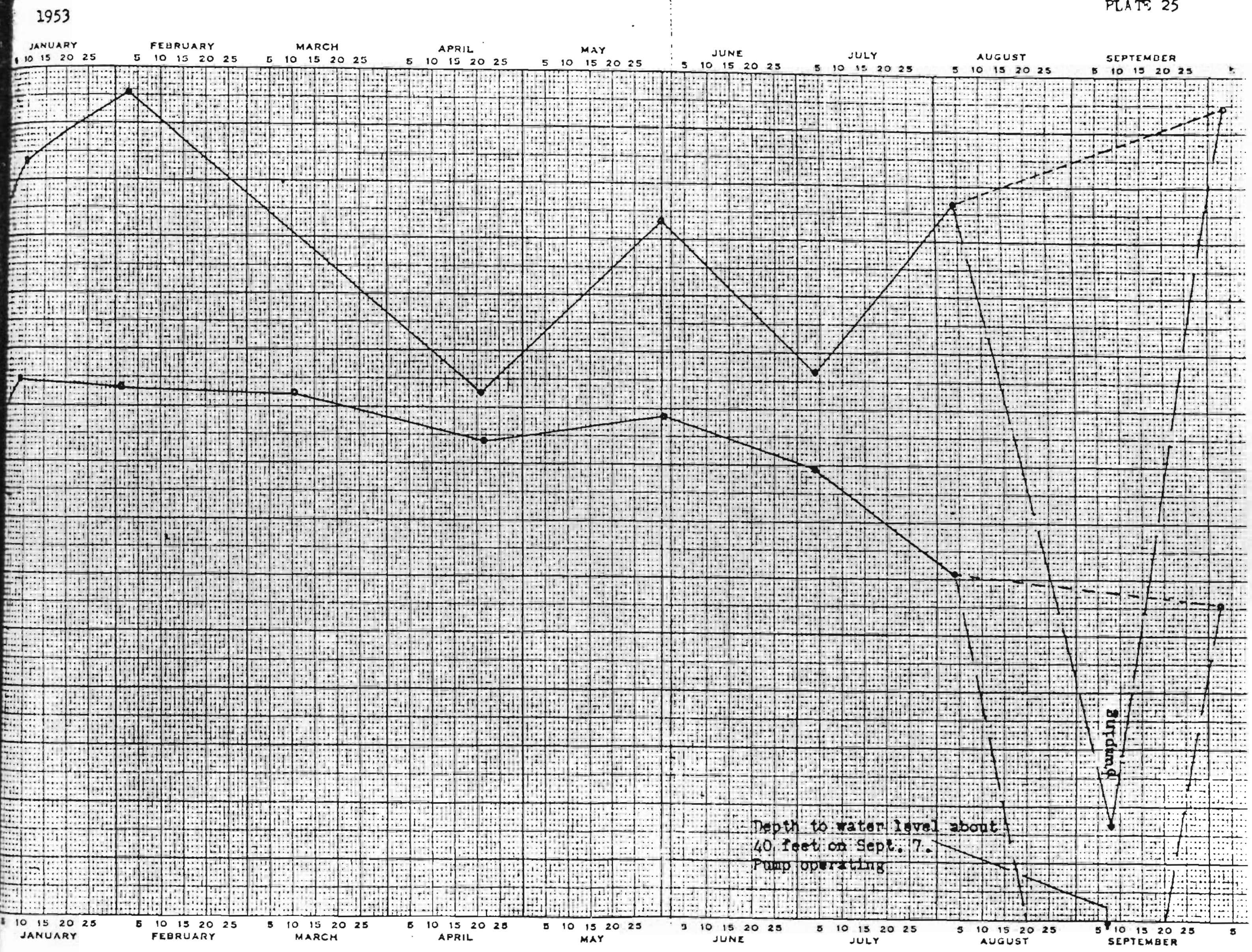
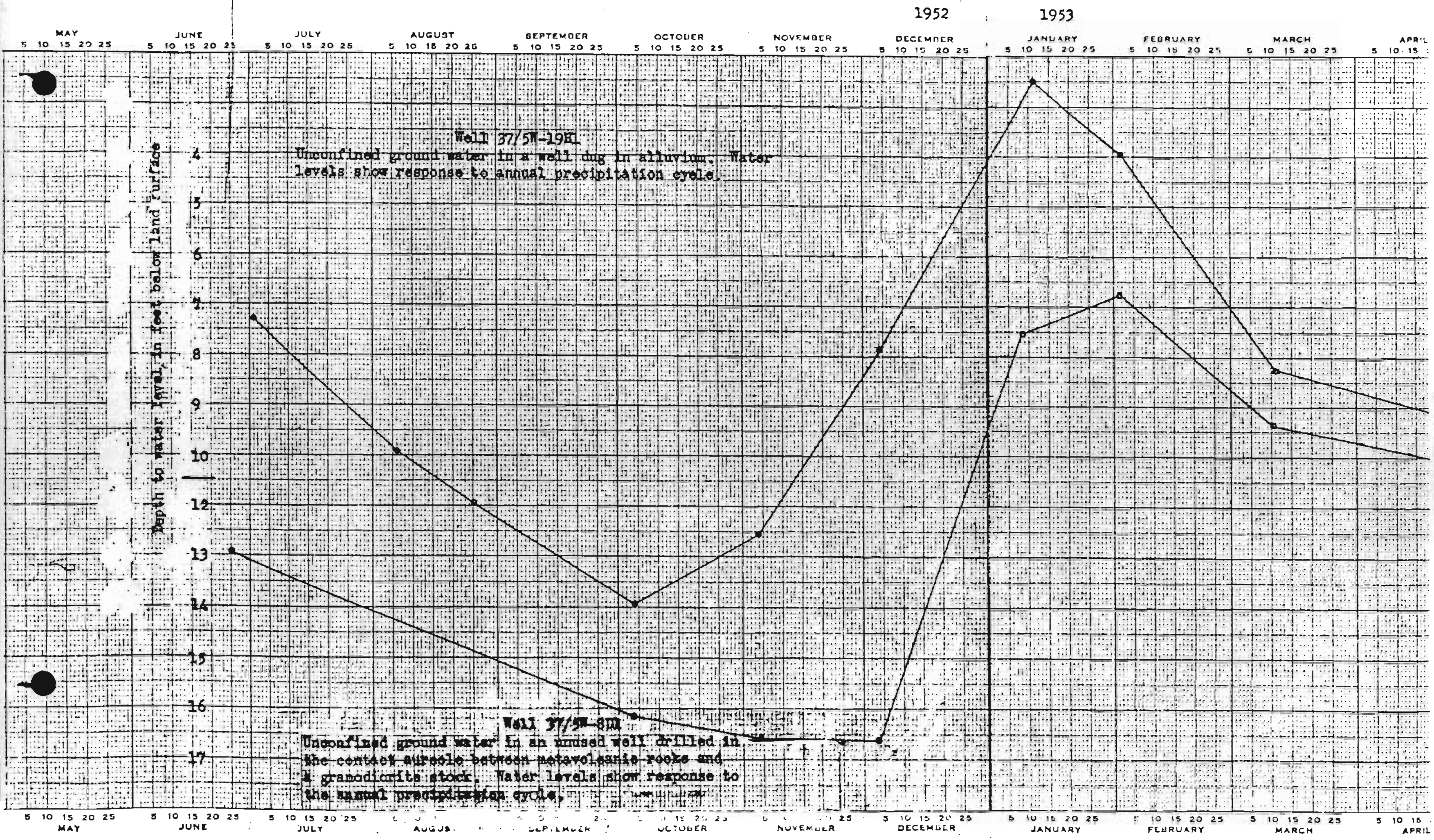
PLATE 25



Depth to water level about 40 feet on Sept. 7. Pump operating.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Depth to water level, in feet below land surface
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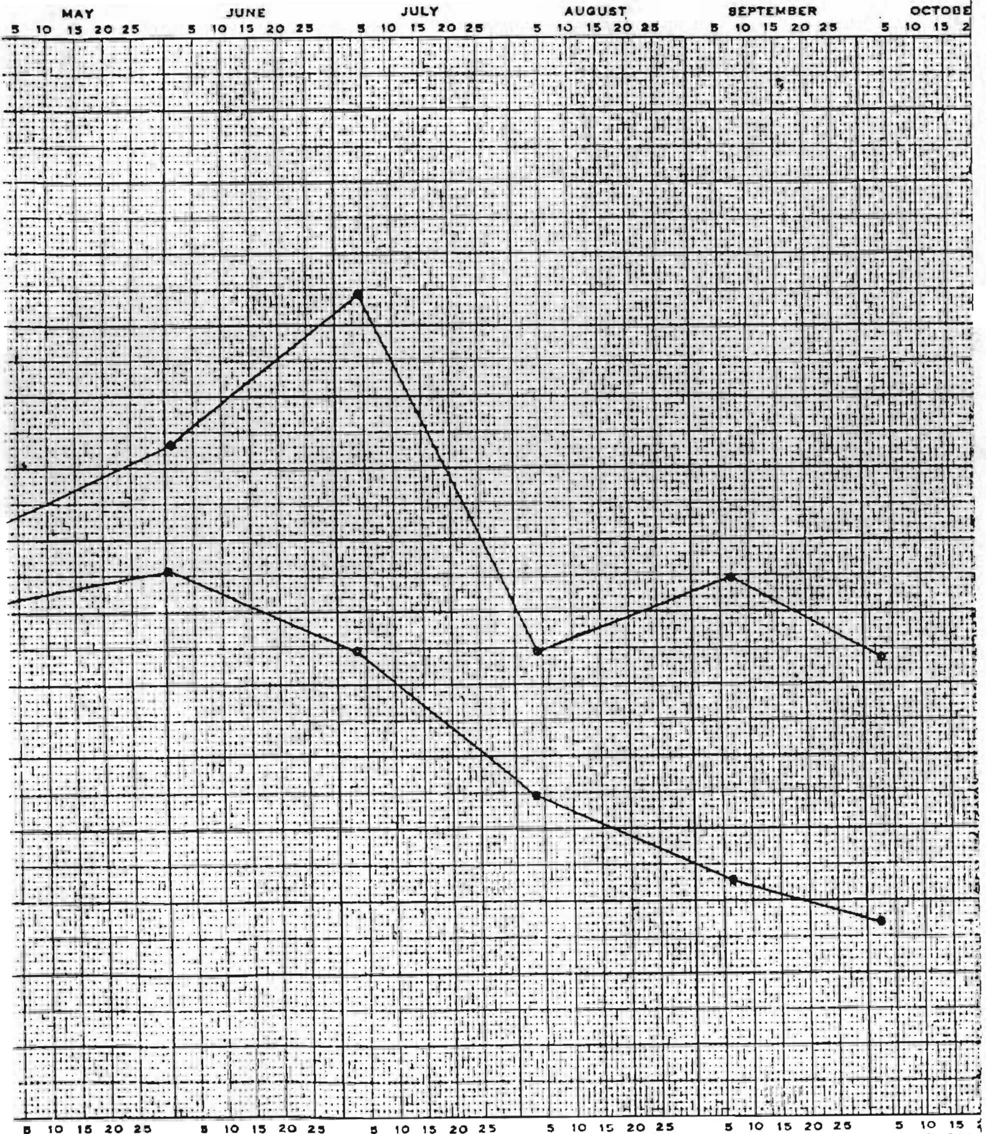
Well 37/5W-19E1
Unconfined ground water in a well dug in alluvium. Water levels show response to annual precipitation cycle.
Well 37/5W-8M1
Unconfined ground water in an unused well drilled in the contact aureole between metavolcanic rocks and a granodiorite stock. Water levels show response to the annual precipitation cycle.

PLATE 26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5 10 15 20 25
5 10 15

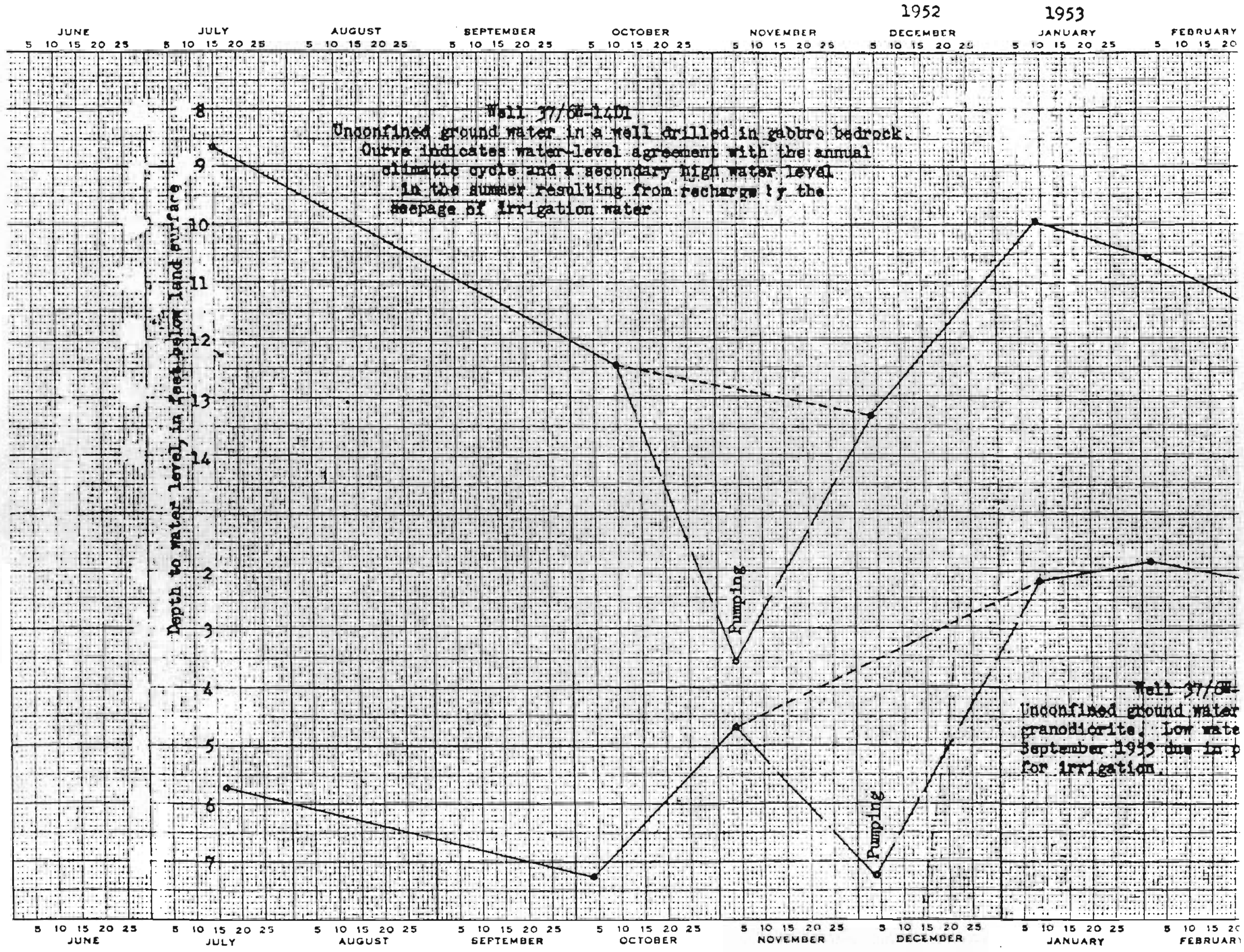
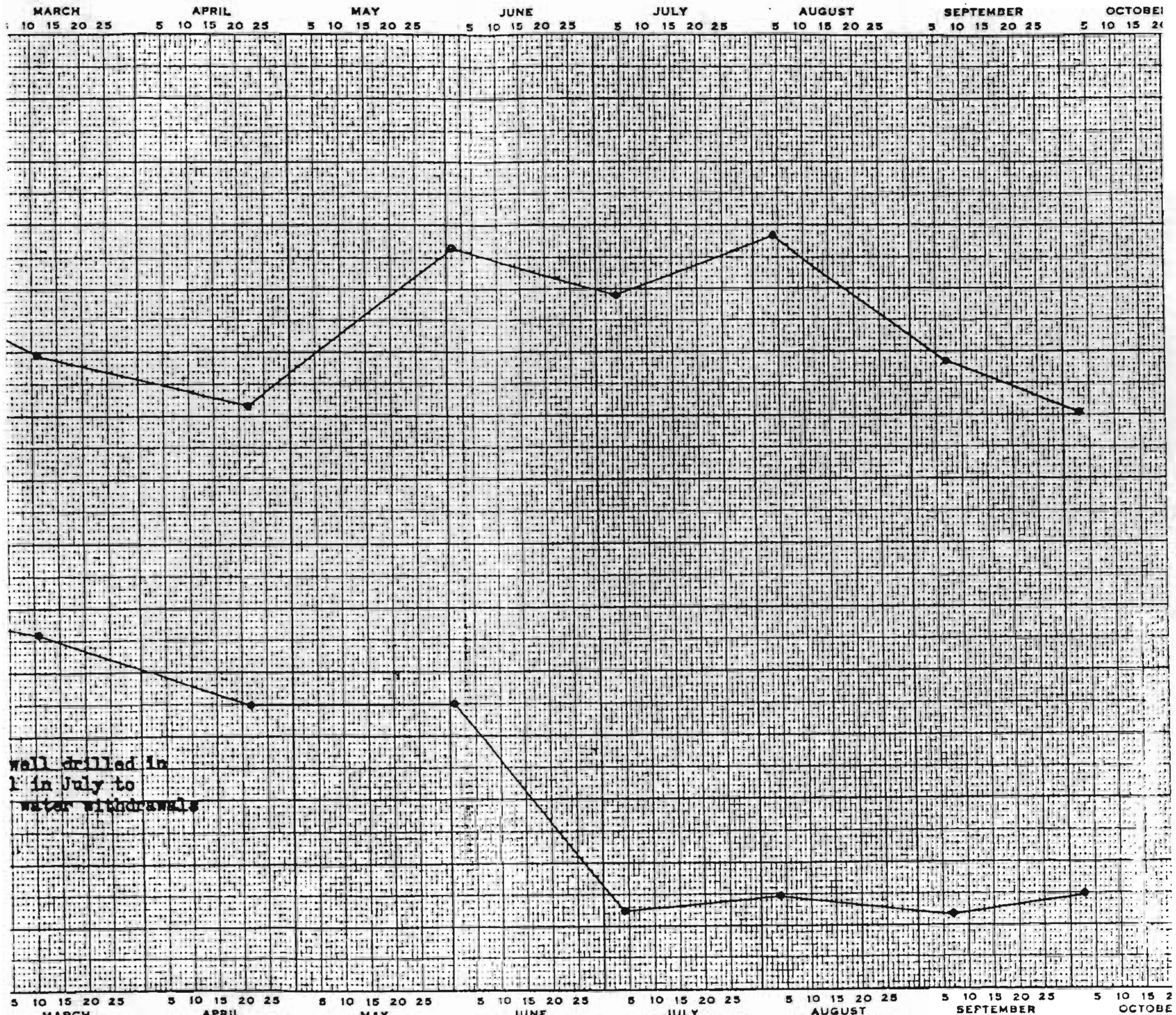
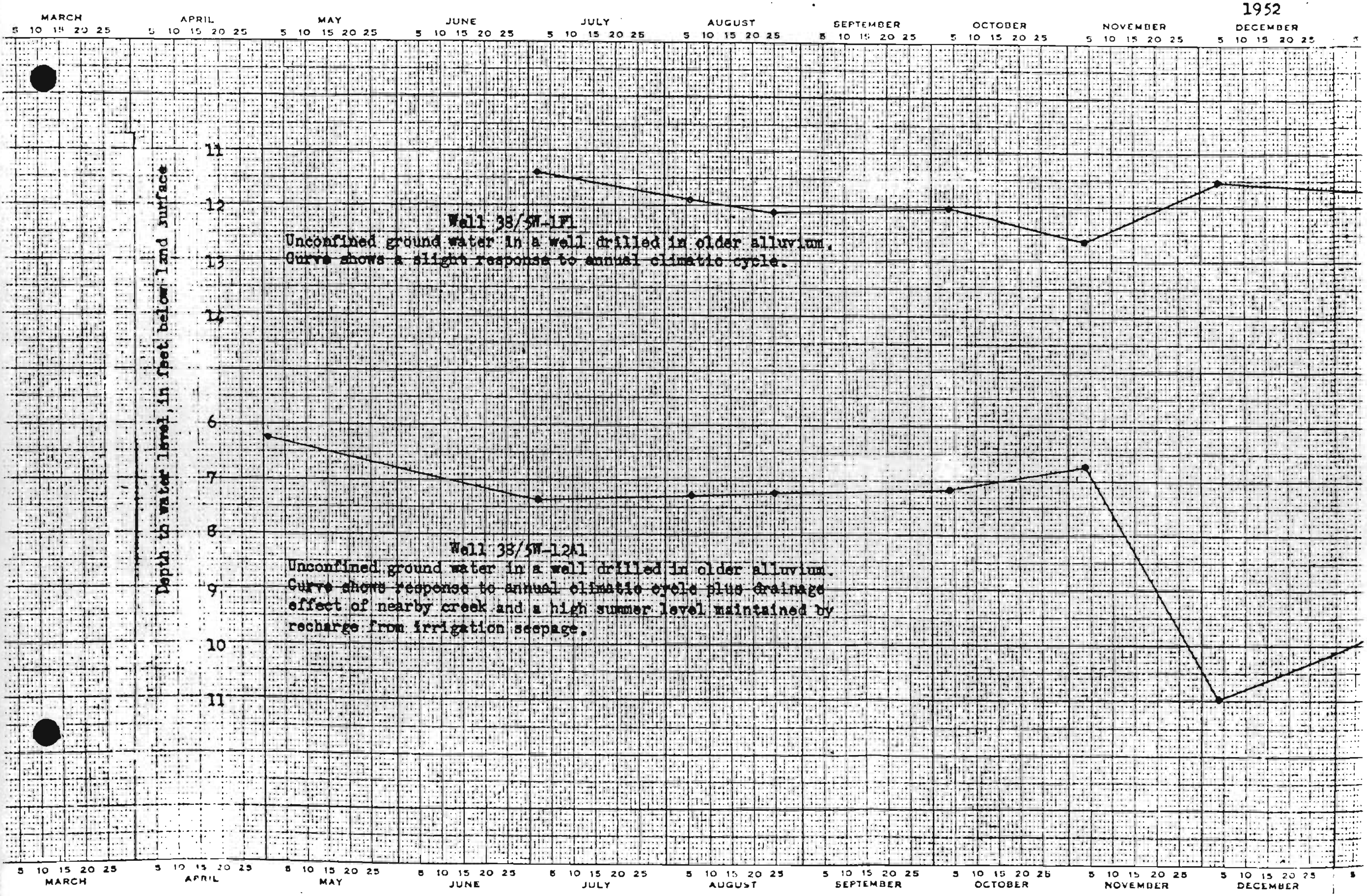

1952
1953
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
5 10 15 20 25
Well 37/6E-14D1
Unconfined ground water in a well drilled in gabbro bedrock.
Curve indicates water-level agreement with the annual
climatic cycle and a secondary high water level
in the summer resulting from recharge by the
seepage of irrigation water
Depth to water level in feet below land surface
8
9
10
11
12
13
14
2
3
4
5
6
7
Pumping
Pumping
Well 37/6E-
Unconfined ground water
granodiorite. Low wate
September 1953 due in p
for irrigation.

PLATE 27


MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBE
5 10 15 20 25
well drilled in
l in July to
water withdrawals

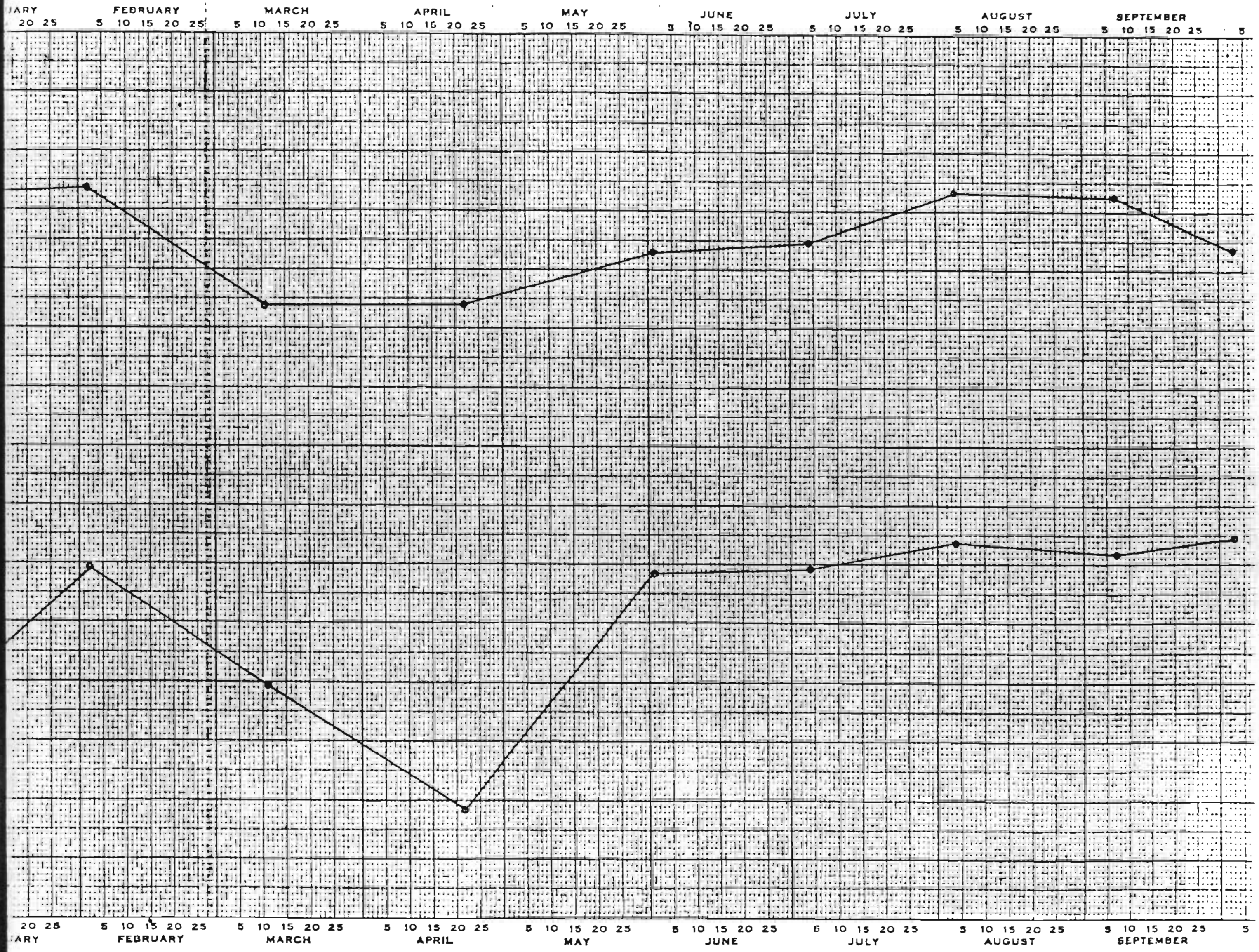


Well 3S/5W-1F1
Unconfined ground water in a well drilled in older alluvium.
Curve shows a slight response to annual climatic cycle.

Well 3S/5W-12A1
Unconfined ground water in a well drilled in older alluvium.
Curve shows response to annual climatic cycle plus drainage effect of nearby creek and a high summer level maintained by recharge from irrigation seepage.

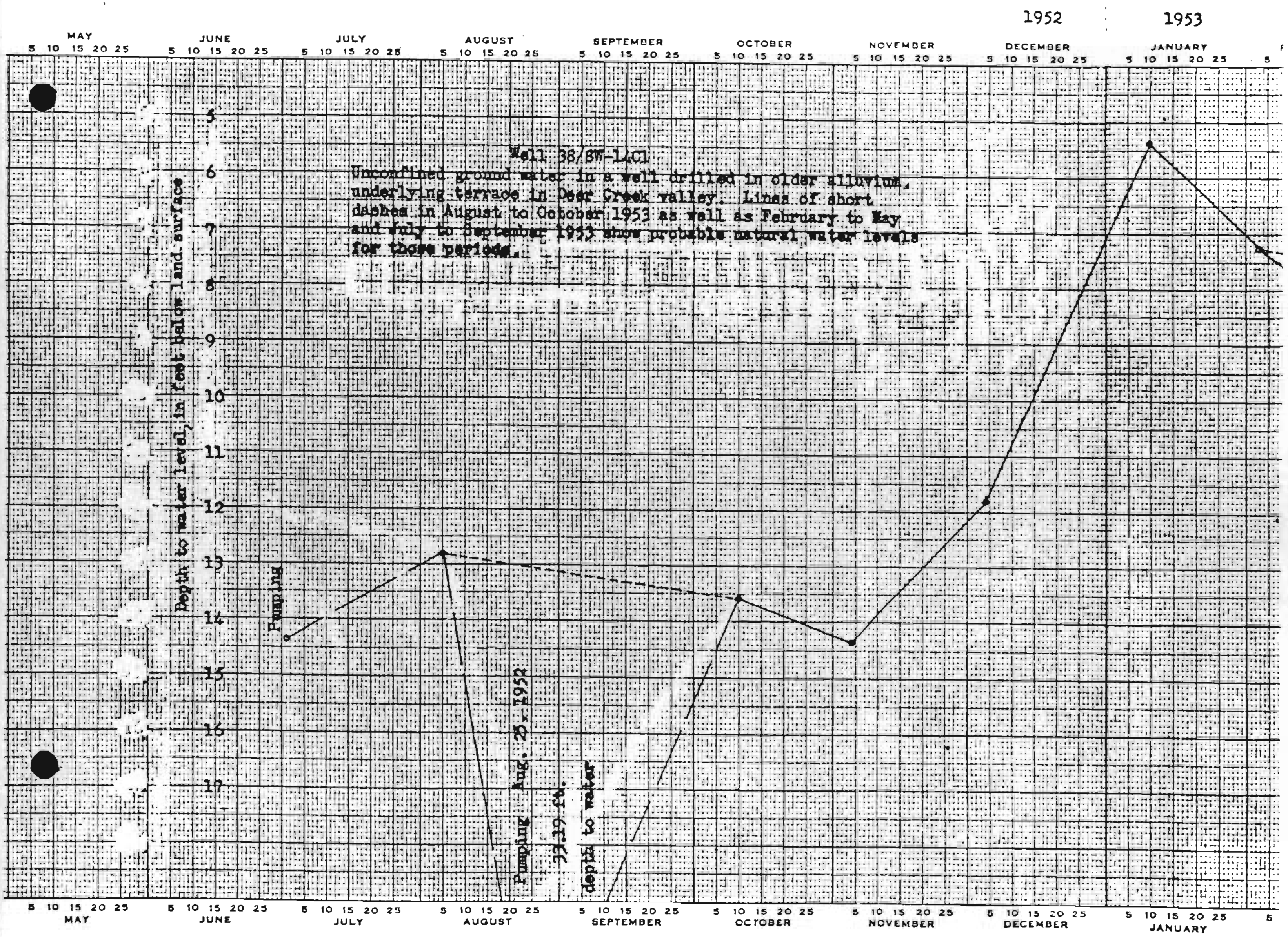
953

PLATE 28



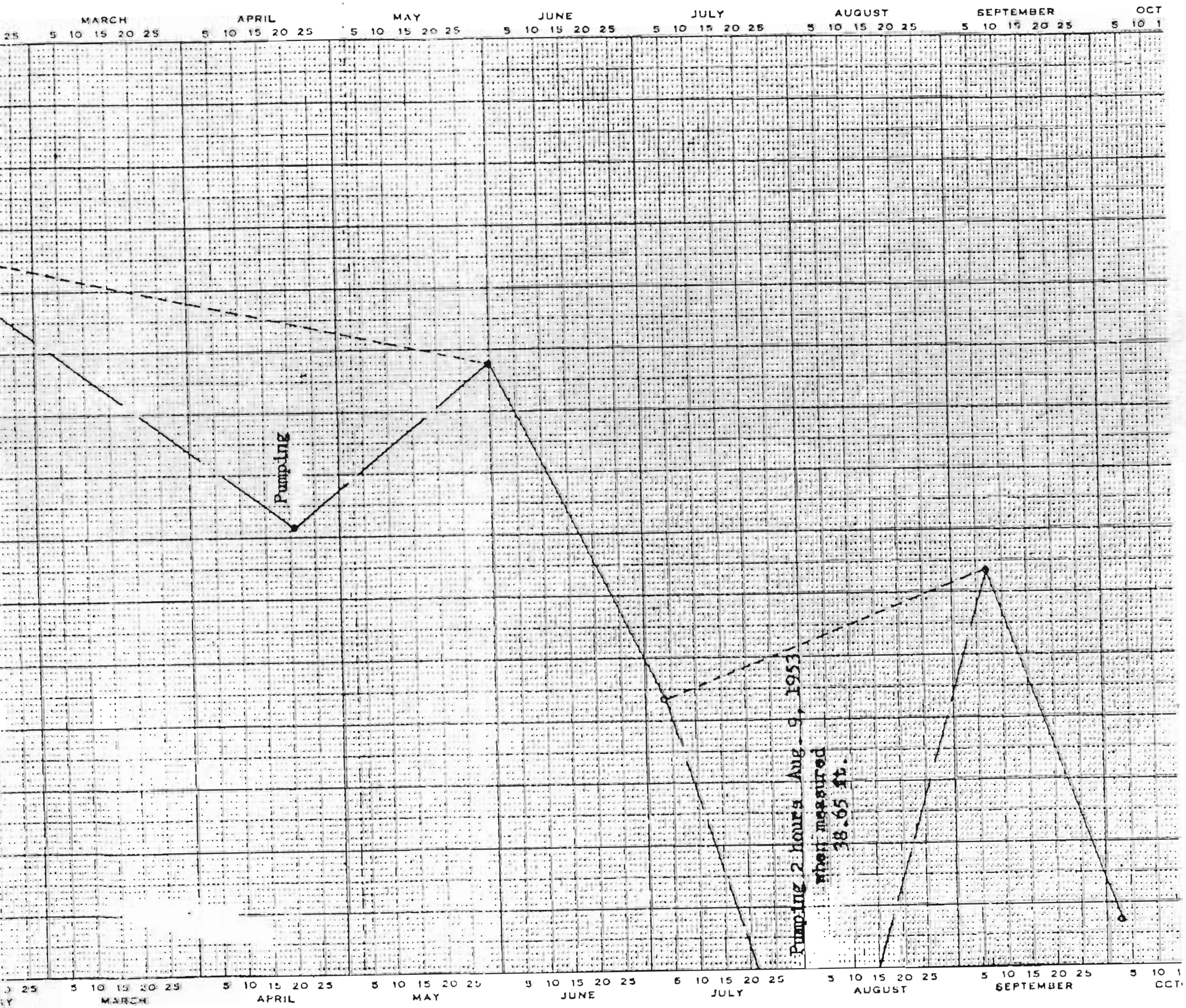
JARY
20 25
FEBRUARY
5 10 15 20 25
MARCH
5 10 15 20 25
APRIL
5 10 15 20 25
MAY
5 10 15 20 25
JUNE
5 10 15 20 25
JULY
5 10 15 20 25
AUGUST
5 10 15 20 25
SEPTEMBER
5 10 15 20 25
5

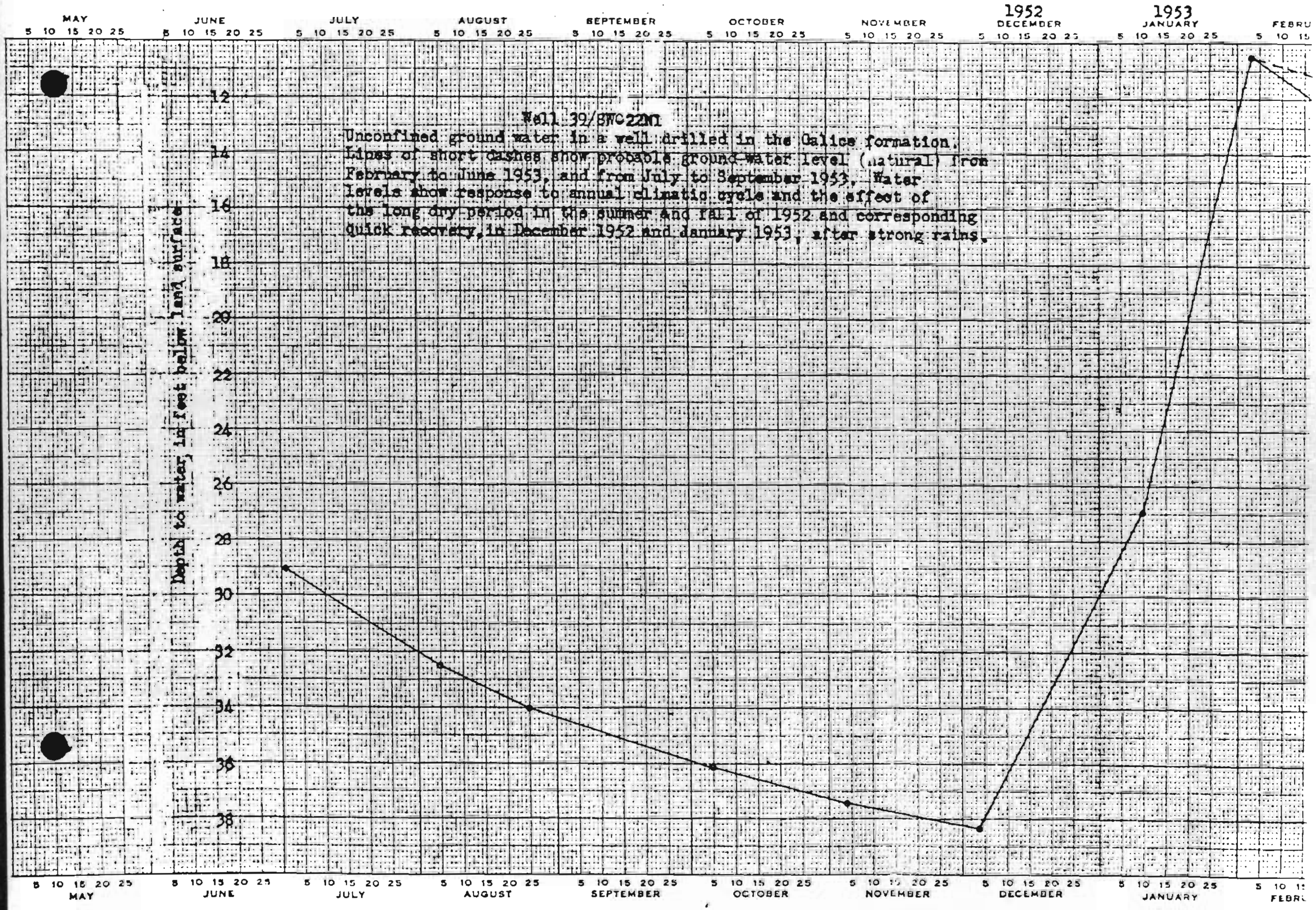
Graphs showing water-level fluctuations in wells


Well 38/8W-14C1

Unconfined ground water in a well drilled in older alluvium, underlying terrace in Deer Creek valley. Lines of short dashes in August to October 1953 as well as February to May and July to September 1953 show probable natural water levels for those periods.

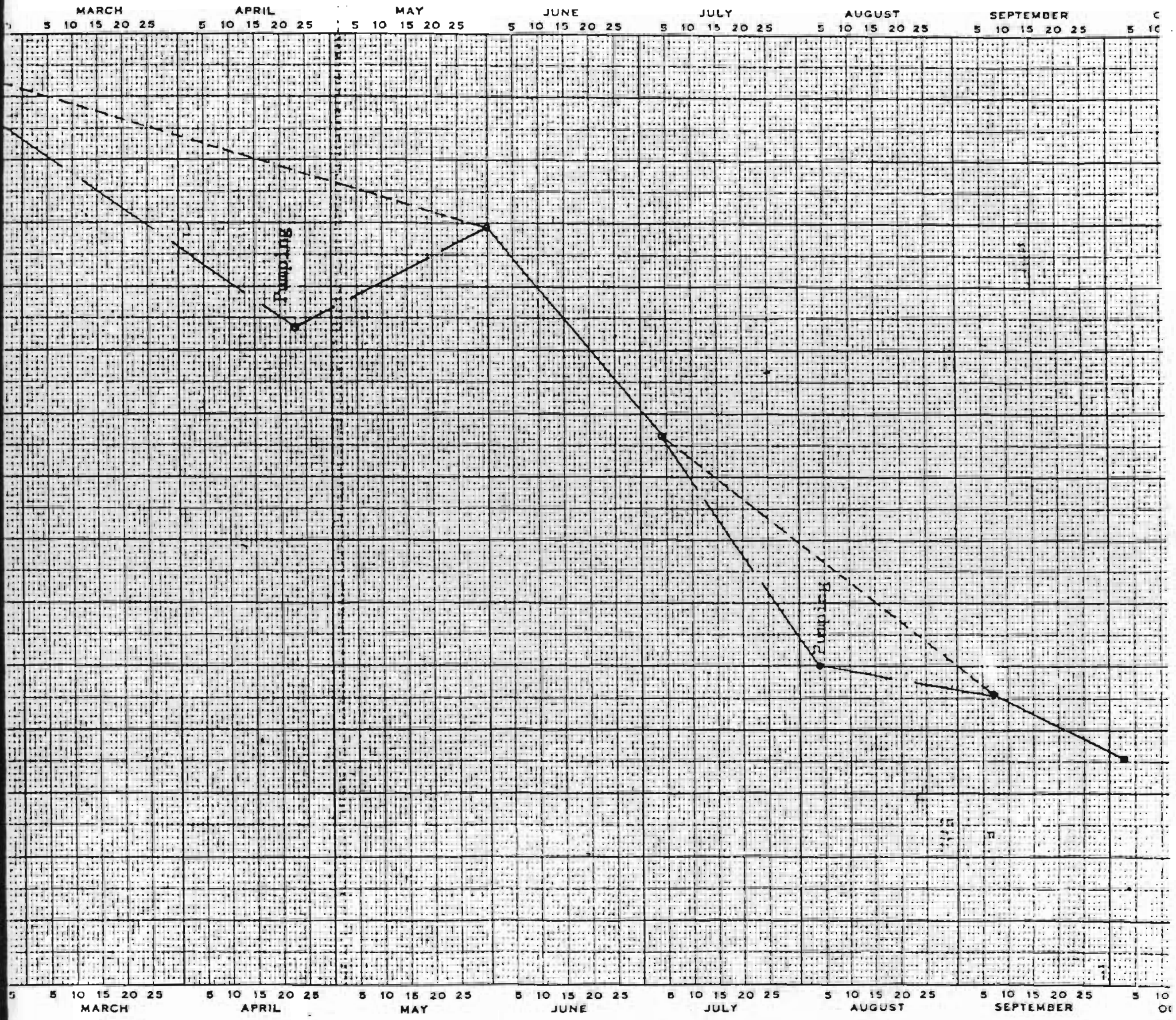
PLATE 29


MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCT
5 10 15 20 25
Pumping
Pumping 2 hours Aug. 9, 1953
when measured
38.65 ft.
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCT



Well 39/8W-22N1

Unconfined ground water in a well drilled in the Galice formation. Lines of short dashes show probable ground-water level (natural) from February to June 1953, and from July to September 1953. Water levels show response to annual climatic cycle and the effect of the long dry period in the summer and fall of 1952 and corresponding quick recovery, in December 1952 and January 1953, after strong rains.


MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25
Pumping
Pumping

Graphs showing water-level fluctuations in wells.

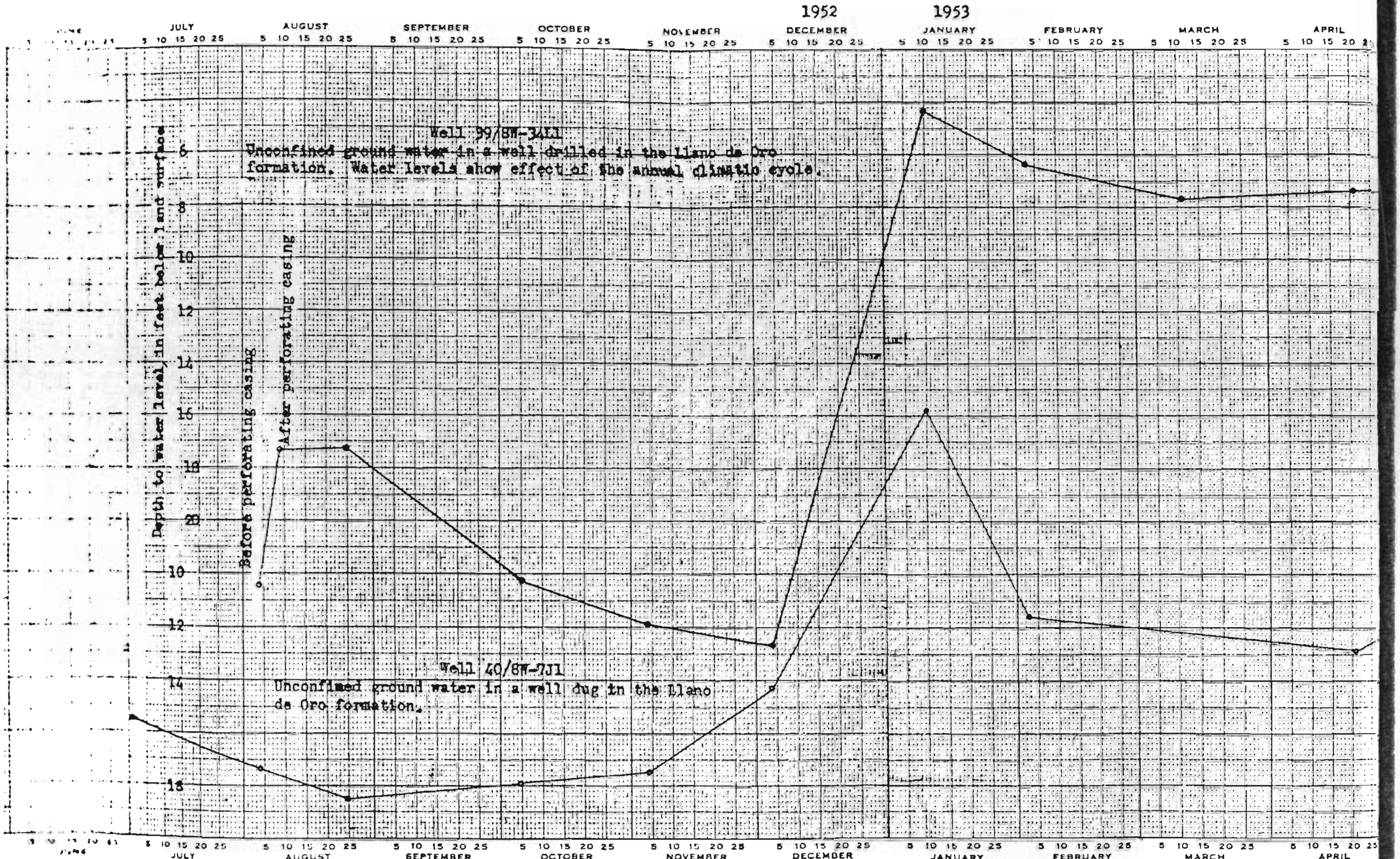


PLATE 31

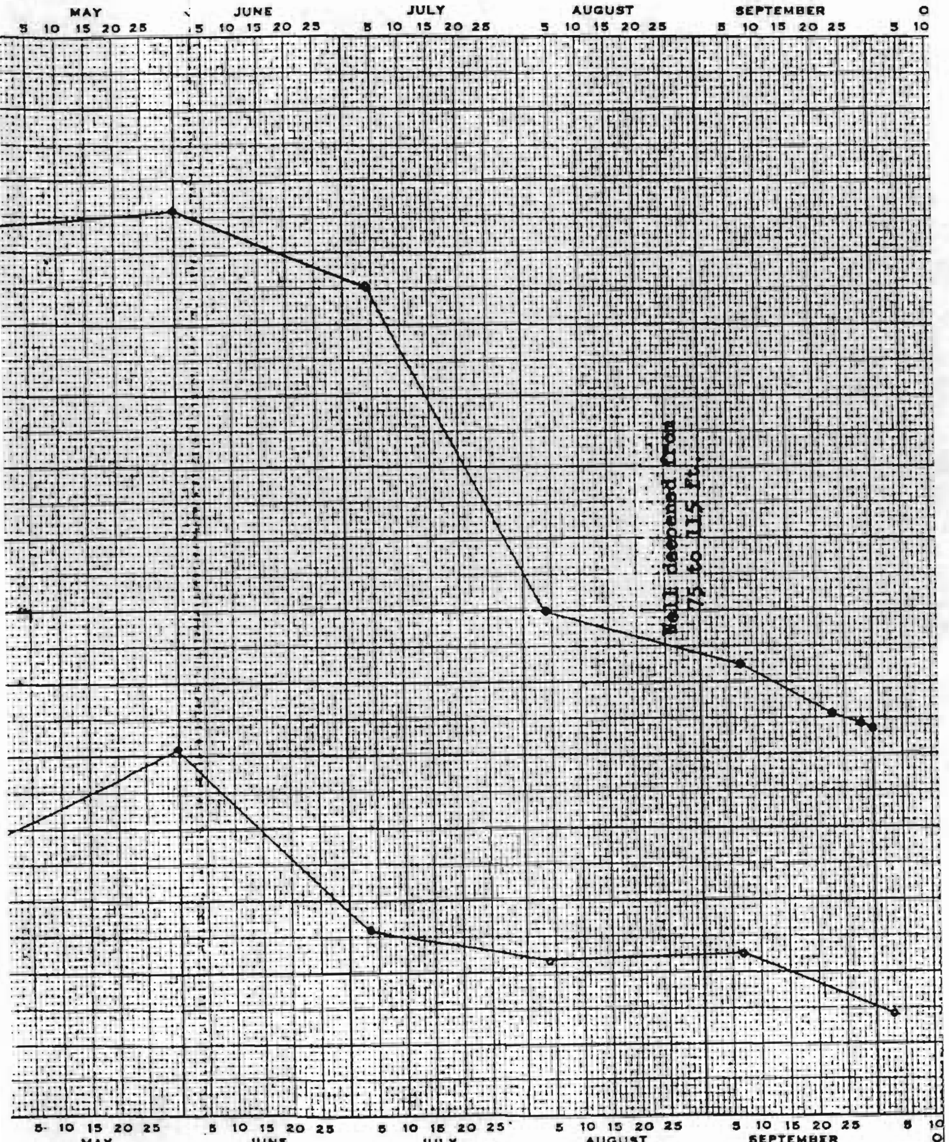

MAY
JUNE
JULY
AUGUST
SEPTEMBER
O
5 10 15 20 25
5 10 15 20 25
5 10 15 20 25
5 10 15 20 25
5 10 15 20 25
5 10
Well deepened from
75 to 115 Ft.
MAY
JUNE
JULY
AUGUST
SEPTEMBER
O

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek Valley and Adjacent areas)

/ T, terrace; U, upland; Vf, valley floor; Vs, valley slope. 2/ Bd, bored; Dg, dug; Dn, driven; Dr, drilled.
/ Depths and water levels expressed in feet and decimals were measured by the Geological Survey; those in whole feet are reported by owner or driller; those with plus and minu signs are approximations reported by the owners. Where static water level of flowing wells is not known, designation is "F" (Flowing).
/ C, centrifugal; J, jet; P, piston; T, turbine. 5/ D, domestic; Ind, industrial; Irr, irrigation; O, observation; PS, public supply; S, stock.
/ Hardness and chloride content determined by field analysis; hardness expressed as $CaCO_3$; composition given by weight.

Well number	Owner or occupant of property	Topography 1/ and approximate altitude (feet above sea level)	Type 2/	Depth 3/ feet	Diameter of well (inches)	Depth of casing (feet)	Water-bearing zone or zones				Water level		Type of pump 4/ and yield (gallons per minute)	Use 5/	Temperature of water (° F.)	Total hardness as $CaCO_3$ (ppm)	Chloride (Cl) (ppm)	Remarks
							Depth to top (feet)	Thickness (feet)	Character of material	Ground-water occurrence	Feet below land-surface datum 3/	Date						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 34 S., R. 1 W.																	
5N1	Joe W. Walty	Vf 1,390	Dr	65	6		55?	5	Volcanic flows	U	17.19	July 10, 1951	16	D				Yielded 16 gpm by bailer test.
5N2	C. M. Baumgardner	Vf 1,390	Dr	85	6	35	80	5	do.	U	20	April 1951	J, 6	D				Supplies water for 2 houses.
1A1	E. B. Straight	Vf 1,380	Dr	21	6		0		Alluvium	U	16.6	July 10, 1951	J	D				Depth to water measured after 5 pumping at unknown rate.
1H1	Torrance	Vf 1,375	Dg	16	36	16	0	16	do.	U			J	D				Goes dry in summer when river l drops.
1J1	M.H. Williams	Vf 1,370	Dr	71	6	35?	55	15	Volcanic flows	U	12	1946	J, 30	D		10	8.5	
1J2	do.	Vf 1,370	Dr	59	6		55?	4?	do.	U	12	1951	J, 25	D				
1R1	J. F. Johnson	Vf 1,370	Dg	14			12	2	Alluvium	U			J, 10	D				
8J1	Ragsdale	Vs 1,425	Dr	169	6		165	4	Volcanic flows	U			J, 10	D				
1D1		Vs 1,550	Dr	124	6				do.	U	12.08	July 30, 1951						[illegible]
2J1	Dan Krots	Vs 1,370	Dr	41	6	6?	2	39	do.	U	5.37	do.	J	D		55	3	
4E1	W. B. Koehly	Vs 1,485	Dr	125	6	40	115	5	do.	U			J	D, S. Irr				Supplies 4 farmsteads.

Unpublished records subject to re

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent area) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 34 S., R. 1 W.																	
34E2	A. C. Silver	Vs 1,470	Dr	90	6	30	85	5	Volcanic flows	U	30	July 1951	J	D, Irr				Pumps dry in 30 minutes, [illegible]
34N1	F. W. Powell	Vs 1,440	Dr	90	6				do.	U			J	D, S		95		Water contains much dissolved mineral; no conclusive chloride test obtained.
34N2	A. Pelle	Vs 1,450	Dr	153	6	407	150	3	do.	U	5±	1947	J	D, Irr				
	T. 35 S., R. 1 W.																	
3C1	Burt Conner	Vs 1,490	Dg	20			0	20	Colluvium	U			P	D, S, Irr				Located just below irrigation
3F1	Kirty Tant	Vs 1,510	Dr	52	6	17	50	2	Volcanic flows	U	18	1950	J	D, S				
3L1	E. Wentle	Vs 1,470	Dr	68	6				do.	U	7.04	July 6, 1951	P	D, S				
3L2	E. W. McKee	Vs 1,500	Dr	143	6				do.	U			J, 2	D. Irr				
3N1	W. F. Lempke	Vs 1,500	Dr	134	6	16	130	4	do.	U	93.98		J	D		25	3.5	Reportedly yields but 156 gall per day.
3P1	J. H. Mitchell	Vs 1,470	Dr	62	6				do.	U			J, 7	D, Irr				Can be pumped at capacity for hours without failing.
10F1	W. E. Hummel	Vs 1,450	Dr	271	6	16	270	1	do.		25±	1945	J	D				Inadequate for 1 household.
10M1	J. Thom	Vs 1,490	Dr	100	6				do.				P	D, Irr				Supplies 3 households.
10N1	Moxley	Vs 1,350	Dr	56.5	6	9	56	0.5	do.	C	+1.4	July 5, 1951	P, 3	D		55	37	Has flowed for 3 years; water sulfurous gases.
10N2	R. J. Hanks	Vf 1,310	Dr	70	6				do.	U			J	D, S				Yields about 20 gal at one pumping.
15K1	C. A. Rowley	Vs 1,475	Dr	200	6	45			do.	U	36	1949	J, 150	D, Ind		80	29	Supply for auto court; drawdo to be 4 ft after 1 hour pum
16A1	Flannery	Vf 1,405	Dr	60	6				Alluvium	U			J	D				Pumped dry in 45 minutes.
16N1	Olson	Vf 1,400	Dr	89	6				Volcanic flows	U			J, 11	D, Irr		85	10.5	

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 1 W. - Continued																	
21G1	Matthews	Vs 1,380	Dg	15.4	48	15	0	15	Alluvium	U	11.38	July 5, 1951	P	D				Adequate for house use only.
21J1	Ted Kucera	Vs 1,375	Dg	30			0	30	do.	U	11.70	do.	J	D, S		125	24	
22B1	C. D. Kelley	Vs 1,450	Dr	35	6				Volcanic flows	U			P	D, Irr		95	4.	
22D1		Vs 1,375	Dr	26.4	6	26			Alluvium	U	9.78	July 5, 1951	C	D. S. Irr		210	16.	
22F1	Joe Work	Vs 1,370	Dg	17	48		0	17	do.	U	14	July 1951	P	D		90	5	Inadequate for 1 household.
22H1	Waddell	Vs 1,440	Dg	3	24		0	3	do.	U	.5	July 3, 1951	C	D, S, Irr		45	6.	Located in spring area.
27D1	W. L. Thomas	Vs 1,410	Dr	65	6					U	8	1951	J	D, Irr				
27F1	R. Matthews	Vf 1,400	Dg	15	96	15	0	±15	do.	U	7.50	July 3, 1951	J, 3	D, Irr				
27L1	W. Wood	Vs 1,420	Dr	51	6				Tuff	U	8	1947	J, 14	D		15	4.5	
27M1	Potter	Vs 1,390	Dr	80	6				do.	U			J	D, S, Irr		140	8	Adequate for house, garden, & dairy
27P1	N. D. Robinson	Vs 1,395	Dr	79	6		70	±9	do.	U	1	July 1951	P	D, Irr		15	4	Little drawdown at pump capacity
34C1	P. Slacarenko	Vs 1,390	Dr	75	6	30					8±	1950	J, 33	D, Irr		85	5	
34E1	Boggs	Vs 1,380	Dr	113	6		110	3					P, 3	D, S		90	8	
34F1	H. Regester	Vs 1,375	Dr	152	6	152							J, 3	D, S		135	11	
34H1	Warren and Franklin	Vs 1,410	Dr	85	6						23.09	July 3, 1951	J	D, S		54	6.	
34L1	Grab	Vs 1,350	Dr	115	6		113	2	Tuff	U			J, 50±	D, S				
34N1	Buford Clark	Vs 1,370	Dr	96	6	12	90	6	do.	U				D, Irr		120	8	Reportedly will supply pump capacity for over 24 hours
34P1	R. B. Berryman	Vs 1,350	Dr	82	6				do.	U			J	D, S		145	6	
35D1	Riddell	Vf 1,405	Dr		6									D		125	14	
35M1	Vinson Vaughn	Vf 1,325	Dr	65	8						10	April 1952	J	D, S		10	6.	Not measurable.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 1 W.- Continued																	
36A1	E. R. McCraw	Vf 1,450	Dr	107	6	100	103	4	Tuff	U	8	April 1951	J, 33	D, S		165	18	
	T. 35 S., R. 2 W.																	
22K1	Frank Nelson	Vf 1,300	Dr	55	6	22			Gravel	U	22	May 1951	P, 8	D, S		45	5	
27F1	Earl L. Bigham	Vf 1,275	Dr	36	6	20			Shale	U	9-10	do.	J, 60	D, S				
27K1	Elwood Abbott	Vf 1,250	Dr	77	6	24	73	4	do.	U	12	January 1952	T, 40	Irr				See table 4 for chemical analy
28J1	Joe Mayfield	Vs 1,290	Dr	105	6				do.	U				D, S		95	4	
28L1	R. E. Carley	Vs 1,300	Dr	67	6	10	30		do.	U			J, 5	D, S				Penetrated thin coal seam at
28L2	do.	Vs 1,300	Dr	83	6	10	20 40 73		do. do. do.	U U U	10	August 1946	J, 30	Irr		190	14	
29D1	C. W. McDonough	Vs 1,455	Dr	252	6				do.	U	40	May 1951	J, 1.5	D, S		40	3.5	Reportedly water contains some
29E1	Fish	Vs 1,350	Dr	150	6	6	150		Coal seam in shale	C		May 16, 1951				25	31	Flowed 1 gpm for about 1 week drilled; water contains sulf gases.
29F1	G. A. Koellner	Vs 1,295	Dr	101	6	12	67		Shale?	U	24.68	May 14, 1951				95	46	Not yet in use; water tastes slightly salty.
29G1	C. L. Michael	Vs 1,300	Dr	65	6				Shale	U			J, 10	D, Irr		75	19	Can be pumped dry in 1½ hours.
29R1	E. L. Lamb	Vs 1,300	Dr	228	6	38±			do.	U	42	May 1951	J, 1	D, S		90	6	Was developed by the dry-ice
29R2	Bunting	Vs 1,310	Dr	100	5	52±			do.	U	23	do.	J	D				Will pump dry in about an hour
30A1	Chloe McDonough	Vs 1,350	Dg	20	60	20			Colluvium	U			P	D, S		185	5.5	Will supply water for 100 hea of cattle.
30K1	C. C. Sanderson	Vs 1,300	Dg	16	36				Valley fill	U	6	June 1951	J	D, S, Irr				Can be pumped dry in 2 hours; level recovers in 4 hours.
30M1	Paul Schulz	Vs 1,290	Dr	75	6	24			Shale	U			J	D, S		90	10	
30P1	Houston	Vs 1,300	Dg	26	72				Valley fill	U	6±	May 1951	D, 5	D, S, Irr		125	2	Water level drawn down 6 ft by 30 hours of pumping at 5 gpm.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 2 W.- Continued																	
30R1	H. E. Eskridge	Vs 1,280	Dr	162	6	12			Shale	U	61.50	May 14, 1951	J, 5	D, Irr		35	16	Water level measured after ½ pumping.
30R2	Loyd Dusenberry	Vs 1,310	Dr	154	6				do.	U	27.68	May 15, 1951	J	D		25	8	
30R3	G. Botsford	Vf 1,250	Dg	11.8	36	11.8	0	11.8	Valley fill	U	4.57	do.	C	D, Ind				Supplies house and service s
31B1	H. S. Musson	Vf 1,240	Dg	20.4			0	21+	do.	U	2.13	do.	C, 10	D, Irr		125	3	
31C1	H. A. Davidson	Vf 1,230	Dg	22					do.	U	4.77	do.	P	D, S, Irr				
31D1	E. Crottogini	Vs 1,290	Dg	22.2					do.	U	6.00	do.	P	do.				
31J1	W. Sanderson	Vf 1,230	Dg	13					do.	U	5.35	May 10, 1951	P, 8	Irr				
31N1		Vf 1,220	Dg	27.1		27			do.	U	4.08	do.	J	D, S, Irr				
31N2	A. Straus	Vf 1,220	Dr	77.2	6				Shale	U	2.9	May 15, 1951	J	D		125	17	Not adequate for 1 household.
32C1	Tumes	Vs 1,290	Dr	78	6				do.	U			J	D		135	12	
32D1	Koellner	Vf 1,260	Dg	32.9	72				do.	U	13.64	May 15, 1951	C	D				
32F1	J. H. Korner	Vf 1,230	Dr	100	6				do.	C			J	D, S, Irr				Flows in winter and spring un about May 1.
33A1	Jirshele	Vf 1,250	Dg	20					Valley fill?	U			J					Not in use.
33B1	Do.	Vf 1,260	Dr	60	6	12			Shale	U			J, 7	D, S		105	13	
33D1	Lester James	Vs 1,290	Dr	243	6	20.5			do.	U	28±	May 1951	P, 4	D, S	65			Yielded about 1 gpm when dril owner treated well with 190 dry ice; water level rose fr 28 ft; and yield to about 4 gpm; down 207 ft after 11 hours p see table 4 for chemical ana of water.
33L1	J. C. Duggan	Vf 1,250	Dr	83	6				do.	U	20±	June 1951	J	D, Irr				
33F1	do.	Vf 1,250	Dg	32		14	14	18+	do.	U			J	D, S, Irr				

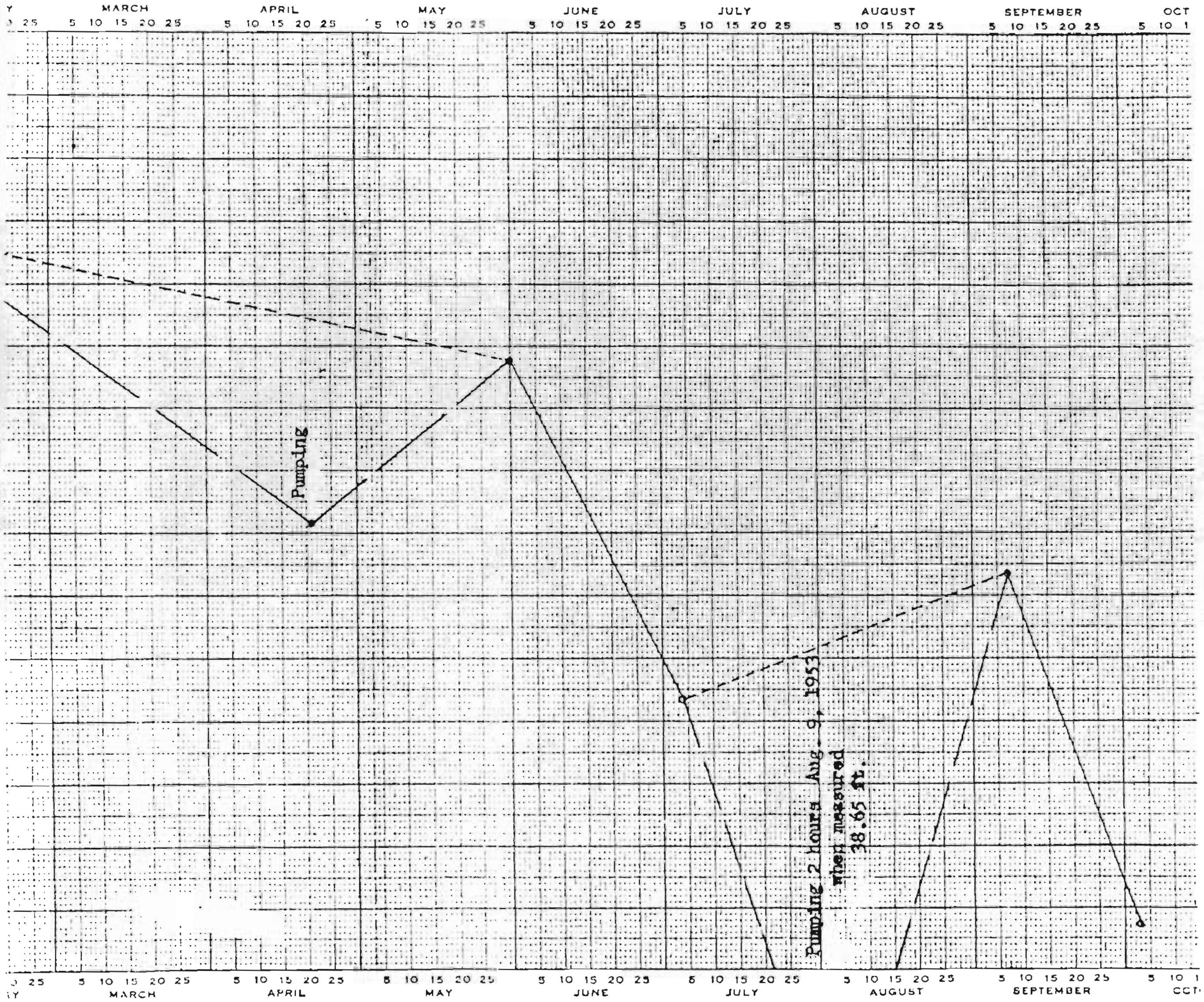
Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

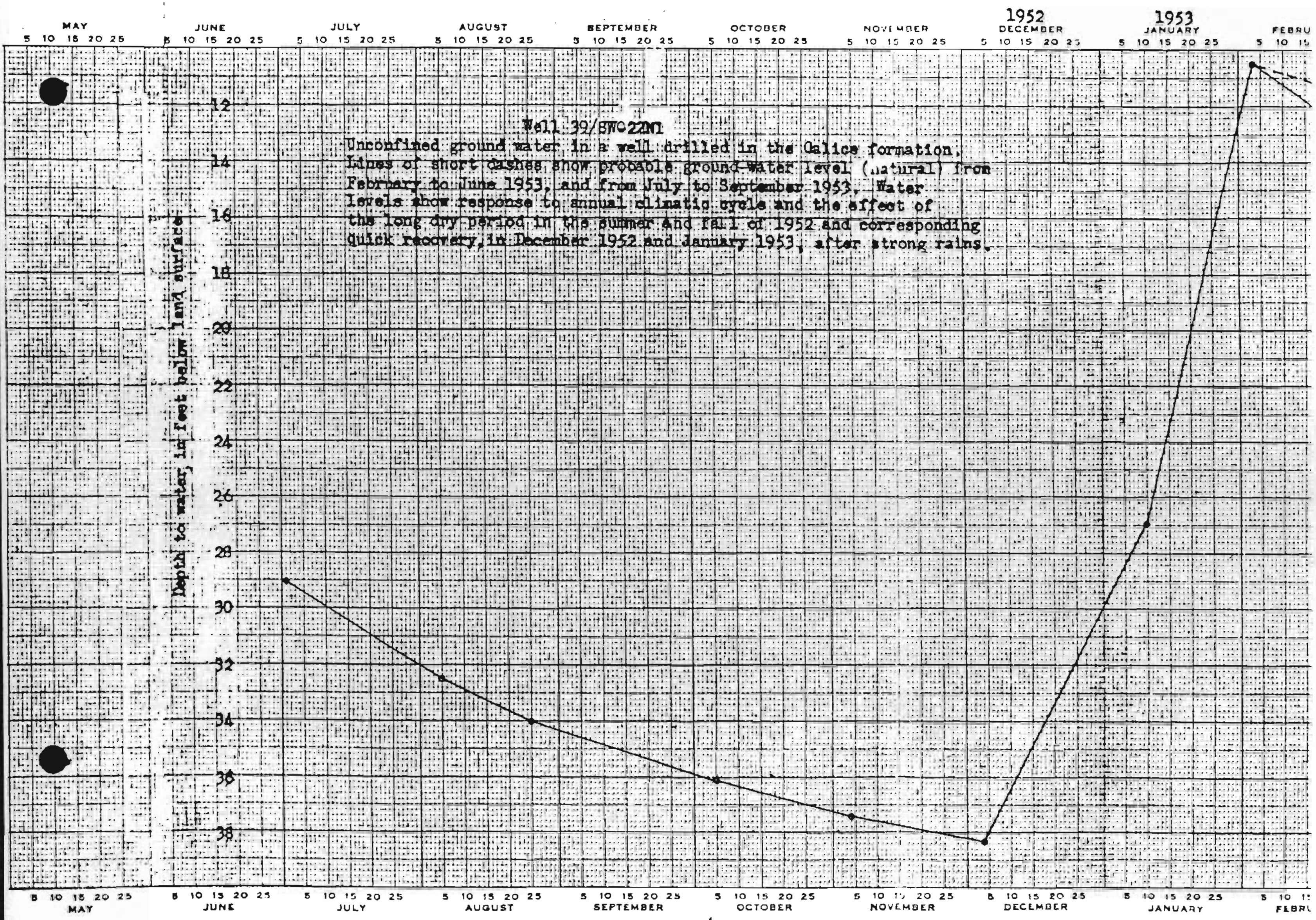
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 3 W.																	
24R1	Adolf Angal	Vf 1,350	Dr	260	9				Shale	C	F	Jan. 25. 1952	J. 30	~~Irr~~				See table 4 for chemical analy of water.
36B1	Roy Stegall	Vf 1,250	Dg	20	48				Gravel	U	4	June 1951	J	D				
	T. 36 S., R. 1 W.																	
1F1	N. A. Hanscom	Vs 1,480	Dr	30	6				Volcanic flows	U	18	do.	J, 12	D, Irr				
1J1	C. W. Atkins	Vs 1,448	Dr	98	6				do.	U			J	D, S		90	9	
1K1	Martin Aikens	Vs 1,480	Dr	75	6	17				U			J, 22	D. S		130	4	
1L1	R. C. Gregg	Vs 1,480	Dg	29	48	0	29		Slope wash	U	11.11	May 29, 1951		S				
1M1	L. E. Marcroft	Vs 1,495	Dr	81	6								P	D		95	5	
1R1	J. W. Marlette	Vs 1,440	Dr	69	6								J	D, S		45	3	
2J1	Joe K. Andrews	Vs 1,485	Dr	65	6	11	63±				6.13	May 29, 1951	C, 15	D, Irr		130	13	
2K1	Tom Bray	Vs 1,490	Dr	49	6	36	48±	1			18	May 1951	J, 40	D, Irr		40	9	
3F1	E. O. Hafley	Vf 1,305	Dr	100	6		65±		Tuff	U			J	D				
3J1	C. E. Hughes	Vs 1,380	Dr	144	6				do.	U	34.94	May 29. 1951	J, 12	D, Irr		55	4	Pump operating when water lev measured.
3K1	Ray Bornish	Vs 1,280	Dg	24	36	24				U			J	D, Irr		210	9	
4R1	McCaslin	Vf 1,290	Dr	40	6	40	5		Valley fill	U	9.11	June 6, 1951	J	D, Irr				
5R1	Wilkerson	Vs 1,280	Dr	100	5				Tuff	U	8	June 1951	J	D, S		155	11	
9A1	R. E. Jenks	Vs 1,300	Dr	90	6				do.	U			J	D. S.Irr				
9B1	Clara Young	Vf 1,290	Dr	35	6	36±			Valley fill	U			P	do.		280	135	
9D1	W. A. White	Vs 1,270	Dr		6				Tuff	U			P	D, S				
9K1	O. O. Wilson	Vf 1,275	Dr	96.5	6	20	94	2.5	do.	U	10	June 1951	J, 60	D, Irr		110	18	See table 3 for driller's log
10B1	William Spatz	Vs 1,320	Dr	80	6				do.	U			J	D		156	10	Inadequate for 1 household.
10D1	Mittlestaedt	Vs 1,340	Dr	99.5	6				do.	U	63.50	Apr. 4. 1951				110	16	Not in use.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 1 W. - Continued																	
10E2	Mittelstaedt	Vs 1,340	Dr	150	6	150			Tuff	U			P	D		[illegible]	[illegible]	See table 4 for chemical a of water.
10J1	E. W. Bigham	Vs 1,375	Dr	198	6	16	16	182	do.	U	60	May 1951	J	D, S		150	14	
10K1	C. F. Davies	Vs 1,340	Dr	146	6				do.	U			J			155	5	
10Q1	J. W. Bigham	Vs 1,345	Dr	27	48		27+		Valley fill	U	17	1935	J	D, S, Irr		140	20	
12B1	D. Albini	Vs 1,400	Dr	285	8	33			Tuff	U	20	June 1951	T, 55	D, Irr		20	50	Was pumped at rate of 2,00 per hour for 8 days with drawdown; recovered in 20
12J1	Foster Swigert	Vf 1,405	Dr	32	6	32			do.	U	15	May 1951	J	D, S		160	9	
12Q1		Vs 1,415	Dr	90	6				do.	U			J	D				Adequate only for domestic
13B1	Pete Auer	Vf 1,435	Dr	80	6				do.	U	6	1939	J	D, S				Adequate for domestic use cattle,
13E1	C. A. VonDerHellen	Vf 1,400	Dg	6	36	6			Valley alluvium	U	1	May 1951	C	D, Irr		110	4	
14A1	Harper	Vs 1,370	Dr	158	6	27	157	1	Tuff	U	20	June 1951	J, S	D, Irr		50	69	
14A2	E. Rigday	Vs, 1,405	Dr	100	6				do.	U			J	D. S. Irr				
14E1	A. T. Wattenberg	Vs 1,395	Dr	208	6				do.	U			J	do.				Deepened 50 feet in 1951.
14J1	J. B. Deen	Vs 1,390	Dr	60	6	12			do.	U	18	June 1951	J	D				Inadequate for 1 household
15K1	K. W. Hayes	Vf 1,350	Dr	81	6				do.	U			J	D		200	40	
17Q1	Ted Hornecker	Vf 1,320	Dr	96	6	57			Shale	U	6.46	Apr. 10, 1951	J	D		65	5	See plate 13 for water-lev and table 3 for driller's
20C1	White City Lumber Company	Vf 1,320	Dr	162	6	58			do.	U	11	November 1950	T	D		45	16	Supplies 25 houses; see ta xx driller's log.
20E1	Boes Lumber Co.	Vf 1,305	Dr	80	6	47			Gravel and shale	U	40	October 1950	T, 100	Ind	63			See table 4 for chemical a of water and table 3 for log.
20Q1	D. R. Smith	Vf 1,305	Dr		6	62				U			J	Ind		55	11	

PLATE 29

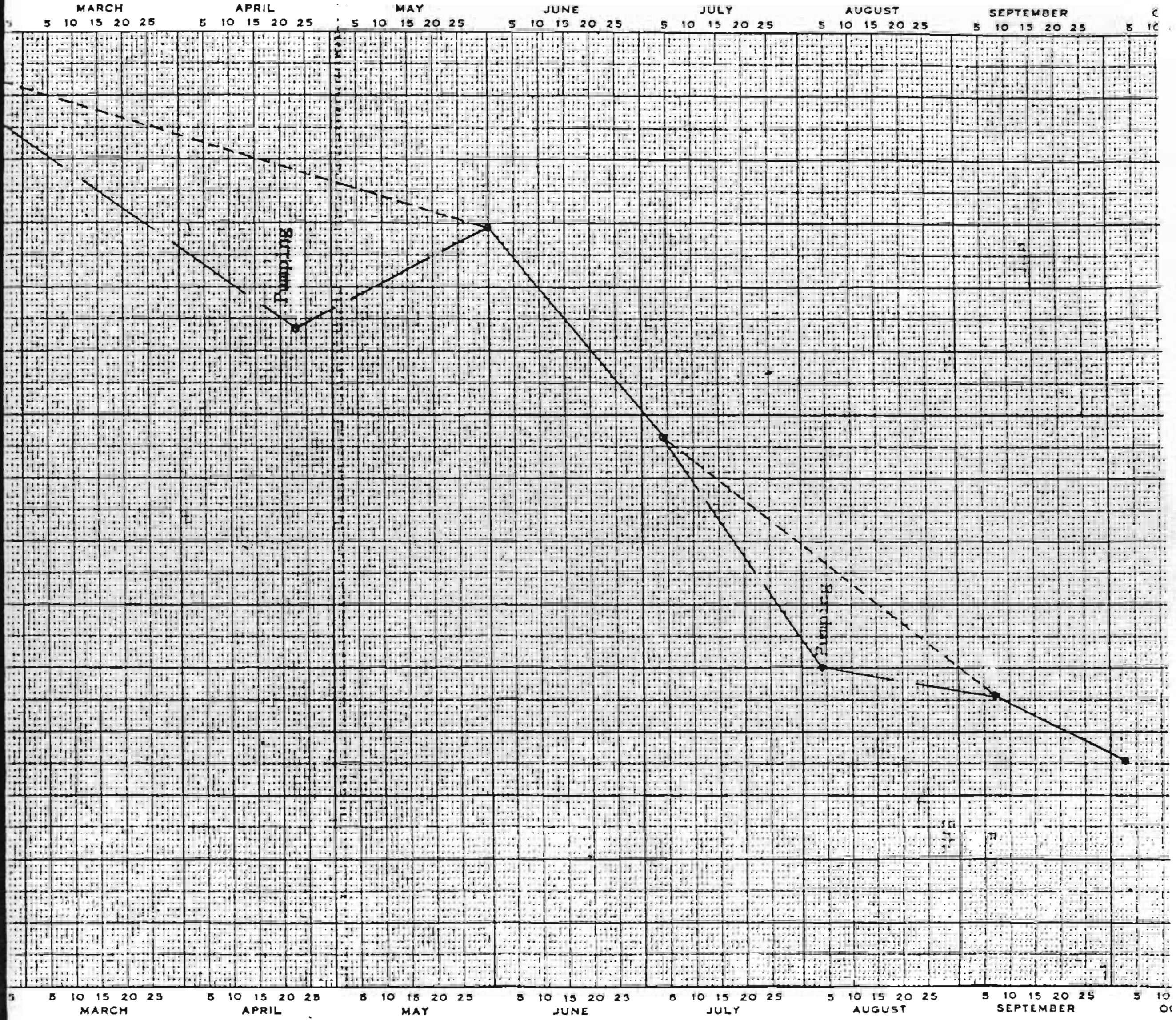

MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCT
5 10 15 20 25
Pumping
Pumping 2 hours Aug. 9, 1953
when measured
38.65 ft.



Well 39/8W-22N1

Unconfined ground water in a well drilled in the Galice formation. Lines of short dashes show probable ground-water level (natural) from February to June 1953, and from July to September 1953. Water levels show response to annual climatic cycle and the effect of the long dry period in the summer and fall of 1952 and corresponding quick recovery, in December 1952 and January 1953, after strong rains.

PLATE 30


MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25
Pumping
Pumping

Graphs showing water-level fluctuations in wells.

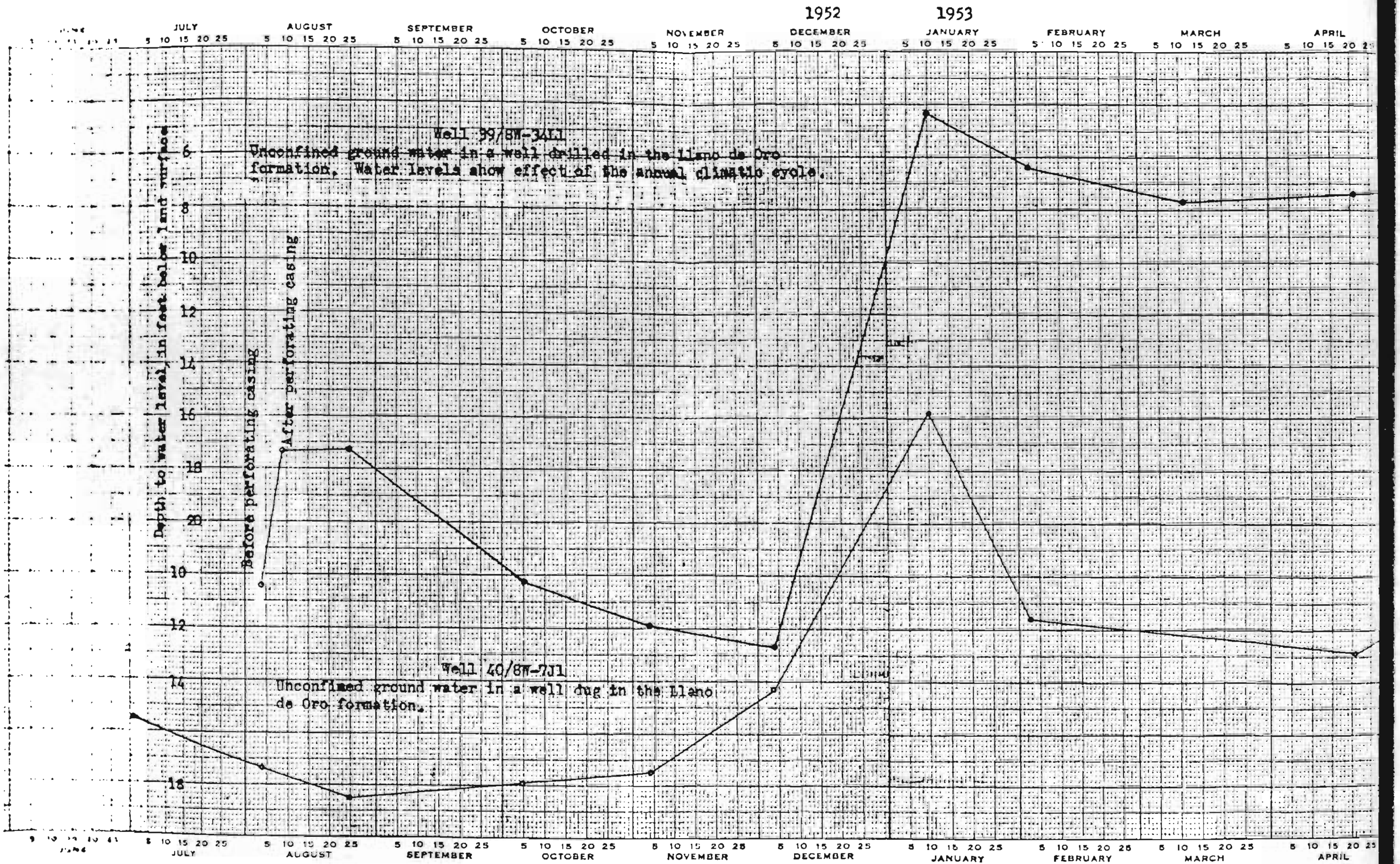


PLATE 31

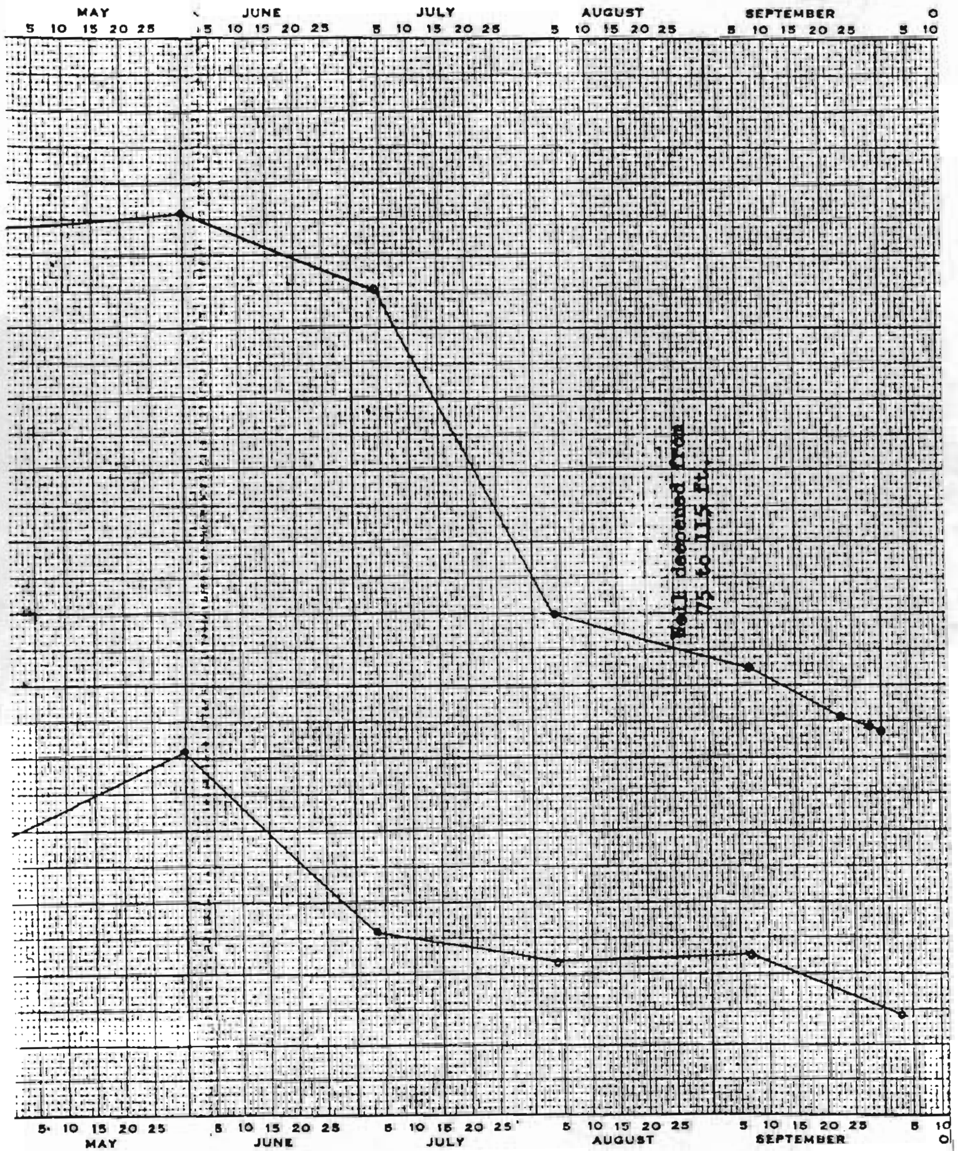

MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25
Well deepened from
75 to 115 ft.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek Valley and Adjacent areas)

1/ T, terrace; U, upland; Vf, valley floor; Vs, valley slope. 2/ Bd, bored; Dg, dug; Dn, driven; Dr, drilled.
3/ Depths and water levels expressed in feet and decimals were measured by the Geological Survey; those in whole feet are reported by owner or driller; those with plus and min
signs are approximations reported by the owners. Where static water level of flowing wells is not known, designation is "F" (Flowing).
4/ C, centrifugal; J, jet; P, piston; T, turbine. 5/ D, domestic; Ind, industrial; Irr, irrigation; O, observation; PS, public supply; S, stock.
6/ Hardness and chloride content determined by field analysis; hardness expressed as $CaCO_3$; composition given by weight.

Well number	Owner or occupant of property	Topography 1/ and approximate altitude (feet above sea level)	Type 2/	Depth 3/ feet	Diameter of well (inches)	Depth of casing (feet)	Water-bearing zone or zones: Depth to top (feet)	Thickness (feet)	Character of material	Ground-water occurrence	Water level: Feet below land-surface datum 3/	Date	Type of pump 4/ and yield (gallons per minute)	Use 5/	Temperature of water (° F.)	Total hardness as $CaCO_3$ (ppm)	Chloride (Cl) (ppm)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 34 S., R. 1 W.																	
15N1	Joe W. Walty	Vf 1,390	Dr	65	6		55?	5	Volcanic flows	U	17.19	July 10, 1951	16	D				Yielded 16 gpm by bailer test.
15N2	C. M. Baumgardner	Vf 1,390	Dr	85	6	35	80	5	do.	U	20	April 1951	J, 6	D				Supplies water for 2 houses.
21A1	E. B. Straight	Vf 1,380	Dr	21	6		0		Alluvium	U	16.6	July 10, 1951	J	D				Depth to water measured after 5 pumping at maximum rate.
21H1	Torrance	Vf 1,375	Dg	16	36	16	0	16	do.	U			J	D				Goes dry in summer when river l drops.
21J1	M.H. Williams	Vf 1,370	Dr	71	6	35?	55	15	Volcanic flows	U	12	1946	J, 30	D		10	8.5	
21J2	do.	Vf 1,370	Dr	59	6		55?	4?	do.	U	12	1951	J, 25	D				
21R1	J. F. Johnson	Vf 1,370	Dg	14			12	2	Alluvium	U			J, 10	D				
28J1	Ragsdale	Vs 1,425	Dr	169	6		165	4	Volcanic flows	U			J, 10	D				
31D1		Vs 1,550	Dr	124	6				do.	U	12.08	July 30, 1951						[illegible]
32J1	Dan Krots	Vs 1,370	Dr	41	6	6?	2	39	do.	U	5.37	do.	J	D		55	3	
34R1	W. B. Koehly	Vs 1,485	Dr	125	6	40	115	5	do.	U			J	D, S. Irr				Supplies 4 farmsteads.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 34 S., R. 1 W.																	
34E2	A. C. Silver	Vs 1,470	Dr	90	6	30	85	5	Volcanic flows	U	30	July 1951	J	D, Irr				Pumps dry in 30 minutes. [illegible]
34N1	F. W. Powell	Vs 1,440	Dr	90	6				do.	U			J	D, S		95		Water contains much dissolved mineral; no conclusive chloride test obtained.
34N2	A. Feils	Vs 1,450	Dr	153	6	407	150	3	do.	U	5±	1947	J	D, Irr				
	T. 35 S., R. 1 W.																	
3C1	Bert Conner	Vs 1,490	Dg	20			0	20	Colluvium	U			P	D, S, Irr				Located just below irrigation
3F1	Kirby Tant	Vs 1,510	Dr	52	6	17	50	2	Volcanic flows	U	18	1950	J	D, S				
3L1	E. Vantle	Vs 1,470	Dr	68	6				do.	U	7.04	July 6, 1951	P	D, S				
3L2	E. W. McKee	Vs 1,500	Dr	143	6				do.	U			J, 2	D. Irr				
3M1	W. F. Lampke	Vs 1,500	Dr	134	6	16	130	4	do.	U	93.98		J	D		25	3.5	Reportedly yields but 156 gall per day.
3P1	J. H. Mitchell	Vs 1,470	Dr	62	6				do.	U			J, 7	D, Irr				Can be pumped at capacity for hours without failing.
10F1	W. E. Hammel	Vs 1,450	Dr	271	6	16	270	1	do.		25±	1945	J	D				Inadequate for 1 household.
10H1	J. Thom	Vs 1,490	Dr	100	6				do.				P	D, Irr				Supplies 3 households.
10M1	Mosley	Vs 1,350	Dr	56.5	6	9	56	0.5	do.	C	+1.4	July 5, 1951	P, 3	D		55	37	Has flowed for 3 years; water sulfurous gases.
10M2	H. J. Hanks	Vf 1,310	Dr	70	6				do.	U			J	D, S				Yields [illegible] about 20 gal at one pumping.
15M1	G. A. Rowley	Vs 1,475	Dr	200	6	45			do.	U	36	1949	J, 150	D, Ind		80	29	Supply for auto court; drawdo to be 4 ft after 1 hour pum
16A1	Flannery	Vf 1,405	Dr	60	6				Alluvium	U			J	D				Pumped dry in 45 minutes.
16H1	Olson	Vf 1,400	Dr	89	6				Volcanic flows	U			J, 11	D, Irr		85	10.5	

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 1 W. - Continued																	
21G1	Matthews	Vs 1,380	Dg	15.4	48	15	0	15	Alluvium	U	11.38	July 5, 1951	P	D				Adequate for house use only.
21J1	Ted Ducera	Vs 1,375	Dg	30			0	30	do.	U	11.70	do.	J	D, S		125	24	
22B1	C. D. Kelley	Vs 1,450	Dr	35	6				Volcanic flows	U			P	D, Irr		95	4.	
22D1		Vs 1,375	Dr	26.4	6	26			Alluvium	U	9.78	July 5, 1951	C	D. S. Irr		210	16.	
22F1	Joe York	Vs 1,370	Dg	17	48		0	17	do.	U	14	July 1951	P	D		90	5	Inadequate for 1 household.
22H1	Waddell	Vs 1,440	Dg	3	24		0	3	do.	U	.5	July 3, 1951	C	D, S, Irr		45	6.	Located in spring area.
27D1	W. L. Thames	Vs 1,410	Dr	65	6					U	8	1951	J	D. Irr				
27F1	R. Matthews	Vf 1,400	Dg	15	96	15	0	±15	do.	U	7.50	July 3, 1951	J, 3	D, Irr				
27L1	W. Wood	Vs 1,420	Dr	51	6				Tuff	U	8	1947	J, 14	D		15	4.	
27N1	Potter	Vs 1,390	Dr	80	6				do.	U			J	D, S, Irr		140	8	Adequate for house, garden, & dairy
27P1	M. D. Robinson	Vs 1,395	Dr	79	6		70	±9	do.	U	1	July 1951	P	D, Irr		15	4	Little drawdown at capacity
34C1	P. Slucarenko	Vs 1,390	Dr	75	6	30					8±	1950	J, 33	D, Irr		85	5	
34E1	Boggs	Vs 1,380	Dr	113	6		110	3					P, 3	D, S		90	8	
34F1	H. Regester	Vs 1,375	Dr	152	6	152							J, 3	D, S		115	11	
34H1	Warren and Franklin	Vs 1,410	Dr	85	6						23.09	July 3, 1951	J	D, S		54	6.	
34L1	Grab	Vs 1,350	Dr	115	6		113	2	Tuff	U			J, 50±	D, S				
34N1	Buford Clark	Vs 1,370	Dr	96	6	12	90	6	do.	U				D, Irr		120	8	Reportedly will supply pump capacity for over 24 hours
34P1	R. B. Berryman	Vs 1,350	Dr	82	6				do.	U			J	D, S		145	6	
35D1	Riddell	Vf 1,405	Dr		6									D		125	14	
35K1	Vinson Vaughn	Vf 1,325	Dr	65	8						10	April 1952	J	D, S		10	6.	Not measurable.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 1 W.- Continued																	
36A1	E. R. McGraw	Vf 1,450	Dr	107	6	100	103	4	Tuff	U	8	April 1951	J, 33	D, S		165	18	
	T. 35 S., R. 2 W.																	
22K1	Frank Nelson	Vf 1,300	Dr	55	6	22			Gravel	U	22	May 1951	P, 8	D, S		45	5	
27F1	Earl L. Bigham	Vf 1,275	Dr	36	6	20			Shale	U	9-10	do.	J, 60	D, S				
27K1	Elwood Abbott	Vf 1,250	Dr	77	6	24	73	4	do.	U	12	January 1952	T, 40	Irr				See table 4 for chemical analy
28J1	Joe Mayfield	Vs 1,290	Dr	105	6				do.	U				D, S		95	4	
28L1	R. E. Carley	Vs 1,300	Dr	67	6	10	30		do.	U			J, 5	D, S				Penetrated thin coal seam at
28L2	do.	Vs 1,300	Dr	83	6	10	20 40 73		do. do. do.	U U U	10	August 1946	J, 30	Irr		190	14	
29D1	C. W. McDonough	Vs 1,455	Dr	252	6				do.	U	40	May 1951	J, 1.5	D, S		40	3.5	Reportedly water contains some
29E1	Fish	Vs 1,350	Dr	150	6	6	150		Coal seam in shale	C		May 16, 1951				25	31	Flowed 1 gpm for about 1 week drilled; water contains sulf gases.
29F1	G. A. Koellner	Vs 1,295	Dr	101	6	12	67		Shale?	U	24.68	May 14, 1951				95	46	Not yet in use; water tastes slightly salty.
29Q1	W. L. Michael	Vs 1,300	Dr	65	6				Shale	U			J, 10	D, Irr		75	19	Can be pumped dry in 1½ hours.
29R1	E. L. Lamb	Vs 1,300	Dr	228	6	38±			do.	U	42	May 1951	J, 1	D, S		90	6	Was developed by the dry-ice
29R2	Bunting	Vs 1,310	Dr	100	5	52±			do.	U	23	do.	J	D				Will pump dry in about an hour
30A1	Chloe McDonough	Vs 1,350	Dg	20	60	20			Colluvium	U			P	D, S		185	5.5	Will supply water for 100 hea of cattle.
30K1	C. C. Sanderson	Vs 1,300	Dg	16	36				Valley fill	U	6	June 1951	J	D, S, Irr				Can be pumped dry in 2 hours; level recovers in 4 hours.
30M1	Paul Schulz	Vs 1,290	Dr	75	6	24			Shale	U			J	D, S		90	10	
30P1	Houston	Vs 1,300	Dg	26	72				Valley fill	U	6±	May 1951	D, 5	D, S, Irr		125	2	Water level drawn down 6 ft by 30 hours of pumping at 5 gpm.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

T. 35 S., R. 2 W.- Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
30R1	H. E. Eskridge	Vs 1,280	Dr	162	6	12			Shale	U	61.50	May 14, 1951	J, 5	D, Irr		35	16	Water level measured after ½ pumping.
30R2	Loyd Dusenberry	Vs 1,310	Dr	154	6				do.	U	27.68	May 15, 1951	J	D		25	8	
30R3	G. Botsford	Vf 1,250	Dg	11.8	36	11.8	0	11.8	Valley fill	U	4.57	do.	C	D. Ind				Supplies house and service s
31B1	H. S. Musson	Vf 1,240	Dg	20.4			0	21+	do.	U	2.13	do.	C, 10	D, Irr		125	3	
31C1	H. A. Davidson	Vf 1,230	Dg	22					do.	U	4.77	do.	P	D, S, Irr				
31D1	E. Crottogini	Vs 1,290	Dg	22.2					do.	U	6.00	do.	P	do.				
31J1	W. Sanderson	Vf 1,230	Dg	13					do.	U	5.35	May 10, 1951	P, 8	Irr				
31N1		Vf 1,220	Dg	27.1		27			do.	U	4.08	do.	J	D, S, Irr				
31N2	A. Straus	Vf 1,220	Dr	77.2	6				Shale	U	2.9	May 15, 1951	J	D		125	17	Not adequate for 1 household.
32C1	Tunes	Vs 1,290	Dr	78	6				do.	U			J	D		135	17	
32D1	Koellner	Vf 1,260	Dg	32.9	72				do.	U	13.64	May 15, 1951	C	D				
32F1	J. H. Korner	Vf 1,230	Dr	100	6				do.	C			J	D, S, Irr				Flows in winter and spring un about May 1.
33A1	Jirshele	Vf 1,250	Dg	20					Valley fill	U			J					Not in use.
33B1	Do.	Vf 1,260	Dr	60	6	12			Shale	U			J, 7	D, S		105	13	
33D1	Lester James	Vs 1,290	Dr	243	6	20.5			do.	U	28±	May 1951	P, 4	D, S	65	[illegible]	[illegible]	Yielded about 1 gpm when dril owner treated well with 190 dry ice; water level rose fr 28 ft; yield to about 4 gpm; down 207 ft after 11 hours p see table 4 for chemical ana of water.
33L1	J. C. Duggan	Vf 1,250	Dr	83	6				do.	U	20±	June 1951	J	D. Irr				
33F1	do.	Vf 1,250	Dg	32		14	14	18+	do.	U			J	D, S, Irr				

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 3 W.																	
24R1	Adolf Angal	Vf 1,350	Dr	260	9				Shale	C	F	Jan. 25. 1952	J, 30	~~Irr~~				See table 4 for chemical analy of water.
36R1	Roy Stegall	Vf 1,250	Dg	20	48				Gravel	U	4	June 1951	J	D				
	T. 36 S., R. 1 W.																	
1F1	W. A. Hanscom	Vs 1,480	Dr	30	6				Volcanic flows	U	18	do.	J, 12	D, Irr				
1J1	C. W. Atkins	Vs 1,440	Dr	98	6				do.	U			J	D, S		90	9	
1K1	Martin Aikens	Vs 1,480	Dr	75	6	17				U			J, 22	D. S		130	4	
1L1	R. C. Gregg	Vs 1,480	Dg	29	48	0	29		Slope wash	U	11.11	May 29, 1951		S				
1M1	L. E. Marcroft	Vs 1,495	Dr	81	6								P	D		95	5	
1R1	J. W. Marlette	Vs 1,440	Dr	69	6								J	D, S		45	3	
2J1	Joe K. Andrews	Vs 1,485	Dr	65	6	11	63±				6.13	May 29, 1951	C, 15	D, Irr		130	13	
2K1	Tom Bray	Vs 1,490	Dr	49	6	36	48±	1			18	May 1951	J, 40	D, Irr		40	9	
3F1	N. O. Hafley	Vf 1,805	Dr	100	6		65±		Tuff	U			J	D				
3J1	C. R. Hughes	Vs 1,380	Dr	144	6				do.	U	34.94	May 29. 1951	J, 12	D, Irr		55	4	Pump operating when water lev measured.
3K1	Ray Hornish	Vs 1,280	Dg	24	36	24				U			J	D, Irr		210	9	
4H1	McCaslin	Vf 1,290	Dr	40	6	40	5		Valley fill	U	9.11	June 6, 1951	J	D, Irr				
5R1	Wilkerson	Vs 1,280	Dr	100	5				Tuff	U	8	June 1951	J	D, S		155	11	
9A1	R. H. Jenks	Vs 1,300	Dr	90	6				do.	U			J	D, S, Irr				
9B1	Clara Young	Vf 1,290	Dr	36	6	36±			Valley fill	U			P	do.		280	135	
9H1	W. A. White	Vs 1,270	Dr		6				Tuff	U			P	D, S				
9K1	O. O. Wilson	Vf 1,275	Dr	96.5	6	20	94	2.5	do.	U	10	June 1951	J, 60	D, Irr		110	18	See table 3 for driller's log
10B1	William Spatz	Vs 1,320	Dr	80	6				do.	U			J	D		156	10	Inadequate for 1 household.
10F1	Mittlestaedt	Vs 1,340	Dr	99.5	6				do.	U	63.50	Apr. 4, 1951				110	16	Not in use.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 1 W. - Continued																	
10K2	Mittelstaedt	Vs 1,340	Dr	150	6	150			Tuff	U			P	D		[illegible]	[illegible]	See table 4 for chemical a of water.
10J1	E. W. Bigham	Vs 1,375	Dr	198	6	16	16	182	do.	U	60	May 1951	J	D, S		150	14	
10K1	C. F. Davies	Vs 1,340	Dr	146	6				do.	U			J			155	5	
10Q1	J. W. Bigham	Vs 1,345	Dr	27	48		27+		Valley fill	U	17	1935	J	D, S, Irr		140	20	
12B1	D. Albini	Vs 1,400	Dr	285	8	33			Tuff	U	20	June 1951	T, 55	D, Irr		20	50	Was pumped at rate of 2,00 per hour for 8 days with drawdown; recovered in 20
12J1	Foster Swigert	Vf 1,405	Dr	32	6	32			do.	U	15	May 1951	J	D, S		160	9	
12Q1		Vs 1,415	Dr	90	6				do.	U			J	D				Adequate only for domestic
13B1	Pete Auer	Vf 1,435	Dr	80	6				do.	U	6	1939	J	D, S				Adequate for domestic use cattle,
13E1	C. A. VonDerHellen	Vf 1,400	Dg	6	36	6			Valley alluvium	U	1	May 1951	C	D, Irr		110	4	
14A1	Harper	Vs 1,370	Dr	158	6	27	157	1	Tuff	U	20	June 1951	J, S	D, Irr		50	69	
14A2	H. Higday	Vs, 1,405	Dr	100	6				do.	U			J	D. S. Irr				
14E1	A. T. Wattenberg	Vs 1,395	Dr	208	6				do.	U			J	do.				Deepened 50 feet in 1951.
14J1	J. B. Deen	Vs 1,390	Dr	60	6	12			do.	U	18	June 1951	J	D				Inadequate for 1 household
15A1	K. W. Hayes	Vf 1,350	Dr	81	6				do.	U			J	D		280	40	
17Q1	Ted Hornecker	Vf 1,320	Dr	96	6	57			Shale	U	6.46	Apr. 10, 1951	J	D		65	5	See plate 13 for water-lev and table 3 for driller's
20C1	White City Lumber Company	Vf 1,320	Dr	162	6	58			do.	U	11	November 1950	T	D		45	16	Supplies 25 houses; see ta xx driller's log.
20B1	Ross Lumber Co.	Vf 1,305	Dr	80	6	47			Gravel and shale	U	40	October 1950	T, 100	Ind	63			See table 4 for chemical e of water and table 3 for log.
20M1	D. R. Smith	Vf 1,305	Dr		6	62				U			J	Ind		55	11	
												1951	J	D, S		155	15	

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 1 W.- Continued																	
28K1	Claude Hoover	Vf 1,340	Dr	50	6				Gravel	U	20	March 1951		D		190	15	~~Not in use.~~
28K2	do.	Vf 1,340	Dr	124	8				Shale	U	4.7	Mar. 26, 1951				70	4.5	~~New well, unused;~~ see p for water-level record
28Q1	R. Steward	Vf 1,360	Dr	120	6				do.	U			J	D, Irr		175	11	Will supply 2 lawn spri
29H1	Lloyd Timmons	Vf 1,340	Dr	52	6	22			do.	U	6	July 1950	J, 17	D, S		195	19	
29M1	E. E. Reames	Vf 1,300	Dg	35	48				Gravel	U			J	D, S, Irr				
29R1	Mills	Vf 1,340	Dg	22	48				Shale	U	2	March 1951	C	do.		215	11	
30L1	C. M. Graves	Vf 1,280	Dr	98	6		10 ~~[illegible]~~	14 ~~[illegible]~~	Gravel ~~Shale~~	U	4.37	Aug. 15, 1952	~~N~~C, 50	Irr	60	65	4	See table 3 for driller'
30R1	Pearl Humphrey	Vf 1,295	Dr	79	6				do.	U	12	January 1951	J, 15	D. S		90	3	
32R1	Brown	Vf 1,340	Dr	36	6				do.	U			J	D, S		195	6	
33K1	D. Adams	Vf 1,330	Dr	25	6				do.	U			J	D		195	12	
33P1	Earl Tucker	Vf 1,340	Dg	30	60				Alluvium	U			J	D		180	5	
	T. 36 S., R. 2 W.																	
4H1	D. Wheeler	Vf 1,240	Dr	80	6				Shale	U			J	D, S		125	6	
4K1		Vf 1,195	Dg	12.6	48		0	12	Valley fill	U	1.89	May 15, 1951						~~[illegible]~~
10D1	E. H. Taylor	Vf 1,190	Dn	30					do.	U			J	D, Irr		60	2	
11K1	Ed Pierce	Vs 1,210	Dr	24	6	24			do.	U	6.16	May 10, 1951	P	D		35	2	Reportedly has high yiel
11H1	L. D. Hull	Vf 1,290	Dg	17	36	17			do.	U	10	April 1951	J, 280	D		130	4	Reported to have yielded with drawdown of 3 ft a 4 hours pumping.
11K1	F. R. Myers	Vf 1,210	Dg	16	36				do.	U	2	May 1951	J	D. S, Irr				
11L1	L. D. Hull	Vf 1,195	Dn	14	1.5	14			do.	U			P	D, S				
11M1	R. E. Nealon	Vf 1,195	Dr	160	6	30			Shale	U	7.9	May 10, 1951						~~[illegible]~~

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent area) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	<u>T. 36 S., R. 2 W.</u> - Continued																	
11R1	Ray Wyatt	Vs 1,200	Dr	102	6	18			Shale	U	12	July 1943	J, 250	D, Ind		80	18	Supplies household and sma water tastes of sulfur an tains some gas.
13E1	Joseph Hausler	Vf 1,195	Dg	25	18	25			Valley fill	U	5-6	May 1951	J, 13	D, S, Irr		70	1	Will supply 7 irrigation s
14Q1	City of Medford	Vf 1,215	Dr	300	10				Shale	U	13.77	Apr. 16, 1951	J, 2.5	Irr				Inadequate; see plate ~~15~~ 14 f level record; water irri lawn and garden at sewage plant.
15M1	Thompson	Vf 1,205	Dg		60				Valley fill	U			C	S, ~~Irr~~				Pumps dry in 12 hours.
20H1	Paul A. Scherer	Vf 1,190	Dg	20.4	48				do.	U	9.59	Apr. 25, 1951	P	D, Irr		135	9	
20J1	Stirling Price	Vf 1,285	Dg	24					do.	U			P	D, S		190	12	
20P1	Paul Quackenbush	Vs 1,180	Dr	48.5	6	48	0	48.5	do.	U	8	May 1948	J	D, Ind		80	7	Supplies home and tavern; edly bailed 23 gpm.
20P2	Double D Lumber Co.	Vf 1,170	Dr	40	6				do.	U			J	Ind	59	[illegible]	[illegible]	Supplies water for mill p water [illegible] too saline for dri see table 4 for chemical of water.
20P3	do.	Vf 1,170	Dr	40	6				do.	U			J	Ind	55	[illegible]	[illegible]	Also used for mill pond; [illegible] see table 4 for c analysis of water.
20P4	do.	Vf 1,170	Dr		6				do.	U			J	Ind				Initial well on property supply mill pond.
20P5	do.	Vf 1,170	Dg	65+	120	65+	0	65+	do.	U	10	November 1951	C	Ind				Supplies water for mill p see table 3 for log.
20Q1	do.	Vf 1,170	Dr	48	6				do.	U			J	Ind				Supplies water for mill p water is saline.
20Q2	do.	Vf 1,170	Dr	72.8	6	43			do.	U	2.93	Apr. 20, 1951		Ind				Not used; see plate ~~15~~ 14 fo level record; water too for drinking.
21C1	Kirkland Farms	Vf 1,190	Dg	27.1	38	28			do.	U	9.50	do.						[illegible]

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 2 W. - Continued																	
21M1	Robert Warrick	Vf 1,205	Dr	30	8								J			80	3	Supplies water for 3 househ
21P1	R. J. Savage	Vf 1,180	Dg	18					Valley fill	U	10	April 1951	J, 8			180	8	
21R1	Paul Williams	Vf 1,205	Dr	68	8	68			do.	U	13	1948	T, 70	D, S, Irr	60.5.5			See table 4 for chemical an of water.
21R2	do.	Vf 1,205	Dg	30	48	10			do.	U	18	April 1951	P	Irr				Not used often.
23M1	U. S Geological Survey	Vf 1,230	Dr	110	8	106	12	92	do.	U	6.52	July 13, 1953	N	O	64	94	7	Drilled as an exploratory w USGS; see table 3 for log table 4 for chemical analy aquifer evaluation test gi in text.
24L1	U. S. Government (originally Agate School)	Vf 1,260	Dr	18.6	60				do.	U	11.85	Apr. 16, 1951						Not used.
25L1	D. A. Denman	Vf 1,250	Dr	47	6				do.	U			J, 8	D		130	5	
25M1	M. A. Gruber	Vf 1,240	Dg	30	36-10				do.	U	25	April 1951	J, 12	D, S		185	4	
26N1	Max Burd	Vf 1,230	Dr	28	6	26			do.	U			J, 16	D, S, Irr				Reportedly yields 16 gpm.
26Q1		Vf 1,230	Dg	22.6	36				do.	U	15.74	Apr. 17, 1951	J	D				
27H1	Harvey W. Hawkins	Vf 1,235	Dr	40	6	40			do.	U	6	April 1951	J, 10	D				
27J1	Dopp	Vf 1,230	Dr	28	6	28			do.	U			J	D, Irr				
27K1	Charley	Vf 1,230	Dg	16	48				do.	U	10.85	Apr. 17, 1951	C	D				
28D1	Roy Compitts	Vf 1,190	Dg	14.4					do.	U	4.5	Apr. 23, 1951	P	D, S				
28F1	Paul Quackenbush	Vf 1,295	Dr	22.5	6				do.	U	4.06	do.	C	D				
28P1	Howard	Vf 1,200	Dg	26	36				do.	U	4.71	do.	J	D, S, Irr				
28P2	Puget Timber Co.	Vf 1,230	Dr	103.7	6				Shale	U	6.16	June 14, 1951	J	Ind				Used for fire protection; too saline to drink.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas)-Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 2 W.- Continued																	
29A1	Gulf Red Cedar Co.	Vf 1,230	Dr	42	6				Valley fill	U			J	Ind				Supplies water for saw mil reportedly is good well.
29A2	do.	Vf 1,230	Dr	47	6	47			do.	U			J	Ind		115	6	Supplies water for office and fire protection.
29Q1	Ed Mann	Vs 1,250	Dr	34	6	32			Clay	U	5	April 1951	P, 8	D				
29R1	E. J. Weiss	Vs 1,295	Dr	50	6						30	do.	J	D, Irr				
29R2	do.	Vs 1,300	Dr	93	6				Greenstone				J, 3	Irr				
32A1	Stevenson	Vs 1,300	Dg	26	60	6			do.		5	Winter and summer	P	D, S				
32E1	E. Young	Vf 1,300	Dg	15	48				Coarse gravel	5	5	April 1951	J	D, Irr				
32E2	do.	Vf 1,300	Dg	25	48				do.		20±	do.	P					[illegible]d.
32H1	Potter	Vs 1,290	Dg	25.9	48	5			Greenstone		14.90	Apr. 19, 1951	P	D		105	11	
32M1	Hammond	Vf 1,290	Dr	65	6	30			Shale		30	April 1951	J, 5	D		105	25	
33B1	Roy Nichols	Vf 1,210	Dg	12.6	48				Valley fill		4.44	Apr. 23, 1951	C	Irr				
33D1	Muller	Vf 1,260	Dr	38.4	6				do.		3.3	Apr. 19. 1951	P	D				
33E1	John Bohnert	Vf 1,220	Dg	13.2	48±				do.		7.56	Apr. 23, 1951						[illegible]d.
33K1	R. N. Field	Vf 1,210	Dg	12	48				Gravel	U	5	Summer	J, 60	D, S				
34J1	Adams	Vf 1,220	Dg	27	48				do.	U	8	April 1951	T	D, S				
35D1	Herzog	Vf 1,230	Dr		6								J	D, S		95	20	
35E1	John Wheeler	Vf 1,230	Dg	50±					Gravel	U			J	D, Irr				
35E2	do.	Vf 1,230	Dr	103	6								J, 1.5	S				
35G1	L. J. Freeman	Vf 1,230	Dg	30	36-8	12			Gravel				J	D, S, Irr				
35N1	R. Borch	Vf 1,240	Dr	60	6	46			do.	U	6-8	April 1951		D				Bailed at rate of 8 to 1 [illegible].

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas)- Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 2 W.- Continued																	
35M1	R. B. Spear	Vf 1,225	Dn	18	1¼				Sand	U			J	D, S, Irr				[redacted]
35H1	R. K. Smith	Vf 1,250	Dg	23					Cemented gravel	U	15-18	April 1951	J	D, Irr				[redacted]
36K1	C. R. Cummins	Vf 1,250	Dg	29.3	48				Gravel	U	4.35	Apr. 17, 1951	C	D, Irr		[illegible]	5	Has 2 centrifugal pumps; see 16 for water-level record. 12
36F1	Earl Yoakley	Vf 1,250	Dg	30	60	6			do.	U	12	1950	J	D. Ind		[illegible]	19	Supplies home and service st
36Q1	State Department of Forestry	Vf 1,250	Dr	68	6				do.	U			J	D		[illegible]	11	Supplies forestry station
	T. 36 S., R. 3 W.																	
1A1	B. O. Wartman	Vf 1,210	Dg	19.2					Alluvium	U	5.44	May 15, 1951	J	Irr				
	T. 37 S., R. 1 W.																	
4K1	Tunnell and Perry	Vf 1,380	Dg	20.1	60				Valley fill	U	12.00	Mar. 27, 1951	J	D, S				See plate 16 15 for water-level record.
4P1	E. M. Lytle	Vf 1,400	Dr	43	6				Shale	U		Mar. 14, 1951	J	D, S	59	155	5	See table 4 for chemical ana of water.
5B1	E. P. Vilas	Vf 1,350	Dg	15	120	15			Valley fill	U	0-1	June 1951	P	D, S. Irr				Flows 9 months of year.
5K1	Payne	Vs 1,500	Dr	60	6				Shale	U			C, 1.5	D, Irr		145	2	Inadequate; use to be discon
5P1	Gluts	Vs 1,450	Dr	160	6	160							P, 3	D, S		200	9.	Inadequate.
7H1	Tom Ganoway	Vf 1,340	Dr	158	6				Shale	U	3.16	Apr. 5, 1951				145	10	[illegible] See plate 17 water-level record.
7R1	John Tilley	Vf 1,340	Dr	105.3	6	35			do.	U	4.2	do.						Bailed at rate of 12 gpm, [illegible]
8C1	Kuli	Vs 1,470	Dr	165	6	20							P, 16	D, Irr		185	5	
8M1	Lucas	Vf 1,350	Dr										J	D		175	24	
8K1	C. Williams	Vf 1,375	Dr		6								J	D, S		200	54	Goes dry in winter.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas)--Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	[illegible]	(18)	(19)
	<u>T. 37 S., R. 1 W.</u> - Continued																	
9P1	Bardmoore	Vs 1,500	Dr	125.5	6	20	109	16	Sandstone	C			C, 8	D. S		[illegible]	3	
16C1	John Dunlap	Vs 1,550	Dr	350±	6		190	5					J	D		[illegible]	19	
16G1	R. A. Stokes	Vs 1,525	Dr		6								J	D		[illegible]	6	
17C1	H. F. Padgham	Vf 1,370	Dr	120	6								J, 22	D, S. Irr		[illegible]	16	[illegible]
17C2	T. E. Merit	Vf 1,360	Dg	11.9	60	11.9					1.6	Mar. 14. 1951				[illegible]	7	[illegible]
17C3	do.	Vf 1,360	Dr	60	6								J, 21	D, S		[illegible]	17	
17K1	C. C. Hoover	Vf 1,400	Dg	24.5							4.3	Mar. 14. 1951	J	D		[illegible]	7	
17K2	Agnes Moorehead	Vs 1,450	Dr	85	6								J	D, S		[illegible]	9	
17P1	H. P. McCullough	Vf 1,390	Dr	110	6					C	F	Mar. 14, 1951	J	D, Irr		[illegible]	13	
17P2	do.	Vf 1,390	Dr	116	6						2.7	do.				[illegible]	13	[illegible]
17P3	Knight	Vf 1,390	Dr	108	6	109			Shale	U	9.10	Apr. 23. 1953		D				[illegible]
17Q1	Nolen F. Biehler	Vf 1,395	Dr	80	6								J	D		[illegible]	18	
17Q2	Charles Matejka	Vf 1,390	Dr	100	6					C	F	Mar, 14, 1951	J	D. Irr		[illegible]	11	
18K1	Patton	Vf 1,315	Dr	49.9	6				Shale	U	3.25	Apr. 7, 1951						
18J1	Gottfried	Vf 1,350	Dr	250	6	14			do.	U	7.76	Nov. 19, 1951						Not used because inadequate
20M1	J. M. Kenney	Vs 1,490	Dr	86	6								J	D		110	5	
20M2	Don Asher	Vs 1,495	Dr	96	6						20	1949	J. 9	D				
20M3	F. H. Saunders	Vs 1,490	Dr	409	6						10	March 1951	J, 2	Irr				
21B1	Claud Hanson	Vs 1,570	Dr	127	6	120			Sandstone	U	20	do.	J, 9	D		115	4	
21B2	R. W. Hart	Vs 1,550	Dr	100	6								J, 30	D, S		190	11	
21D1	Luchterhand	Vs 1,460	Dr	162	6	10					15	March 1951	J, 15	D		235	10	
21D2	William Grubbs	Vs 1,460	Dr	180	6								J, 5	D				

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas- Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 1 W. - Continued																	
21E1	Jane Losee	Vs 1,450	Dr	82	6								J. 18	D, Irr		[illegible]	7	
21E2	do.	Vs 1,450	Dr	40.7	6						7.55	Mar. 13, 1951						~~[illegible]~~
21M1	Charles E. Rose	Vs 1,500	Dr	73.6			30 76				16.24	do.						~~[illegible]~~
21N1	Bollinger	Vs 1,580	Dr	100	4	90							J	D, Irr		10	4	
21P1	William Robinson	Vs 1,500	Dr	201	6						16	March 1951	J	D, Irr		10	3	
27E1	E. A. Stamm	Vs 1,590	Dr		6								J	D		35	4	
27L1	Ralph Cook	Vs 1,610	Dr	150	6	10							T, 5	D, S				
27M1	B. L. Dodge	Vs 1,590	Dr		6						1.01	Feb. 15, 1951	J	D		125	3	
27P1	Ralph Cook	Vs 1,620	Dg	25	52						10	February 1951	J	D, S		135	7	
28A1	F. J. Spaulding	Vs 1,590	Dr	120	6				Shale	U			J	D		155	32	
28Q1	Frank Westcott	Vf 1,515	Dr	42.8	6				do.	U	17.34	Feb. 27, 1951	J	D, S		145	10	
28R1	Widmer	Vf 1,550	Dr	46	6				do.	U			J	D, S		125	22	
30P1	California-Oregon Power Co.	Vf 1,380	Dg	16		16	0	16	Alluvium	U			C, 2,000	Ind	55			Used as water source for heat pump in air conditioning warehouse.
31N1	P. E. Simmons	Vf 1,440	Dr	44.8	6		40	4	Shale	U	6	February 1951	J	D, S		120	4.	
33R1	M. J. Lattie	Vf 1,510	Dr	87	6		87		Blue "clay"	U	16	do.	J. 17	D, S		165	10	
33R2	Sheets	Vf 1,530	Dr	120	6				Shale	U			C	D	58	12	20	See table 4 for chemical an of water.
34J1	A. Schroeder	Vf 1,650	Dr	165	6									D. S		115	21	
34L1	G. H. Drake	Vf 1,590	Dg	17	72	17			Shale		1.8	Feb. 15. 1951	J	D				
34M1	Harris	Vf 1,575	Dr	60	6				do.				J	D		185	44	
34M2	Ralph Cook	Vf 1,575	Dr	140	6						40	August 1951	J, 3	D				Supplies labor camp.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas.-Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 1 W. - Continued																	
21E1	Jane Losee	Vs 1,450	Dr	82	6								J, 18	D, Irr		[illegible]	7	
21E2	do.	Vs 1,450	Dr	40.7	6						7.55	Mar. 13, 1951						~~[illegible]~~
21M1	Charles E. Rose	Vs 1,500	Dr	73.6			30 76				16.24	do.						~~[illegible]~~
21N1	Bollinger	Vs 1,580	Dr	100	4	90							J	D, Irr		[illegible]	4.5	
21P1	William Robinson	Vs 1,500	Dr	201	6						16	March 1951	J	D, Irr		[illegible]	3.5	
27E1	E. A. Stamm	Vs 1,590	Dr		6								J	D		[illegible]	4	
27L1	Ralph Cook	Vs 1,610	Dr	150	6	10							T, 5	D, S				
27M1	B. L. Dodge	Vs 1,590	Dr		6						1.01	Feb. 15, 1951	J	D		125	3 ✓	
27P1	Ralph Cook	Vs 1,620	Dg	25	52						10	February 1951	J	D, S		135	7	
28A1	F. J. Spaulding	Vs 1,590	Dr	120	6				Shale	U			J	D		155	32 ✓	
28Q1	Frank Westcott	Vf 1,515	Dr	42.8	6				do.	U	17.34	Feb. 27, 1951	J	D, S		145	10	
28R1	Widmer	Vf 1,550	Dr	46	6				do.	U			J	D, S		125	22 ✓	
30P1	California-Oregon Power Co.	Vf 1,380	Dg	16		16	0	16	Alluvium	U			C, 2,000	Ind	55			Used as water source for he pump in air conditioning warehouse.
31M1	P. E. Simmons	Vf 1,440	Dr	44.8	6		40	4	Shale	U	6	February 1951	J	D, S		120	4.5	
33R1	M. J. Lattie	Vf 1,510	Dr	87	6		87		Blue "clay"	U	16	do.	J, 17	D, S		165	10.5	
33R2	Sheets	Vf 1,530	Dr	120	6				Shale	U			C	D	58	12	20	See table 4 for chemical an of water.
34J1	A. Schroeder	Vf 1,650	Dr	165	6									D, S		115	21	
34L1	G. H. Drake	Vf 1,590	Dg	17	72	17			Shale		1.8	Feb. 15, 1951	J	D				
34M1	Harris	Vf 1,575	Dr	60	6				do.				J	D		185	44	
34M2	Ralph Cook	Vf 1,575	Dr	140	6						40	August 1951	J, 3	D				Supplies labor camp.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W. - Continued																	
4H1	Fred Lofland	Vf 1,230	Dg	18	42	18			Valley fill	U	4	April 1951	C, 20	D, S				
4N1	C. H. Taylor	Vs 1,300	Dr	240	6	220					20	March 1951	J, 10	D, Irr				
4N2	do.	Vs 1,300	Dg	30	60	30					10	do.	J	D				
4N3	do.	Vs 1,300	Dr	150	6	40			Sandstone	U	4.5	Mar. 18, 1951						~~Not used.~~
5L1	W. Speare	Vs 1,400	Dr	129	6	40	129		Decomposed granite				J, 8	D, S, Irr				
5L2	do.	Vs 1,410	Dg	26.9					do.	U	18.00	Apr. 18, 1951	C	Irr				
5L3	do.	Vs 1,410	Dr	40	6				do.	U			J					~~Not used.~~
5Q1	Janouch	Vs 1,400	Dg	29.2	36						17.16	Apr. 18, 1951	J, 14	D, S		95	9	
6B1	Norman Holmes	Vs 1,415	Dr	41	6				"Rock"	U			J, 8	D		115	5	
8H1	L. P. Wilcox	Vs 1,520	Dr	285	6	10							J, 25	D		190	2.	
8H2	do.	Vs 1,550	Dr	135	6	20					40	July 1950	J, 2.5	Irr				
8R1	J. L. Williamson	Vs 1,590	Dr	98	6						F		J, 50	D, Irr		130	3.	Flows 2 to 3 gpm.
9A1	W. C. Higgenbotham	Vf 1,285	Dr	105	6	100			Blue sand	U			J	D, S				Well to be abandoned.
9A2	do.	Vf 1,285	Dr	275	6													Dry hole; casing pulled
9A3	do.	Vf 1,285	Dr	66	6		40	20	"Clay"	U	11.20	Mar. 18, 1951		D, S				Bailed at the rate of 40 gpm.
9A4	do.	Vf 1,285	Dr	44	6						39	March 1951	J	D				
9E1	Harold H. Brown	Vs 1,350	Dg	20	48					C	F	Mar. 6, 1951	J	D		150	4.	Flows at rate of 3 gpm.
9L1	McCusky	Vs 1,350	Dg	25.4	144	8					1.95	do.	J	D, Irr		175	11	
9Q1	A. J. Hadley	Vf 1,350	Dg	21	6	21							C	D				Filled in around 6-inch
9R1	Goodman	Vf 1,350	Dr	80±	6	87							J	D, Ind		170	14.	Supplies home and store
10D1	Obenchain	Vf 1,280	Dg	16							6	March 1951		D, Irr				

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W. - Continued																	
4H1	Fred Lofland	Vf 1,230	Dg	18	42	18			Valley fill	U	4	April 1951	C, 20	D, S				
4N1	C. H. Taylor	Vs 1,300	Dr	240	6	220					20	March 1951	J, 10	D, Irr				
4N2	do.	Vs 1,300	Dg	30	60	30					10	do.	J	D				
4N3	do.	Vs 1,300	Dr	150	6	40			Sandstone	U	4.5	Mar. 18, 1951						~~Not used.~~
5L1	W. Speare	Vs 1,400	Dr	129	6	40	129		Decomposed granite				J, 8	D. S, Irr				
5L2	do.	Vs 1,410	Dg	26.9					do.	U	18.00	Apr. 18, 1951	C	Irr				
5L3	do.	Vs 1,410	Dr	40	6				do.	U			J					~~Not used.~~
5Q1	Janouch	Vs 1,400	Dg	29.2	36						17.16	Apr. 18, 1951	J, 14	D, S		95	9	
6B1	Norman Holmes	Vs 1,415	Dr	41	6				"Rock"	U			J, 8	D		115	5	
8H1	L. P. Wilcox	Vs 1,520	Dr	285	6	10							J, 25	D		190	2.	
8H2	do.	Vs 1,550	Dr	135	6	20					40	July 1950	J, 2.5	Irr				
8Q1	J. L. Williamson	Vs 1,590	Dr	98	6						F		J, 50	D, Irr		130	3.	Flows 2 to 3 gpm.
9A1	W. C. Higgenbotham	Vf 1,285	Dr	105	6	100			Blue sand	U			J	D, S				Well to be abandoned.
9A2	do.	Vf 1,285	Dr	275	6													Dry hole; casing pulled
9A3	do.	Vf 1,285	Dr	66	6		40	20	"Clay"	U	11.20	Mar. 18, 1951		D, S				Bailed at the rate of 40 gpm.
9A4	do.	Vf 1,285	Dr	44	6						39	March 1951	J	D				
9E1	Harold H. Brown	Vs 1,350	Dg	20	48					C	F	Mar. 6, 1951	J	D		150	4	Flows at rate of 3 gpm.
9L1	McDusky	Vs 1,350	Dg	25.4	144	8					1.95	do.	J	D, Irr		175	11	
9Q1	A. J. Hadley	Vf 1,350	Dg	21	6	21							C	D				Filled in around 6-inch
9R1	Goodman	Vf 1,350	Dr	80±	6	87							J	D, Ind		170	14.	Supplies home and store
10D1	Obenchain	Vf 1,280	Dg	16							6	March 1951		D, Irr				

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent area)- Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W.- Continued																	
14P2	F. Cullen	Vf 1,335	Dg	21.4	60						1.61	Mar. 12, 1951	C	Irr				See plate ~~19~~ 17 for water-level
14P3	U. S. Bureau of Reclamation	Vf 1,335	Dn	7.9	1						1.17	do.		O				Piezometer tube no. 8 of Bur Recl.
15D1	Ed Leach	Vf 1,320	Dg	29.2					Alluvium	U	2.9	Mar. 8, 1951	J	D		65	16	
15F1	Tom Whittle	Vf 1,325	Dg	20							2.41	do.	C	D, S		70	8.	Supplies 3 houses and stock
15M1	Drummond	Vf 1,360	Dg	30	48						6	March 1951	C	D, Irr		15	15.	
15M2	do.	Vf 1,360	Dg	30	48						6	do.	C	D				Water level in well is low i
15P1	V. F. Birdseye	Vf 1,350	Dg	60					Alluvium	U			C	D, S, Irr	55.5	[illegible]	7.3	See table 4 for chemical ana of water equipped with 2 sm centrifugal pumps.
15R1	U. S. Bureau of Reclamation	Vf 1,327	Dn	7.4	2	7.4			do.	U	2.42	Mar. 12, 1951		O				Piezometer tube no. 9 of Bu Recl.
16G1	R. Conner	Vs 1,370	Dg	14	48				Sandstone	C	F	do.	J	D, S, Irr		115	4	
16F1	Carlton	Vs 1,410	Dg	39.5	48						18.4	Mar. 6, 1951	J	D		20	8	
16P1	E. Olson	Vs 1,410	Dg	16	60						10	March 1951	J	D, S		155	11	Reportedly a good well.
16P2	H. E. Conger	Vf 1,380	Dg	15					Valley fill and sandstone	U	9	do.	C, 250	Irr				Open sump-well 50 ft by
16Q1	H. E. Conger	Vf 1,380	Dg	24	72				Valley fill	U	15	do.	J	D		115	4	Produces good supply of wa
16R1	G. S. Lewis	Vf 1,360	Dr	110	6	28	40	70			8	do.	J, 54	D, S, Irr		275	289	
17A1	O. Norton	Vs 1,750	Dr	247	6								J	D				Will pump dry in 20 minute
17H1	do.	Vs 1,700	Dr	150	8								J	D, Irr		125	3	
17J1	C. E. DeHuss	Vs 1,640	Dr	130	6	8			Decomposed granite	C	F	Mar. 6, 1951		D, Irr		130	2.	Stops flowing for about 6 week summer.
17Q1	T. J. Hight	Vs 1,680	Dr	138	6	79	57		do.				J, 6	D		155	3.	
17Q2	do.	Vs 1,700	Dr	231	6	50			do				T, 20	D				

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas- Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W.- Continued																	
14P2	F. Cullen	Vf 1,335	Dg	21.4	60						1.61	Mar. 12, 1951	C	Irr				See plate ~~19~~ 17 for water-level
14P3	U. S. Bureau of Reclamation	Vf 1,335	Dn	7.9	1						1.17	do.		O				Piezometer tube no. 8 of Bur Recl.
15M2	Ed Leach	Vf 1,320	Dg	29.2					Alluvium	U	2.9	Mar. 8, 1951	J	D		85	16	
15P1	Tom Whittle	Vf 1,325	Dg	20							2.41	do.	C	D. S		70	8.}	Supplies 3 houses and stock
15R1	Drummond	Vf 1,360	Dg	30	48						6	March 1951	C	D, Irr		15	15.}	
15R2	do.	Vf 1,360	Dg	30	48						6	do.	C	D				Water level in well is low i
15F1	V. F. Birdseye	Vf 1,350	Dg	60					Alluvium	U			C	D, S, Irr	55.5	[illegible]	7.3	See table 4 for chemical an of water equipped with 2 sm centrifugal pumps.
15Q1	U. S. Bureau of Reclamation	Vf 1,327	Dn	7.4	2	7.4			do.	U	2.42	Mar. 12, 1951		O				Piezometer tube no. 9 of Bu Recl.
16C1	R. Conner	Vs 1,370	Dg	14	48				Sandstone	C	F	do.	J	D, S, Irr		115	4	
16F1	Carlton	Vs 1,410	Dg	39.5	48						18.4	Mar. 6, 1951	J	D		130	8	
16F1	E. Olson	Vs 1,410	Dg	16	60						10	March 1951	J	D, S		155	11	Reportedly a good well.
16F2	H. E. Conger	Vf 1,380	Dg	15					Valley fill and sandstone	U	9	do.	C, 250	Irr				Open sump-well 50 ft by
16Q1	W. E. Conger	Vf 1,380	Dg	24	72				Valley fill	U	15	do.	J	D		115	4	Produces good supply of wa
16R1	O. B. Lewis	Vf 1,360	Dr	110	6	28	40	70			8	do.	J, 54	D, S, Irr		275	289	
17A1	O. Norton	Vs 1,750	Dr	247	6								J	D				Will pump dry in 20 minute
17H1	do.	Vs 1,700	Dr	150	8								J	D, Irr		125	3	
17J1	O. E. Deihuss	Vs 1,640	Dr	130	6	8			Decomposed granite	C	F	Mar. 6, 1951		D, Irr		130	2.}	Stops flowing for about 6 week summer.
17D1	Hight	Vs 1,680	Dr	138	6	79	57		do.				J, 6	D		155	3.}	
17D2	do.	Vs 1,700	Dr	231	6	50			do				T, 20	D				

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W. - Continued																	
27M1	C. E. Bellows	Vf 1,415	Dr	20	6								J	D		150	11	
27M2	O. D. Day	Vf 1,415	Bd	18	8	16	15	3	Sand and gravel	U	3.4	February 1951	J, 85	D, S		165	10	
27N1	M. W. Fjarli	Vf 1,440	Dr	19	6	18			do.	U	F	November 1950	J	D		155	21	Water level rises 1 ft ab surface.
28B1	J. Niedermeyer	Vf 1,410	Dg	42	48- 6		0	42	Red "clay"	U	5	March 1951	P	D, Irr		145	3	Dug to 32 ft, bored to 42
28M1	Jackson Creek Lumber Co.	Vf 1,480	Dg	10	240x 360		0	28	Alluvium	U	0.10	Jan. 5, 1951	C	Ind				Yields 100 gpm for 12 hou 12 hours to recover; see for water-level record.
28M2	Alice Vincent	Vf 1,480	Dg	8	120X 180		0	8	do.	U	2.5	do.		D		160	9	
29B1	M. Niedermeyer	Vs 1,520	Dr	63	6								C	D		150	4	
29C1	O. Heckert	Vs 1,520	Dr	84	6	84							C	D		155	4,5	Furnishes good supply of for 2 houses.
30A1	L. R. Livingston	Vs 1,750	Dr	276	6								P, 13	D, Irr				Cannot be pumped dry.
32C1	E. L. March	Vs 1,600	Dg	36.5	60				Colluvium	U	15.7	Feb. 21, 1951				95	3,5	~~Not used.~~
33H1	L. M. Hamilton	Vs 1,590	Dr	138	6								J	D		10	7	Poor supply; sulfurous wa unfit for drinking.
33L1	E. Rhenors	Vs 1,690	Dr	75	6						6.1	Feb. 20, 1951	P	D	[illegible]	175	2	Inadequate in summer.
33L2	do.	Vs 1,680	Dr	140	6								J, 3	D				Do.
34A1	O. M. Lofland	Vf 1,450	Dg	14	48	6					6	February 1951	C	D, Irr		110	5,8	Part of water percolates irrigation ditch; water draws down 14 ft after 8 pumping.
34A2	W. A. Cramer	Vf 1,450	Dr		6								J	D		125	4	
34H1	J. L. Vanpelt	Vf 1,465	Dr		6								J	D		45	4,6	
34K1	Arthur Martin	Vf 1,470	Dg	12.4	48						23.6	Feb. 21, 1951	J	D		185	10	Water is cloudy.
34M1	L. M. Hamilton	Vs 1,590	Dr	100	6	50	90	10	Greenstone	U	18	1949	J, 30	D, S		45	14	
34Q1		Vs 1,530	Dg	8.1							0	Feb. 20, 1951	J	D		75	11	

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W. - Continued																	
27M1	C. E. Ballows	Vf 1,415	Dr	20	6								J	D		150	11	
27M2	O. D. Day	Vf 1,415	Bd	18	8	16	15	3	Sand and gravel	U	3-4	February 1951	J, 85	D, S		165	10	
27Q1	M. W. Fjarli	Vf 1,440	Dr	19	6	18			do.	U	F	November 1950	J	D		155	21	Water level rises 1 ft ab surface.
28D1	J. Niedermeyer	Vf 1,410	Dg	42	48- 6		0	42	Red "clay"	U	5	March 1951	P	D, Irr		145	3	Dug to 32 ft, bored to 42
28N1	Jackson Creek Lumber Co.	Vf 1,480	Dg	10	240x 360		0	28	Alluvium	U	0.10	Jan. 5, 1951	C	Ind				Yields 100 gpm for 12 hou 12 hours to recover; see for water-level record.
28N2	Alice Vincent	Vf 1,480	Dg	8	120X 180		0	8	do.	U	2.5	do.		D		160	9	
29B1	M. Niedermeyer	Vs 1,520	Dr	63	6								C	D		150	4	
29D1	O. Heckert	Vs 1,520	Dr	84	6	84							C	D		155	4.5	Furnishes good supply of for 2 houses.
30L1	A. R. Livingston	Vs 1,750	Dr	276	6								P, 13	D, Irr				Cannot be pumped dry.
32D1	E. L. March	Vs 1,600	Dg	36.5	60				Colluvium	U	15.7	Feb. 21, 1951				95	3.5	~~Not used.~~
33D1	L. M. Hamilton	Vs 1,590	Dr	138	6								J	D		10	7	Poor supply; sulfurous wa unfit for drinking.
33L1	E. Buenors	Vs 1,690	Dr	75	6						6.1	Feb. 20, 1951	P	D	[illegible]	175	2	Inadequate in summer.
33L2	do.	Vs 1,680	Dr	140	6								J, 3	D				Do.
34A1	B. M. Lofland	Vf 1,450	Dg	14	48	6					6	February 1951	C	D, Irr		110	5.5	Part of water percolates irrigation ditch; water draws down 14 ft after pumping.
34A2	W. A. Cramer	Vf 1,450	Dr		6								J	D		125	4	
[illegible]	W. L. Vanpelt	Vf 1,465	Dr		6								J	D		45	4.5	
[illegible]	Arthur Martin	Vf 1,470	Dg	12.4	48						23.6	Feb. 21, 1951	J	D		185	10	Water is cloudy.
[illegible]	[illegible]. Hamilton	Vs 1,590	Dr	100	6	50	90	10	Greenstone	U	18	1949	J, 30	D, S		45	14	
[illegible]		Vs 1,520	Dg	8.1							0	Feb. 20, 1951	J	D		75	11	

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas)-Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 2 W.- Continued																	
[illegible]	Sander	Vf 1,450	Dr	180	6	70	86	?	Blue sandstone	U	12	February 1951	J, 3.5	D		[illegible]	18	
[illegible]	J. R. Winn	Vf 1,470	Dg	16	60		0	16	Alluvium				P	D		[illegible]	6	Adequate for house use.
[illegible]	[illegible] Miller	Vf 1,480	Dr	65	6	60	65		Black sand	U	3	February 1951	J, 17	D, Ind		[illegible]	1	
[illegible]	William Fugere	Vf 1,510	Dg	42							18	do.	J	D		[illegible]	15	
[illegible]	F. Bodenstab	Vf 1,500	Dg	12	48				Alluvium	U	4	do.	J	D, S		[illegible]	14	
35Q2	do.	Vf 1,500	Dg	15	84		5	10	do.	U	2.8	Feb. 26, 1951	C	Irr				Well shaft is 7 ft square 5-foot adits to west and used for lawn and garden.
[illegible]	L. L. Rentz	Vf 1,500	Dg	29					do.	U	4-5	February 1951	C	D, S		[illegible]	4	Usually adequate.
	T. 38 S., R. 1 W.																	
[illegible]	J. F. Arnold	Vf 1,520	Dr	100	6	20	32	?			3	do.	J, 2	D S		125	6	
[illegible]	[illegible]	Vs 1,620	Dr	180							1.8	Feb. 15, 1951						Not used.
[illegible]	[illegible] Bros	Vs 1,670	Dr	40	6						F	do.						
[illegible]	[illegible] Hansen	Vf 1,520	Dr	182	6	45			Gravel	U	30	February 1951	P, 9	D, S		155	6	
6?1	Soil Conservation Service	Vf 1,450	Dg	36			0	36	Shale				C	D				See table 4 for chemical of water.
6?2	do.	Vf 1,450	Dr	150.4	6				do.	U	9.94	Oct. 30, 1951	[illegible]	D				Not used.
6?1	Keystone Orchards	Vf 1,475	Dg	39.9	72X 96				Alluvium	U	5.57	Feb. 19, 1951	J	Ind		235	5	Water used for mixing spr
7?1	[illegible] Frink	Vs 1,570	Dg	22.2							0	Feb. 14, 1951		?				Not used; Work's well no.
7?1	[illegible] Beck	Vs 1,580	Dr		6								J	D, S		265	10	Pumps dry in summer.
6?1	[illegible]	Vf 1,450	Dr	1,200	16					C	F	May 16, 1951	J, 166	Ind		[illegible]	[illegible]	Water said to cause boron to plants; see table 4 f chemical analysis of wat for spraying; Work's wel

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1/ Work, H. A., "Present and Prospective Drainage Requirements in the Medford Area, Jackson County, Oregon" Division of Agro. Engineering, U. S. Dept. of Agri., Dec. 1930.

Unpublished records subject to re

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Cont

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 1 W. - Continued																	
8L1	Three Oaks Orchard	Vf 1,540	Dg	13.6							5.1	Jan. 22, 1951	P					Water used for mixing spray.
8R2	Warren Loffer	Vf 1,550	Dg	25.2							1.95	Feb. 14, 1951	P, 8	D, S		[illegible]	11	
9G1	R. Dubs	Vf 1,485	Dg	22	72				Alluvium	U	6	February 1951	J	D, Ind		[illegible]	8	
9H1	Luman Meat Company	Vf 1,480	Dg	20			0	20	Valley fill	U			J	D, Ind		[illegible]	14	Dug in spring area.
10F2	H. W. Schewietert	Vs 1,510	Dr	45	6				Shale	U	29	Summer 1949	J	D		[illegible]	6	Furnishes good supply of wate
10G1	C. B. Harrison	Vs 1,570	Dg	28	60	5			do.	U			P	D		[illegible]	4	
10H1	Curtis Barner	Vs 1,680	Dg	40.9	6				do.	U	6.9	Jan. 30, 1951	J	D		[illegible]	9	Work's well no. 69; dug well filled in around casing.
10H2	W. J. Ferns	Vs 1,590	Dg	18	48	12	18		do.	U	6.7	do.	T	D. S		[illegible]	9	
10Q1	E. R. Cox	Vs 1,485	Dr	18.1	8				do.	U	6.93	do.	J	D, S		[illegible]	6	Adequate supply.
11E1	Curtis Barnes	Vs 1,620	Dr	90	6				do.	U			J, ½	D		[illegible]	5	Inadequate.
11E2	do.	Vs 1,620	Dr	96	6		87	9	do.	U	10±	January 1951	J, 5	Irr				
11E3	C. T. Higdon	Vs 1,620	Dr	84	6		84		do.	U			J	D		[illegible]	3	Pumps dry in 15 minutes.
11E4	E. E. Rasmussen	Vs 1,660	Dr	60	6						20	Winter	J, 5	D, S				May yield 10 gpm.
11Q1	Alford	Vs 1,675	Dg	45									J	D. S				Work's well no. 71.
11N1	A. J. Ferns	Vf 1,625	Dg	19.5			19		Sandstone	U	9.0	Jan. 31, 1951	J	D		190	6	Work's well no. 70.
11R1	C. O. Swingold	Vs 1,750	Dr	55	6	55							J	D, S		170	7	Adequate supply.
12E1	J. M. Braman	Vs 1,890	Dr	152	6								P	D		90	9	
12M1	L. H. Hughes	Vs 1,860	Dr	100	6		24	76	Sandstone	U	25	January 1951	P			100	4	Work's well no.
[illegible]	Gardner	Vs 1,860	Dg	26	54				Shale	U			J	D, S				
[illegible]	I. Miller	Vs 1,790	Dg	41.9					do.	U	31	1929	P					Adequate supply; see tabl log; Work's well no. 39.
[illegible]	Kantor	Vs 1,710	Dr	101	6	6					20	February 1951	J	D, S		165	11	Easily pumped dry.
[illegible]	J. W. Bennett	Vs 1,720	Bd	22.6							1.85	Feb. 12, 1951						Not supply.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 3[illegible] S., R. 1 W.- Continued																	
15D2	Waltermeier	Vs 1,520	Dr	200	6				Sandstone	U			J	D		~~[illegible]~~	~~[illegible]~~	See table 4 for chemical of water.
15J1	Andrew Stevens	Vf 1,510	Dr	225	8		40	85	Shale						58	~~[illegible]~~	~~[illegible]~~	Do.
16B3	H. W. Thompson	Vs 1,550	Dg	24					Alluvium		3.52	Feb. 14, 1951	J	D	57	~~[illegible]~~	~~[illegible]~~	Do.
16L3	Barnhardt	Vf 1,589	Dg	30	48	12					9	January 1951	P	D		145	13	Water level drops in wint well no. 52.
16L4	C. Hunter	Vf 1,627	Dg	39		20					10.2	Jan. 25, 1951	N	~~[illegible]~~				~~[illegible]~~
16M1	Walker	Vf 1,645	Dg	27.4							4.81	Feb. 12, 1951	P			80	20	Work's well no. 44.
16P1	F. W. Houston	Vf 1,630	Dg	43					Sandstone		13.3	Jan. 25, 1951	J	D, S		170	11	Work's well no. 45.
16P2	C. Hunter	Vf 1,622	Dg	38									J					Work's well no. 46
16Q1	C. Cingcade	Vf 1,602	Dg	60					Sandstone		6.15	Jan. 25, 1951	P	D, S		205	18	Work's well no. 42.
16R1	T. Fish	Vf 1,576	Dg	28														Work's well no. 47; destr
17A1	Louis Hutton	Vf 1,610	Dr	80	6		60	20	Black shale	U	8	February 1951	J, 4	D, S		190	14	
17B1	Lind	Vf 1,610	Dg	46.5							14.4	Feb. 14, 1951	J	D		25	14~~.5~~	Good supply.
17E1	D. J. Calhoun	Vf 1,620	Dg	25.1							11.5	do.	J	D		190	8~~.5~~	
17J1	C. D. Vroman	Vf 1,694	Dg	20.1	60	4					12.9	do.	P	D		200	9~~.5~~	Adequate supply; Work's w
17Q1	G. L. Whitmore	Vs 1,730	Dg	35	36				Rock	U	10	February 1951	P	D, S		105	2~~.5~~	
22Q1	Agricultural Experimental Station	Vf 1,645	Dr	1000	6				Shale	C	21	May 16, 1951			59	~~[illegible]~~	~~[illegible]~~	Water unfit for domestic gation use; ~~water level above surface;~~ see tabl chemical analysis of wat
22Q2	do.	Vf 1,645	Dr	800	8				do.	C	F		25	D	66	~~[illegible]~~	~~[illegible]~~	Do.
23A1	Ivan Olson	Vs 1,620	Dg	15.6							2.2	Feb. 1, 1951	J, 8	D				Never goes dry.
23B1	Vin Hart	Vf 1,530	Dg	35	54		27		Shale	U	12-15	February 1951	P, 3.5	D		195	6	Adequate for house use.
23E1	Joe Fenton	Vf 1,650	Dr	100	6								P	D				Dry in summer.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 1 W.- Continued																	
23H1	Agricultural Experimental Station	Vf 1,640	Dr	80	6	60							J, 10	D		135	4	Work's well no. 31.
25C1	H. DeYoung	Vs 1,630	Dg	22			18	2	Sandstone				J	D, S				
25C2	F. A. Steiger	Vs 1,610	Dr	67.1							13.3	Feb. 1, 1951	J, 12	D, S				See plate ~~[illegible]~~ 19 for water-leve record.
25C3	do.	Vs 1,610	Dg	12.7	60						4.97	do.	J	D				Do.
26Q1	City of Talent	Vf 1,635	Dg	15	36				Valley fill	U	4	January 1951	T, 300	PS	54	~~[illegible]~~	~~[illegible]~~	Shaft with adits all backfi see table 4 for chemical a of water.
26N2	M. J. Kounz	Vf 1,740	Dg	26.7	60				do.	U	5.93	Jan. 25, 1951	J	Irr		145	4	See plate ~~20~~ 18 for water-leve water used for irrigation
26N3	do.	Vf 1,740	Dg	23.1					do.	U	7.15	do.		Irr				Interconnected with -26N2 a below surface.
27E2	Holmes Brothers	Vs 1,750	Dr	1000	8				Metavolcanic rocks	C	F		2		59.5	~~7~~	~~[illegible]~~	See table 4 for chemical an of water.
27J1	City of Talent	Vf 1,715	Dg	30	144				Valley fill	U	8	January 1951	T, 400	PS	55	~~[illegible]~~	~~[illegible]~~	This well and 26Q1 supplies see table 4 for chemical a of water.
35D1	E. L. Crain	Vf 1,780	Dg	23.3							7.2	Jan. 25, 1951	C	D		140	11	
	T. 38 S., R. 2 W.																	
1A2	J. J. McCandliss	Vf 1,470	Dg	22							4	February 1951	J	D, S		85	7, ~~[illegible]~~	~~Not used for drinking.~~
1H1	Mary-Mac Orchard	Vf 1,490	Dr	45	6	10							J	D		350	11 ~~[illegible]~~	
1K1	Harold Breedlove	Vs 1,520	Dg	27.5	60	10					9.16	Feb. 19, 1951	P	D		275	15	Dry in winter; ~~not used for drinking.~~
1L1	J. Walker	Vf 1,500	Dr		6				Alluvium	U			J	D, S		140	4	
1P1	F. R. Fairweather	Vs 1,600	Dr	19.1	6				Metavolcanic rocks	U	6.2	Feb. 19, 1951	P	D				
1P2	do.	Vs 1,600	Dr	40	6					C	F		J, 4	D	56	~~[illegible]~~	~~[illegible]~~	See table 4 for chemical a of water; flowing about May 1951.
1P3	V. R. Painter	Vs 1,580	Dg	21.6							9.37	Feb. 19, 1951	P					

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 6 W.- Continued																		
5N1	Jim Collins	Vs,	980	Dg	9.5	48		0	9½	Decomposed granite rock	U			C	D, Irr		75	3	Easily pumped dry; water level recovers in about 2 hours.
6K1	C. B. Cook	Vf,	870	Dn	13	3				Gravel	U			C, 35	S				
6R1	E. Theobald	Vf,	870	Dn	20	1½				do.	U			C	D, S				Adequate.
7Q1	Fort Vannoy Hop Yard	Vf,	900	Dr	42	6				do.	U			T	D, Irr				Supplies 7 families.
7R1	do.	Us,	900	Dr	45	6				Quartz diorite	U	34.88	Aug. 15, 1952	P					Inadequate.
9M1	L. T. Woody & Sons	Vf,	930	Dg	60	36	60			do.	U	37.27	July 21, 1952	J	D				Supplies 4 families.
1E1	N. D. Price	Vf,	870	Dr	32	8		20	12			6	1947	C	D				Yield has lessened since drilli
1K1	Ed Rich	Vf,	870	Dg	30	36				Gravel and sand	U			C	D, S				
2B1	Fred Wyss	Vf,	870	Dr	60	6	60	40	20	Sand and gravel	U	12	March 1952	J, 8	D, S, Irr		60	2	
2B2	S. W. Huber	Vf,	880	Dr	64	6	55	55	10	Cemented gravel	U	10-15	1939	J	D, Irr				
2M1	B. C. and D. A. Offins	Vf,	920	Dg	30	10	30	0	30	Decomposed quartz diorite	U	10	1922	J	D, S, Irr				Adequate; owner reports it is n short of water.
2Q1	R. R. Roley	Vs.	920	Dr	70	6				do.	U			J	D, Irr				Water shows high iron content.
3H1	Neil Newman	Vf,	920	Dr	80	6								J	D, S, Irr				
3N1	R. L. Smith	Vf,	920	Dr	56	6	46	46	10	Sand?	U	9.36	July 20, 1952	J	D				
5J1	A. W Lund	T,	950	Dr	90	4								J	D				Inadequate.
7Q1	S. M. Pyle	Vs,	1,050	Dr	79	6	73			Decomposed quartz diorite				J, 25	D. Irr				
3B1	A. R. May	Vf,	950	Dg	45	24								C	D, Irr				
3B1	J. G. Wright	Vs.	1,000	Dr	100	6								J	D, S				Inadequate.
3K1	B. N. Olsen	Vs,	1,075	Dr	68	4	68	60	8	Decomposed quartz diorite	U			J	D				Easily pumped dry; water level reported to recover quickly.

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge)- Continued

1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 5 W.- Continued																	
Q1	Grants Pass Country Club	Vs, 1,100	Dr	300	8-6				Quartz diorite				T	D				
A1	B. L. Huston	Vs, 1,000	Dg	17	30	6-7	0	17+	Alluvium	U	13.07	June 24, 1952	C	D				Reported inadequate for 1 house.
H1	E. J. Evans	Vs, 1,100	Dr	42	6				Quartz diorite	U			C	Irr				Supplies water for lawn and gard
H2	Frank Jones	Vs, 1,100	Dr	69	6	69					4	1949	J	D		30	19	Probably drilled in shale.
E1	Florenz Brietmayer	Vs, 1,100	Dr	285	8	125					14.45	Apr. 22, 1953						Abandoned because of saline wate see table 4 for chemical analys of water.
M1	Kermit Molitar	Vs, 1,200	Dr	32	6					U	10.78	June 24, 1952	C	D, Irr				
	T. 36 S., R. 6 W.																	
B1	Homer Pearman	Vs, 1,020	Dr	58	6								P	D, S, Irr				
J1	E. D. Hildebrand	U, 1,000	Dg	55	48					U	25	July 1952	P	D				At times ~~Water~~ shows indication of iron.
P1	Mae Ripley	Vs, 1,100	Dr	58	6	30	30	28	Quartz diorite	U	34.94	Aug. 19, 1952	P	D				Inadequate.
A1	Harry Tannehill	Vs, 1,000	Dr	80	6				Decomposed rock				J	D, Irr				Will supply 2 lawn sprinklers al day in addition to household.
Q1	John Bastian	U, 970	Dr	210	6	137	201	9	Quartz diorite	U	100+	August 1952	T	D, S. Irr		105	4	Water level originally at 60 ft; several months, water level dro to present level.
B1	G. R. Wilson	Vf, 950	Dr	40	6				Sand and gravel?				C	D				Reported to be a good well.
F1	William Dierks	Vf, 950	Dr	54	6	54			Quartz diorite				J	D				
A1	Ray Johnson	Vs, 950	Dr	179	6				do.				J	D				Supplies 4 houses and a dairy ba
J1	Weston Hop Yards	Vf, 900	Dn	20	1½	20			Alluvium	U			P	D, Irr				
B1	L. J. York	Vs, 970	Dg	27	18	9	0	27	Decomposed quartz diorite	U			C	D, Irr				In the summer yield is addequate for hou

Table 1.- Records of representative wells in the Rogue River basin (along the mian stem of the Rogue River and north the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 4 W.- Continued																	
21C1	W. Kusworn	Vf, 980	Dg	15	36	15	0	15+	Alluvium	U	10	August 1952	C	D				
21D1	B. F. Garber	Vs, 1,020	Dr	80	6								J, 4	D, Ind				Supplies water for house and ba
24D1	G. I. Peoples	Vf, 1,030	Dg	21	48						13	August 1952	P	D				
24D2	Otis Fuller	Vf, 1,030	Dr	55	6						14	do.	P	D				
25F1	Otto N. Jones	Vf, 1,030	Dg	25	36	10			Alluvium	U	10.20	Aug. 22, 1952	C 2	D, S, Irr		55	2	Well being pumped when water le measured; furnishes water for see plate ~~30~~ 24 for water-level r
26D1	L. H. Crouch	Vf, 1,020	Dr	52	6								C	D, Irr				
27F1	E. F. Martin	Vf, 1,000	Dr		6								C	D, S, Irr		55	2	Supplies 2 farmsteads.
27K1	Effie Birdseye	Vf, 1,010	Dg	18	36				Alluvium	U	14	August 1952	C	D, S, Irr				In use since 1856; supplies dai
35B1	Frank Daley	Vf, 1,030	Dr	54	6				"Black sand"				C	D, S				
35B2	Freeburger	Vs, 1,060	Dr	68	6				Sand?				J	D, S, Irr				
35D1	J. R. Barnes	Vf, 1,080	Dr	38.1	6	43			Gravel	U	26.29	July 23, 1952	P	D		90	3	Water contains iron.
	T. 36 S., R. 5 W.																	
5M1	M. H. Ewers	Vf, 1,180	Dr	103	6		69	34	Quartz diorite	C		Aug. 21, 1952	C, 20	D, Irr		205	3	Flows 2 gpm.
5D1	V. W. Stidhan	Vf, 1,150	Dr	100	6	100	88	12	do.	C	+1.18	do.	P	D, Irr				Overflows casing 3 to 2f gpm wh pump is off.
5D2	K. Adams	Vf, 1,150	Dr	350	8				do.	C		do.	P	D				Flows 1 to 2 gpm; well reporte drilled for oil test.
6J1	Fred Harvey	Vs, 1,180	Dr	60	6	60	50	5	do.	C	20	1949	J, 50 (2)	D, S, Irr				Reported to be a gravel-packed casing perforated.
28D1	C. G. King	Vs, 1,000	Dr	52	6	47			Gravel?		18	Spring 1952	J	D				~~analysis of~~
~~28~~	~~F. E. Pearson~~		~~Dr~~	~~201½~~	~~6~~		~~195~~	~~6~~	~~Greenstone~~	~~C~~	~~18~~	~~July 20, 1945~~	~~N~~	~~N~~				~~Saline water; see table 4 for c~~
29R1	B. L. Ruston	Vf, 1,000	Dr	80	6	80	40	35	Quartz diorite	C	3.66	June 24, 1952	T, 30	Irr				Supplies water to irrigate 4 a see plate ~~32~~ 25 for water-level

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 3 W.- Continued																	
35N1	Kenneth Lamb	Vf, 1,310	Dg	26	48	14							J	D, Irr				
35R1	J. B. Fisher	Vs, 1,450	Dr	76	6	46			Conglomerate	U			J, 5	D, Irr		150	4	
36D1	Dale Vincent	Vf, 1,390	Dg	11.2	60	3			Alluvium	U	3.58	July 22, 1952	J	D, S, Irr				
	T. 36 S., R. 4 W.																	
3C1	Ruth Peck	Vs, 1,250	Dr	65	6								J	D, Irr				
3R1	J. W. Reid	Vs, 1,120	Dr	53	6	53	45	8	Quartz diorite	C	7.80	Aug. 4, 1952	J, 12	D, Irr				Discharges into a sump; owner well has produced 12 gpm for continuously; casing perfora lowest 20 ft. See table 4 f analysis of the water.
3Q1	L. L. Bennett	Vf, 1,150	Dg	25	36	25			Alluvium	U			C	D, S				Supplies dairy; inadequate in summer months.
4D1	Ralph Kulisser	Vs, 1,080	Dr	150	6		100	50	Rock				J	D, S				Supplies turkey ranch.
4R1	J. R. Luebcke	Vf, 1,050	Dr	125	6								J	D, S, Irr				Supplies dairy adequately.
4Q1	Glen A. Black	Vf, 1,050	Dg	13	6				Alluvium	U			J	D, S, Irr				
9R1	William Larsen	Vs, 1,090	Dr	76	6				Rock		2	December 1951	J	D, Irr				
10M1	H. B. Condray	Vs, 1,150	Dr	96	6	96	80	16	Quartz diorite	U	17	June 1952	J, 28	D, Irr		55	3	
10L1	Elmer Milton	T, 1,100	Dr	85	6		75	10	do.	U	10	1948 or 49	J	D, S, Irr		50	2	Well has good yield.
10N1	Dorothy and June Heschin	Vf, 1,050	Dr	30	6	30			Alluvium	U	4.72	Aug. 4, 1952	J	D, S				Do.
10D1	Frank Gant	T, 1,100	Dr	50	6								J	D				
16D1	L. E. Parcel	Vf, 990	Dg	30	36	15			Alluvium	U	6.76	Aug. 1, 1952	C	D, Irr				Supplies water for 2 families
16F1	F. E. Hall	Vf, 980	Dg	16	48	16	0	16+	do.	U	9	August 1951	C, 100	Irr				Supplies irrigation water for

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 7 W.																	
1K1	T. H. Thompson	Vs, 900	Dr	187	6				Decomposed quartz diorite	U	48.77	Aug. 14, 1952	J	D		120	3	
25A1	Mrs. Hockenyos	Vs, 1,100	Dg	16	36	8			Alluvium	U	10.81	Aug. 20, 1952	P	D				Can be pumped dry in sum
25Q1	Harold Throwbridge	Vs, 900	Bd	23.5	6		7	13	do.	U	5.24	do.	P	D				Easily pumped dry.
35R1	A. A. Seauten	Vf, 870	Dr	83	8	83							J	D. S, Irr				Adequate for farmstead bu limited irrigation.
36R1	F. N. Roberson	Vs, 900	Dg	42	36	3.4			Alluvium	U	30.45	Aug. 23, 1952	J	D, Irr				Adequate for lawn and gar
	T. 36 S., R 3 W.																	
19Q1	William Rockford	Vf, 1,050	Dr	39	6	39			Greenstone	U	11.28	Aug. 22, 1952	J	D, Ind		55	2	Supplies house and garage sulfurous odor and iron stronger in summer.
20R1	L. C. Parker	Vf, 1,060	Dg	11.5	48	7.6	0	12+	Alluvium	U	4.43	July 23, 1952	P	D, S				Adequate at present.
20Q1	W. F. Romaine	Vf, 1,070	Dr	40	6								C	D				Adequate for domestic use
21K1	E. T Rust	Vf, 1,150	Dr							U	7.49	July 23, 1952	J	D				
21G1	Louise Nisner	Vs, 1,200	Dr	47							13	1951	J, 30	D, S, Irr		160	3	
21F1	Robert Dale	Vs. 1,200	Dr	65	6					U	30	1950	J	D, Irr				
22L1	Ruby Quackenbush	Vf, 1,090	Dr	45	6	43			Alluvium	U	11.65	July 22, 1952	J	D, Irr				Adequate for lawn and garc
26K1	Foley Bros.	Vf, 1,150	Dg	20+	36				Sand?	U	10.66	do.	P C	D				See plate ~~39~~ 24 for water-lev
26R1	N. C. Cunningham	Vs, 1,280	Dg	42	60	5			Alluvium	U	12	July 1952	P	D, Irr				
27M1	Melvin Lewis	Vf, 1,090	Dr	53	6								J	D, Irr		115	4	
28F1	Cecil Van Horne	Vs, 1,360	Dr	68	6	18			Rock		18	1950	J	D, Irr				
28L1	Terry Clement	Vs, 1,300	Dr	56	6	22	30	26	do.				J	D		170	4	
28R1	Phil Stombridge	Vs, 1,200	Dr		6								J	D				Inadequate; water reported
[illegible]	J. N. Cornutt	Vs, 1,270	Dg	22	36	22			Alluvium	U	11.37	July 22, 1952	P	D, S				

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 6 W.																	
2[illegible]1	Anchor Hatchery	U, 1,150	Dr	235	8	120			Decomposed quartz diorite	U			J, 20	D, Ind				Perforated at 40-45 ft and
2[illegible]2	do.	U, 1,150	Dr	130	6	120			do.	U	20	April 1947	J, 10	D, Ind				
3[illegible]1	Al McDow	Vs, 1,200	Dr	60	6				Alluvium	U			J	D, Irr				
3[illegible]2	John H. Brazille	Vs, 1,200	Dg	18.6	36	8			do.	U	9.92	Aug. 14, 1952	C	D, Irr				Inadequate.
9[illegible]1	F. A. Tubandt	Vs, 1,120	Dr	140	8	91			Quartz diorite	C	21	July 1952	J, 35	D				Intended for irrigation use
9[illegible]1	W. E. Thatcher	Vs, 1,080	Dr	42	6	30			Crevice in granite	C	16	1947	J, 7	D, Irr				
9P1	A. F. Reynolds	Vf, 1,030	Dg	21	42	21	0	21	Alluvium	U	8.33	Aug. 12, 1952	P	D				
9[illegible]1	M. S. Mack	Vf, 970	Dg	25	30				do.	U	16	August 1952	P	D				
901	Roy Norton	U, 1,100	Dr	90	6				Decomposed quartz diorite	U	56.86	Aug. 14, 1952	P, 5	D				
10J1	Potts Lumber Mill	Vf, 1,000	Dg	28	48	28			Alluvium	W	18		C	Ind				Used for drinking water and protection.
10J2	do.	Vf, 1,000	Dg	16	48				do.	U	12		P	D, Ind				Do.
10K1	do.	Vf, 980	Dr	108	6	106			Decomposed quartz diorite	C	+1	Aug. 13, 1952	P, 80	Ind		55	3	Flows 2 gpm; drawdown was 4 to 5 hours pumping 80 g
11D1	A. L. Irwin	Vf, 1,050	Dr	110	6	105	74	36+	do.	C	2	1948	J, 10	D, S, Irr		60	3	
14D1	L. F. Nune	Vs, 1,100	Dr	105	6	99	90	15+	do.	U	45.29	Aug. 21, 1952	30	D				~~Not yet in use;~~ Perforated
14N1	R. T. Ridley	Vs, 1,190	Dr	137	6	137	58	22	do.	C	23	1947	J, 30	Irr		45	3	Furnishes water for 1½ acr casing is perforated 58 t pump runs 15 to 19 hours summer.
15H1	E. Sherwin	Vs, 1,100	Dr	69	6								J	D				
16B1	J. R. Carter	Vf, 950	Dr	25.5	6	35	35		Decomposed quartz diorite	U	6.79	Aug. 14, 1952	C	D, Irr				

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 4 W.- Continued																	
15L1	Schugurt	Vs, 1,200	Dr	72	6						21.09	Aug. 5, 1952	J	D, Irr				
15P1	Roy Ransburg	Vs, 1,200	Dg	17.5	24	17.5	0	17+	Decomposed	U	3.90	do.	P	D, S				
16D1	H. S. Stone	Vf, 1,260	Dg	31.0	36	15			Alluvium	U	22.56	Aug. 11, 1952	P	D, S				Water contains iron and st see plate ~~28~~ 23 for water-le
16H1	Noel DeRoboam	Vf, 1,170	Dg	22-25	48				do.	U	15.05	do.	P	D, S				
16R1	Leroy Buck	Vf, 1,160	Dr	105	6	65	64	41	Decomposed quartz diorite	C	16	July 1946	J. 2	D. Irr		65	3	Now produces more than the reported by driller.
21B1	H. I. Wehren	Vf, 1,150	Dr	40.5	6					U	13.70	Aug. 5, 1952	J	D, S				
21B2	do.	Vf, 1,150	Dr	44.8	8					U	2.70	do.						~~[illegible]~~
21D1	do.	U, 1,100	Dr	90	6					U			J	D				Inadequate.
21M1	W. T. Cran	Vs, 1,200	Dg	35						U	21.14	Aug. 2, 1952	J	D				
22K1	C. L. Dyer	Vf, 1,120	Dg	4.9	24	7	0	5	Alluvium	U	3.45	Aug. 5, 1952	C	D, Irr		50	6	
22L1	Joe Deckelman	Vf, 1,100	Dr	63	6	63	60	3	Gravelly sand?	C	+.25	1950	C	D. S. Irr				Has excellent yield.
22N1	S. B. Smith	T, 1,130	Dr	47	6	47	40	7+	Decomposed quartz diorite	C	30	1949	J, 15	D, S, Irr		55	3	Tested by bailer.
27E1	Ralph York	Vs, 1,150	Dr	94	6	94	50	4	do.	C	20	April 1952	J	D				
28C1	J. O. Goldt	T, 1,100	Dr		6								J	D, S, Irr				Supplies 2 families.
28F1	F. H. Nelson	Vf, 1,150	Bd	24	4				Alluvium	U	14.12	Aug. 2, 1952	P	D				Adequate for present use.
33F1	Klomhaus	Vs, 1,150	Dr	90	6	89			Decomposed quartz diorite	C	F	Au do.	J	D		70	2	
33P1	Al Bringmann	Vf, 1,050	Dr	140	6					U	27.98	do.	J	D, Irr				
34D1	W. B. McWharter	Vf, 1,350	Dr	71	6	71	51	20	do.	U	10	Sept. 1952	J	D, Irr				Owner has sump 55 ft long, and 10 ft deep that will only 1/2 acre.

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 3 W.- Continued																	
7F1	R. M. Supran	Vf, 1,350	Dr	27	6	25			Alluvium	U	14.20	Aug. 6, 1952						Inadequate water yield.
	T. 35 S., R. 4 W.																	
1Q1	Ed Hillis	Vs, 1,270	Dr	49	6	49			Red "clay" (?)	U			J	D, Irr				
3E1	C. W. Ceidburg	Vf, 1,250	Dg	36					Alluvium	U			C	D				Barely adequate for one house.
3H1	W. J. Vojkuvka	Vf, 1,250	Dr	68	6	66	60	8	Decomposed quartz diorite	U	5	When drilled	J, 5	S, Irr				Furnishes water for one acre of berries; owner uses a dug well house.
4A1	Pleasant Creek Guard Station	Vf, 1,250	Dr	70	6								J	D, PS				Used by fire crews.
4N1	Fred Canterbury	U, 1,300	Dr	45	6		25	20+	Decomposed quartz diorite	U	12	do.	J	D, S, Irr				Water is soft.
8P1	C. L. May	Vf, 1,270	Dr	82	6	70	70	12+	Decomposed	U	17	1951	J	D				Water reportedly contains iron.
9E1	C. J. Chaneler	Vf, 1,270	Dr	80	6	80	60	20+	Decomposed rock		20	May 1952	J, 30	D, Irr		55	3	Yield determined by bailer test casing perforated lower 20 ft.
9Q1	Lewis Northrup	Vf, 1,230	Dr	79	6	80					15	1948	J, 7	D, Irr				Tested for yield by bailer.
10H1	George Johnston	Vs, 1,210	Dg	27	48	2					21.44	Aug. 6, 1952	J	D, S				Inadequate during summer.
10F1	R. Holmes	Vs, 1,200	Dr	60-65	6								J	D, S, Irr				Adequate; water soft.
11F1	E. I. Howell	Vf, 1,180	Dr	48	6								J	D, S				Supplies dairy.
11F2	C. H. Rhoton	Vf, 1,180	Dg		36				Alluvium				C	D, S		80	3	
12B1	Lee Hillis	Vf, 1,200	Dg	24	48	4			do.	U			C	D, Irr				Bottoms on bedrock.
15E1	Wimer Community Church	Vf, 1,150	Dr	51	6	51	50	1	Decomposed quartz diorite		13.92	Aug. 5, 1952	J	D				Not used enough to determine y
15C1	W. B. McKnight	Vf, 1,150	Dr	80	6								J	D, S, Irr				
15Q1	J. H. Martin	Vs, 1,200	Dr	189	6	135	187	2	Crevice in rock	C	29		J, 40	S, Irr		80	28	

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 33 S., R. 6 W.																	
15Q1	G. W Hopper	Vf, 1,295	Dr	80	6	16	70	10	Greenstone	C	5.61	July 23, 1952	P	D, Ind				Water tastes plate 29 for water-level
22B1	Kathryn Moore	Vf, 1,290	Dg	20	22	20	10 16	6 4+	Alluvium Greenstone	U			J	D, Ind				On bank of Wolf Creek; fo for metal; flows in wint
	T. 34 S., R. 4 W.																	
33F1	W. D. and S. C. Hitson	Vf. 1,350	Dg	35	60		0	35+	Alluvium	U	8.59	Aug. 11, 1952						~~Not known~~.
33Q1	F. K. Balch	Vf, 1,280	Dg	14	48	13	9	5	do.	U	9	1952	J	D, Irr				Water used for house and garden
	T. 34 S., R. 6 W.																	
2G1	Ray Clark	Vs. 1,350	Dg	15			0	15	do.	U	10	1949	P	D				Near a dry 25-foot drille
2K1	C. A. McFarland	Vs, 1,280	Dr	55	6		38	17+	Greenstone	U				D				Pump breaks suction after operation in summer.
2N1	Frank Price	Vs, 1,250	Dr	40	6				do.	U			J, 55	D				Capable of watering lawn without pumping dry.
2Q1	R. H. Morris	Vs, 1,357	Dr	190	6				do.	U			J	D				Will pump dry in about 1
11F1	H. O. Rowe	Vs, 1,290	Dr	58	6				do.	U			J	D. Ind				Furnishes water for a sto and 5 houses.
27M1	L. O. Whiting	Vs, 1,380	Dr	84	7				Decomposed quartz diorite	U			J	D, Irr		75		Water used to irrigate 2 acres.
27R1	W. L. Frederick	Vs, 1,480	Dr	87	8	87			do.	C	2	Aug. 1952	J, 100	Irr		60	4	Irrigates 3 acres and gro perforated 32-40 ft; 72 water level draws down 24 hours pumping at 100
33B1	George Hartwig	Vs, 1,220	Dr	65	6	60	59	6+	do.				J	D, Irr				Water used to irrigate lawn.
33E1	Leo Wyatt	Vs, 1, 100	Dr	84	6	75	0	84+	do.	U			J	D. Irr				Do.
	T. 35 S., R. 3 W.																	
7C1	Mary Moore	Vf. 1,350	Dg	14	42				Alluvium	U			P	D				Contains "abundant" water irrigation season.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent area) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 39 S., R. 2 E. - Continued																	
30E1	Les Hamilton	Vs 2,310	Dr	300	6				Shale				J	D, S		10	4	
30Q1	Eckerdt	Vs 2.280	Dr	140	6				do.				J	D				~~[illegible]~~
30F1	C. A. Wilson	Vs 2.150	Dg	8	40				Valley fill	U	F	Jan. 6, 1951	J	D		10	4	In stream gravel on 1 creek.
32C1	L. R. Haselwood	Vs 2.200	Dr	101	6	11			Shale	U	28.2	Oct. 31, 1951		D				
32D1	A. A. Rollins	Vf 2,190	Dg	16	48				Clayey gravel	U	7.5	Jan. 6, 1951	J	D				Adequate for 2 houses
32D2	do.	Vf 2,190	Dg	6					Shale	U			P	~~Irr~~	51	37	155	~~[illegible]~~, See table 4 chemical analysis of
32F1	Austie Barron	Vs 2,230	Dr	209	6				do.	U			J, 0.3	D		10	30	Drilled in 1935.
32F2	do.	Vs 2,230	Dr	100	6				do.	U	5.85	Jan. 6, 1951		D				Recently drilled.
32P1	do.	Vs 2,197	Dr	134.8	6				do.	U	2.22	Oct. 31, 1951		S	58			
	T. 40 S., R. 2 E.																	
5B1	H. F. Barron	Vs 2,335	Dr	155.6	9	7			do.	U	2.1	Jan. 6, 1951		Irr		100	13	See plate ~~26~~ 2.21 for wate record; new well dri irrigation.
5C1	Aisemore	Vs 2,430	Dr	251	6				Sandstone	U	12.44	Nov. 8, 1951			57			Dry when drilled.
5D1	Austie Barron	Vf 2,475	Dr	133	6				do.	U			J	D				

Table 1.- Records of representative wells in the Rogue River (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 39 S., R. 1 E. - Continued																	
1501	O. E. Cole	Vs 2,056	Dg	11.9					Gravel	U	3.8	Jan. 11, 1951	P, 7	Irr				Bottomed in "hardpan"; s 17 for water-~~level~~ reco well no. 18.
1511	Floyd Samford	Vs 2,161	Dg	29			4	25	Sandstone	U	1.0	do.	J	D				Can be pumped dry; see t log; Work's well no. 11
2301	R. W. Swift	Vs 2,200	Dg	24	48						0	Jan. 5, 1951	J	D				Taps percolating water b of an intermittent stre well no. 6.
2601	Philip Fedderson	Vs 2,150	Dg	8	60		4	4+	Rubble	U	4	January 1951		S				
	T. 39 S., R. 2 E.																	
785	Gas Ice Corporation	Vf 1,930	Dr	396	8				Sandstone and conglomerate				T	Ind				See table 3 for log of w a battery of 14 wells.
7[illegible]	do.	Vf 1,930	Dr	621	8				do.				T	Ind				Do.
7811	do.	Vf 1,930	Dr	418	8				Sandstone	U			T	Ind	66	~~[illegible]~~		See table 4 for chemical of water and table 3 fo well.
1911	Clarence Taylor	Vf 2,090	Dg	18	48		8	10	White sand	U	8.05	Jan. 6, 1951	D, 5	D, S				Bottomed on shale at 18
1921	Kenneth Gisrude	Vs 2,110	Dr	91	6	18	80	11+	Gravel	C,	F	do.	J	D. Irr		20	38	Flowing 3 to 5 gpm; see for driller's log.
1901	O. L. Bullen	Vf 2,120	Dr	125	6	30±			Shale	U	2	December 1950	J, 5	D	54	[illegible]	~~[illegible]~~	See table 4 for chemical of water.
1902	do.	Vf 2,150	Dr	23	6				do.	U	9.1	Jan. 6, 1951	J	D		70	4	~~Not much.~~ Water high in plate ~~21~~ 22 for water-leve
2[illegible]1		Vf 2,200	Dg	9	72		0	9+	Valley fill, gravel and sand	U	5.79	Jan. 4, 1951	P	Ind		160	7	Source of supply for sla house.
2901	Virginia Coke	Vf 2,190	Dr	180	6				"Gravel" (probably conglomerate.	C			J	Irr				A "lithia" well.
2902	Brooks	Vf 2,185	Dg	23.6	60				Valley fill	U	15.3	Jan. 6, 1951		D		150	7	Located 30 ft east of ch burned house.

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 39 S., R. 1 E.- Continued																	
11K1	B. M. Grimes	Vs 1,890	Dr	164	6						52.4	Jan. 10, 1951	J	D, S		[illegible]	16	Water level lowers enough pump breaks suction afte pumping.
11L1	George Beck	Vs 1,970	Dg	31.6							16.98	do.	J	S, Irr				Water unfit for domestic
11L2	Russell	Vs 1,918	Dg	13.2	60				Shale	U	1.00	do.	J	D				Bedrock reported at 12 f
11N1	Jones	Vs 1,992	Dg	39.7							5.78	Jan. 11, 1951	J	D, S		10	6	Work's well no. 15.
11Q1	T. H. Marion	Vs 1,950	Dr	150	6									D				Water is hard.
13A1	C. R. Foster	Vs 1,932	Dg								9.06	Jan. 6, 1951		D		10	8	Work's well no. 1.
13C1	Fred Holmes	Vs 1,996	Dr		6													Work's well no. 2; now a and filled.
13N1	G. M. Byrd	Vs 2,086	Dg	46.6					Shale	U	13.12	Jan. 8, 1951	J	D		70	6	Usually adequate; Work's
14A1	R. E. Black	Vs 2,010	Dr	100	8				do.	C	F	Jan. 10, 1951	J	D		200	12	Said to flow all year at gpm.
14A2	John Miller	Vs 2,010	Dr	80	6				do.	C	F	do.	J	D		200	14	Do.
14C2	Dan Malin	Vs 2,040	Dg	12	48				do.	C	F	do.	J	D, S				Flowing 2 gpm.
14E1	Don Weggers	Vs 2,020	Dr	62	6					C		do.	J, 3	D, S		200	6	Flowed at surface when
14E2	S. B. Low	Vs 2,050	Dr	118	6								P	D, S		200	9	
14G1	Dan Farmer	Vs 2,113	Dg	25							10.98	Jan. 8, 1951	D	D				Work's well no. 7.
14H1	Williamson	Vs 2,153	Dg	20.7	84						1.3	Jan. 11, 1951						Work's well no. 8; not
14H2	Sherman	Vs 2,106	Dg	10.5			0	10+	Valley fill	U	0.0	Jan. 9, 1951	P	S				Work's well no. 9; well creek which is dammed well full.
14H3	Arch Kincaid	Vs 2,195	Dg	27.7	72				do.	U	1.65	Jan. 11, 1951	J	D, S				
14J1	Moore	Vs 2,165	Dr	44.6	6		32	12+	Bedrock ?	U	11.2	Jan. 8, 1951				90	4	~~Not in use;~~ See plate level record.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	~~[illegible]~~ Work's well

Table 1.- Records of representative wells in the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	)10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 1 E. - Continued																	
29R1	C. L. Mitchell	Vs 1,830	Dr	84	6				Shale	U			J	D				
30A1	H. H. Hollingsworth	Vs 1,855	Dr	72	6				do.	U			J	D, Irr		50	24	Work's well no. 25.
30B1	R.L. Witt	Vs 1,770	Dg	34	12				do.	U	12		P	D, S				
30E1	Tom Villa	Vs 1,750	Dr	343	6				do.	U			J. 10	D, Irr	55	~~[illegible]~~	~~[illegible]~~	See table 4 for chemical of water.
32F1	James Foster	Vs 1,780	Dr	147	6		80	10	do.	U	30		J, 3	D				
32J1	D. S. Delap	Vs 1,760	Dr	70	6				do.	U			J. 10	D, Irr		170	4	
33R1	D. C. Abram	Vs 1,990	Dr	125	6	12	90	35	do.	U	13.1	Jan. 19, 1951	P	D, S				
	T. 39 S., R. 1 E.																	
3B1	F. E. Decker	Vs 1,930	Dr	35	6		0	35+	do.	U	7.45	do.	J	D		120	14	Water level fluctuates wi 25 ft to north.
3D1	V. D. Lowe	Vs 1,890	Dr	50	8								J	D, S		175	3	
3Q1	M. P. O'Harra	Vs 1,945	Dr	82	8				Shale	U			J	D		155	3.5	
3Q2	William Davidson	Vs 1,960	Dr	80	6				do.	U			J	D, S		150	9	
3R1	L. F. Conner	Vs 2,950	Dr	200	6				Shale and sandstone	U			J	D				Well yield is 53 gallons day.
3R2	do.	Vs 2,010	Dr	216	8	45			do.	U	40.25	Jan. 16. 1951	P	D, S		105	9	See plate ~~22~~ 20 for water-le
10C1	Ashland Meat Co.	Vs 1,980	Dr	112	6	45			do.	U			J	Ind				
10K1	Goodhue	Vs 1,938	Dg	19.6					do.	U			J	D, Irr				Work's well no. 21.
16K2	G. O. Hinkson	Vs 1,916	Dg	11.4	48				Shale	U	2.27	Jan. 16. 1951	J	D				Work's well no. 22.
10K3	J. R. Maxedon	Vs 1,911	Dg	24			24		do.	U			J	D				Work's well no. 23.
11E1	W. H. Wallis	Vs 2,100	Dg	12.6	60		0	12+	Valley fill	U	3.2	Jan. 10, 1951	J	Irr		150	7.5	Used for irrigating lawn garden.
11J1	A. L. Wallis	Vs 1,850	Dr	165	6	20	21		Blue "clay"	C			J	D		120	10	Barely adequate for dome

									do.	U			J	D		150	5	

Table 1.- Records of representative wells of the Rogue River basin (Bear Creek valley and adjacent areas) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 35 S., R. 1 E. - Continued																	
32R2	R. C. Parcell	Vs 1,450	Dr	190	6									D				
32R1	F. Johns	Vs 1,545	Dr	32	3	29	32		Tuff	U	25	April 1951	P, 7	D, S		210	7	
34R1	M. Culbertson	Vs 1,690	Dr	109±									P			160	7	
	T. 36 S., R. 1 E.																	
3A1	R. D. Shoemaker	Vs 1,650	Dg	34.8	24	34.7			Volcanic flows	U	25.4	Apr. 3, 1951	P	D, S, Irr		145	8	Reported good supply of
3L1	Davidson	Vf 1,430	Dr	105		6			do.	U	15		J	D, Irr		125	6	
4B1	J. D. Arens	Vf 1,430	Dr			6			do.	U			J, 13	D		115	7	
4G1	Bartling	Vs 1,470	Dr	55	6		55		do.	U			J, 10	D		95	5	
4K1	Woolfolk	Vs 1,460	Dr	165					do.	U			J	D, S		75	13	
5H1	Willard Cave	Vf 1,440	Dg	35		20			Valley fill	U	4	April 1951	C	D, Ind		155	5	Good supply for store a station.
6H1	Hubert Smith	Vf 1,425	Dr	240	6	30					6	May 1951	J, 6	D, S		70	5	
7M1	Postan	Vs 1,430	Dr	110	6						13.5	June 4, 1951	J, 12	D, S				Water hard. has sodalik
10Q1	R. E. Watts	Vf 1,500	Dr	33	6				Volcanic flow				J	D, S		125	8	
11P1	L. Bradshaw	Vs 1,560	Dr	100+	6						19.75	Apr. 3, 1951	J	S				
13F1	M. Marsters	Vf 1,560	Dr	70	6		68				10	April 1951	J, 5	D		155	7	
14A1	J. E. Owen	Vs 1,530	Dg	36.6	72						19.7	Apr. 3, 1951	J	D, S		190	14	
14C1	Nora Bradshaw	Vf 1,520	Dr	162	6								J	D, S	57	~~377~~	~~440~~	See table 4 for chemic of water.
20M1	Marion	Vs 1,560	Dr	57	6	47.5			Volcanic flows		27	May 1951	P, 10	D, Irr		175	4	
20N1	E. W. Veach	Vs 1,550	Dr	60	12				do.				J	D		155	4~~5~~	Pumps dry quickly.
20N2	L. W. Rodgers	Vs 1,530	Dg	10	48	10	5	5	Alluvium		5	May 1951	P	D, S		150	4	Reported good supply o
29M1	Victor Gardner..	Vs 1,630	Dr	132	6								J, 16	D, Irr	60.5	~~48~~	~~225~~	See table 4 for chemic of water.

Table 1.- Records of representative wells of the Rogue River basin (Bear Creek valley and adjacent area - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 2 W. - Continued																	
2C1	Luana Farms	Vf 1,575	Dr	83.5	6						5.7	Feb. 20, 1951	J	D, S		175	13	
2F1	M. Schults	Vf 1,530	Dr		6				Alluvium	U	6.6	Feb. 19, 1951	J			175	6	Goes dry quickly.
2F2		Vf 1,530	Dg	10.7	18				do.	C	+ 0.22	do.	C	D		185	12	
2H1	J. B. Custard	Vf 1,516	Dg	26.7			7	12	Gravel and clay	U	2.8	do.		Ind				Work's well no. 75/ see t for log; supplies servic and store.
2P1	H. A. Johnson	Vf 1,610	Dr	52	6	52								D		165	9	
3C1	R. Minear	Vs 1,580	Dr	100	6		75 98	3 1	Metavolcanic rocks		F	Feb. 20, 1951	T, 6	D		180	7	Water enters from "fissu bottom of well.
3C2	D. Minear	Vs 1,700	Dr	234	6		230	4	do.				T, 2	D	59.5	[illegible]	[illegible]	See table 4 for chemical of water.; yields about
4A1	Stagecoach Orchard	Vs 1,590	Dg	23.7					Colluvium	U	9.6	Feb. 20, 1951	J	D				Can be pumped dry.
4B1	Iverson	Vs 1,660	Dr	53.6	6						22.4	do.	J	D		195	16	
11F1	Miracle	Vf 1,660	Dg	36	72 x 120						13.5	Feb. 19, 1951	J	S. Irr		210	7	Pumps dry in 5 hours.
11F2	do.	Vf 1,660	Dg	24									J	D		175	6	Pumps dry in 45 minutes
11K1	J. Boyle	Vs 1,750	Dr	238	6	30			Blue shale	U						140	4	Reported to yield 25 gp
11L1	H. D. Walters	Vs 1,680	Dr	64.8	6	40			Black shale	U	8.4	Feb. 20, 1951	J, 25	D, S		290	14.5	
11N1	Waite	Vf 1,690	Dg	35					Rock	U			J	D, S		240	12	Low in summer.
	T. 35 S., R. 1 E.																	
29P1	Watson	Vs 1,510	Dr	53	6						11	April 1951	J	D, S		150	7	
30G1	McDonald	Vs 1,550	Dr	90	6	30	90		Volcanic flows	U	55	do.	J, 33	D	63	[illegible]	[illegible]	See table 4 for chemic of water.
30P1	R. Stanley and Son	Vs 1,470	Dr	30	6	10			do.	U	3	do.	J	D		165	6	Can be pumped dry.
31A1	J. J. Watson	Vs 1,550	Dr	190	6	100			do.				P	D, S		30	4	

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 36 S., R. 6 W.- Continued																	
34H1	Kenneth Dewoody	Vf, 1,000	Dr	92	6	90			Decomposed quartz diorite	U			J	D, Irr				Supplies 2 families.
35B1	H. Jezierny	Vs, 1,050	Dr	74	6	74			do.	U	14	June 1952	J	D				Has perforated casing.
35C1	S. C. Lucas	Vf, 980	Dr	81	6	70	70	11	do.	C	6	July 1952	J	D, Irr				Supplies 2 families; flows dur wet season.
35J1	Hoyt	Vf, 1,000	Dr	48	6				do.	U			J	D. Irr				Will pump dry in 5 or 6 hours running at full capacity of ½ HP pump.
35K1	M. A. Puaries	Vf, 1,000	Dr	45	6	44.5	30	15	do.	U	15	1951	J, 15	D, Irr		40	4	Water level reportedly draws d 30 ft at capacity of ½ HP pu
36D1	H. A. Fahrman	Vs, 1,100	Dg	31	42	5			do.				J	D, S				Pumps dry with heavy use.
36L1	William Barr	Vf, 1,050	Dr	56	6								J	D, Irr				
36Q1	O. L. Thetford	Vf, 1,050	Dr	120	6	120	92	28	do.	C	2-3	June 1951	T	D. S, Irr		95	4	Irrigates 2 acres; has pumped yield of 20 gpm for 10 hours; casing is perforated last 92
	T. 36 S., R. 7 W.																	
2H1	Maud Kerr	Vs, 900	Dr	62	4	62			Sandstone	U			C	D, S, Irr		50	2	Has run 15 hours without failu penetrates gravel to 45 ft ar standstone 45 to 62 ft.
12R1	H. Welch	Vs, 980	Dr	100	6	15			Decomposed quartz diorite	U	11	1950	J, 7	D, S. Irr		80	7	
13C1	O. J. Klose	Vf, 960	Dr	80	6				Shale	U			J	D		95	3	Inadequate.
24C1	John Wilde	Vs, 1,020	Dr	64	6	59	40	19	do.	U	36.26	July 21, 1952	J	D		55	2	Pumps dry in ½ hour; pump had running prior to measurement water level.
	T. 37 S., R. 3 W.																	
2D1	M. G. Adams	Vs, 1,680	Dr	80	6	50	50	30	Metasedimentary rock		1	1948	J, 30	D, Irr				Furnishes water to irrigate 1 acres of berries.

Unpublished records subject to r

Table 1.- Records of representative wells in the Rogue River basin (along the main stem of the Rogue River and north of the Rogue River from Gold Hill to Robertson Bridge) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 4 W.																	
2P1	R. S. Towne	Vs, 1,300	Dg	65	60	9	0	65	Metasedimentary rock	U	37.62	Aug. 1, 1952	P	D, S				Easily pumped dry during
2P2	Paul Cobbles	Vs, 1,250	Dr	48	6								J	D				
11E1	V. C. Rowell	Vs, 1,350	Dr	80	6								J	D, Irr				Pumped dry in ½ hours.
11M1	G. O. Woolf	Vs, 1,350	Dr	60	6	55	55	5			20	1950	J	D, Irr		66	5	
	T. 37 S., R. 5 W.																	
4D1	Arnold Kirkhoff	Vs, 1,300	Dr	65	6								J	D, S				
5B1	W. S. McDonald	Vs, 1,400	Dg	15.7	48	16	0	16	Alluvium	U	6.44	June 24, 1952	C	D, Irr		85	4	
5B2	do.	Vs, 1,400	Dg	15.9	48		0	16	do.	U	4.24	do.	P	S, Irr				
6B1	Stuart	Vs, 1,250	Dr	108	6	74	0	108	Granodiorite	C	2.35	Apr. 22, 1953						Not ~~yet in use~~
6C1	Grants Pass Country Club	Vs, 1,000	Dr	246	8	148			Decomposed quartz diorite	U			T	Irr		70	6	Will yield 80 gpm for 12
6F1	P. B. Collin	Vs, 1,300	Dr	110		60+			do.				J, 25	Irr		80	2	Casing perforated at 60 f
6Q1	Grants Pass Provision Co.	U, 1,300	Dr	135									T	Ind				Runs continuously; pump n breaks suction.

Unpublished records subject

Table 1.- Records of representative wells in the Rogue River basin (Illinois River valley)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13	(14)	(15)	(16)	(17)	)	(19)
	T. 37 S., R. 8 W.																	
35G1	S. H. & W. Lumber Co.	Vs 1,500	Dr	349	12				Shale	U	15.72	May 20, 1952	T, 40	Ind		170		Water is mineralized; used for protection; see table 4 for c analysis of water.
35G2	do.	Vs 1,480	Dr	60	6				do.	U	8.18	do.	J	Ind				Used for fire protection.
35K1	W. S. Stire	Vs 1,470	Dg	11.1	48				"Clay" or shale	U	9.04	May 22, 1952	P	D				Inadequate during summer; wat rusty color.
35K2	do.	Vf 1,470	Dr	77	6				Shale	U	8.40	do.	N			65	[illegible]	Not used.
36P1	Winnie Belle Spinas	Vs 1,430	Dg	40	72		35	5	Alluvium	U	25	May 1952	P	D				
	T. 38 S., R. 7 W.																	
7Q1	A. Whitesell	Vs 1,475	Dr	70	6	69	0	47	Red "clay"	U			C	D		40	[illegible]	Water contains large amount well penetrated red clay 0- blue clay 48-69 ft; blue sh
8Q1	O. S. Smith	Vs 1,470	Dg	11.1			0	11.5	Gravel	U	5.18	May 14, 1952	C, 200	Irr				Provides water for ½ acre of
9B1	L. E. Riggan	Vf 1,475	Dg	12	360x 360		4	8	do.	U	8	May 1952	C, 100	Irr				A sump that provides water to 10 acres; provides 120 gpm f
9F1	do.	Vf 1,460	Dg	12	36	6	0	12	do.	U	9.78	May 15, 1952	P	D		30	[illegible]	
9P1	Jack Rayburn	Vf 1,400	Dr	100	6								J	D		65	[illegible]	Reportedly water has iron ta
15B1	Mrs. Cohn	Vf 1,490	Dg	13.2	60		0	13	Gravel	U	11.10	May 15,1952	C	D				Used only for laundering.
17A1	William Cross	Vf 1,400	Dg	14.3	24	8	0	15	do.	U	5.69	do.	P	D				
17Q1	A. E. Sandall	T 1,380	Dr	47	6	47	30	17	do.	U	25	May 1952	J	D, Irr		50	[illegible]	Inadequate during summer; ov of casing perforated.
17Q2	J. A. Buckles	T 1,380	Dr	124	6	8			Blue "clay"	U			J	D		125	10	Inadequate in late summer.
17R1	J. E. Paquette	Vf 1,530	Dg	30	48				Gravel	U			P	D				
18K1	A. L. Wheeler	Vf 1,380	Dg	30	48		0	30	do.	U			C	D				Inadequate in dry season.
21D1	H. L. Gayette	Vf 1,530	Dg	9.6	48x 96				do.	U	7.09	May 16, 1952	C	S, Irr				Inadequate in September.
21D2	do.	Vf 1,530	Dn		1.5				do.				P	D				Adequate for household,

Table 1.- Records of representative wells in the Rogue River basin (Illinois River valley) - Contin

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 8 W.																	
2B1	Pete Blue	Vs 1,370	Dg	36.1	60					U	12.23	May 22, 1952	J	D				Can be pumped dry.
2Q1	Norman Guscetti	Vs 1,275	Dr	130	6				Rock?				P	Irr		90	6	Water contains iron and s porcelain fixtures.
10J1	R. L. Smith	Vf 1,320	Dg	22.9	48				Gravel	U	13.06	May 22, 1952	C	D, S				
11C1	R. L. Hammer	Vf 1,200	Dg	25	36	25			do.	U			J	D, Irr				Easily pumped dry.
11G1	L. F. Krauss	T 1,350	Dr	171	6	14			Blue shale				J	D		110	8	Pumps dry in one-half hou
11J1	Barbara Tucker	Vf 1,325	Dr	24	6	24			Alluvium	U	6.57	May 14, 1952	C, 40	D, Irr				Reportedly a good well.
12F1	R. A. Ross	Vs 1,350	Dg	16.5	60	5	0	16	do.	U	11.40	do.	C	D				Adequate for domestic us has second dug well for of garden.
12P1	Frank Breazeal	Vf 1,350	Dn	15	1¼	15			do.	U			C	D, Irr				Adequate for house and g
13D1	Ray Frost	Vs 1,400	Dr	22	6				do.	U	11.39	May 17, 1952	J	D, S				Adequate for house and b
13D2	do.	Vf 1,350	Dn	17	1¼	17			do.	U			C	S				
14C1	E. Hatmaker	Vf 1,350	Dr	45	7	45			do.	U	11.51	May 17, 1952	C	D		40	4	Has casing perforated lo well inadequate; see pl water-level record.
14E1	Bruce Dobi	Vs, 1,350	Dg	42.0		3			Gravel	U	21.51	do.	J	D				Reportedly yields very s
14E2	Pine Haven Motel	Vf 1,360	Dg	20.0	60	12			do.	U	12.08	do.	C	Ind				Supplies 4 cabins.
14M1	Mrs. McKenna	Vs 1,360	Dr	200	6				Rock	U			J	Ind		80	4	Supplies 4 cabins and st ~~level in dug well~~ ~~7.0 ft below surface.~~
15K1	Dean Warren	T 1,400	Dr	147	6	55			do.	U	6	1941	P	D		15	85	Yields 42 gallons of wat
26A1	P. Buckhaults	Vs 1,525	Dg	17.3	36	3			Alluvium	U	13.45	May 17, 1952	P	S		20	4	Inadequate during dry se
33H1	George Thrasher	Vs 1,240	Dg	29	8				do.	U			C	D, Irr				
33Q1	C. C. Johnson	Vf 1,240	Dg	25	36	25			do.				J	D				

Table 1.- Records of representative wells in the Rogue River basin (Illinois River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 39 S., R. 7 W.																	
20M1	R. E. Nealy	Vs 1,580	Dr	200	6				Shale									Would not furnish enough wat drilling; abandoned.
20M2	do.	Vs 1,580	Dg	35	48				do.					D		65	4	
20Q1	Wayne Foster	Vs 1,650	Dr	290	8		0	290+	do.		1.70	Apr. 21, 1953						A dry hole; abandoned.
22Q1	G. L. Clayton	Vf 1,640	Dg	15.20		8	0	16	Gravel	U	8.31	do.	L	Ind				Supplies motel.
23N1	Clyde Moreland	Vs 1,680	Dg	12.6	72		0	12	do.	U	11.18	do.	P					Not in use.
27N1	Mansfield	Vf 1,570	Dg	10	310x 620		0	10	do.	U	Dry	do.		Irr				A sump; dry in April.
28F1	J. T. Heald	Vf Vf 1,550	Dg	14	6		0	14	do.	U			C	D		40	4	
29L1	Fred Loesch	T 1,550	Dr	78	6	78				U	59.58	May 24, 1952						Never used; yield estimated as 8 gpm.
29M1	Henri Appy	Vf 1,450	Dg	12					Gravel	U			P	D, S				Can be pumped dry in one-hal during dry season.
30D2	D. V. Brink	Vs 1,500	Dr	101	6	101	30	71	Shale				J	D		40	3	Adequate for domestic use on
30K1	O. F. Lee	Vf 1,470	Dr	119	4	119			"Gravel"				J	D		35	4	Drilled through 21 ft gravel clay, thin bed of shale, and (conglomerate).
30M1	C. E. Brafford	Vf 1,450	Dg	14	96				Alluvium	U	8	April 1952	P	D				Has been in use since 1858.
32F1	A. R. Lee	Vf 1,480	Dn	10	1¼	10	0	10+	do.	U	4	do.	P	D				
32F1	Keith Owen	Vf 1,460	Dn	15	1¼	15	0	15+	do.	U			P	D				
33F1	J. M. Smock	Vf 1,500	Dg	22	48				do.		7.34	Apr. 17, 1952	P C	D, Ind				Adequately supplies general 3 houses.

Unpublished records subject to rev

Table 1.- Records of representative wells in the Rogue River basin (Illinois River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 39 S., R. 8 W.																	
4A1	Art Cribb	Vs 1,250	Dr	65	6	65							J	D, Irr				
4K1	C. C. Hoover	Vf 1,270	Dg	20	36	20			~~Alluvium~~	U			J	~~D, Irr~~				Was drilled in gravel, 0-15
4P1	B. R. Adams	Vf 1,230	Dr	44	6	44	40	4	Cemented ~~gravel~~	U	8	October 1951	J	D				~~[illegible] gravel 15-44 ft; acco~~
9C1	Cabax Lumber Co.	Vf 1,230	Dr	74	6								J	D				Supplies mill and 3 houses wi ing water; inadequate in dry
9J1	Cecil Fessler	Vs 1,250	Dr	56	6	46	46	4+	Alluvium	U	10-12	May 1952	J	D				Supplies 2 families; well wa 6 ft into hard rock.
9R1	A. A. Johnson	Vf 1,240	Dr	41	6	39	41	1	do.	U	20	do.	J, 5	D, Irr				Was drilled in soil, 0-10 ft; 40 ft; gravel 40-41 ft.
15M1	Cora A. Barnes	Vs 1,340	Dg	23.7					do.	U	21.22	May 23, 1952	C	D				Water level
22J1	Howard Salvage	T 1,320	Dr	65-67	6					U	31.74	do.	P	D, Irr		40	4	/n measured while pump was runn
22N1	C. A. Wilcox	Vf 1,320	Dr	42	6								J	D				Pumps dry in ½ hour.
22M1	Robert Estes	Vf 1,320	Dr	71	6				Shale	U	24.54	May 23, 1952	J	D, Irr				An observation well; see pla water-level record.
23R1	Ira Hall	Vs 1,380	Dr	103	6	20			do.	U			J	D		180	5	In shale entire depth.
25F1	H. O. Drews	Vf 1,470	Dg	8	120				Gravel and "clay"	U			C	Irr				Furnishes water for 3½ acre
25G1	R. O. Smith	Vf 1,470	Dr	63	6				do.	U	16-18	Fall 1951	J, 15	D		25	5	Pumped 24 hours without fai
25R1	Ray Hickerson	Vf 1,410	Dg	7.8	30x 60	2	0	8+	do.	U	5.40	Apr. 18, 1952	J	Ind				Used to supply dairy.
26J1	E. L. Sowell	Vf 1,410	Dn	33	1½	33			do.	U			J	D				
26L1	Robert Wright	Vf 1,350	Dg		48				do.	U	4.51	Apr. 17, 1952	C	D				Well had been pumping for a when water level was meas was about 1 ft from static
28B1	City E Sowell	Vf 1,310	Dg	8	36				do.	U			P	D, Irr				
28H1	of Cave Junction City	Vf 1,320	Dg	12		12	0	12+	Alluvium (bouldery)	U			C	PS				A horizontal tile 150 ft l deep, 24 inches in diamet water from gravels in ban River.
[illegible]	do.		Dr	40	16	40	15	25	Gravel	U	15	Aug. 1954	T	PS	50			See table 3 for log and tab

Table 1.- Records of representative wells in the Rogue River basin (Illinois River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 39 S., R. 8 W.- Continued																	
28R1	Treve Allen	Vf 1,310	Dg	16	48				Gravel	U			P	D				
28R2	Haggerty	Vf 1,310	Dg	12-15	36				Alluvium	U	7.89	Apr. 15, 1952	J	D		25	5	
30R1	A. M. Masoner	Vs 1,450	Dg	5	144x 360		0	5+	do.	U	1.55	May 26, 1952	C	D, Irr				A sump, planned for irrigation.
31J1	Earl Boyd	T 1,410	Dg	20.3	36	23.8	0	20+	do.	U	8.70	do.	J	D				
34D1	S. W. Hickey	T 1,330	Dg	21	218x 432		0	21+	do.	U	12	April 1952	P	D				
34L1	U. S. Geol. Survey	T 1,350	Dr	113.5	6	113.5	27 87	75} 107}	do.	U	17.36	Aug. 9, 1952	N	O	52	~~35~~	~~7~~	USGS exploratory 31 well; see table log; see plate ~~32~~ for water-lev record. See table 4 for chemica ysis of the water.
35C1	C. C. Goodwin	T 1,350	Dg	35	48				do.	U	19.28	Apr. 17, 1952	J	D				Inadequate during summer.
35H1	Clyde Hays	T 1,400	Dr	67	6	66			do.	U			J	D, S		40	6	
35H2	Jay Hays	T 1,400	Dr	33	6	33			do	U			J	D				Adequate.
35J1	Jack Eggers	Vf 1,360	Dr	30	6	30			do.	U			J	D				Do.
35K1	E. Skeeters	Vf 1,360	Dg	12.9	36				do.	U	9.48	Apr. 17, 1952	C	D, Ind		40	5	Supplies store and home.
35R1	R. O. Tycer	Vf 1,370	Dn	20	2	20			do.	U			J	D				Adequate.
36A1	J. E. Brenner	Vf 1,440	Dr	69	6								J	D				Reported to have been pumped 24 without appreciable affect on level.
36B1	J. W. Payne	Vs 1,420	Dn	21	1½				Alluvium	U	8	April 1952	J	D				Adequate.
	T. 40 S., R. 7 W.																	
6B1	T. W. Rigel	Vf 1,440	Dg	7	60				do.	U	3	do.	C	D, Irr				Supplies water to irrigate 2 acr
7L1	A. D. Rasmussen	Vs 1,480	Dr	59.8	6						14.86	Apr. 21, 1952	J	D, Irr		75	4	Furnishes water to irrigate larg
1E1	H. M. Estes	Vs 1,470	Dr	185.3	5½				"Rock"	U	58.75	Apr. 5, 1952	N			50	4	~~Not used~~.

Table 1.- Records of representative wells in the Rogue River basin (Illinois River valley) - Contin

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 40 S., R. 8 W.- Continued																	
11H1	Carrie Froelic	Vf 1,450	Dr	67.3	6					U	9.43	Apr. 14, 1952						[illegible]
12D1	D. E. Zimmerman	Vf 1,410	Dg	9.0	60				Alluvium	U	3.36	do.	C	D		95	3	
19K1	D. O'Brien	Vf 1,390	Dr	77	6				Metasedimentary rocks	U			J	D				Adequate for domestic use o
23J1	Mrs. D. Hanby	Vs 1,510	Dr	93	6	93				U	10.45	Apr. 14, 1952	J	D		90	15	Has casing perforated botto ft; water reported to be h in iron.
23J2	H. K. Hemingway	Vf 1,510	Dg	15	60								J	D, S				
23Q1		Vf 1,520	Dg	12.2	30	13.9	0	13+	Alluvium	U	6.80	Apr. 14, 1952	C	D				
27A1	J. L. Allen	Vs 1,580	Dg	19.6	60				Serpentine		5.48	Apr. 16, 1952	P	D				
34A1	F. Weiser	T 1,580	Dr	59.0	8				Alluvium?	U	31.45	Apr. 14, 1952	J	D		35	4	Inadequate in dry season.
35D1	W. L. Sweeten	T 1,570	Dg	10.4	60		3	8+	Alluvium	U	6.02	do.	C	Irr				Do.
	T. 40 S., R. 9 W.																	
12J1	C. E. Burton	Vf 1,480	Dg	25	48	5	0	25+	do.	U			P	D		15	3	Shows indications of iron i
23B1	C. E. Downing	Vf 1,550	Dg	16	42				do.	U			J	D				Was dug to bedrock.
23H1	Nane	Vs 1,465	Dg	18	48				do.	U			P	D, Irr				Do.
24E1	Jim Wilson	Vf 1,520	Dr	75	6	71			Rock	U	35	April 1952	J	D				Adequate.
24E2	do.	Vf 1,520	Dr	50	6	50				U	8.92	Apr. 15. 1952						[illegible]
25A1	H. R. Love	Vf 1,420	Dg	65	36	65			Alluvium?	U			J	D		30	2	Adequate.
25A2	L. E. George	Vf 1,420	Dr	63	6	63			do.	U	13	April 1952	J	D, Irr		30	2	Adequate; casing perforate lowest 18 ft.
25Q1	Waldo Store	Vf 1,400	Dg	16.9	48		0	17+	Alluvium	U	2.20	Apr. 15, 1952	C	D				Can be pumped dry during s

Table 1.—Records of representative wells in the Rogue River basin (Applegate River valley)

(1)	(2)	(3) Topog	(4)	(5) Dep	(6) Dia	(7) Casing Depth	(8) Depth to top	(9) thk	(10) Zone	(11) occurrence	(12) Water level Ft below LSD	(13) Date	(14) Type	(15) Use	(16) Temp °F	(17) Tot Hardness	(18) Cl ppm	(19)
	T. 36 S., R. 6 W.																	
28Q1	Arthur Egtvedt	Vs 1,110	Dg	30	60	8	0	30	Decomposed quartz diorite	U	8.90	July 19, 1952	J	D				
29P1	S. W. Pool	Vs 1,050	Dr	50	6	50	0	50	do.	U	25	1934	C, 50	D, Irr				
29Q1	O. C. Frank	U 975	Dr	126	6	120	120	6	do.	U	20	1952	J, 6	D, Irr				Supplies two families adequ
30L1	J. C. Rawls	Vs 890	Dr	125	6	55			do.				J	D				Inadequate.
31H1	Mary Baum	Vf 950	Dr	156	6	156			Alluvium	U	16.00	July 18, 1952	J	D, S		35	3	Supplies 2 families and dai overflows when not being p
32C1	J. W. Langhead	U 980	Dr	110	6					U			J	D, Irr				Adequate for house and dair Water gives some iron stain
32D1	O. P. Knight	Vs 970	Dr	84	6	82	60	20	Alluvium	U	29.48	July 29, 1952	J	D		~~79~~	~~3~~	[illegible] at 60, 70, and 80 ft; see for chemical analysis of w plate ~~32~~ 23 for water-level r
32D2	do.	Vs 970	Dr	182	6	182			Red "clay" and cemented gravel		88.98	Apr. 21, 1953						Yield inadequate; [illegible] abandoned.
32E1	John Walsh	Vs 960	Bd	35	6	35			Alluvium	U	5.99	July 18, 1952	P	PS				Adequate.
32H1	Roy Chalenden	Vf 960	Dr	37	6	37	0	37+	Decomposed quartz diorite	C			J	D				Flows when not in use but c pumped dry in 10 to 15 min
32K1	C. J. Marfeld	Vf 950	Dg	27	36				Sand	U			C	D, S				
32R1	T. W. Keesecker	Vf 950	Bd	25	6	25	14	11	Decomposed quartz diorite	U	3.28	July 18, 1952	C	D, Irr				Well penetrated 4 ft topsoi blue clay, and 9 ft granit
33Q1	F. E. Davis	Vf 1,020	Dr	80	6	70			do.	C	2.02	July 17, 1952	J	D, S, Irr				Formerly flowed over top of
34N1	George Farrar	Vs 1,080	Dg	16.8	66	7	0	17+	do.	U	5.24	do.	C	D, S, Irr		60	2	
	T. 37 S., R. 5 W.																	
7F1	H. S. Thomas	Vs 1,260	Dr	115	6	80	80	35+	do.	U			J	D, Irr		80	3	Has casing perforated at 70
7K1	L. M. Monstead	Vs 1,220	Dr	80	4	80			Gravel?	U	12-15	June 1952	J	D, Irr		90	3	

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 5 W.- Continued																	
7R1	Chas. Hoffman	Vs 1,200	Dg	14.7	48				Alluvium	U	4.10	June 25, 1952	P	D				
7R2	John Anderson	Vs 1,200	Dr	97	6				do.	U	15	July 1951	C	D, Irr		85	4	Adequate.
8C1	Lawrence Brown	Vs 1,400	Dg	14.4	48				"Clay and soft rock"	U	8.70	June 24, 1952	J	D, Irr				Easily pumped dry; recovers q rock outcrop nearby is shaly probably of Triassic Applega
8D1	Alder Sage	Vs 1,300	Dr	49.1	6					U	13.56	June 25, 1952						See plate ~~33~~ 26 for level record.
18A1	Jake Hoen	Vs 1,200	Dr	128	8	108			Rock	U	30	Fall 1951	J	D, S				Is perforated at 30, 45, and
18B1	Frank McClough	Vs 1,200	Dr	40	6					U			J	D				Adequate.
18C1	Sarah Snively	Vs 1,100	Dg	20	36				Alluvium	U			C	D, S				
18F1	I. E. Hayes	Vf 1,070	Dg	16					do.	U	4	1951	J	D				Filled in around casing with dirt; has never gone dry.
18F2	L. E. Hayes	Vf 1,070	Dr	22	6				do.	U	4	When drilled	J	D				Penetrated into ~~Im~~ loose gravel below hardpa
18Q1	Waphets General Store	Vf 1,070	Dr	60	6				do.				J	D, Ind				Supplies store and service s
19D1	W. T. Perry	Vs 1,080	Dg	20			12	8	Rock	U			J	D				Reported to be very good wel is soft.
19G1	Ben Dierks Lumber Co.	Vf 1,070	Dr	86	6	86			Gravel	U	15-16		J	D		80	65	Supplies drinking water for
19H1	Lowe	Vf 1,070	Dg	22	47				do.	U	7.30	July 1, 1952	P and C	D, Ind				Supplies store and service s see plate ~~36~~ 26 for water-leve
19H2	Rob Smith	Vf 1,070	Dr	91	6	80			Greenstone		80	1951	J, 5	D				Tested by bailing.
19J1	Murphy School	Vs 1,080	Dr	98	6				do.		5.9	Oct. 16, 1951	P	N				
20C1	N. D. Blachard	Vs 1,080	Dr	70	6	30			do.		20	1943	J	D				Water reported to be soft.
20E1	Sun Valley Ranch	Vf 1,070	Dr	90	6				Gravel?				J, 40	S, Irr				Supplied 4 sprinklers 48 ho failure.
20F1	Bischoff	Vf 1,070	Dn	20	1½				do.				C, 5	D, S,				Adequate.

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continu

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 5 W.- Continued																	
20M1	V. T. Wilson	Vf 1,070	Dg	20	1¼	20			Gravel?				J	D, S				Filled in around casing with cemented over.
20M2	do.	Vf 1,070	Dr	90	6				Cemented gravel		6.36	Apr. 22. 1953						Not in use. Yield too small.
21K1	S. P. Hunter	Vs 1,090	Dr	33±					Gravel				J	D, Irr				Supplies 2 families.
21L1	Floyd Smith	Vf 1,080	Dn		1½				do.				J	D, S				Supplies dairy.
21M1	do.	Vf 1,080	Dr	246	6	200			Gravel (?)		40	1947	J, 4	D				Inadequate.
26P1	H. C. Williams	Vs 1,290	Dr	40	6								J	D. S				
27M1	Christjensen	Vs 1,100	Dg	25 2	48				Gravel	U	18.30	Oct. 19, 1951	J	D, S, Irr				Adequate.
28J1	Powers	Vf 1,190	Dg	14	30				do.	U	10	1951	C	D, S				Was pumped 12 hours with Finc ugal pump "without lowering level."
34E1	F. R. Hyde	Vf 1,180	Dn	16	1¼	16			do.	U	3	do.	P	D, S				Driven through hardpan at 12
35A1	Ivan York	Vs 1,290	Dg	26	48				do.	U	3-4		J	D, S				
35E1	do.	Vs 1,280	Dg	25	48				do.	U			P	D				Was pumped with a 3-inch cent pump without exhausting supp
35K1	W. F. Willson	Vf 1,140	Dn	18	2				do.	U			J	D, Irr		100	2	
35L1	Barney Jackson	Vf 1,140	Dr	60	6	56			do.	U	10	1948	J, 3	D				Goes dry after ~~[illegible]~~ in 30 minutes of pu
36L1	E. B. Wilken	Vs 1,180	Dg	30	48		0	30	do.	U	15		J	D				
	T. 37 S., R. 6 W.																	
1B1	William Heiserman	Vf 1,050	Rd	29	6				Decomposed quartz diorite	U			J	D				Nearby sump 4 x 17 ft has wat 8.76 ft below land surface.
1L1	J. J. Summers	Vs 1,050	Dr	50	8	50	36	14	do.	U	13.36	June 30, 1952	J	D				Supplies water for 3 houses.
3F1	O. D. Stout	Vs 1,100	Dr	49	6	47	47	2	do.	C	1.84	July 7, 1952	J, 18	D. Irr		80	2	Runs continuously during irri son without failure; furnish for 8 acres.

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 37 S., R. 6 W. - Continued																	
4F1	Ray Jordan	Vs 1,110	Dr	52	6	50			Decomposed quartz diorite	U	19.20	July 17, 1952	J, 30	D, S, Irr				Tested by bailer; owner beli sufficient to irrigate 2 a
5A1	H. H. Sharrah	Vs 1,030	Dr		6								J	D, S, Irr				Adequate.
5Q1	Wiley Venable	Vs 1,050	Dr	147	6				Decomposed quartz diorite	U	8.84	July 18, 1952	J	D, S, Irr		75	3	Do.
6B1	Fred Kronebusch	Vf 940	Dg	23	36	23			Sand	U	7.84	do.	C	D				Adequate for domestic use.
7B1	David Browne	Vs 1,000	Dr	204	6	196				U	27.33	July 16, 1952	T, 30	D, S		50	2	Used for dairy; reported dr ft after 36 hours pumping
7J1	Jim Malong	Vf 980	Dg	12	36	12			Gravel	U			C	D, S				
8C1	Dale Rogers	Vf 950	Dr	135	6								J	D				
8L1	Rod Robinson	Vf 975	Dg	21	60	8			Gravel	U			C	D		25	1	
8L2	do.	Vf 975	Dg	20	72	8			do.	U	12.69	July 16, 1952	C	Irr				
11B1	H. E. Lewis	Vf 1,090	Dr	112	8	100			Decomposed quartz diorite	U	6.88	July 17, 1952	J, 44	D, S, Irr		70	3	Casing perofrated between 4 ft; see plate ~~35~~ 27 for water
11H1	W. L. Wiant	Vf 1,050	Dr	45	4								J	D				Inadequate.
11H2	D. D. Nolan	Vs 1,090	Dr	91	6				Decomposed quartz diorite	U			J	D, Irr				Adequate.
11J1	O. A. Perry	Vf 1,050	Dr	44	6	38			do.	U	10	1951	J	D, Irr				Do.
11Q1	Ray Capron	Vf 1,050	Dg	15.8	36	6					7.54	July 15, 1952	C	D, S				Pumps dry quickly.
12M1	Guy Pennington	Vf 1,050	Dr	42	6	42					12.43	June 30, 1952	J	D, Irr				Yield low ~~[illegible]~~ in late summer.
13G1	William Houck	Vf 1,100	Dr	147	6				Decomposed quartz diorite	C		do.	J	D, S, Irr		90	3	Flows about 2 gpm when not
13H1	C. Dennison	Vf 1,100	Dr	51	6		42	9	do.		6.80	do.	J	D		90	3	
13N1	Art Messinger	Vf 1,050	Dg	12							4.17	do.	P	D, S				Adequate.
14B1	Thys Knitert	Vf 1,000	Dr	75	6				Decomposed	U	12.55	do.	J	S				Used for dairy.

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	<u>T. 37 S., R. 6 W.</u>- Continued																	
14D1	W. M. Montgomery	Vs 1,060	Dr	57	6				Gabbro		8.94	July 15, 1952	J	D, Irr		~~155~~	4	See table 4 for chemical an water and plate ~~39~~ 27 for wat record.
14J1	I. J. Reid	Vf 900	Dr	31	6	20	20	11	Decomposed quartz diorite	U	5.13	June 27, 1952	C	D, S		65	3	Water shows indications of
15J1	E. R. Pace	Vf 1,000	Dr	93	6	75							J	D				Perforated at 35 ft.
16F1	W. B. Tetherow	Vf 960	Dr	79	6								J	D				Adequate.
16K1	R. I. Frazier	Vs 1,000	Dg	30	36	30			"Clay"	U	6.75	July 15, 1952	J	D				Pumps dry easily; recovers
17A1	Paul Robinson	Vf 1,000	Dg	17	48				Gravel		13	1952	C	D, S				Supplies 2 houses and dairy
17B1	Ed Robinson	Vs 990	Dr	79	6	50			Rock?		16	July 1952	J, 30	S		40	2	Water shows indication of i
17Q1	J. P. Taft	Vf 1,050	Dr	145	6	145			Gravel		20	do.	J	D, S				~~[illegible]~~
17Q2	do.	Vf 1,070	Dg	18	900x 1,920				Boulder cobbles		8	do.	C, 120	Irr				Furnishes water to irrigate dewatered ½ ft when pump s after 12 hours.
18F1	C. W. DeArmond	Vf 1,050	Dr	86	8						8.94	July 16, 1952	T	Ind				Water used to fill mill pon
24G1	B. B. Ward	Vf 1,025	Dr	51	6	25	25	26	Metavolcanics		20	1947	J, 16	D, S				
	<u>T. 37 S., R. 7 W.</u>																	
1J1	Ivan Cowdrey	Vs 1,000	Dr	90	6								J	D, S				Adequate.
	<u>T. 38 S., R. 3 W.</u>																	
21F1	E. L. Womack	Vs 1,590	Dg	37	42	11	30	7	Rock		29	1951	P	D, Irr				Will produce about 600 gall
23N1	Hunter and Best Lumber Co.	Vs 1,590	Dr	64	6	43					24	do.	J, 35	Ind		125	3	Supplies trailer camp and s
27A1	McDonough	Vf 1,600	Dr	76	6	20	70	6	Rock		20	1940	J	D		100	4	Supplies 2 houses and store

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continu

)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 3 W.-Continued																	
1	R. L. Hughes	Vs 1,540	Dr	83	6	83			Rock		51.6	Aug. 20, 1952	J	D. Ind		85	3	Entered bedrock at 50 feet; suppl store.
1	McDonough	Vs 1,650	Dr	91	6	45	85	6			20	1946	J	D				Will furnish water for 3 sprinkle
1	Molly Wray	Vs 1,460	Dg	11	36	5	5	6	Alluvium		6	1951	J	D		95	3	
2	do.	Vf 1,420	Dg	11	360x 720		7	4	do.	U	7.86	Aug. 21, 1951	C	Irr				Supplies water to irrigate 20 acr
1	Ed Smith	Vf 1,480	Dg	30	36	20	15	15	do.	U	15	August 1951	J	D, S				Adequate.
2	G. Frago	Vs 1,480	Dg	16	~~60~~ 720x 360	4½	4	12	do.	U	8	do.	J, 3	D, S		90	9	Yields enough for partial irriga ~~Inadequate~~. 20 acres.
3	do.	Vf 1,480	Dg	12	360x 1,200		4	8	do.	U	6	do.	C, 8	Irr				~~Not adequate~~ Pumping 500 gpm wil in about 3 hours; recovers in a 45 hours.
1	V. Vessell	Vp 1,400	Dg	8.8	48		0	10	do.	U	8.5	Aug. 21, 1951	C	D				Water level /measured just after pumping.
1	T. C. Schultz	Vs 1,400	Dg	27.8	60		22	3	do.	U	17.47	do.	J	D		105	6	Supplies house and barn inadequa
1	Robert Fibbs	Vs 1,375	Dr	29	6	26	26	3	Metavolcanic rocks	U	10	March 1951	J, 10	D		170	3	Adequate; water comes from "fiss
1	L. Offenbach	Vf 1,330	Dg	14	24	14	4	10	Alluvium	U			J, 5	D, Irr				Reportedly will pump 5 gpm.
1	do.	Vf 1,340	Dg	18	24	18			do.	U			J, 5	D		115	2	
1	K. Buckley	Vf 1,350	Dg	36					do.	U	10	August 1951	P	D		125	3	
1	H. Cantrall	Vf 1,425	Dg	18	48	18			Bedrock	U	8.1	Aug. 21, 1951	P	D		135	7	Pump at capacity does not produc "much drawdown."
1	Nelson Pursel	Vf 1,425	Dg	18	36	18			Alluvium	U	15	June 1951	P, 4	D				
1	Fred West	Vf 1,425	Dg	21	36				do.	U	16	August 1951	J	D, S				Reported water level is lowest i January.
1	O. W. Mahfield	Vs 1,780	Dr	69	6	64	64	1	Metavolcanics	U	43	June 1951	J, 7	D				
1	K. Buckley	Vs 1,525	Dg	30	48		28	2	do.	U	20	August 1951	P	D				

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 3 W. - Continued																	
34N1	Ed Ramsey	Vs 1,550	Dg	15.6	16	5	5	10+	Metavolcanics	U	13.77	Aug. 20, 1951	P, 2	D, S		135	7	Not adequate.
34P1	Lena DeShazo	Vs 1,560	Dr	67	6				do.	U			J	D, S, Irr				Not adequate to irrigate 3 ac
	T. 38 S., R. 4 W.																	
6F1	Cemetery	Vs 1,260	Dr	115	6	115	77 115		Decomposed granodiorite	C		Oct. 18, 1951	J	Irr		168	4	Flows about 1 gpm; water stru 77 ft was cased off but flow ou'side of casing; water at ft is under artesian pressu flows about ½ gpm.
7B1	C. L. Hill	Vf 1,180	Dg	15			4	11+	Alluvium	U	13	October 1951	J	D				Water occurs in clean river gravel.
7B2	George Fields	Vf 1,200	Dg	15					do.	U	3	do.	J	D				
7L1	Jack Young	Vf 1,190	Dr	96	6				do.	U			J	D				Adequate.
17B1	Clegg	Vf 1,250	Dr	125	6	118	120	5	do.	C	17	October 1951	J, 7	D, S				
17H1	B. N. Clute	Vs 1,260	Dr	35	6	35			do.	U	12-15	do.	J, 30	D				
17L1	I. L. Brown	Vf 1,250	Dr	60	6				do.	U	20	do.	J	D, S				Adequate
17M1	Clarence Gift	Vf 1,250	Dr	138	6	120	120	18	do.	U	17	do.	J	D, S				Supplies farmstead with 40 he cattle.
18B1	W. N. Carl	Vf 1,240	Dr	238	6	180	120 180	40 10	do. Greenstone	U U	15	do.	J, 7	D, S				Has casing perforated at 120
18D1	Whitsett	Vf 1,220	Dr	58	6		57		Alluvium	U	18	do.	J	D				Adequate.
21G1	C. G. Godlove	Vf 1,300	Dg	15.6	8				do.	U	9.16	Oct. 8, 1951	N					xxxxxxxx; New well 20 ft to is boarded up.
22B1	Karl Herriott	Vs 1,300	Dr	60	6	58	58	2	Greenstone				J	D		145	10	A ½ h.p. pump cannot dewater
22D1	Al Bird	Vf 1,275	Dr	37	6				do.	U			J	D, Ind		155	2	Supplies water for store, so fountain, service station, garden without failure.
22D2	do.	Vf 1,275	Dg	12.2	36	14	0	13+	Alluvium	U	8.75	Aug. 22, 1951						xxxxxxxx; Reportedly could n pumped dry with a "2-inch"

Table 1.- Records of representative wells in the Rogue River basin (Applegate River valley) - Continued

)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 4 W.- Continued																	
F1	George Brown	Vf 1,280	Dr	40	6	38	38	2	Alluvium	U	14	August 1951	J, 3	D				Will fail with continued pumpin
1	R. Brass	Vf 1,280	Dg	20.7	36	10	10	11	do.	U	8.07	Aug. 22, 1951	J	D		85	2	Adequate.
2	E. Huall	Vs 1,320	Dg	13	60	13				U	11	August 1951	J	D, Irr				
1	C. C. Garhardt	Vf 1,310	Dg	24	36	24			Alluvium	U	11.43	Aug. 22, 1951	J	D		135	3	Adequate.
	T. 38 S., R. 5 W.																	
1	Sakraida	Vf 1,150	Dn	17					do.	U	15	October 1951	J	D, S				Do.
1	do.	Vf 1,150	Dr	28	6	10			do.	U	10	do.	J, 6	D, S				Do.
F1	Sam Letteken	Vf 1,150	Dr	56.9	6	55	15	42	do.	U	13.95	Oct. 10, 1951	10					See plate 28 fo water-level record.
R1	Elery Stone	Vf 1,170	Dn	14	1½	14			do.	U			J	D, S				Adequate.
E2	I. O. Naylor	Vf 1,160	Dr	80	6				do.	U			J	D, S, Irr		95	2	Do.
A1	A. K. Jones	Vf 1,150	Dr	112	6				do.	U	14	October 1951	J	D, S		65	5	Do.
B1	Sakraida	Vf 1,190	Dn	20	1½	20			do.	U	20	do.	J	D, S				
A1	Provolt School	Vf 1,160	Dr	37.0	42				do.	U	8.05	Oct. 9, 1951	J					See plate 28 for wate level record.
1	R. F. Lofland	Vf 1,350	Dg	22	60				do.	U	16	October 1951	J	D, S				Adequate.
C1	G. H. Collins	Vf 1,350	Dn	16					do.	U			P	D				Adequate; a 20-ft-deep sump fur irrigation water for 2 years; dry in 1951.
A1	Richards	Vf 1,360	Dr	105	6				Greenstone	U			P	D, S				Not adequate.
1	Bert Mahoney	Vf 1,360	Dr	270	6				do.	U	25	October 1951	J, 2	D				Adequate.
1	Amos Smith Lumber	Vf 1,390	Dr	400	6	100			Quartz diorite	U	11.33	Oct. 8, 1951						Formerly furnished water for steam sawmill.
E2	R. W. Rowley	Vf 1,390	Dr	32	6						12	1949	J	D, Irr				Adequate.

Table .- Records of representative wells in the Rogue River basin (Applegate River valley) - Continued

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	T. 38 S., R. 5 W. - Continued																	
F3	J. A. Mapeton	Vf 1,380	Dg	26	48				Alluvium	U	16	1950	J	Ind				Furnishes water for a compresso locker plant; pump runs contin
J1	Melvin Toothman	Vf 1,390	Dr	24	6				do.	U			J	D, S				Adequate.
F1	Varner	Vf 1,400	Dg	20					do.	U			C	D, Ind				Supplies store, service station home.
	T. 39 S., R. 3 W.																	
C1	J. H. Sandige	Vs 1,600	Dr	68	6				Greenstone	U			J, 6	D, Irr		135	1	Adequate.
	T. 39 S., R. 5 W.																	
N1	Cardin	Vs 1,490	Dg	20	36				Gravel	U	12	September1951	P	D				Supplies 2 families.
A1	C. E. and E. N. Vencill	Vf 1,410	Dg	14	600x 1,800				Alluvium	U	4	October 1951	C, 230	Irr				Reportedly has 2 ft drawdown af days pumping; a sump on level wi east fork Williams Creek.
Q1	L. S. Walther	Vf 1,520	Bd	17.3	6		0	18	do.	U	11.6	Oct. 5, 1951	J	D				Owner has 2 sumps, 1 about 17 f not dry in 1951.
R1	D. E Alden	Vf 1,500	Dg	25	48		0	25	do.	U	11±	1944	J, 2	D, S				
3R2	C. E. Whittier	Vf 1,490	Dr	60	6				do.	U			J	D, S				Adequate.
3R3	Vencill	Vf 1,480	Dr	70					do.	U			J, 6	D				Has pump pipe inlet set at 44 f breaks suction occasionally.
N1	Mrs. Sowell	Vs 1,700	Dg	33±					do	U			J	D				Adequate for domestic use.

Table 2.- Records of Representative Springs in the Rogue River Basin (Bear Creek and Adjacent Areas)

1/ T, terrace; Vf, valley floor; Vs, valley slope. 2/ D, domestic; Irr. irrigation; S, stock. 3/ Hardness and chloride content determined by field analysis.

Spring No. (1)	Owner or occupant of property (2)	Name of spring (3)	Topography 1/ and altitude (feet above sea level) (4)	Water-bearing material (5)	Occurrence (6)	Yield		Use 2/ (9)	Temperature (°F) (10)	Chemical character of water in parts per million 3/		Re (13)
						Gallons per minute (7)	Date (8)			Hardness as $CaCO_3$ (11)	Chloride (12)	
	T. 34 S., R. 1 W.											
27M1	A. Conovor		Vs, 1,500	Volcanic flows	Perched water flowing from fractured lavas and tuff	0.1 (est.)	July 9, 1951	D, S				Spring walled concrete; suf for household
33R1	J. Williams		Vs, 1,400	do.	Perched water flowing from joint opening	5	do.	D, Irr		185	6	Dug out and wa concrete.
	T. 35 S., R. 1 W.											
36K1	D. W. McCorkle		Vs, 1,396	do.	Perched water flowing from joint cracks	3 (est.)	Apr. 2, 1951	D, S		145	5	Orifice enlarg ented in; pum bottom of rav
	T. 36 S., R. 1 W.											
3R1	Ray Palm		Vs, 1,350	do.	Perched(?) water flowing from contact		June 6, 1951	D		100	3	
4N1	J. C. Duggan		Vs, 1,300	Tuff	Perched water flowing from joint		do.	D, S, Irr	58	130	3	Equipped with tank 4 ft squ
13D1	William Coleman		Vs, 1,410	do.	do.			D, S, Irr				Has concrete s 8 x 8 x 8 ft.
	T. 37 S., R. 1 W.											
5B1	Everett Carey		Vs, 1,330	Sandstone	Unconfined water flowing from joints in sandstone			D				
	T. 37 S., R. 2 W.											
20A1	A. P. Conger		Vs, 1,550	Granite	Confined water flowing along joint plane	2.5	Mar. 5, 1951	.D, S		155	3	

Table 2.- Records of Representative Springs in the Rogue River Basin (Bear Creek and Adjacent Areas) - Continued

Spring No.	Owner or occupant of property	Name of spring	Topography and altitude (feet above sea level)	Water-bearing material	Occurrence	Yield		Use	Temperature (°F)	Chemical character of water (in parts per million)		
						Gallons per minute	Date			Hardness as CaCO3	Chloride	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(1
	T. 38 S., R. 1 W.											
3J2	Schnack Brothers		Vs, 1,670	Shale	Perched water flowing from contact of shale over sandstone	15-20	Feb. 15, 1951	D, S		180	4	Supplies 2 h large stock
13L1	H. B. Chapman		Vs, 1,825	do.	do.			D				
15M1	Mrs. Colver		Vs, 1,500	Sandstone	Confined water rising along joint in sandstone	1	Aug. 16, 1951	D				See table 4 analysis of
	T. 35 S., R. 1 E.											
31N1	Brummett		Vs, 1,400	Volcanic flows	Perched water flowing along interflow layer	5	Apr. 3, 1951	D, S		170	6	
	T. 38 S., R. 1 E.											
31K1	Wootten and Taylor-	Jackson Hot Springs	Vf, 1,670	Sandstone	Confined water rising along contact between sandstone and granodiorite	10	Apr. 22, 1952	Irr	95			Used for bat 4 for chemi of water
	T. 39 S., R. 1 E.											
3F1	Claude Moore		Vs, 1,900	Shale	Confined water rising along intrusive rock	6	Jan. 19, 1951	D, Irr				
3R1	R. Applegate		Vs, 1,850	do.	Unconfined water flowing along fissures in shale	2	Jan. 16, 1951	D, Irr				
	T. 39 S., R. 2 E.											
7N13	City of Ashland	Pompadour Spring	Vf, 1,930	Sandstone	Confined water rising along fissure in fault zone	N	Jan. 9. 1951	N	86			Flow diverte drilled nea 4 for chemi of water.
	T. 40 S., R. 2 E.											
12G1		Buckhorn Spring	Vf	Volcanic rocks	Unconfined water rising in broken rock near fault zone	200±	Apr. 18, 1957	D				Small amount ing at spa; gas which is carbon diox

Unpublished records subject

ble 2.- Records of Representative Springs in the Rogue River Basin (valley of the main stem of the Rogue River and the small valleys nor of the Rogue River west of Gold Hil

Spring No.	Owner or occupant of property	Name of spring	Topography and altitude (feet above sea level)	Water-bearing material	Occurrence	Yield		Use	Temperature (°F)	Chemical character of water (in parts per million)		Remarks
						Gallons per minute	Date			Hardness as CaCO	Chloride	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	T. 34. R. 6 W.											
7A1	Carl Jensen		Vs, 1,500	Metamorphosed shale	Unconfined water flowing from fissures in shale	4		D				Source of Jap Cre proved by constr earth and rock d
	T. 35 S., R. 4 W.											
28L1	Doris Burkett		Vf, 1,080	Gravel	Unconfined water flowing from alluvium	3	Aug. 1952	D		65	2	Improved by havin tile 3 ft deep s spring; has ¼ h. pump.
	T. 36 S., R. 4 W.											
9H1	J. A. Dennis		T. 1,100	Alluvium	do.			D		35	44	Used by 3 familie
	T. 36 S., R. 6 W.											
30R1	A. W. Crockett		T, 900	Gravel	Perched(?) water flowing from terrace escarpment			D, S		40	2	Has 6 ft of 36-in in spring; has centrifugal pum

Table 2.- Records of Representative Springs in the Rogue River Basin (Illinois River valley) - Continued

Spring No.	Owner or occupant of property	Name of spring	Topography and altitude (feet above sea level)	Water-bearing material	Occurrence	Yield		Use	Temperature (°F)	Chemical character of water (in parts per million)		Rem
						Gallons per minute	Date			Hardness as $CaCO_3$	Chloride	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	<u>T. 38 S., R. 7 W.</u>											
4B1	R. F. Stevens	Vs, 1,700	Vs, 1,700	Colluvium overlying Galice formation	Unconfined water flowing from colluvium			D				Furnishes suffic for the use of
7K1	Lester Frost		Vs, 1,500	Volcanic rocks	Unconfined water flowing from fissures in volcanic rocks	10	May 1951	D. S		30	4	Water is piped t
1P1	Mrs. W. L. Tuttle		Vs, 1,700	Shales of Galice formation	Unconfined water flowing from fissures in shale	20	do.	D. S. Irr				Water used to ir 2 acres.
	<u>T. 38 S., R. 8 W.</u>											
22L1	F. J. Beauvais		Vs, 1,390	Gravel	Unconfined water flowing from gravel			D		135	2	Supplies 8 famil
	<u>T. 39 S., R. 7 W.</u>											
34F1	A A. Winterbottom		Vs, 1,590	Alluvium	Unconfined water seeping from alluvium	3-4	Apr. 1952	D				Flows into 1,000 reservoir.

Unpublished records subject to revis

Table 2.- Records of Representative Springs in the Rogue River Basin (Applegate River Valley) - Continued

Spring No.	Owner or occupant of property	Name of spring	Topography and altitude (feet above sea level)	Water-bearing material	Occurrence	Yield		Use	Temperature (°F.)	Chemical character of water(in parts per million)		Remarl
						Gallons per minute	Date			Hardness as CaCO3	Chloride	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	T. 37 S., R. 5 W.											
20B1	Grant Powell		Vs, 1,080	Metavolcanic rocks	Unconfined water flowing from fissures in bedrock	10	Oct. 1951	D, S				Tiled in; 25 h.p. reportedly no flu in flow.
35F1	Woodcock		T. 1,140	Gravel	Unconfined water flowing from alluvium			D. S				Enclosed in a conc reservoir could n pumped out with a centrifugal pump; springs on the pr are undeveloped.
	T. 37, R. 6 W.											
7D1	E. H. Ahlstrom		Vs, 1,300	Shale	Unconfined water flowing from fissures in shale			D, S		25	2	Flow fluctuates wi of the year.
	T. 38 S., R. 3 W.											
19L1	O'Brian		Vs, 1,950	Colluvium	Unconfined water flowing from colluvium along bedrock			D, S				Supplies 2 houses
23D1	V. Vossell		Vs, 1,400	Metavolcanic rock	Confined(?) water flowing from fissures in greenstone	2.5	Aug. 1951	D, Irr	59	130	4	Enclosed in a 1½ x concrete tank; ow no fluctuation in
20A2	C. A. Smith		Vf, 1,400	do	do.	25	do.	D. Irr		80	3	Flows into sump 11 30 ft; supplies 2
30G1	M. Offenbacher		Vs, 1,450	do.	do.			D, Irr				Low in late summer
33G1	K. Buckley		Vs, 1,470	do.	Unconfined water	1,200 (est.)	do.	S, Irr		135	4	Flows into sump 12 ft.
	T. 38 S., R. 4 W.											
8L1	Francis Krouse		Vs, 1,490	do.	Confined(?) water flowing from contact between metavolcanic rocks and granodiorite	10	Oct. 1951	D, S				Flow fluctuates be and 25 gpm accord season of the yea

Table 3.- Drillers' Logs of Representative Wells in the Rogue River Basin (Bear Creek Valley and Adjacent Areas)

[Stratigraphic designations by R. A. Young]

36/1W-9K1. O. O. Wilson. Drilled by Deister and Cech, 1951

Materials	Thickness (feet)	Depth (feet)
Older alluvium (Agate Desert gravels):		
Gravel	18	18
Undifferentiated:		
Rock, green (indurated silt)	47	65
Shale, white, sticky (tuff?)	29	94
Lavas of Western Cascades:		
Rock, black, solid	2½	96½

36/1W-17Q1. Ted Hornecker. Drilled by Rogue Valley Drilling Co., 1951

Older alluvium (Agate Desert gravels):		
Gravel	57	57
Umpqua formation:		
Shale	39	96

36/1W-20C1. White City Lumber Co. Drilled by Rogue Valley Drilling Co., 1949

Older alluvium (Agate Desert gravels):		
Clay, yellow, and sand	57	57
Umpqua formation:		
Shale	103	160

36/1W-20E1. Ross Lumber Co. Drilled by Rogue Valley Drilling Co.

Older alluvium (Agate Desert gravels):		
Gravel	47	47
Umpqua formation:		
Shale	33	80

Unpublished records subject to revision

Table 3.- Drillers' Logs, etc. (Bear Creek Valley, etc.)

36/1W-30L1. C. M. Graves. Drilled by Virgil Gribble, 1952

Materials	Thickness (feet)	Depth (feet)
Older alluvium (Agate Desert gravels):		
Clay, sandy	10	10
Gravel, sandy, with clay beds, water bearing . .	14	24
Umpqua formation:		
Shale, blue, some water at 38 feet	14	38
Shale with peat layers	12	50
Shale, blue and gray	48	98

36/2W-20P5. D. D. Lumber Co. Dug by L. L. Bratcher and others, 1951

Younger alluvium:		
Gravel	35	35
Older alluvium (Agate Desert gravels):		
Conglomerate, cemented with calcium carbonate ..	22	57
Siltstone, cemented with calcium carbonate . . .	8	65

Table 3.- Drillers' Logs, etc. (Bear Creek valley, etc.)

37/2W-25R1. Medford Public Library. Drilled by Diester and Cech, 1951

Materials	Thickness (feet)	Depth (feet)
Younger alluvium:		
Clay	28	28
Gravel	10	38
Clay	1	39
Umpqua formation:		
Rock and clay	2	41
Clay, yellow	19	60
Rock and gravel	8	68
Shale, blue	20	88

Table 3.- Drillers' Logs, etc. (Bear Creek Valley, etc.)

x

36/2W-23N1. U. S. Geological Survey. Drilled by Geo. Hartley and Son, 1953

Materials	Thickness (feet)	Depth (feet)
Older alluvium (Agate Desert gravels):		
Top soil, clay, yellow, with some gravel	4	4
Clay, yellow, and gravel	2	6
Sand, fine to coarse, and gravel, water bearing	3	9
Gravel, basaltic rock types, with cobbles up to 6 inches in diameter cemented with calcium carbonate; pebbles have a slightly decomposed rind about 1/8 inch thick; water bearing; static water level 6 ft	22	31
Gravel to 4 inches in diameter, in bluish-green clay	10	41
Gravel, cemented with calcium carbonate	3	44
Gravel, with thin streaks of yellow clay	6	50
Gravel, with some bluish-green clay matrix	2	52
Gravel, to 2 inches in diameter, and sand, fine to coarse in yellow clay	4	56
Gravel, becoming more sandy downward, partially imbedded in greenish clay matrix containing iron pyrite	4¼	60¼
Silt, blue	¼	60½
Sand and gravel, in bluish clay, with streaks of blue silt	3½	64
Sand and gravel, in yellow clay	7	71
Gravel, to 6 inches in diameter	2½	73½
Sand and gravel in yellow clay	1½	75
Sand, grit, and gravel up to 4 inches in diameter in bluish clay; rock types changing from volcanic to granitic	22	97
Sand and gravel mainly of granitic rock types	7½	104½
Umpqua formation:		
Shale, blue	5½	110

Casing, 8-inch diameter, set to 106½ ft; all joints welded; perforated with 1 spiral string of 2-inch perforations from 20 to 100 ft depth. Static water level, July 25, 1953: 8.91 ft from top of casing which extends 2 ft above land surface.

Table 3.- Drillers' Logs, etc. (Bear Creek valley, etc.)

36/2-19R1. U. S. Bureau of Reclamation. Test well at Lake Creek Dam Site.

Materials	Thickness (feet)	Depth (feet)
Younger alluvium:		
Boulders and gravel	28	28
Lava rock	33	61
Lava rock, softer	4	65
Clay, sandy, red	9	74
Clay, sandy, light	6	80
Clay, sandy, light blue	20	100

Unpublished records subject to revision

Table 3.- Drillers' Logs, etc. (Bear Creek Valley, etc.)

39/2-7N5. Gas-Ice Corporation. Drilled in 1940

Materials	Thickness (feet)	Depth (feet)
Younger alluvium:		
Soil and gravel	7	7
Boulders	7	14
Umpqua formation:		
"Slate," blue, and mud, talc	11	25
Sandstone	30	55
Conglomerate	25	80
Sandstone	5	85
Sandstone and "conglomerate streaks"	20	105
Sandstone, hard	22	127
Sandstone, soft	10	137
Conglomerate with quartzite pebbles	33	170
Sandstone	10	180
"Talc mud" (tuff?)	10	190
Sandstone, soft	68	158
Clay, blue (shale?)	6	264
Conglomerate	93	357
Shale, blue	7	364
Sandstone	1	365
Shale, blue	9	374
Shale, brown	22	396

Table 3.- Drillers' Logs, etc. (Bear Creek Valley, etc.)

39/2-7N6. Gas-Ice Corporation. Drilled, 1946

Materials	Thickness (feet)	Depth (feet)
Younger alluvium:		
Soil	2	2
"Shale," brown, and gravel	11	13
Gravel	2	15
Umpqua formation:		
Sandstone	55	70
Conglomerate	13	83
Sandstone with quartz crystals (conglomerate) .	37	120
Shale, brown	50	170
Shale, blue	10	180
Shale, brown	40	220
Shale, blue	15	235
Shale, brown	40	275
Sandstone	134	409
Shale, blue	2	411
Conglomerate and shale	24	435
Shale, brown and blue	52	487
Shale, green	3	490
Sandstone	15	505
Shale, brown	40	545
Sandstone	5	550
Basalt, gray (sill?)	5	555
Sandstone	5	560
Basalt (sill?)	28	588
Sandstone	33	621

Table 3.- Drillers' Logs, etc. (Bear Creek Valley, etc.)

39/2-7N11. Gas-Ice Corporation. Drilled, 1947

Materials	Thickness (feet)	Depth (feet)
Younger alluvium:		
Soil	2	2
Boulders	13	15
Umpqua formation:		
Rock (sandstone?)	13	28
Shale, blue	27	55
Shale, brown	5	60
Shale, blue	32	92
"Broken rock" (contact or fault breccia?)	1	93
Sandstone, water and carbon dioxide bearing)	77	170
Conglomerate, carbon dioxide bearing at 190-195 feet	30	200
Sandstone	20	220
Conglomerate	70	290
Sandstone	40	330
Conglomerate	45	375
Sandstone	32	407
Shale, blue	5	412
Shale, brown	6	418

39/2-19M1. Kenneth Disrude. Drilled by Roy Powell, 1949

Colluvium, recent:		
Soil	4	4
Umpqua formation:		
Shale	80	84
Coal, water-bearing; water flows 3 to 5 gpm at surface	1	85
Gravel	6	91

Table 3.- Drillers' Logs, etc. (Illinois River Valley) - Cont'd.

39/8W-28K1. Town of Cave Junction. Drilled by E. E. Storey, 1954

Materials	Thickness (feet)	Depth (feet)
Younger alluvium:		
Soil	4½	4½
Clay, blue	1	5½
Gravel and clay	9½	15
Gravel and sand, water-bearing	3	18
Older alluvium (Llano de Oro formation?):		
Gravel, cemented, water-bearing in places	22	40

Table 3.- Drillers' Logs, etc. (Illinois River Valley)-Cont'd.

39/8W-34L1. U. S. Geological Survey. First 75 ft drilled by Virgle Gribble, 1952; deepened to 119 ft by Geo. Hartley and Son, 1953

Materials	Thickness (feet)	Depth (feet)
Older alluvium (Llano de Oro formation):		
Soil, gravelly to bouldery, up to 8 inches in diameter	1	1
Gravel and boulders, to 8 or 10 inches, of mixed rock types, mostly metamorphic	2	3
Gravel and boulders, in yellow clay matrix	9½	12½
Clay, sandy, with occasional boulders	1	13½
Clay, yellow-brown, stiff and sandy; water bearing at 20 feet	12½	26
Sand and gravel, water-bearing; static water level 12 feet	5	31
Sand, fine to coarse, heaves slightly	7	38
Sand and gravel in clay	1	39
Sand with large pebbles 1 inch in diameter	2	41
Sand and gravel, well packed, water bearing; static water level 16.82 feet	4½	45½
Clay, sandy, iron-stained, with some fine gravel .	1½	47
Sand, gravelly 50-52 feet	5	52
Gravel, coarse, with sand, fine to coarse, and small amount of clay	14	66
Sand and gravel, up to 3 inches in diameter imbedded in yellow clay; static water level 22.39 feet; well perforated 26 to 45 feet and 49 to 66 feet, 16 2-inch perforations--8 to a row--per foot of casing; well surged and bailed; static water level rose to 17.16 feet; tested at 38 gpm for 25 hours with 22.33 feet of drawdown	6	72
Clay, yellow, iron stained, impervious (½-foot sand layer at 82 feet)	12	84
Gravel, sand, and boulders up to 6 inches in diameter; rocks are of prevailing types in valley; greenstone, hornblende diorite, chert, volcanic breccias	26	110
Applegate group:		
Clay, yellow, residual	9	119
Greenstone (static water level 18.01 below land surface)		119

Casing, 6-inch, set to 74 ft; peeforated with 2-inch perfornations, 8 to a row per foot of casing between 26 - 45 and 49-66 ft. When deepened, casing driven on to 115 ft; all joints welded. A 5-inch liner pipe was set to 40 ft depth; 2 ft of concrete placed in bottom of casing. Well tested at 42 gpm for 49 hours with 10.74 ft of drawdown.

Unpublished records subject to revision

Table 4.- Analyses of Waters From Representative Wells

a/ Source of analysis: U. S. Geological Survey unless otherwise shown by
b/ In the columns below the analyst's results are given in parts per million,
c/ The ratio of milligram equivalents of sodium to the sum of the milligram
d/ The ratio of milligram equivalents of sodium divided by the square root
e/ A figure of 7 indicates a ~~neutral~~ condition which is neither acid nor

Well no. a/ b/ Date of collection	✓35/2W-27K1* 1/25/52	✓35/2W-33D1 6/18/51	35/3W-24R1* 1/25/52
Temperature (°F)		65	
Silica (SiO_2)	16	44	30
Iron (Fe)			
In solution		.02	
Total			
Manganese (Mn)		.0	
Calcium (Ca)	46	4.3	7.81
Magnesium (Mg)	2.3	1.0	3.0
Sodium (Na)	110	113	344
Potassium (K)	.78	3.8	2.35
Bicarbonate (HCO_3)	55	186	112
Carbonate (CO_3)		28	10
Sulfate (So_4)	Tr	24	Tr
Chloride (Cl)	227	42	468
Fluoride (F)	.40	.6	10
Nitrate (NO_3)	Tr	.1	Tr
Boron (B)	6.40	20	17.9
Total dissolved solids	478	338	978
Hardness as $CaCO_3$	126	14	32
Noncarbonate hardness	81	0	0
Percent sodium c/	65	93	96
Sodium adsorption ratio (SAR) d/	4.3	12.9	26.4
Specific conductance (micromhos at 25°C)	829	507	1,710
pH e/	8.0	8.6	8.3

* Analysis by U. S. Dept. of Agri., Rubidoux Lab., Riverside, Calif.

and Springs in the Rogue River Basin (Bear Creek Valley and Adjacent Area)

footnote.
by weight, except for first item and last four items.
equivalents of all bases, expressed to the nearest whole percentages.
of one-half the milligram equivalents of the calcium and magnesium.
alkaline; over 7, an alkaline condition, under 7, an acid condition.

36/1W-10E2 4/7/51	36/1W-20E1 4/9/51	36/2W-20P2 5/9/51	36/2W-20P3 5/9/51	36/2W-21R1 5/22/51
52	63	59	55	60.5
14	19	51	30	51
.07	.01	.30	.04	.02
.29	.03	4.9	.07	.04
	.00	5.40	.00	.00
491	7.9	69	27	20
2.6	.70	21	16	7.3
635	47	154	9.3	11
1.2	1.9	3.2	2.6	.5
26	96	247	164	98
1.6	3	1.1	4.5	3.0
1,850	32	282	13	4.2
.2	.7	.3	.0	.1
.1	.2	.6	2.0	16
	1.25	.06	.01	.01
3,010	160	710	185	161
1,240	23	258	133	80
1,210	0	56	0	0
53	80	56	13	23
7.9	4.2	4.2	.24	.54
4,430	267	1,250	297	193
7.5	8.2	7.0	7.5	7.8

Unpublished records subject to revision

Table 4.- Analyses of Waters From Representative Wells

Well No. a/ b/ Date of collection	36/2W-23N1 9/21/53	37/1W-4P1 5/9/51	37/1W-33R2* 8/9/34
Temperature (°F)	64	59	58
Silica (SiO_2)	34	27	14
Iron (Fe)			
In solution		.02	
Total	.22	.02	
Manganese (Mn)	.00	.00	
Calcium (Ca)	23	52	3.61
Magnesium (Mg)	2.9	19	.85
Sodium (Na)	30	26	143
Potassium (K)	.8	1.3	***
Bicarbonate (HCO_3)	144	296	371
Carbonate (CO_3)			
Sulfate (SO_4)	2.6	13	Tr
Chloride (Cl)	10	6.1	20
Fluoride (F)	.2	.0	2.5
Nitrate (NO_3)	2.0	8.5	.0
Boron (B)	.05	.01	1.66
Total dissolved solids	269	299	389
Total hardness as $CaCO_3$	69	208	13
Noncarbonate hardness	0	0	0
Percent sodium[c]	48	21	96
Sodium adsorption ratio (SAR)[d]	1.6	.79	17.7
Specific conductance (micromhos at 25°C)	269	483	589
pH[e]	7.6	8.0	8.5

* Analyses by U. S. Dept. of Agri., Rubidoux Lab., Riverside, Calif.
** Analyses by Charlton Lab., Portland, Oreg.
*** Potassium included with sodium.

and Springs in the Rogue River Basin (Bear Creek, etc.) - Continued

37/2W-1M1 6/17/51	37/2W-3L1* 6/ /34	37/2W-3N2** 6/ /45	37/2W-15P1 5/22/51	37/2W-21B1 6/ /50	38/1W-6F1* 10/15/36
63	56		55.5		
17	13	48	35	5.6	
.05		.11	.02	2.4	
.34			.02		
.12			.00		
72	408	52	60	349	165
7.4	1.2	14	20	1.3	61
221	795	59	19	1,009	103
10	***	***	.3	***	***
131	24	118	218	34	383
				15	
1.7	60	19	52	217	494
419	1,876	106	7.9	1,904	30
.4	2.1	.1	.2		
.2	.0	.26	41		.0
.69	4.06		.05	2.5	
813	3,518		343	3,542	
210	1,024	190	232	877	656
102	1,004	42	53	837	342
68	62	41	15	71	25
6.6	10.8	1.9	.54	14.8	1.73
1,530	5,920		499		1,480
7.5	8.2	7.8	7.0	8.8	

Unpublished records subject to revision

Table 4.- Analyses of Waters From Representative Wells

Well no.	38/1W-8C1#	38/1W-15D1#s	38/1W-15D2#
Date of collection	8/9/34	8/9/34	8/9/34
Temperature (°F)	58		
Silica (SiO_2)	17	26	17
Iron (Fe)			
In solution			
Total			
Manganese (Mn)			
Calcium (Ca)	4.40	18	21
Magnesium (Mg)	Tr	4.86	2.67
Sodium (Na)	171	286	259
Potassium (K)	*	*	*
Bicarbonate (HCO_3)	166	214	184
Carbonate (CO_3)		**	**
Sulfate (SO_4)	Tr		9.60
Chloride (Cl)	168	375	342
Fluoride (F)	6.5	3.9	2.6
Nitrate (NO_3)	.0	.0	.0
Boron (B)	11	11	11
Total Dissolved solids	497	885	786
Total hardness as $CaCO_3$	11	65	63
Noncarbonate hardness	0	0	0
Percent sodium[c]	97	91	90
Sodium adsorption ratio (SAR)[d]	22.4	49	15.5
Specific conductance (micromhos at 25°C)	819	1,540	1,440
pH[e]	9.0	7.9	8.0

* Included in Na.
** Carbonate included in bicarbonate.
# Analysis by U. S. Dept. of Agri., Roubidoux Lab.
s Spring.

and Springs in the Rogue River Basin (Bear Creek, etc.) - Continued

✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
38/1W-15J1# 8/9/34	38/1W-16B3 5/21/51	38/1W-22Q1 10/4/51	38/1W-22Q2# 8/9/34	38/1W-26G1 5/21/51	38/1W-27E2# 8/9/34
	57	59	66.2	54	59.5
13	54	16	18	30	29
	.02	.01		.05	
	.05			.07	
	.0	.0		,0	
5.61	59	3.3	7.61	85	7.61
.97	26	2.1	5.11	18	Tr
188	23	140	130	14	94
*	.3	6.9	*	3.4	*
495	252	298	338	334	208
**	**	20	**		**
14	25	16	19	23	Tr
18	30	14	23	9.0	20
3.0	.2	7.0	6.6	.1	12
1.86	29	.1	.0	9.8	.00
12	.08	8.5	12	.04	20
556	371	372	417	357	321
18	254	16	40	286	7
0	48	0	0	12	0
96	16	92	88	10	96
19.2	.63	14.5	8.9	.36	9.4
760	561	582	597	567	400
8.7	6.9	8.4	8.3	7.0	8.7

and Springs in the Rogue River Basin (Bear Creek, etc.) - Continued

✓✓ ✓✓ ✓✓ ✓✓

35/1-30G1 6/17/51	36/1-14C1 6/17/51	36/1-29H1 6/17/51	36/2-19J1 6/17/51
63	57	60.5	51
51	30	42	38
.02	.04	.08	.23
[illegible]	.50	.09	.41
.0	.0		.48
95	137	10	42
22	45	5.7	9.8
22	369	156	163
5.1	6.0	50	8.8
342	258	455	286
13	161	3.7	13
32	690	7.5	181
.20	.0	.2	.2
36	1.9	.2	.3
.13	2.0	.48	.58
445	1,570	454	598
328	527	48	146
48	316	0	0
13	60	86	69
.53	7	10.3	5.9
507	2,750	677	1,010
8.6	7.4	7.9	7.3

Table 4.- Analyses of Waters From Representative Wells

Well no.	38/1-30E1#	38/1-31K1s	39/2-7N11
Date of collection	10/15/36	4/22/52	4/20/51
Temperature (°F)	55	95	66
Silica (SiO_2)		65	68
Iron (Fe)			
In solution		.04	.12
Total		.07	2.1
Manganese (Mn)			.00
Calcium (Ca)	25	2.8	132
Magnesium (Mg)	12	1.4	74
Sodium (Na)	128	95	1,410
Potassium (K)	*	1.2	
Bicarbonate (HCO_3)	410	13	2,660
Carbonate (CO_3)		36	
Sulfate (SO_4)	13	26	14
Chloride (Cl)	27	80	1,140
Fluoride (F)		2	.0
Nitrate (NO_3)	43	.2	.9
Boron (B)	2.14	2.9	.40
Total dissolved solids	...	318	4,210*
Total hardness as $CaCO_3$	111	13	634
Noncarbonate hardness	.0	0	0
Percent sodium[c]	72	94	81
Sodium adsorption ratio (SAR)[d]	5.27	11.5	24.4
Specific conductance (micromhos at 25°C)	702	460	6,490
pH[e]		9.3	6.5

\# Analysis by U. S. Dept. of Agri., Roubidoux Lab., Riverside, Calif.

* Includes 4 ppm Lithium.

** Includes 16 ppm Lithium.

*** Potassium included in sodium.

s Spring.

Unpublished records subject to revision

and Springs in the Rogue River Basin (Bear Creek, etc.) - Continued

39/2-7N13v s 1915	39/2-7N13#s 8/9/34	39/2-19Q1# 5/3/51	39/2-32D2 6/ /34
		54	51
95	86	9.9	37
12		.03	
		.00	
347	289	1.2	69
192	156	.3	18
2,915	2,203	149	487
109	***	3.7	***
3,857	4,353	273	1,357
		52	
2.9	Tr	17	Tr
2,740	2,033	9.5	155
	.1	.9	.0
	.0	.4	.22
33	95	1.25	15
7,895**	7,050	378	1,535
1,654	1,360	4	247
0	0	0	0
77	79	97	82
31.2	32.5	16.5	13.5
	10,830	578	2,280
	7.2	9.0	8.3

Table 4.- Analyses of Waters from Representative Wells and Springs, etc. (Rogue River main stem, etc.) - Continued

Well no.	36/4W-3F1	36/5W-33E1
Date of collection	1/9/53	4/22/53
Temperature	54	
Silica (SiO_2)	43	35
Iron (Fe)		
In solution	.03	
Total	.17	.2
Manganese (Mn)	.00	
Calcium (Ca)	26	694
Magnesium (Mg)	12	9.2
Sodium (Na)	9.7	1,540
Potassium (K)	1.3	2.7
Bicarbonate (HCO_3)	152	19
Carbonate (CO_3)		0
Sulfate (SO_4)	4.9	441
Chloride (Cl)	3.9	3,320
Fluoride (F)	.3	.0
Nitrate (NO_3)	.1	4.2
Boron (B)	.04	2.3
Total dissolved solids	176	6,060
Total hardness as $CaCO_3$	114	1,770
Noncarbonate hardness	0	1,750
Percent sodium[c]	15	65
Sodium adsorption ratio (SAR)[d]	.39	15.9
Specific conductance (micromhos at 25°C)	251	9,970
pH[e]	7.3	7.1

Table 4.- Analyses of Waters from Wells and Springs in the Rogue River Basin (Illinois River valley) - Continued

Josephine County

Well no.	37/8W-35Q1	39/8W-28K1	39/8W-34L1
Date of collection	8/22/52	12/19/56	3/18/53
Temperature (°F)		50	49
Silica (SiO_2)	21	25	20
Iron (Fe)			
In solution	2.0		.18
Total	2.0	.03	
Manganese (Mn)	.44	.00	
Calcium (Ca)	48	6.4	4.8
Magnesium (Mg)	12	7.8	6.6
Sodium (Na)	15	5.8	2.0
Potassium (K)	.8	.2	.1
Bicarbonate (HCO_3)	234	64	48
Carbonate (CO_3)	0	0	
Sulfate (SO_4)	6.6	.8	.7
Chloride (Cl)	8.0	5.5	2.2
Fluoride (F)	.1	.0	.1
Nitrate (NO_3)	.1	.7	.1
Boron (B)			.02
Total dissolved solids	229	83	60
Total hardness as $CaCO_3$	170	48	39
Noncarbonate hardness	0	0	0
Percent sodium[c]	16	21	10
Sodium adsorption ratio (SAR)[d]	.50	.36	.14
Specific conductance (micromhos at 25°C)	400	113	81
pH[e]		6.5	7.7

Unpublished records subject to revision

Table 4.- Analyses of Waters from Wells and Springs, etc.
(Illinois River valley) - Continued

✓✓ 39/8W-34L1	✓✓ 40/8W-7J1
52	49
31	11
.24	.14
	6.9
8.7	3.1
14	15
3.8	1.5
.5	.4
102	82
.9	1.1
3	3.2
.0	.3
.0	1.1
.02	.0
112	77
79	69
0	2
9	4
.19	.08
165	135
7.4	7.6

Unpublished records subject to revision

Table 4.- Analyses of Waters From Wells and Springs in the Rogue River Basin (Applegate River valley) - Continued

Josephine County ✓✓ ✓✓

Well no.	36/6W-32D1	37/6W-14D1
Date of collection	1/10/53	1/9/53
Temperature (°F)	54	
Silica (SiO_2)	43	60
Iron (Fe		
In solution	.13	.17
Total	18	4.1
Manganese (Mn)	.00	
Calcium (Ca)	13	38
Magnesium (Mg)	9.8	22
Sodium (Na)	7.1	4.8
Potassium (K)	.4	.3
Bicarbonate (HCO_3)	108	226
Carbonate (CO_3)		
Sulfate (SO_4)	.6	9.8
Chloride (Cl)	3.0	2.0
Fluoride (F)	.1	.3
Nitrate (NO_3)	.8	.1
Boron (B)	.04	.06
Total dissolved solids	131	249
Total hardness as $CaCO_3$	73	185
Noncarbonate hardness	0	0
Percent sodium[c]	17	5
Sodium adsorption ratio (SAR)[d]	.36	.15
Specific conductance (micromhos at 25°C)	180	355
pH[e]	6.6	6.9

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