The midsummer season does not appear | choice, 6 9 6c; figs, Emyrna, 224c; Catifornia to be having the usual quieting effect on trade, and business during the week ending yesterday was highly satisfactory in most lines. There is naturally very little doing in the wheat market, but as this is due to the fact that farmers are all busy taking care of the big crop which is now coming to hand, it has little or no effect on general trade, which continues very good, especially in staple lines, which are enjoying an enormous demand from interior points. Receipts of fruit and produce were quite large during the week, and prices on the whole ruled quite firm. Eggs, in spite of the light demand, which is always in evidence at this season of the year, have advanced nearly 2 cents per dozen during the week, and butter is very firm with an advance almost certain in a few days. Fruit receipts from nearby points are ng dully, and, while there has been quite a weakening in prices, it has been unnecessary as yet to make any seriouz sacriflees in order to clean up

stocks. Orogon peaches are selling around 40 to 60 cents per box for the early varie ties, and California Crawfords bring 75 cents for best stock. Three carloads of watermelons arrived on Saturday and Fridry, and they met with a good sale at prices slightly under those received for the lirst carload in some former seasons. Canteloupes from The Dalles have come along in limited quantities during the week, but the supply has been inadequate to the demand, and prices have been cuite firm. With so much fruit offoreig at is natural to look for a smaller demand for yeal, pork, poultry, etc., but thus fur the latter products have not pows affected, and, with the exception of poultry, are bringing about as good prices as have been paid at any time during the sesson.

WHEAT-The season of 1900-1901 has not yet progressed far enough to infuse much Interest in the wheat situation. There are some good-swed holdings at tidewater, and, with only a numbed amount of tonnage to be taken care of for several weeks, buyers do not develop that anxious mood which is so pleasing to the farmer. Most of the exporters are willing to do business if they can secure wheat on an export basis, but as this is sel dom possible on a quiet market in midsummer, matters are drifting along under easy sail, and quotations do not count for much. Most of the exporters yesterday thought that \$2 cents would be about their limit for either Walla Walla or Valley, but as usual a cent or two a bushel more was obtainable for good stock.

Freights are very firm, and it was reported that two or three ships had been taken yesterday at 45 shillings. In the San Francisco market, some cargo ships which could not get to another port without the expense of ballasting and fitting but for a coast voyage, have been taken at less money than is offered for ships in the north. That this can hardly be regarded as weakness, however, is apparent. from the fact that there is no tonnage offering at any of the ports from which vessels come in bullast at lower rates than have been paid, and for ships in these ports the same rate is demanded from San Francisco as from Portland, Three cargoes finished loading this week, making four for the month, a rather large list for the month of July. The Orange Judd Farmer, which is generally on the builish side of the market, has the following regarding the wheat situation:

Our annual estimate of the amount of old wheat still on farms July 1 is of espe-cial interest this year, in view of the probable shoringe of the wheat crop of the present year. The county estimates the present year. The county estimates of our local reporters when carefully consolidated into state averages show a moderate holding of old wheat, smaller than seemed last year, but rather larger than seemed.

1.5 per box; egg plant, 5610c per pound; last year, but rather larger than seemed probable earlier in the season. The amount reported to Orange Judd Parmer ns no held is 60,917,000 bushels, against 65,600,000 bushels at this dute a year ago, and 25,000,000 bushels in '98. On March 1 we reported the farm reserve of wheat at 164,000,000 bushels, a figure larger than was reported by other authorities, but the movement since that date and the present returns of farm stocks indicate that this figure was somewhat below the mark, and that our estimate of 565,000,000 bushels for the crop of '99, while higher than that made by any other recognized authority, was from \$1,000,000 to 30,000,000 bushels below the actual production. It is interest-ing to note in this connection that the wheat movement from the Spring wheat crop of Minnesota and the Dakotas indi-

larger than is ordinarily carried over, is sacks, 3562; bran, sacks, 1955; Oregon, by no means burdensome, and in connection with the admitted wheat shortage this year at home and abroad, places the garded as a promising situation. With a farm and commercial stock of perhaps 140,000,030 bushels, a crop promise of not exceeding if equaling 500,000,000 bushela we have a supply of 540,000,000 bushela Domestic requirements will absorb 410,-000,000, leaving 200,000,000 bushels to meet export demand, and stocks to be carried over July 1 next year. Our export requirement can hardly be expected to fall below 300,000,000 hushels in view of the fact that France will, in the coming year, be an importer, and to meet such a demand it will be necessary to sweep wheat bins closer than for many years, and closer than can be done except under the stress of highly satisfactory prices for

PORTLAND MARKETS.

Grain, Flour, Etc. Wheat-Walla Walla, nominal, 50057c; Valley, 55@57c; bluestem, 60@51c per bushel. Flour — Best grades, \$2.95 @ 3.20; graham,

\$2 To per barrel.
Oats-White, \$46550; gray, 32653c per bushel.
Barrey-Feed, \$14615; brewing, \$10 per ton.
Millistuffs-Bran, \$12 50 per ton; middlings,
\$19; shorts, \$13; chop. \$34.
Hay-Timothy, \$10611; clover, \$767 50; Oregon wild hay, \$607 per ton.

Butter, Eggs, Poultry, Etc. Butter-Fancy creamery, 259400; store, 256

27% per roll.

Exgs-17g17% per dozen.

Poultry-Chickens, mixed, \$388 50 per dozen; hens, \$464 50; Springs, \$283 50; ducks, \$3

64; zeess, \$465 per dozen; turkeys, 16817c per Chesse-Full cream, twins, 124613c; Young America, 14c per pound.

Vegetables, Fruit, Etc.

Vegetables—Paranips, 51; carrots, 75c@51; turnips, 75c per sack; chilons, \$1.25 for red, \$1.50 for eliverskins; cabbage, \$1.50 per cental; potatoes, 40@50c per sack for old, 50c for 5ew; pess, 50%c; beans, 60%c; naparagus, 45 bc; cucumbers, 50@75c per box.

Sc; cucumbers, 80g75c per box.

Fruit-Lemons, \$3 1504; oranges, \$484 25 per box for inte Valencias; pincappies, \$4 50g6 per dosm; bananas, \$2 50g5 per hunch; Persian dates, Fig65c per pound; peaches, 40gTic; apricots, 50 6 50; appies, \$1 6 1 25 per box; raspberries, 50 6 60; appies, \$1 6 1 25 per box; raspberries, 5 6 60; blackberries, 3 6 4c per pound; watermelons, \$2 50g5 per dosse.

Dried fruit - Apples, eraporated, 765c per pound; sun-dried, sucks or boxes, 465c; pears sin and evaporated, 560c; plums, putess, \$3 50gc; prunes, Italian, \$460gc; silver, extra

Groceries, Suts, Etc. Coffee-Mochs, 23525c; Java, fancy, 26532c Java, good, 20g08c; Java, ordinary, 1862cc; Costa Rica, fancy, 18620c; do good, 16618c; do ordinary, 10g12c per pound; Columbia, roast, \$18 82; Arbuckle's, \$14 63; Lion, \$15 63 per

Sugar - Cube, \$6 20; crushed, \$6 20; pow

dered, \$6 20; dry granulated, \$5 70; extra C, \$5 20; golden C, \$5 10 ast; half barrels, \(\)_c more than barrels; maple sugar, 15@16c per pound. Beans-Small white, 3%c; bayou, 4c; Lima,

Salmon-Columbia River, 1-pound tails, \$1 25 gf 00; 2-pound tails, \$292 D6; fascy, 1-pound fats, \$1 6561 75; %-pound fancy flats, \$5(950c; Alaska, 1-pound tails, \$1 2061 30; 2-pound tails, \$1 9082 25.

Grain bags Calcutta, \$0.37% per 100 for spot, Nuts-Peanuts, 015@7c per pound for raw, 8c for roasted; coccaruts, 8cc per dozen; walnuts, 10 @ 11c per pound; pine nuts, 15c; hickory nuts, 7c; chestnuts, 15c; Brazil, 11c; filterts, 15c; fancy peans, 12@14c; almonds, 15@175c per pound. Coal oil-Cases, 214c per gallon; barrels, 174c; tankr, 15%c. Rice-faland, 6%c; Japan, 5%c; New Orleans, 4%(0%)c; faucy head, \$707.50 per suck.

Ment and Provisions. Mutton - Gross, best aheep, wethers and ewes, sheared, \$8 Dogs TD; dressed, 7674c per pound; Spring lambs, 5g54c per pound gross. Hogs-Gross, choice heavy, \$5; light, \$4 50; dressed, 566c per pound.

Vesi-Large, sugritic per pound; small, 89 Sign.

Beef.—Gross, top steers, \$424 60; cows, \$3 50

gr: dressed beef. 55557%; per pound.

Provisions.—Portland pack (Shield brand):
Hems, smoked, are quoted at 13c per pound;
picnic hams, 95c per pound; breakfast bacco,
Libbe; bacco, 95c; backs, 95c; dry salt sides.
Sign; dried beef, 175c per pound; land, 5-pound
palls, 16c; 10-pound palls, 95c; 50s, 55c;
tileross, 95c per pound. Emstern pack (Hammond's): Hams, large, 125c; medium, 15c;
small, 105c; plenic hams, 95c; aboutders, 95c;
breakfast bacon, 125c; dry salt sides, 85c breakfast bacon, 12%c; dry sult sines, 5%@ 0%c; bacon sides, 9%g10c; backs, 9%c; butta, bc; lard, pure leaf, kettle rendered, ds, 10%c,

Hops, Wool, Hides, Etc.

Hops-2478c per pound. Wool-Valley, 12418c for coarse, 15416c for cest; Fastern Oregon, 15416c; mohnir, 25c per Speepskins-Shearlings, 15@20c; short-wool, 22 medium-weel, 30650c; long-wool, 600681

Palts - Bearskins, each, as to stee, \$5915; rube, each, \$195; badger, each, 50c; wildent, 5975c; housecat, 5935c; fox, common gray, Neight; do red. \$1,75635c; do cross, \$2,50gc; yox, \$29450; mink, 40c@\$175; marien, dark Northern, \$5,310; do pale, pine, \$2594; musa-rst, \$6,912c; skunk, 50980c; otter (land), \$4 98; painther, with head and claws perfect, \$196; raccoon, 55880c; wolf, mountain, with head perfect, \$3.50 @ 5; wolverine, \$2.5586; beaver, per skin, large, \$007; do medium, per skin, čiuč; do small, per skin, \$162; do kits, per skin \$163. Tallow-565Mc; No. 2 and grease \$1654c per

ward, 14015c; dry kip, No. 1, 5 to 16 founds 15c per pound; dry calf, No. 1, under 5 pounds fint; saited hides, sound steers, 60 pounds and over, 7gSe; do 50 to 60 pounds, 74e; do under 50 pounds and cows. Te; kip. 15 to 30 pounds, 74456; do venl, 10 to 14 pounds, 71bc; pounds, 74456; do venl, 10 to 14 pounds, 71bc; green (unsaited), do calf, under 10 pounds, 75jc; green (unsaited), ic per pound less; culls (bulls, stags, moth-cates, body cut, scored has slipped, weather-besten or grubby), one-third is m.

SAN FRANCISCO MARKETS.

SAN FRANCISCO, July 14.-Spring-13935c; Eastern Oregon, 19935c; Fregon, 18939c. Fall-Northern Oregon, Mountain lambs, 100712c; Mountain lambs Silic: San Joaquin Plains, Silic; Hum boldt and Mendocino, 12g14c.

Hops-Crop of 1899, 11@13c. Millstuffs-Middlings, \$17930; bran, \$12 50 @13 50 per ton. Hay-Wheat, \$7 50@11 50; wheat and oat, \$7 50@11; best barley, \$7 59; alfalfa, \$5 50@ 7 50; stock, \$5@5 50; compressed wheat, \$7 50@11 50 per ton; straw, 2560714c per

Potatoes-River Burbanks, 250%c: Oregon Burbanks, 65680c; Early Rose, 30975

per ctl. Vegetables-Onions, 50c631 00 per cen-

lemons, \$1 25@1 50; choice, \$3@2 50 per box. Bankmas—\$1 50@3 50 per bunch. Butter—Fancy creamery, 19c; do sec-

onds, 183154c; fancy dairy, 173174c; do seconds, 163164c, Cheese-California, new, 84439c per pound; Young America, 9%@10c; Eastern, Eggs-Store, 14015c; fancy ranch, 18c;

Eastern, 144@154c. Poultry-Turkeys, gobblers, 9@10c; do hens, 19911c per pound; old roosters, \$2.50 @4 per dozen; young roosters, \$4.6095.50; small broilers, \$282.25; large do. \$386.50; fryers, \$3 10004 50; hens, \$4004 50 per dozen; geene, \$161 E per pair.

Reccipts-Flour, quarter sacks, 12,475;

cates that our estimate for the crop of these three states was too low by about the figure above indicated as the shortage on the whole crop.

The farm stock now reported, while

THE GRAIN MARKETS.

Prices for Cereals in European and

SAN FRANCISCO, July 14.-Wheat in active on call and weaker in the spot market. Barley market weaker. Oats quiet but steady. Spot quotations were: Wheat—Shipping, No. 1, \$1.06; choice, \$1.064; milling, \$1.074@1.10.
Hariey—Feed, 70@714c; brewing, 80@ 8144 c.

Oats-Gray Oregon, \$1 074@1 10; milling, \$1 10g1 15; red, \$1 05g1 17%. Call-board sales: Wheat inactive; December, \$1 13%; cash, \$1 05%. Barley, no sales. Corn, large yellow, \$1 1561 17%.

Chicago Grain and Produce. CHICAGO, July 14.-Within 10 minutes after trading had started in the wheat pit the price of September had been forced to a point over a cent below yesterday's closing figures. September opened un-changed to 4c lower at 796784c, and

Board of Trade and Stock Exchange Brokers

> GRAIN **PROVISIONS** STOCKS and COTTON

BOUGHT AND SOLD FOR CASH OR CARRIED ON MARGINS

> 214-215 Chamber of Commerce Portland, Oregon

under selling orders from all over the country the price was steadily pounded down until it had touched 77%c. The principal, in fact almost the only, factor in the rapid decline was the improved condition in the Northwest. Rains and cooler weather in the Dakotas and Minnesota were reported to have greatly improved the condition of wheat, and the Minnespolis Journal's estimate of the crop for those three states of from 135,-000,000 to 150,000,000 bushels was given a great deal of credence by disgusted holders of wheat, who unloaded as fast as they could. At 77%c the demand, which up to this time had been slack, improved, the Northwest sending in good buying or-ders, while local shorts covered quite freely for a time. But in the last hour of the short session the market again became extremely dull and weak. Prices

sild off to 1746774c, and September closed at 774c, a loss of 14c to 14c. Corn was strong all day. The drought continued in Kansas and Nebraska, and damage in some sections was report ed as serious. September closed 4c high-

Oats were firm but featureless. September closed 1/4c higher.
Little was done in provisions. Lowe hog prices and the weakness of wheat had some effect on prices, which yielded slightly early. At the decline the market became steady and held so. September pork closed-74c lower, and lard and ribs The leading futures ranged as follows:

	pening	EAT. Highest		Close.
August September	7816 7816 79	\$0.18 78% 70%	76% 76%	\$0 T0% TT%
	00	BN.		
July	44%	4416 4416 4416	45%	45%
	0.	ATS.	-0,1	
July August September	24% 24% 24%	24% 24%	23% 24% 24%	24 h
	MESS	PORK.		
July		12 45 12 60	12 40 12 52%	12 40 12 55
	L	ARD.		
July September	6 92%	0 92%	6 67% 6 90	6 90 6 90 6 90 6
	SHOR	T BIES		
July	6 57%	6 97%	6 85	6 STV ₂
Cash quotat	t: W	inter. p	atenta,	\$4 108
4 20; straight: \$4 75@4 %; S	pring	paten	ts, \$2	70034 20:
Wheat-Sor				

Corn-No. 2, 484c; No. 2 yellow, 444c. Oats-No. 2 white, 275c; No. 3 white, 26 Rye-No. 2, 1814@00c. Barley-Good feeding, 28@420; fair to holce maiting, 43@48c.

Flaxseed-No. 1, \$1 30; No. 1 Northwest-Timothy seed-Prime, \$3 15. Mess pork—Fer barrel, \$3 16.

Mess pork—Fer barrel, \$12 45@12 50.

Lard—Fer 100 pounds, \$6 824@6 85.

Short ribs—Sides, loose, \$6 86@7 15.

Shoulders—Dry—salted, boxed, \$4,@7c.

Sides—Short, clear, boxed, \$7 50@7 60. Whisky-Basis of high wines, \$1 20%. Sugar-Cut losf, \$6 78; granulated, \$6 22; onfectioners' A, \$5 18; pff A, \$6 08; clover ontract grade, \$8 00. On the Produce Exchange today the

itter market was steady; creamery, 15@ 184c; dalry, 14917c. Cheese-Duil; 949194c. Eggs-Steady; fresh, 11c. Receipts, Shipm'ts, . 15,000 7,000

European Grain Market. LONDON, July 14,-Consols, 38 18-16d; silver, 18 5-16d.

Wheat—Cargoes on passage easier, neg-

lected, 3d lower; English country markets

LIVERPOOL, July 14.—Wheat—Quiet; No. 1 standard California, 6s 41/d; French country markets quiet.

-Tulands 55 7-394 Flour-St. Louis fancy Winter, dull, 8s Hops at London-Pacific Coast, steady, 12 12mgri3 15m.

Wheat-Spot steady; No. 1 Northern Spring, 6s 5d; No. 1 California, 6s 4d@8s 45d. Futures dull; July nominal; Sep Citrus fruit-Oranges, navels, \$2.50; mixed new, 4s 1%d; do old, 4s 2d. Futur Mexican limes, \$5606; common Chilfornia dull; July nominal; September, 4s 3%d.

> New York Grain, Flour, Etc. NEW YORK, July 14.—Flour—Receipts, 18,216 barrels; exports, 15,626 barrels; market weak and lower to sell; closing nomi-

> straights, \$3 8964 89. Wheat—Receipts, 94,650 bushels; exports, 63,714 bushels; spot weak. No. 2 red, 85%c f. c. b. affoat; options opened 13%c elevator. Options opened weak, and were further depressed during the afternoon by active liquidations, lower cables, enlarged Spring wheat crop estimates and further Northwestern showers, closing weak at 1c net decline; July closed 31%c; September, 82%c; October, 82%c; December, 834c. Hops-Steady.

JUNE MINING DIVIDENDS. Calumet & Heela Copper Leads With

a Round Million. The San Francisco Bulletin prints the following list of June mining dividends: From the New York Engineering and Mining Journal and other sources we learn that the mining dividends for the past month were as follows:

The second secon	
Acacla	
Buffalo Hump	10,000
Bullion-Reck and Champion	10,000
Bunker Hill and Sullivan	21,000
Central Lead	5,00
Con. Gold Mines	10,00
Calumet & Heela Copper	1,000,00
CONTRODIA LANC	4,65
Daly West Denver and Cripple Creek	37,60
Dansey and Colonia Carely	31,00
Doe Due	10,62
Doe Run Elkton Con. (new)	2,50
Barton Con. (new)	75,00
Empire State	30.00
Gold Coin	20,00
Golden Cycle	10,00
Gold King	30,00
Homestake	205,00
Horn Stiver	20,00
Iowa	5,00
Isabella	67,50
Madison	75,00
Mammoth	20,00
Modoc	5,00
N. Y. & Honduras	15,00
Osceola	279,00
Portland	69,00
Silver King	75,00
Smuggler	20,00
Southern Bay	25,00
Specimen	153.08
St. Joseph Lead	37,50
Stratton's Independence	480,00
Swansea	10.00
Tamarack Copper	420,00
Tomboy	72,60
	225,00
-United Verde	200,100
Total	9.471 51
These dividends may be distribu	ted geo
and a chair and the control of the control	100000

Stratton's Independence Swanses Tamarack Copper Tomboy United Verde	480,000 10,000 420,000 72,600 225,900
Total	STORY OF THE PARTY
Arisona	\$55,000 1,144,162 61,000 1,699,000 49,850 105,000 172,500 15,000
Total The dividends for the first six of the year are as follows: January February March	months 2,903,050 2,907,650 2,963,346
April May June	6,504,803 9,871,107 2,471,512

EASTERN LIVESTOCK. CHICAGO, July 14.—Cattle-Receipts, 124;

steers, \$5 1095 70; poor to medium, \$4 500 5; selected feeders, \$494 75; mixed stock ers, \$3 7563 90; cows, strady, \$494 75; helfers, \$105; cabners, \$1:52 80; bulls, firm, \$2 7034 50; caives, \$4 10424 55.

Tenna-Receipts for week, \$550; last week, \$150; buils, \$2.503 in.

Hogs-Receipts today, \$5.50; Medday, \$1.50; left over, \$50. Openel stondy, closed week, to 5 cants lower. Top, \$5.45; mixed and butchers, \$5.1005 45; good to believe have. choice heavy, \$5 2065 45; rough heavy, \$36 5 15; light, \$6 1565 45%; bulk of sales, \$5 2

Sheep—Receipts 200. Sheep and lambs steady; good to choice wethers, \$4 100 to 50; fair to choice mixed, \$2 2004 15; Western sheep and yearlings, \$1 6004 0; Texas sheep, \$1 1004; native lambs, \$4 500 6 30; Western lambs, \$65 25.

NEW YORK STOCKS AND BONDS.

Closing Prices of the Principal Wall-Street Securities.

The total sales of stocks today were 76,100 District Avenue

EXPRESS CO.

Adams

Adams

Adams

Bo Wils-Farsp

Als Miscellaner

Austral

A C. C. & St. L. 58
Coio. Southern 61
do lat pref. 41
do 2d pref. 16
Del. & Hudson. 111
Del. Lack. & W. 176
Denver & Rio Gr. 17
do pref. 16
Erie 10
do let pref. 22
Great North. pref. 182
Hocking Coal. 13
Hocking Coal. 13
Hocking Coal. 13
Linois Central. 19
do pref. 47
Kan. C. P. & G. 16
Lake E. & W. 25
do pref. 90 Mex. Central
Mino. & St. Louis
do pred
Mino. & St. Louis
do pred
Mimouri Pacifio
Mimouri Pacifio
M. K. & T.
do pref
New Jorsey Cent.
New York Cent.
Nortolk & Wast.
do pref
Ontario & West.
O. R. & N.
de pref
Pennsylvanis 120-5 National Biscuit
120-6 do pref
33º, National Lead
170-6 do pref
60% National Steel
10-6 N. T. Air. Brake
12 North American
18 Pacific Coast
127% do lat pref Soig Pressed Steel Car.

55 do pref.

94 Pullman Pal. Cer.

55 Stand. Repe & T.

124 Sugar

94 do pref.

104 Tenn. Coal & Iron.

1104 U. S. Leather.

171 the pref.

110 U. S. Resther.

171 U. S. Rubber.

172 do pref.

110 U. S. Rubber.

172 do pref.

114 Westarz Union.

14 Bepublic Iron & S.

354 do pref. do pref St. Louis & S. F. do 1st pref. do 2d pref St. Louis & S. W. do pref St. Paul

COINAGE OF THE MINTS.

*Offered.

Total for the Fincal Year Was Over \$140,000,000

ì	The June coinage of the mir United States was as follows:	ts of	the
	Gold— Double Eagles Eagles Half engles Quarter eagles	140.00	00 00 00 00 00 00 00 00
	Total gold In 1899 Silver— Standard dollars Half dollars Quarter dollars Dimes	13,839,T 8,159,6 1,000,1 506,0	90 00 15 00 17 10 17 17
	Total silver in 1899 Minor— Five cents Cents		17 75 18 06 17 10 17 87

The monthly coinage of the United States mints for the current fiscal year is as follows: December
January, 1900
February
March
April
May
Fune

11,569,063 30 5,026,212 72 Descriptions embraced in the above to-Bilver—
Standard dollars
Half dollars
Guarter dollars
Dimes

A summary of the coinage for the last Federal control of streams shall predomfiscal year is as follows: Gold the reclamation of arid regions means the Silver 250,077 m been decisions one way and another as to Coffee and Sugar.

NEW YORK, July 14.-Coffee 'options Closed steady, with prices net unchanged to 10 points higher. Sales, II.000 bags, in-cluding: September, \$5.05; October, \$5.10, November, \$5.90; December, \$5.45(\$5.50). Spot, Rio, steady: No. 7 invoice, 9%0; nild, steady: cordova, 3443104e. Sugar-Raw, strong; fair refining, 5-16c; centrifugal, % test, 4 15-16c; rened, firm; granulated, \$6; cut loaf, \$5 40.

The Metal Markets. BAN FRANCISCO, July 14 .- Bar silver,

NEW YORK, July 14.—Bar silver, 61%a. LONDON, July 14.-Bar efiver, 25 6-16c

Heat in Incundescent Lights. The amount of heat given out by an or-dinary incandescent lamp is greatly under-rated in the popular mind. An ordinary sixteen-candle-power lamp immersed in a unrt of water will heat it to the boiling point in an hour. Celluloid in contact with a lamp bulb may be ignited in a few inutes, while silk shades close to the bulb are scorohed in a few hours. Boston last year an incandescent lamp hanging by its cord against a wooden par-tition, gradually scorobed and charred the wood until it burned a bole completely minally steady; calves, good to prime through it, and set fire to it.

HOW MAY SEMIARID LANDS BEST BE IRRIGATED?

Experiments and Certain Conclusions of the Department of Agriculture-Laws Need Reforming.

WASHINGBON, July 8.-Irrigation is the one great question that now confronts the experts of the Agricultural Department, and one with which they expect to wrestle for some time to come. As a matter of fact, while it is generally known that irrigation is a very essential adjunct to the development of a vast section of the West, there is as yet but little definite information as to the best methods of accomplishing satisfactory results by this means of supplying moisture to oth erwise fertile spots. The department has for years been experimenting with irrigating ditches and canals in various arid land states, but so far has not been able to determine upon any reliable system which will apply generally. There has been a great deal of irrigating carried on by private interests, but no general record has been kept of the number of irrigating ditches or systems. The department roughly estimates the total number of complete ditches at 100,000 to 150,000. It is asserted very positively that the highest-priced and most productive farm lands on the Continent are in the arid region, and that the largest yield of neariy every staple crop has been obtained by the aid of irrigation. Therefore, the assertion that the possibilities of reclamation have but begun to be realized. Irrigation affects first and foremost the agricultural industry, but indirectly or directly, as the case may be, it also facilitate the largest use of grazing lands utilization of the forests, the development of mines and quarries, and the maintenance of railroads and commerce in the

Land Laws Inadequate.

There is one great obstacle in the way of a more rapid development of the arid lands, and that is the loosely drawn and imperfect land laws. There is no general law governing water rights, and no uni versal practice in this regard. In many states exclusive rights to the use of waters of certain streams are granted, to the detriment of meritorious parties, which custom is sure to work disadvantageously. The Government is blamed to a large extent for not assisting in the reclamation of the arid lands, as has been done in every other irrigation country, and is likewise blamed for surrendering, in any instance, the public con-trol of streams. It is feared that under existing laws there will be few more investments of capital to develop the irrigation schemes of the West until we have better and more liberal irrigation laws. division of streams, and the inauguration of an adequate system of public control, which will insure to every one his share of the waters coming from the hills and mountains are all to be studied out and formulated before much more progress

can be made in this direction.

Better laws should be enacted for the control of the public lands, which should have some other provisions than those now extended to the arid lands. For instance, it is not considered that the homestead law is the one to apply to arid lands. The experience of the past, when so many settlers camped down on the semi-arid lands, unmindful of the true conditions, and lost their all, is enough to substantiate this claim. Where sufficient water cannot be had, these semi-arid lands are useful only for grazing, and it is undoubtedly a mistake for the gain dor Government to offer this land in 160-acre tracts on condition that the settler will take up residence on it and make a liv-ing. The settler on such lands must either fall or become practically the tenant or servant of a person or corp furnishing water for his dry land.

Some Defective Acts.

The desert land law, which was devised to promote the invostment of capital, allowing every farm water according to rather than to encourage settlement, does not serve the much-felt want. Under this will be no injustice worked to any party. act, residence was not required, but whoever would irrigate 640 acres of land could acquire title to the same upon paying the Government price. Later the amount of land under this act was cut down to 320 acres, but this law in both forms has worked uselessly and injuriously. It is a mistake to give such earge tracts to a single man of small means, for it is more single man or small means, and is more by than he needs for a home, and is more by far than he can cultivate. Nor has it served to develop corporate enterprise. It is true it has developed cretain sections to a cortain extent, but by transferring to single owness miles of water fronts it has prevented this same frontage being divided up among a number of farmers, and cut off better social and agricultural conditions. The Carey act, which gives each state and right to segregate L000,00 acres of arid land, and to control its reclamation and disposal to settlers, has 5,25,212 72 been taken advantage of by but one state,
.5141,301,900 38 Wyoming: that is, Wyoming is the only state that has actually accomplished anything under this act, although four other Gold—
Double eagles ... \$78.592.700 00 made under the Carey act is yet so amall Eagles ... \$75.20.000 00 to determine whether or not it will work Quarter eagles ... \$150.000 00 to the general betterment of agricultural states have made starts. The progress conditions in the arid regions.

But, aside from defective acts, the range men are opposing irrigating schemes, as 18,344,554 97 they wish to use the semi-arid regions 5,544,596 50 for pesturage, and to have ready and undisputed access to all the streams, and protest most violently against having 31,121,832 is their volume decreased in any way. Still, 27,721,636 65 it is asserted that there is pasturage enough after the irrigators get through. which is another question to be settled by facts alone.

Further Obstacles.

One of the great questions to be determined before a general irrigation move-ment can be made is whether state or inste. It is a well-recognized fact that the reclamation of arid regions means the the boundaries of the several states. There is no general legislation governing the division of water across state lines. As in the case of the Columbia River, one stream often supplies two or more states, and with general irrigation there is sure to be complication over this question of control. With a general law, all states would have equal rights, but now adja-cent states often have regulations governing their water supply which are at direct variance with each other. The same issues are tried over and over again in the courts, and a decision rendered one day in one state is reversed the next in another state. The lack of definite information as to the amount of water actually needed for irrigating purposes is responsible for much of the trouble. This point the department is now striving to straighten out. Extensive experiments are being made with various systems of irrigation. different methods of controlling the water, and very claborate experiments to determine the amount of water which will bring about the best results with the vari-ous crops that are or will be raised on irrigable and irrigated lands, are being conducted in the West. Methods of Developing Arid Regions

In the Columbia River country the ques-tion involved is the proper diversion of the tion involved is the proper diversion of the waters for irrigating purposes, while in the South, where the streams are torrential, it is a question of first storing the water in poservolus, and later diffusing it of accomplishing results which will ulti-

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to best advantage. There is one feature to be fought against, and that is having the control of the waters fall into the hands of a few individuals or corporations. It is quite true in arid regions that he who controls the water controls the land and if the lands should fall into the hands of the corporation, it would tend to de velop tenantry, and not the development of homes, which is one of the prime ob-jects sought. It is to be regretted that in many of the Western States this practice of private ownership of water has grown to large proportions, although every effort is being made by the depart-ment to discourage this practice.

The only right to the water should be the right of use, and even this in an eco-nomical way, so that the water supply may benefit the greatest possible number of people. The ownership of water should be vested in the land itself, and when the water is divided with the land the best and most satisfactory results may be expected. Reservoirs and canals would then be like the streets of a town, serving a public purpose and permitting ready access to private property on every hand. This would put an end to water monoply, which, if allowed to grow and monoply, which, it allowed to an appropriate the second continuited trouble. In a properly conducted irrigation system, the water supply should be measured and known, just as a large city. This. the water supply of a large city. This, with the scientific knowledge of the pracwith the scientific answerge of the plantical duty of water, showing the amounts required for different crops, would result in the greatest dissemination of the water, and to the best advantage. These matters should be left to public control,

Public Control Essential. Those department officials who have given the most study to the question of irrigation, conclude that Government conirrigation, conclude that Government con-trol is the only satisfactory solution, and say that the public must see that justice is done in the distribution of water among those who have properly established their rightful claims to it. Where this matter has been left to pri-vate control, the results have requested vate control, the results have repeatedly been unsatisfactory. It requires National been unsatisfactory. It requires National legislation to reform the faulty public land laws, and it will require National legislation to provide public aid in the construction of irrigating works of any magnitude. The arid land states will either have to be authorized to extend this aid, or the National Government will have to take such a sten direct. One of have to take such a step direct. One of the propositions advanced is to lease the public grazing lands for a term of years at a small rental, the proceeds to be at a small rental, the proceeds to be given the several states for irrigation development. In this way the settlers owning contiguous irrigated land should be favored, thus uniting with the reciaimed lands a portion of the public pasture. Then, too, there is much information that is necessary to establish a general irrigation of the public pasture. tion system, which would include the measurement of streams, and the survey of reservoir sites, as well as the tended study of the best application of water to irrigable lands, and work on these lines is now being pushed by the Agricultural Department. The Effects of Irrigation.

Many and great are the benefits to be derived from an extended irrigation throughout the West. First, it would make homes for thousands on lands now derived from an extended irrigation throughout the West. First, it would make homes for thousands on lands now vacant. With homes, it provides a livelihood for the thousands. It would tend to encourage small proprietors, and induce each man to have his own farm and become self-supporting. Then, too, there is a certain interest manifested in farming by irrigation, which would induce farmers to raise numerous and diverse crops. ers to raise numerous and diverse crops. There is bound to be a tendency towards been decisions one way and another as to whether the state or General Government shall control the waterways within the boundaries of the state or General Government shall control the waterways within the boundaries of the state of the sta pendent on that supply more or less together, and links their interests, and in Wyoming, where the co-operative system is in force, it has been pronounced a huge success. Along with other results, the irrigation system, promoting small farms, brings the people closer together and tends to promote social as well as agricultural interests among them.

But in a general way, the commercial importance of irrigation surmounts all other benefits derived. The country as a whole recognizes the need of developing much of the arid region of the West. The markets of the Orient, now open to us in greater measure than ever before, will call for additional commodities, and this will create a demand for the products of these irrigated lands of the West, many of them within easy access of the large shipping points of the Partic Coast. It will open up a keen competition with the fields which now supply our trade with the Orient, not to mention the home trade, and will in that way incite a lively interest which cannot but assist in the development of the old as well as the new agricultural industries of the great West.
Acknowledgment is here made to Elwood Mean, the expert of the Agricul-tural Department, in charge of irrigation investigations, from whose writings the

mately bring about the adoption of a National policy that will insure a general satisfactory and practical system of irrigating a vast parties of the new vacant arid or semi-arid lands of the West.

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This mirror is six and one-half feet across, and the tube into which it throws the image is five feet in diameter. Within this tube are lenses that magnify and renagnify the moon's Image until, when it is reflected from the opposite end of the tube upon a screen, it makes an illuminated picture is feet across. This shows the mountains and valleys of the moon in startling size and distinction. If it is desired to study some particular part of the moon, a volcanic cone, for instance, the lenses in the telescope can be so arranged as to enlarge that next college. ranged as to enlarge that particular object till its image covers the entire screen. A mountain of the moon can then be seen with the same distinctness as if it were only a mile away. This is so far in advance of all existing observatory telescopes that comparison makes them

The Optical Paince, which houses the grant telescope, is 400 feet long. The cen-tral gallery is 220 feet in length and 32 feet wide. At one end of the building is a large hall, where visitors can observe the images of the sun, moon and stars as they are thrown on a big screen. Sun spots, which are usually so difficult to study, can be seen to excellent advantage, and so distinctly that one may almost im-agine that they are furious storms about

o swoop down on our own continent. The cost of the two object glasses of the telescope was \$30,000 each, and the entire telescope and observatory cost over a quarter of a million of dollars.

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