doctoral dissertation at the University of Chicago, from whom copies are available.

Timber Resources for America's Future, Forest Report No. 14, Forest Service, U. S. Department of Agriculture, January 1958. 713 pages. Copies are available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. at $7.

LEGISLATION PROPOSED

Legislation to prevent the subdividing of Federal oil and gas leaseholds into leases covering less than 640 acres has been urged by the Department of the Interior, Secretary Fred A. Seaton announced.

He said the proposed minimums would protect unwary investors against misleading advertising promotions which imply that many average citizens can "strike it rich" by speculating in a subdivided lease covering a small holding, usually 40 acres.

The legislative safeguards were requested in a letter to Speaker Rayburn of the House of Representatives. Certain exceptions to the 640-acre minimum would be provided. "One necessary exception would be where the entire acreage of an existing valid lease is less than 640 acres," the report said. "Other exceptions would be where there is evidence that exploration or development will actually be undertaken in the assigned area."

"In past years many persons advertising in newspapers and periodicals throughout the Nation have offered for sale to the public 40-acre oil and gas leases issued by the Government," the legislative report said. "The customary price for the sale of such a lease is $100. In their advertising these persons have implied that many can be lucky enough to 'strike it rich', relying solely on the information offered.

"In their advertisements such psychologically encouraging items are employed as maps which show oil activities within the particular State. Generally speaking, the prospective customer cannot distinguish between development and wildcat drilling.

"In reality, the profitable leasing of lands for oil and gas cannot be based simply on such information but must, rather, be the result of the use of technical skill and science and by the investment of considerable sums of capital.

"The average layman, inexperienced in the oil industry and ignorant of the time and effort needed in the selection of drilling sites, can be easily misled by advertisements which report oil strikes."

The report charged that such advertisements caused an unprecedented, tremendous influx of oil and gas lease offers for 40-acre tracts and imposed a heavy burden on the various land offices. In 1952 steps were taken to restrict issuance of oil and gas leases of less than 640 acres. But advertisers were still permitted to subdivide their larger leases and assign or sublease 40-acre tracts.

The report called for an amendment to the Mineral Leasing Act of 1920 so that the Secretary of the Interior, under most circumstances, would be prohibited from approving any such assignment offer covering less than 640 acres.

CHANGES IN MINERAL LEASING REGULATIONS PROPOSED

Secretary of the Interior Fred A. Seaton has announced proposed amendments to the Federal oil and gas leasing regulations which would spell out in greater detail the Government's procedures and requirements in connection with the acreage limitation provisions of the Mineral Leasing Act.

Under the mineral leasing law no person or company may hold more than 46,080 acres in Federal oil and gas leases in any one State or more than 100,000 acres in Alaska.

Under the proposed changes in the regulations, acreage in applications or offers for oil and gas leases would be included in calculations of acreage held and subject to the limitations. Though this is not a new practice, it is now being specifically spelled out in the regulations. The acreage limitations have been construed consistently to apply to lease applications and offers as well as to leases almost since the enactment of the Mineral Leasing Act, Secretary Seaton said.

Applications and offers for leases committed to a unit or cooperative plan and included in an operating, drilling, or development contract approved by the Secretary of the Interior would continue to be excluded in counting up the accountable acreage of lease holders.

The proposed amendments to the regulations also provide that the Bureau of Land Management may require anyone applying for a lease to file a sworn statement showing his complete lease holdings including any leases which he may not himself own but in which he may have a partial or indirect interest. Lease applicants (offerors) will thereby be subject to the same requirements as may now be made of lessees and lease operators. If anyone exceeds the acreage limitation the last lease or leases acquired by him which create the excess acreage holding may be canceled, or he may be compelled to dispose of them.

The proposed changes in the oil and gas regulations also provide that anyone submitting a lease offer must furnish the Bureau of Land Management a signed statement that he is the sole party in interest in the offer and any lease which may result from it. If he is not the sole party in interest, he must give the complete details about other interested parties including the nature and extent of any oral or written agreement between

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ABANDONED HORSES

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ample authority to prohibit such practices, but if they do take place they have occurred without the knowledge of the authorities. Inhumane treatment of any animal is not tolerated by officials of the Bureau or by any other Government agency. The real cruelty is the slaughter by predators of unclaimed animals that have been turned out on the range. These predators take their toll when the horses are too weak from starvation to protect themselves.

Many animal lovers, in the belief that the wild mustang still exists but is rapidly disappearing from the Western range lands, have urged the creation by the Federal Government of a wild horse refuge. There are already a number of wildlife refuges and game ranges in the West and a few unclaimed horses are reported to be found on them from time to time. But here, as well as on the public range, they present a management problem because of their competition with other forms of wildlife and domestic stock.

It is extremely doubtful that the creation of a refuge for abandoned horses would be practical because they are constantly moving long distances in search of food and forage and it would be difficult to confine them to a restricted area. The Bureau estimates that there are approximately 15,000 to 20,000 abandoned horses still on Western range lands. Should it ever develop that they are actually facing extinction it seems certain that some form of public protection will be given them.

While the total horse population has decreased materially with the general use of tractors, the popularity of light horses is emphasized by the fact that today there are 13 times as many as there were in 1918, one of the reasons being the large number of saddle horse clubs. Also, it is estimated that there are 500,000 cow ponies on Western ranches, a number which will remain constant, since no substitute has been found for the cow pony in handling range livestock.

According to the U. S. Department of Agriculture, the total horse population (including mules) in the United States in 1957 was estimated at about 3½ million head. This number has been declining for many years, but may be levelling off. By comparison, there were an estimated 23 million horses and mules in the United States in 1910.

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The Wild Horse of the West, by Walter D. Wyman, Caxtzon Printers, Caldwell, Idaho, 1945.

End

CORNFIELD WASH

(Continued from page 5)

Survey six years ago, specific information is now being obtained on runoff and sediment movement in the Cornfield Wash area. Accurate hydrological information is exceedingly valuable in determining basic designs for the construction of detention dams. A storage factor of one-half acre foot of sediment per square mile of drainage area per year has been found inadequate. Up to three acre feet of sediment per square mile of drainage area per year have been recorded by the Geological Survey in Cornfield Wash. Sediment now occupies approximately one-half of the storage capacity of the eighteen Bureau structures in Cornfield Wash. Ways and means to extend the life of these structures is a serious problem demanding and receiving attention.

Holding soil in place by an improved vegetal cover will retard the sediment deposition rate. There is an added need, however, to achieve sediments deposition in the gullies themselves before lodgment in the storage areas of the detention dams. Such deposition would not only lengthen the life of the dams but also would contribute materially to the process of reestablishing the original valley floors.

One method used to achieve restoration of valley land and to protect earthwork structures has been the construction of woven wire check dams across the low places in the valley (swales) above the storage basins. These wire checks extend to grade on either side and are not over two feet high at the low points of the swales. Being level across the top, they serve as weirs and widen the flood flows, thus reducing cutting by the overpour. Vegetal material from the watershed collects against the wire checks; flow velocity through the wire mesh is reduced; and sediment settles out. Gradually, the gully begins to regrade upstream from the wire checks.

As the gully regrades upstream, the water table rises and moisture is available to the relatively shallow rooted forage grasses. Weeds and other annuals are first to become established. As organic matter and soil deposition increases, grasses come in. Restoration thus has begun and the treated areas become increasingly productive. In the beginning, the recovered acreage is small. One important aspect, however, is that the range user can see the improvement and begin to graze the land again.

Small earth diversions are constructed across and beside gullies. These are used primarily where large flows are controlled by detention dams upstream. The result is that soil accumulated from sheet erosion and bank sloughing remains in place where more moisture is retained and is available for plant growth. Here again weeds and forbs come in first, then grasses return and production is increased. Fencing is necessary to

protect certain areas, especially the series of small diversions along the main gully.

Given reasonable opportunity, native western wheatgrass flourishes in the swales of Cornfield Wash, alkali sacaton on the heavy soil flats, and gallets grass on the rolling hillsides. Rainfall and other climatic conditions are too erratic for successful seeding with crested wheatgrass. Where runoff is retarded, sweet clover and brome grass respond in years of favorable rainfall.

Cornfield Wash is an upper drainage of the Rio Puerco Watershed which is one of the major tributaries of the Rio Grande. The Rio Puerco drainage is reputed to be the source of over half of the sediment that obstructs the main channel of the Rio Grande, but it is reputed also to produce only one-sixth of the water flowing into the Rio Grande above Elephant Butte Reservoir. This relationship of high sediment yield to low water yield has not always been so. Grasslands once occupied a much higher portion of the Rio Puerco Watershed. Studies indicate that the present day earth canyons of the Rio Puerco have been cut within the last 100 years. Extensive irrigation farming carried on in the valley in 1890 has now been practically abandoned. Six villages have ceased to exist. Valleys once farmed and grazed are gone. Drainages are gullied to the divides and much of the range land has now eroded away. The soil that has been washed out of the valley fills and scalped from the top soil of the surrounding range areas created havoc locally and continued to do so downstream.

There has been an extreme deficiency of water in storage in the Elephant Butte Reservoir in most years since 1941. This short supply has caused the downstream irrigationists to view with alarm any activity in the upper watershed that would reduce runoff. Accurate information regarding the effect of improved range management and the various erosion control measures on the net yield of water is imperative. The Geological Survey study referred to is the beginning of the development of such information.

The long term and the short term benefits of the conservation program both have a place and need to be understood in their perspective. For example, in 1956, a year of scant rainfall, the pitted areas in the Cornfield Wash yielded very little runoff. Flow from the unpitted tribuaries was about normal. In 1957, a year of more or less average precipitation, runoff from the pitted areas was reduced approximately half. A very heavy storm occurred in July, 1951. The Geological Survey estimated that this one storm would have produced a peak flow of between 6,000 and 8,000 cubic feet per second had there been no detention dams to contain the flood. Such a flow doubtless would have destroyed, in large measure, the remaining Indian farm land, would have seriously damaged the range, and would have increased sediment deposition downstream.

DIVERSION DIKE across the main Cornfield Wash soon after construction. Deep gullies and sparse vegetation mark beginning of conservation program.

STABLE SOIL AND GRASS show progress of watershed program. The diversion dike is in the background.

To date, it may be observed with certainty that the conservation program in Cornfield Wash has produced enthusiasm to face up to the problems that seem at times to be overwhelmingly complex and titanic. The forces of erosion are dynamic and continuous. To cope with these forces, it takes understanding, enthusiasm and cooperation on the part of the land users as well as on the part of those in the Bureau. The Cornfield Wash area will continue to serve as a successful proving ground for conservation work. **End**

Within the United States, 21 of the 48 States border on the seacoast, and contain more than 55 percent of the population and 65 percent of the Nation's industries.

INTENSIFIED MANAGEMENT

(Continued from page 7)

tion purposes, for summer homes away from the urban areas, for hunting and fishing, for parks and public picnic grounds. Many of the facilities at present recreation areas are vastly overcrowded; in other areas lands are being used for recreation purposes where no facilities are now available.

In 1956 the National Parks played host to nearly 55 million visitors, up to 10 percent over the previous year. It has been estimated that in 1958 the National Parks will be handling three times as many visitors as in 1946. In recognition of America's park needs, the National Park Service has inaugurated a program called MISSION 66, a 10-year program to put the parks in shape to take care of the 80 million people who are expected to visit them in 1966. The Forest Service has a similar program on National Forest lands called OPERATION OUTDOORS.

In this effort, you will be interested to know that the Bureau of Land Management is cooperating with the National Park Service, State and local Governments, and private organizations to inventory needs and develop programs for recreation land use on areas of the vacant public domain and the O&C lands of western Oregon.

Other demands for land come from industries seeking locations for new plants and production facilities, sometimes far away from present towns and cities. New communities will grow up around such developments. And, as our urban centers of population expand, other people move further into the hinterlands and make their permanent homes there.

From all of these big numbers that I have been using, and from the driving forces which they represent, it is obvious that there will be increasingly important competing demands for land use, and for the natural resources which the land holds.

I should emphasize at this point that all of the things I have been talking about apply to the Nation as a whole. They will apply to both the private and the public sectors of the national economy. They will affect privately owned resources, and those that are managed publicly.

The job of planning and programming for the Nation's land and resource needs will be broadly shared by the Bureau of Land Management, other Federal agencies, State and local Governments, organizations, the industrial and business community, and individual private citizens.

As the custodian of the remaining 400 million acres of unreserved public domain lands in the United States and Alaska, the Bureau of Land Management will continue to play an increasingly important role in the development and intensification of public land and resource management. **End**

MEASURING DISTANCES

(Continued from page 9)

does require a lot of effort to move it over long distances. It may also be possible to devise a power supply that does not use wet batteries.

Electronic distance measuring equipment will probably have its most practical application in those areas of the unsurveyed public lands where the full benefits of its spectacular capabilities for measuring long distances can be fully realized. Where distances to be surveyed are shorter, the conventional measuring methods may still be more practical.

In Alaska, where there are needs to greatly accelerate the public land survey program to facilitate land management and development programs, and in some areas of the western States, however, electronic distance measuring systems may offer important new means of speeding up the survey program.

The adoption of this equipment is part of the Bureau's continuing program to keep abreast of scientific and technical changes in all of its responsibilities for the conservation and management of our public lands and resources. **End**

TAKING A READING across several miles will eliminate need for many miles of footwork.

ACTIVE ACRES

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them. This statement of interest in the lease must be signed by all of the interested parties. This specific part of the regulations is a new requirement, strengthening the administration of the acreage limitations by providing for the full disclosure of parties having an interest in an oil and gas lease, and thereby preventing people from exceeding the acreage limitation by accumulating partial interest in leases which were not issued in their own names.

Another section of the regulations provides that no lease will be issued and no transfer or operating agreement will be approved by the Department until it has been shown that the people or companies are entitled to hold the acreage or obtain the operating rights involved. The Department will also have the specific authority to take any necessary action regarding excess acreage holdings even though every possible combination of circumstances leading to excess acreage may not have been specifically covered in the language of the regulations.

O & C Counties Receive Over $10.9 Million

The 18 counties of western Oregon entitled to share in receipts from timber sold during the last fiscal year have received checks totaling more than $10.9 million from the Bureau of Land Management.

Each of the counties received a check for more money than it received a year ago. The checks represent net payments to the counties of their share of gross timber sale receipts which amounted to over $21.9 million in fiscal year 1958.

The counties are entitled to 75 percent of gross receipts, but under an agreement with the counties, about $5.5 million has been retained by the Federal Government as the counties' contribution toward the costs of access road construction on the O&C lands.

The checks ranged in amount from about $39,512 for Lincoln County to $2,755, 952 for Douglas County.

The amount distributed to the counties is about $1.2 million more than was paid out a year ago, representing an increased timber harvest of from 624.5 million board feet in 1957 to a new high of more than 760.7 million board feet in 1958.

About $2.8 million of the total sent to the counties came from timber sold by the Forest Service, United States Department of Agriculture, on the half-million acres of O&C lands which it administers. **End**

The geographic center of the State of California is located in Madera County, about 35 miles northeast of Madera; Idaho's geographic center is in Custer County, about 24 miles southwest of Challis.

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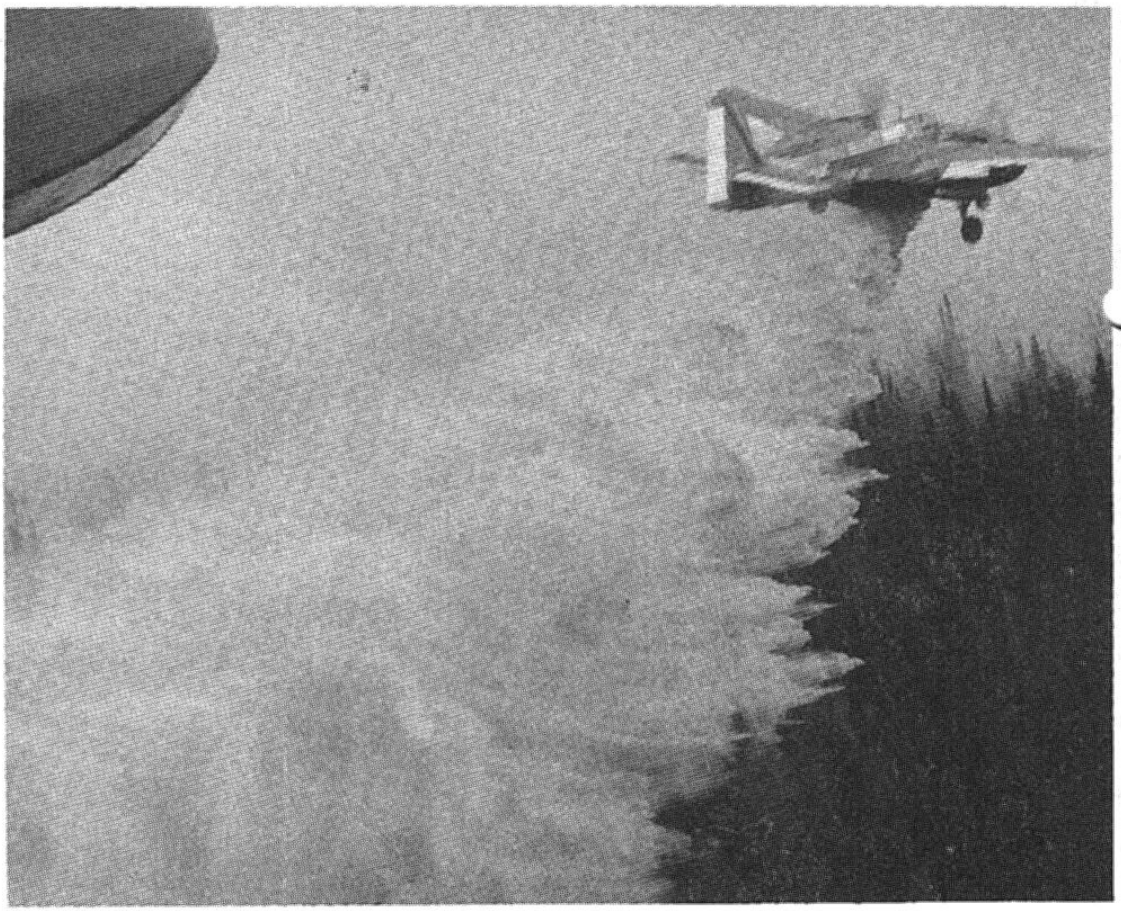

AERIAL FIREPROOFING with borate foam demonstrates its effectivenese against a lightning fire in Alaska. Delivered by a Grumman F7F the chemical mixture is proving to be a valuable aid in retarding and stopping fires, keeping them small until men and equipment can get in to mop them up. This new technique in fire fighting is now being widely used by BLM in Alaska, making further progress in reducing fire losses.