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THE SCHOOL of FORESTRY
STATE UNIVERSITY
Missoula, Montana
THE OLD SHACK
Birthplace of the Montana School of Forestry.
DEDICATION

To our fellow club member, Raymond Howard Bitney, in appreciation of a loyal heart and a ready hand, we, the members of the University of Montana Forestry Club, respectfully dedicate this volume.
ENTRANCE TO PINCHOT HALL
The New Forestry Building.
WHY WE STUDY FORESTRY.
FIRE

There's a red-eyed witch
  in the woods today—
Her grey-blue hair
Is snaking up the gullies
On wind-twisted air;
Her hot and fetid breath,
Her fangs of flaming gold,
Are poisoning the forest—
Turning hillsides old;
Old with greying skeletons
Off dead trees standing there—
The dread witch of the timber
With her long, floating hair.

JOHN C. FROHLICHER.
MONTANA PLAYGROUND SCENE
(See page 87.)
THE FORESTRY KAIMIN 1925

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The Ranger's Shower Bath.
THE PROFESSION OF FORESTRY

By DR. C. A. SCHENK.

Address to the Druids.

Dear Druids: I do not know whether the eulogies which the presiding officer showered on me are deserved. Eulogies should come after rather than before the affair causing them. And yet there is nothing in this world that gives to man so much buoyancy, so much of an uplift, so much of an inward happiness than the expression of friendship, of attachment, and appreciation. Indeed, the world would be much better off, if we, one to the other, were telling continuously how much we like him, cherish him and appreciate him—the Kingdom of Heaven would come close to us.

In Forestry, queer to say, there is not much of gratitude. Travel with me through the woods of Europe! Stand after stand I can show to you where the Oaks, clean as candles, are raising their heads to the sky; where the red bark of the Pine, in stands of 15,000 feet to the acre, is gilt-edged by the sunlight; or the stately Spruce of the Black Forest presents itself in its solemnity. But if you ask me who is the man to whom the world is indebted for the creation of those stands of Oak, Pine, or Spruce, I do not know; nobody knows; there is no monument devised to honor the Creator of these wonders. No, there is no thanks in Forestry. And yet there is that certain feeling in the breast of the man who has devoted his life to the woods, which is elating him in the conviction that he has been helping the Creator in re-modeling this world,—that he has been a cooperator of the Almighty.

Our profession, Forestry, is a wonderful profession indeed. The practical Forester is confronted with new problems and he
must rely on his manhood, his stamina, his education in Forestry and his knowledge of men and of affairs to solve these problems quickly and correctly. I do not know, but it often strikes me that there is something almost divine in our profession. The contact with Nature seems to make it so: and I wonder whether it ever has struck you that the Child Jesus was growing up in a carpenter shop, and it may be that he had been whittling a stick of Lebanon Cedar or of Olive wood and that he had been studying the growth of wood to the divine forest—of a seed a seedling and of a seedling a tree—and I cannot help but feel that the man, Jesus, in his worldly occupations was a crafts-brother to myself—a lumberman. And then again, when the man Jesus wanted to gain strength and education, you remember he went to the hills where the trees were growing or to the groves of lives to commune with Nature and to commune with God.

And then there is that famous stick of timber—did you ever think of it—which was scaling 75 board feet measure or so, which was erected on a hill named Golgotha, which had the shape of a cross and from which has emanated all over the world all the good there is and that there ever will be. No wonder then that in Forestry these underlying ideals have a something holy, a something divine, a something inspiring in the daily toil, which makes our hearts beat higher and which upholds us in our ideals by the miseries of the day soon to be thrown in the mud.

I am getting old and old men are apt to become religious. For the last twenty years, aside from the study of Forestry, I have been trying to study this or that book on religion. Just let me say a word about immortality. If that immortality consists in sitting on the throne and in singing hymns, I personally do not want it. I have a poor voice and I am afraid Saint Peter would send me away from the choir to a place which is hotter but is far less pleasant. No, immortality is all that is good and the only immortality that is worthwhile is that immortality which consists of good that a man can do, and we Foresters in all our thankless professional work can justly bear in mind that whatsoever we do because it is good, because it is for the benefit of the people, because it reacts on the future prosperity of the Nation, is good and is immortal as is God himself.

In the old country, we have had since many decades, countless no-account Counts; aristocracy of blood. That aristocracy has always boasted of the wonderful deeds performed by their ancestors. Without a doubt there is something in the idea of the aristocracy of blood. Do we not blend all the fine aristocratic strains of sheep, of cattle, of horses, so as to immortalize the stock and better it for mankind? And is it not from that Darwinic viewpoint legitimate also to blend the aristocracy of blood in man? And yet, when you look over the annals of History, where is the aristocrat who has done anything in Chemistry, in
Engineering, in Mining, in Physics and in Electricity? Similar it is when we look at those upper Four Hundred in New York and elsewhere who claim to be the aristocrats of money. I have met, in the sixty years of my life, and notably when I was working for the Biltmore estate, many wealthy men, but I have yet to find the man who is made happy by the possession of money—or still worse, who makes others happy. When the moneyed aristocrat is in his villa in Bar Harbor, he wants to be at his apartment in Paris. When he is in his apartment in Paris, he telegraphs for his yacht to take him to Nice. When he is in his yacht he wants to be back on his estate in England—insanely wishing for what is impossible to obtain. Indeed "Bliss sought without, leaves you without bliss—bliss sought within, leaves you within bliss". And the latter bliss alone is communicative. Then there is another aristocracy—an aristocracy as old as is mankind, and I count it the aristocracy of Service. In my boyhood days, studying Greek, I was deeply impressed by the blessing which the Muses gave to Achilles—"Try always to do better than the best, devoting yourself to Service". It is the aristocracy of Service alone that has contributed to the advance of mankind, and it is the aristocracy of Service alone that has achieved the wonderful development of the United States. We Foresters, it looks to me, are the banner-bearers of the aristocracy of Service. We serve the people—by serving the people we serve the world, and by serving to the end of the world we are serving God. What is the use of a Christian who serves God merely on a Sunday? Every day of our lives must be devoted to a Service which in the last analysis is Service for the Almighty.

The blessings which are emanating from the Forests are manifold. There is navigation, there is the local climate, there is the food industry, recreation of the people, who are necessarily sub-served by the Forests and by the activities within the Forests. And there is the homing problem, the most important social problem and the most important problem in religion, in morals and in education for this reason: in the last analysis, what religion, what morals and what education we receive, we do not obtain in the school—we obtain and we did obtain it in the home by the influence of home life in connection with father, mother, sister and brother sharing the home. The Forestry problem of the United States is also the homing problem of the United States. When there is not lumber enough to go the rounds, there will not be any more homes, for the large percent of the proletarians, and the danger looms on the horizon of all civilization being destroyed by Bolshevism, bred in the crowded slums of the cities. Thus it is that our profession is more than a worldly profession and is divine indeed, and those blessings come home to those engaged in it, not in worldly emoluments, but in that
immortal feeling which the Creator must have had on the Seventh Day, when he found "That it was good".

You are young and I am old. Mine is a past and yours a future, and this future is sure to be so much more noble, so much more inspired, and so much more inspiring. You are Americans. The world is looking to America for leadership and it is up to you to see to it that America will lead the world!

SACRIFICE

The rowan-tree is like a candelabrum in the spring.
Its sleek, bronze branches tipped with silver jets of fire
That flicker to the heavens in a fair consummating
Of beauty whose dust shall be the seed of new desire.

MARY BRENNAN CLAPP.
Since the Treasure State with its untold wealth and undeveloped resources is to be featured in this year's issue of the Kaimin, it is appropriate to include some information relative to its extensive boundaries. Kaimin readers will probably be interested in the conditions under which these surveys were made.

The maximum dimensions of the State of Montana in cardinal directions are about 540 miles by 275 miles. The perimeter is approximately 1910 miles and the area is about 146,080 square miles.

The international boundary between Canada and the United States is the north boundary of the State. That portion extending west from the crest of the Rocky Mountains to its intersection with the Montana-Idaho boundary was first surveyed by the International Boundary Commission (British and American Engineers), during the period 1859-1862. The survey was finally abandoned until after the Civil War. The remainder of the north boundary extending east from the crest of the Rocky Mountains was surveyed shortly after the Civil War, during the period 1872-1876. The length of the north boundary is 546 miles.

That portion of the south boundary common to the States of Montana and Wyoming was surveyed in 1879-1880 by Rollin
J. Reeves under the supervision of the General Land Office, and covered a distance of about 348 miles.

The east boundary was run on the 27th meridian west of Washington, by the United States Geological Survey in 1885, and is approximately 276 miles long.

The west boundary from the intersection of the 39th meridian (west of Washington) with the crest of the Bitterroot Mountains was run north to the international boundary, a distance of 70.7 miles, in 1898 and 1899 by the U. S. Geological Survey.

The remainder of the boundary, which is 667 miles in length, was run as a traverse along the crest of the Bitterroot Mountains for 355 miles and thence along the Continental Divide for 312 miles to the Wyoming line. It forms a part of the south and west state boundary and was surveyed by Howard Carpenter under contract with the General Land Office in 1904 to 1906. This is the only portion of the boundary that did not follow either lines of latitude or longitude.

The earliest survey was started 66 years ago and the most recent was made 20 years ago. It will therefore be seen that a period of 46 years had elapsed between the starting and completion of Montana's boundaries. It did not take 46 years to make the surveys but the natural development of the West necessitated that these surveys be made during this period. The actual surveying probably was done in about 15 field years. But it must be remembered that the average field season is only about four months in length and therefore the actual surveying time on a year-long basis would be about five years. At this rate nearly four hundred miles per year (not a field season) were surveyed.

Today railroads, the airplane, the automobile, improved instruments and methods and the network of roads and trails which covers the majority of the State has greatly facilitated the problems of the modern surveyor. The pioneer surveyor was not confronted solely with surveying problems. His principal worries were the physical difficulties of transporting his supplies, camp equipment, instruments, iron monuments, and other surveying paraphernalia to suitable locations near where his surveying activities were to be carried on. In virgin territory he had to build trails and he was continually hampered by freshets and high water in getting to his work in the spring and blizzards and snow storms while returning in the fall. Then, too, he was miles away from his base of supplies. He had to have pack trains sufficiently large to handle provisions in large quantities. He was not as fortunate as the modern surveyor who can send a truck to the country store for supplies and receive what he needs in a day or two. Even with a packtrain he is seldom over a couple of days' journey from a supply base. Forty years ago the majority of freight
for the eastern part of the state was brought up the Missouri River by boats to Fort Benton, which was then the head of navigation and the distributing point. From Fort Benton it was moved on freight wagons by mules and oxen as far as the few trails (they could hardly be called roads) would allow. The remainder of the journey had to be made by pack-trains, in which large numbers of mules and horses were used. In addition to the physical difficulties of transporting his outfit the pioneer surveyor was confronted with one troublesome situation that is unknown to-day. It was usually necessary to include a detachment of cavalry to protect the surveying party from attacks by the Indians. Extracts from field notes of some of the earlier surveys will appear later in this article.

According to the fable of the cherry tree we have been taught to believe that the Father of our Country wielded a mean axe. At this early age the natural inclination which made Washington one of the foremost woodsmen and surveyors of his time was apparent. Not only was he noted for his famous bonfire system of surveying by night but he also introduced a literary style of writing field notes that became very popular in later years. He believed that anecdotes and personal experiences of the surveyor should be introduced into the notes to make them more fascinating to the reader. There is a marked difference in these earlier notes from the present-day notes which are dry reading like so much statistics. The field notes of many of the earlier surveys read like romance or fiction and are extremely interesting. Washington's style is very much in evidence in the field notes of Rollin J. Reeves in his survey of the Montana-Wyoming boundary in 1879-1880. The following extracts are from these notes:

"On the evening of September 6, 1879, after quitting work on the line, our party started down the mountain to find camp; we divided into five smaller companies. The camp was not found until noon of the next day, all hands having lain out without shelter or food since the morning of the sixth. I walked fully twenty miles in trying to find the pack-train and I think others traveled as far. We had no guide and the country was strange to us all. The descent to the Yellowstone River was down an old Indian trail, very stony, steep, dim and dangerous. The crossing caused some solicitude on account of the huge boulders scattered over the bed of the river.

"The most noteworthy objects of general interest near this portion of the boundary are the Mammoth Hot Springs and the buildings, roads, and other improvements near it; and the Clark's Fork mines and their surrounding improvements. A blockhouse strongly and carefully built during this summer (of 1879) by Colonel P. W. Norris, Superintendent of the Yellowstone Park, is used as the headquarters of the
Superintendent and employees. It stands on a hill about one-quarter of a mile northeast of the great hot basin, is in a commanding position and is in strength, finish and design one of the best blockhouses I ever saw. It is two stories high, contains six large rooms, has a cupola and flag-staff.

"A man named McCartney keeps a hotel on the reservation near the hot springs. He sells bad whiskey, encourages gambling and charges exorbitant prices. He has no permission or authority to live on the reservation, and should be put off, although it would require physical force to do it."

"Nearly all the streams and lakes abound in fine trout. Those caught in Gardiners and Yellowstone Rivers were sweet beyond description. Those caught in Slough Creek, Soda Butte Creek and Lake Abundance were also delicious, and many of them weighed four and five pounds. Our party, averaging in number sixteen men, and the company of cavalry, our escort, averaging fifty men, were kept constantly supplied with fish and game from the time we left until we returned to Fort Washakie, nearly three months. Elk, deer, antelope and rabbits were as numerous over the entire region as dogs in an Indian camp. There were hunters with us who were especially skilled; one man in particular never going out and
returning without game, so far as I ever heard. Our camp was constantly supplied with fresh meat. We saw but one buffalo while engaged at work on the survey, but on our march home we saw hundreds, and killed several; seven in one afternoon. The personnel of the surveying corps, having been reorganized since finishing the Colorado-Utah line, was carefully selected. It was made up mainly from mountaineers; was adapted to this life and work; and the surveying was cheerfully and well done. It has been several years since I have been associated, in the field, with as efficient, faithful and agreeable a company of assistants as this one proved to be, and we were all sorry when the work had to be abandoned so early in the season.

"Leaving Washington on the 29th day of May, 1880, I arrived at Fort Washakie, Wyoming territory, on the 13th day of June.

"From this Post K. Company of the 3rd U. S. Cavalry, Capt. G. Russell, commanding, had been detailed to act as our military guard during the summer.

"We arrived there just as the mountain streams began to swell. We found it impossible to ford Big Wind River, eighteen miles north of Fort Washakie, and which we had to cross to reach the Line. After trying for two weeks to get across, I had a boat built and hauled from the post to the river. Then on the 28 and 29th of June I crossed my own party, and the military on the 1st of July. Up to this point I had come 170 miles overland from the railroad. We now marched about 300 miles, almost due north, to the Crow Indian Agency, where my instruments, animals and some supplies had been stored during the past winter. We arrived there the 15th of July. There I partially organized a party, and with eleven men, started on the 19th day of July for the initial point of this year’s survey, which we reached on July 30, having had to travel over rough region 150 or 200 miles from the Crow Agency. Thus it will be seen that I had to travel a distance of more than 600 miles from the railroad, mainly on horseback, to reach the beginning point for the survey.

It should be noted that it took Mr. Reeves from May 29 to July 30th, practically two months from the time he left Washington till he arrived at the initial point of survey. It should also be noted that it took from the 13th of June till the 30th of July, about a month and a half, to travel 600 miles overland. During this 600 miles he averaged about 13 miles per day. To-day with our improved road system and trucks for transportation this entire distance could be covered in three or four days. If airplanes were used the distance could be covered in a few hours.
"The travel above noted, was attended with the usual camp hardships, and some extraordinary perils in the way of crossing rivers. Beside Big Wind River we had Owl, Grey Bull, Stinking Water, Clarks Fork and Rocky Fork to cross at their highest stages of water. The crossing of each was attended with much real danger. In swimming Clark's Fork River I was compelled to leave my horse, and swim ashore, after being severely kicked while in the river. All the animals had to swim with their packs on.

"We now numbered eighteen men. We had forty-two animals, about twenty-five were used exclusively for packing. They consisted of horses, mules and jackasses; twelve of the latter. I refer in these numbers to our surveyor's outfit. The military had a separate organization consisting of some fifty men and about 100 horses and mules."

It will be seen that the entire organization consisted of 68 men and about 142 head of pack animals. To-day about the largest survey crews consist of twelve or fourteen men and about the same number of animals. In the majority of cases survey parties are equipped with automobiles and trucks.

The following extracts are taken from U. S. Geological Survey Bulletin No. 170, and describes some of the conditions under which the International Boundary (north line of the State) was surveyed, during the years 1858-1859-1860 (65 to 67 years ago):

"The work of running and marking the land boundary was carried on thru a country previously almost unknown. The 49th parallel extends over rugged and precipitous moun-
tains that attain great elevation . . . perpetual snows covered many of the peaks. . . . The timber on the western slope . . . being a heavy growth of pine and fir that in many places stands over a fallen forest not yet decayed. . . .

"Trails had to be opened for three-fourths of the distance traveled, involving great labor in cutting, grading and bridging to make the route practicable for pack mule transportation. The water courses were numerous and rapid, rendering the fords frequent and dangerous, and a slight rise of many of the streams would have made them impassable but for the timely precaution of building bridges at small streams and ferryboats at the river crossings."

The foregoing extracts from notes and reports of the earlier surveys describe the conditions and hardships under which the boundaries of this state were made. Many interesting phases, such as the transportation and erection of milestone monuments and the cost of various parts of these surveys, have not been touched upon in this article because space does not permit. To those desiring further information relative to the exterior boundaries of this great Treasure State you are referred to U. S. Geological Survey Bulletins Nos. 170 and 689, and also to the survey notes of the north boundary of the territory of Wyoming.

"SUGGESTIONS"

Dreaming of Indian tales
In the shadow of old Sentinel.

Trees marching in single file
Across the mountain top;
Lone pine sentinels signaling from crag to crag;
Tress in a mass below
On the hillside.

Indians marching in single file
Tepees pitched in a row;
Indian sentinels overlooking the valley on
An army encamped below
On the hillside.

DOROTHY AKIN.
It is a pleasure to report to the Kaimin and the Kaimin’s friends that some progress has been made in State Forestry during the past year. Last year I endeavored to present to Kaimin readers the idea that the State should engage permanently in the forestry business, because it is not only profitable to do so, but a duty, in order to preserve our forest resources.

The legislative assembly of 1925 thought so too, and passed a law creating State Forests, and providing for the regulation of their use, management, control and disposition. All lands at present owned by the State of Montana, or hereafter acquired, that are chiefly valuable for the timber that is on them, or for growing timber, or for watershed protection, are classified and designated "State Forests", and reserved for forest production and watershed protection. The law then goes on to name seven State Forests already in formation and under process of consolidation. Thus, from an abstract idea, Montana has taken the initial step toward a concrete State Forestry program.
State Forests Created

The State Forests created under the new law are as follows:

<table>
<thead>
<tr>
<th>State Forest</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stillwater State Forest</td>
<td>90,000</td>
</tr>
<tr>
<td>Swan River State Forest</td>
<td>42,000</td>
</tr>
<tr>
<td>Coal Creek State Forest</td>
<td>20,000</td>
</tr>
<tr>
<td>Sula State Forest</td>
<td>10,000</td>
</tr>
<tr>
<td>Thompson River State Forest</td>
<td>14,628</td>
</tr>
<tr>
<td>Clearwater State Forest</td>
<td>18,076</td>
</tr>
<tr>
<td>Lincoln State Forest</td>
<td>8,245</td>
</tr>
<tr>
<td>Forest Sections scattered thruout the State</td>
<td>203,949</td>
</tr>
</tbody>
</table>

Total: 566,949

While the establishment of the seven State Forests named above is a forward step, the large acreage of forest sections scattered thruout the State shows that much remains to be done in blocking up the State Forests and securing their consolidation. The goal of State Forest consolidation should never be lost sight of, and the establishment of the seven State Forests named, is one of the means to that end. Some of these State Forests are in themselves more or less checkerboarded. Exchanges of scattered forest sections have been and are being currently effected to consolidate these checkerboard forests, where such exchanges are possible with the United States Forest Service. Complete consolidation, however, cannot be had until legislation is enacted, authorizing exchanges with private timberland owners. The current exchange work with the Forest Service involves the examination of nearly 200,000 acres—of which 100,000 acres are scattered forest sections, and 100,000 acres are government land, to be considered in making lieu selections. Last summer 38,000 acres of State land and 40,000 acres of government land were cruised and examined jointly by the State and the Forest Service.

Obsolete Laws Repealed

Another indication of progress is that many obsolete and antiquated laws were repealed, especially those that authorized a dual administration of forest lands by the State Land Office and the State Forestry Office. Dual administration of forest lands has been heretofore the cause of misunderstanding, friction and mismanagement. The practice also made friction between the timber purchasers and the lessees of the lands, who found themselves respectively on the land, each with State authority to do certain things, that in themselves were incompatible with one another. Mismanagement was the result. This fact, and the possible illegality of the practice was brought to the attention of the State Land Board, which authorized all secondary uses on State Forest lands, such as
grazing and the like, to be conducted by the State Forester. The new law provides that grazing on the State Forests, and all secondary uses be administered by the State Forester.

**State Forester to Have General Charge**

Under the new law the State Forester, who must be trained and experienced in forestry, will have general charge of all the State Forests. With the approval of the State Land Board, he is authorized to prepare all the regulations in conformity with the text of the law, pertaining to all the activities of the State Forests. Some of the other duties of the State Forester under the new law, are as follows:

- To administer the Forests.
- To examine, estimate and appraise the timber crops.
- To sell the timber crops with the approval of the State Land Board.
- To sell the other crops of the forest.
- To advertise the timber for sale.
- To accept or reject bids for timber crops with the approval of the State Land Board.
- To award the sale to the highest responsible bidder.
- To secure a formal agreement in writing for the sale of the timber.
- To secure a bond from the purchaser for faithful performance of the contract.
- To define the rules of silviculture, cutting, utilization, scaling and slash disposal.
- To define such other rules as are essential to the perpetuation of the State Forests.
- To secure payment for timber in advance of cutting.
- To suspend cutting or removal of the timber upon breach of contract.
- To take other steps upon advice of the Attorney General, to adjust the breach or liquidate the State's claim for damages.
- To issue free permits for certain timber for fuel.
- To issue commercial and domestic permits for certain timber.
- To supervise all timber sales.
- To employ and fix salaries of all forest wardens, scalers, cruisers, estimators and forest assistants.
- To instruct and supervise all employees in their work.
- To require a scale of merchantable saw logs by the Decimal C log scale.
- To require numbering of logs and entering of scale of each in scale book.
- To retain the scale books as a public record, identified with the specific sale and the particular scaler or scalers, who did the work.
To require that each log be stamped with the State mark "S-T".

To examine, classify, select, appraise and reappraise the State's forest lands.

To administer the grazing and all secondary uses of the State Forests.

To establish his office upon the State Forests, or at some place accessible to them.

To publish a report biennially of the State Forests' condition and activities.

To cooperate with forest owners in the protection and development of their forest lands.

To cooperate with farmers in the development and protection of plantations, shelter belts and brush disposal areas.

**Activities and Improvements**

During the past four years the State Forestry Department has been engaged in many activities that have improved the forests. The revenues for the past four years have been over $424,000. The areas cut over have been left in productive condition. About 125,000 acres of forest lands have been examined and classified. In cooperation with the United States Forest Service, about 38,000 acres of State Forests and 40,000 acres of government lands for lieu selection, were intensively examined. Besides this, approximately 200,000 acres of public domain have been covered by extensive timber survey for the purpose of determining other areas for lieu selection.

The protection of the State Forests has been very much strengthened. By means of federal aid secured in cooperation with the United States Forest Service, the Stillwater State Forest in Flathead and Lincoln counties has been greatly improved and developed in all protection facilities. There has been built on Dog Mountain a steel lookout tower, 35 feet high, which has added a great deal to the detection system on that forest. The organization there is completely equipped to handle forest fires. The equipment consists of standard fire fighting tools, tentage and kitchen mess sufficient for a crew of 30 fire fighters.

Because of a great amount of travel thru this forest, and numerous logging activities, the organization is equipped with an Evinrude engine and 2000 feet of fire hose, all of which can be quickly loaded into the State's Ford truck and transported to any fire adjacent to the highway. This equipment is also portable by pack-horse.

A class of forest school students, under the direction of Professor Skeels, made studies on the Stillwater State Forest last summer, for the purpose of constructing a forest working plan. For lack of funds, their work cannot be completed this year, as originally contemplated.
As fast as the exchanges effect the consolidation and enlargement of each of the State Forests, corresponding activities may be looked for, and protection and other improvement facilities must be provided.

State Forests Self-Sustaining

The revenues from Montana's State Forests are far above the costs of protection and administration. Our State Forests are therefore in reality self-sustaining. The legislature, however, appropriates money from the general fund to protect and administer the State Forests. The source of the general fund is taxation. In practice then, the expense of our State Forests is borne by taxing the people.

It seems to me that the State Forests, except perhaps in times of emergency, should be wholly self-sustaining. Under the present practice, however, the State Forests are self-sustaining only in theory. The State Forests are composed of forest lands of different grants. Under what I think is a mistaken practice, the revenues from the sales of timber crops are placed in the permanent funds of the respective grants, and are therefore not available to the institutions to which the grants are made. Interest therefrom, however, is available, and this is where the whole structure of our State land receipts seems to be wrong. It would be absolutely impossible for a farmer or a business man to conduct his business on the same theory. A farmer grows his crops, harvests them, sells
them and pays the entire expense of his farm project from the proceeds of his crops.

Under proper forest management there is annually a crop of timber. The sale of this timber is a source of revenue. So long as this revenue is more than adequate to protect and administer the State Forests, the burden then of forest administration should not fall upon the people in the form of taxation. I can see no justification for treating the revenues from sales of timber crops, as creditable to the permanent funds. Grazing and other rentals are creditable to the income funds. In both cases, the soil or land (capital) remains in the ownership of the State. When, however, the land, timber and all, are sold, (now an obsolete practice), the revenues therefrom compose the capital investment and belong in the permanent funds, of course. It seems to me that the State Forests need not be a burden of taxation upon the people, only in great emergencies or temporary fluctuations of the timber market, where sales for a period are inadvisable. Instead of building up a great permanent fund for investment purposes, the interest from which is only available to the grants, it would be better finance to treat the revenues from timber crops as incomes from the forest soil or capital, and make those net incomes, after deducting the cost of protection, administration and extension, available to the institutions of the respective grants. The State Forests could then be managed more wisely as an investment proposition. The several institutions would benefit by greater and more direct income. Taxation could then be reduced and the burden of government cost spread.
SERMONS IN TREES

By C. H. CLAPP.

Nature has freely, lavishly supplied us with her great gifts of energy, but at the same time imposes upon us an obligation to use her gifts properly, or as we say, in accordance with natural laws. The proper use of Nature's gifts is true conservation, not mere saving or hoarding but use, abundant, plentiful use, but not waste. In spite of anything that we may do, certain resources, such as our great mineral resources are bound to be depleted in time. Other resources, on the other hand, may be conserved in such a way as not only to be utilized to the maximum, but to be passed on to future generations enriched rather than impoverished. This is true of our great agricultural areas, especially those recaimed from the desert by irrigation. This may be true of our great forests, but our forests, especially of the United States, have been in the past waning, rather than as they should be waxing, resources.

To change this condition is the great purpose of forestry. Forestry and conservation, conservation and forestry, the two words are almost one so closely are they linked in our minds.

To accomplish this great purpose requires the correct solution of countless problems in the scaling or measurement of trees, the cutting and utilization of lumber, the prevention and
control of forest fires, and the planting of new trees. These are problems which require more than just technical skill and experience for their solution, because they call for new solutions. Yet, all too frequently, foresters like engineers and other professional men are seemingly content with mere technical proficiency and then wonder why their jobs do not bring greater profit and more satisfaction and happiness in their achievement. Such men have succumbed to the dangers of specialization, have been unable to aim in learning how to shoot, have been unable to see the forest for the trees. They have forgotten that technique is not in itself sufficient but is an aid to such essential qualities as imagination and sympathy, reliably and courageously disciplined and tested by systematized facts, experience, and fundamental principles, which themselves have been discovered by imagination from systematized facts and experience and tested by them. They have forgotten that no learned routine can take the place of thinking.

Surely forestry with its demand for careful, accurate, and reliable observations, its demand for foresight and judgment, its demand for courage and discipline cannot help but develop these qualities unless prevented by too narrow an outlook. Surely no one can be a forester and not feel the appeal of conservation, with the consequent development of his imagination and his appreciation of his obligation to others. Nature freely supplies us with her gifts but at the same time imposes an obligation to use her gifts properly.

As we of this generation are the heirs of the wealth of former generations derived from Nature through thinking, so are we also the trustees of future generations, obligated not only to pass on to them the wealth we have inherited, but to add to this what new wealth we ourselves can create. This appears to be a natural law from which there is no escape. And just as surely as punishment is inevitable from its disobedience or neglect, so great rewards follow its proper observance.
GAME MANAGEMENT IN THE NATIONAL FORESTS OF DISTRICT ONE

By GLEN A. SMITH
Assistant District Forester.

From the earliest times, Forestry has been associated with game and fish production. Back as far as the year 1598 the Englishman, Manwood, in his treatise on the "Laws of Forests" defined a forest as "a certain territory of woody grounds, fruitful pastures, privileged for wild beasts and fowls of forest, chase, and warren to nest and abide in, in the safe protection of the king."

Since Manwood’s time, the functions of the forest have greatly increased, so that instead of being solely valuable as
Hunting in Montana.

a pleasure ground, they are now chiefly valuable for the production of wood and the conservation of water, but their usefulness for recreation and as a home for wild life is still very great and in their management this value should receive full consideration.

With the creation of the National Forests a condition was created whereby a more systematic study and definite plans of management could be worked out for the perpetuation of the wild life they contain. During the past few years progress has been made in securing the fundamental data for rather definite plans of game management. As in any undertaking, the first essential is an inventory of what we have to deal with. It is realized that our information to date is not accu-
rate and that twenty years hence it will be regarded as very crude. However, a start has been made even though it may be crude. Practically all Forest officers are commissioned by the state game warden as deputies and are instructed to report and prosecute game and fish law violations to the same extent that they execute their other duties under United States laws and departmental regulations. Study of game conditions, including such things as adaptability of ranges to classes of game, seasonal condition of game, increase and decrease in game herds, loss from predatory animals and other destroying agencies, the division of range between game and domestic stock, the dual use of range by game and stock, the carrying capacities of game ranges, and many other game problems of similar nature, is a part of the regular job of Forest Service employees. These studies are all summarized in an annual report from each man and are used as the basis for building up a game management plan for each of the National Forests. This work is done from the standpoint of Uncle Sam as a property owner who desires that his land shall be so managed as to render the highest possible returns to the community in which it is located, and to the nation as a whole.

Estimates of the amount of game within large areas of wild land can, of course, only be very rough ones but those
given out by the Forest Service are made up by the rangers who spend their time working over their districts and making as close observations and tallies as possible, including winter counts. No accuracy is claimed for the following figures, but they are at least the best that are available. The last annual game report of the Forest Service shows the following numbers of big game within the National Forests of the State: 985 moose, 8,400 elk, 50,000 deer, 680 antelope, 1,875 mountain sheep, 2,480 mountain goats and 20 caribou.

**SOME OF THE PROVISIONS MADE FOR GAME IN THE NATIONAL FORESTS OF DISTRICT 1**

<table>
<thead>
<tr>
<th>Area</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net area of National Forests in District 1</td>
<td>22,338,253</td>
</tr>
<tr>
<td>State and Federal game preserves in National Forests in District 1</td>
<td>1,348,798</td>
</tr>
<tr>
<td>Percent of National Forests in preserves District 1—6%</td>
<td></td>
</tr>
<tr>
<td>Area of waste and timbered range in National Forests District 1</td>
<td>10,813,896</td>
</tr>
<tr>
<td>Gross area used only by game includes preserves, inaccessible range</td>
<td>12,454,257</td>
</tr>
<tr>
<td>and areas closed for protection purposes to domestic stock</td>
<td></td>
</tr>
<tr>
<td>Percent area in National Forests of District 1 used only by game</td>
<td></td>
</tr>
<tr>
<td>used only by game of net total—56%</td>
<td></td>
</tr>
<tr>
<td>Estimated area summer game range in National Forests District 1</td>
<td>15,970,364</td>
</tr>
<tr>
<td>Estimated percentage winter game range in National Forests District 1—27%</td>
<td></td>
</tr>
<tr>
<td>Estimated area winter game range in National Forests District 1</td>
<td>6,087,889</td>
</tr>
</tbody>
</table>

The great need now is for a general recognition among the sportsmen and foresters of the State that game propagation and conservation is not merely a question of law enforcement, but one of biology and economics,—intricate and far-reaching, that cannot be solved by rule of thumb, or by opinion based on meager knowledge of only a few of the facts. If we are going to progress as we should, there must be a more general recognition that accurate and scientific knowledge of all facts are just as applicable in administration of game matters as they are in the handling of any other complicated business, and that the opinion of any one who has not made a study of the biological and economical conditions on the question of perpetuating Montana's wild life is worth just as much and no more than that of the average layman on how to build and fly an airship. To the extent that this fact is recognized by the sportsmen and foresters of the State they will see to it that provision is made for carrying on the work.
THE CALL

In far-flung phalanx through the misty sky
The wild geese hasten north;
All through the April night their clarion cry
Comes winging down where sleepy humans lie
To bid them hasten forth.

The geese call clear. I know the things they mean,
So I must pack and go
To watch the mountains lose their silver sheen
And see the upland grasses, young and green,
Push back the winter’s snow.

JOHN C. FROHLICHER.
THE FORESTS OF THE BITTER ROOT MOUNTAINS

By J. E. KIRKWOOD

The Bitter Root Mountains form part of the boundary between Montana and Idaho. As defined by the U. S. Geological Survey the Bitter Roots proper extend from Lolo Pass southward to the head of the Little West Fork of the Bitter Root River, a distance of about 70 miles. On the south they connect with a westward extending spur of the main range of the Rockies, an elevation of different geological formation; on the north they adjoin the Coeur d'Alene Mountains which extend north and west dividing the tributaries of the Clark's Fork and the Snake. The highest point in the Bitter Root mountains is Trapper Peak with an elevation of 10,175 feet, standing near the southern end of the range. Several other peaks rise to 8000 and 9000 feet or more. The elevation of the passes is mostly about 6000 feet, although Lolo Pass reaches only 5254.

The topography of the range is rugged and picturesque, especially toward the southern end where deep and narrow gorges are flanked by lofty and precipitous peaks. The eastern slope rises rapidly from the Bitter Root River to the crest at a distance of fifteen or twenty miles whence the western slope falls away by more gradual stages to the Clearwater Mountains, which constitute a wide and deeply dissected plateau-like region having a general elevation of around 6000 or 7000 feet but with occasional summits reaching 8000 to 9000.

On the east the drainage consists of numerous small streams flowing by more or less direct course to the Bitter Root River. On the west flowing via the Clearwater to the Snake River are three or four large streams, the North Fork of the Clearwater, the Lochsa, the Selway and the Salmon rivers, which gather their waters from numerous tributaries whose ramifications follow a bewildering maze of narrow canyons. The whole area extends about 100 miles north and south by 70 or more east and west.

In this region the rain-bearing winds come from the west and southwest, resulting in a heavier precipitation on the western slope, in fact the rainfall on the western side of these mountains may safely be estimated at three times the amount which falls in the Bitter Root Valley to the east. At Hamilton on the Bitter Root River the average of a number of years observation is less than 11 inches of annual precipitation, and at Missoula about 50 miles north, about 16 inches constitutes the annual mean. The areas lying from 30 to 50 miles west of these points may be considered as having from 33 to 50 inches a year. In the northern part of the Clearwater drainage the heavier rainfall is a feature of the climatic conditions of a much wider area extending through the lake region of the Coeur d'Alenes and northward. Toward the south the
influence of the semi-arid Great Basin appears; gradually diminishing the summer rains and winter snows. Necessarily the differences in the precipitation are sharply reflected in the vegetation of the areas, both as to the constituent species and the density of the plant covering. Likewise differences in elevation are attended by differences in precipitation and temperature, in length of the growing season and other factors which also modify profoundly the size, numbers and species of plants.

The forests of the Bitter Root and Clearwater mountains are a part of the general Rocky Mountain Forest, which is prevailingly coniferous, evergreen. It comprises fifteen or sixteen species of gymnosperms, viz., yellow, white, whitebark and lodgepole pines, western and Lyall's larches, Engelmann spruce, mountain hemlock and probably also the western hemlock, Douglas spruce, grand and subalpine firs, arbor vitae, dwarf and Rocky Mountain junipers and western yew. In addition to these a few hardwoods are present, as the black cottonwood and aspen, willows, alders, birches, hawthorns, choke cherries, and the cascara \textit{(Rhamnus Purshiana)}. Of these the white pine, mountain hemlock and cascara are mostly confined to the west side; while the others appear on both sides the difference in their prevalence and distribution is quite marked. Thus the lower limit of forest distribution on the eastern slope is about 1700 feet higher than on the western. For the lodgepole pine it is 1000 feet higher, for the Engelmann spruce 1500 feet, for the Douglas spruce 1700, for the grand fir 2000, similarly the lesser vegetation of herbs and shrubs are affected by the same influences.

From these facts it follows that the life zones are tilted toward the west. These zones, according to the system devised by Merriam, are in this region the Transition, Canadian, Hudsonian, and Alpine as we proceed from the valleys to the highest peaks. They are the expression of the different temperature requirements of plants and animals and while they show more or less overlapping and intergradation, nevertheless furnish a convenient and natural basis for the expression of the differential distribution of the fauna and flora of North America and are applied with reference both to latitude and altitude. Of the two main regions, northern and southern, we have only the northern, with its zones mentioned above. The Transition is a broad, or sometimes narrow belt of overlapping and intermingling northern and southern elements. Next northward or above in altitude is the Canadian zone marked largely by vigorous coniferous forests, then the Hudsonian, also coniferous but less vigorous and often dwarfed and crippled by cold and marked usually by other conspicuous features, and finally the Arctic-Alpine consisting mainly of low plants in an area beyond or above the limits of tree growth.
In this region the Transition, or Arid Transition as it is better known, is characterized largely by yellow pine, sagebrush, bunch grass, balsam root, puccoon and numerous other plants which occupy the prairies and open pine woods. In the Bitter Root Mountains one finds this zone chiefly along the eastern foothills of the range somewhere between 3200 and 4000 feet elevation. On the west slope it hardly appears at all except in patches along the Selway River on bold bluffs facing the south, or farther south where it becomes more conspicuous as it nears the Snake plains. The areas where it was observed along the Selway were between 2500 and 3000 feet. Another aspect of the Transition zone is seen west of the Cascade Mountains in Oregon and Washington and is known as the Pacific Coast Humid Transition. It is characterized by the Douglas spruce as the dominant forest tree with grand fir, arbor vitae and western hemlock among the gymnosperm and by maples, cascara, the flowering dogwood, ash and other hardwood trees. In most parts of the Clearwater drainage there is some expression of this form of the transition forest and there is a very strong expression of it in the northern part of the area where the arbor vitae, grand fir, and many herbs and deciduous shrubs give the forest an aspect much
like that of the northwest coast country. It is found that wherever in this region Pacific coast conditions prevail there are generally assemblages of plants which both in their specific identity and in their ecological structure suggest a relationship to that region. It is evident also that much of our flora has been derived from the coast country by eastward migration and it is but natural that such plant immigrants should settle in those spots which they find congenial. The number and identity of such species and the limiting factors in their movements are therefore matters of interest to the botanist.

The Canadian Zone in the northern Rocky Mountains is characterized not so much by peculiar and exclusive species of forest trees as by the density of the stand and the general ecological features of the forest. The yellow pine gradually disappears, owing doubtless to its being shaded out by more tolerant species. The Douglas spruce which we have noted in connection with the humid transition of the coast, and which shares with the yellow pine the arid transition of the Rocky Mountains often constitutes a considerable part of the Canadian forest zone. It is unquestionably the most widely adaptable species of our western forest trees, thriving at sea level on the coast or contending successfully with other species at 6000 feet in the Rocky Mountains, flourishing under a rainfall of 50 to 100 inches a year or struggling along on less than 12. The western larch is likewise a member of the Canadian forest, as is also the lodgepole pine and Engelmann spruce.

In the Bitter Roots the Canadian Zone forms the bulk of the so-called Montane forest at elevations from 4000 to 5000 feet, and in places up to 6000 or above. It is not in any case a timber line forest, although the timber line species descend into it. The zonal breadth and elevation vary especially with reference to exposure in relation to sun, wind, snowfall and other factors which bear upon the moisture supply, so that one side of a mountain may exhibit the arid transition while the opposite slope at the same elevation bears a typical example of the Canadian. After all altitude as a factor in zonation as well as in the species content is mainly a matter of moisture controls with moderate differences of temperature apparently of secondary importance. The success of the Canadian forest is due largely to its sufficient rainfall and its adequate length of growing season. It is the zone of most efficient precipitation. Higher up the slope the snowfall is heavier, but the period of physiological drought, i.e., of frost-bound soil, is longer.

The lodgepole pine is common throughout the Bitter Root Mountains, and as elsewhere within its range forms the typical pure stands for which it is famed. On the summit of Wood's Creek Pass, around Big Sand Lake and Elk Summit
and along the Lolo Trail from Indian Grave to Lolo Pass, it is especially evident. The dense thicket formation so common in this species, is here and there seen but the prevailing condition is a sparse stand apparently due to the intensity and frequency of the fires, which have swept much of this area, leaving insufficient seed for a full restocking of the ground. Old stands of lodgepole which have come to maturity thin out allowing other species to enter, and a mixed forest is often the result. Along the upper Rock Creek trail some unusually fine specimens of lodgepole were observed. These had a diameter of about 20 inches with a height of over 100 feet and 60-70 feet clear. So unusual was this sight that the identity of the species was doubted until closer inspection verified it. The Lolo Trail for miles winds through an open stand of old lodgepole still practically pure and of unusually good form. The dominant undergrowth of this stand is the bear grass, which prevails often to the exclusion of other species. In the younger stages of the lodgepole forest, where not too dense, the low red huckleberry is an almost constant companion. Certain facts, which cannot be recounted here, point to moisture

(Continued on Page 95)
MOVING SLOWLY OUT OF PORT

The mountains are like big ships looming in the haze,
Heavy laden with queer stuffs of old dreams unfulfilled,
Manned by crews invincible, of old, majestic days,
Moving slowly out of port along accustomed ways.

MARY BRENNAN CLAPP.
HUMAN RELATIONS IN FOREST SERVICE WORK

By FRED MORRELL

Unless one plans to be a hermit he must at all times take into consideration the question of his relations with other men. Any plans that he makes for success would, if they did not recognize the human relations factor, leave out a most important consideration. If one plans to follow a profession or business his ability to make and maintain proper personal contacts becomes perhaps the most important element in his success or failure.

The profession of Forestry unless practiced on one's own land is the selling of service. Whether it be sold at a specified sum per month, as an employe of the public, or as a consulting forester, at so much for the job, it is still a question of giving satisfactory service. The better the material service rendered, the less necessary it is that his personal contacts be highly satisfactory in order to attain a certain degree of success. But the one does not operate to the exclusion of the other. High quality of material service and excellency in human contacts are both essential to a large measure of success.
The above observations are so obvious as to be entirely trite. And yet many ambitious men burn the midnight oil in preparing themselves to give the material service, and strive diligently to give it when they come into professional work, who seemingly give little thought to the other important element. The editor of the Kaimin has asked that I write something on the subject of human relations in the Forest Service. Human relations in the Forest Service are not essentially different from those in other forms of public service. So much has been written on the broad topic of human contacts by men who have made exhaustive study of the subject that it would be a waste of space for a layman to attempt anything in the way of a general contribution to it. The writer will try, therefore, only to point out some of the necessities for high attainments in this direction on the part of those who want to succeed in public Service.

In a long experience as an administrative and personnel officer, I have seen men fail for a great variety of reasons. For lack of technical knowledge, lack of courage, of industry, of honesty, and for other causes. But more than for any other one thing they have failed through inability or unwillingness to make and maintain agreeable relations with their fellow workers or the public. We say that men must be loyal, they must be teachable, they must have tact, they must be considerate of others, they must be fair. Men universally recognize that these qualities are necessary. Almost universally do they believe they possess them in high degree. Yet many of them do not.

When a man comes in to the Forest Service he casts his lot in a big organization. Any organization must have policies, methods and procedure that are to a large extent uniform. Without that would be chaos. Many men make the mistake of thinking that limited freedom of action exists only in the organization with which they are connected. They imagine that somewhere else they could do as they pleased when they did not agree with the policies laid down. Unanimity of purpose and team-play are essential to any good organization. As much room for personal preference is given in the Forest Service as in any other well-managed public or private agency. And even in personal business, I doubt that much greater freedom prevails. The business man has after all, to do not what he would like but what will please his customers and if he isn’t able to do that he is going to fail just as surely as he will if he is unable to meet organization requirements. Customers’ demands may often be more onerous than are those of an organization.

And so the first thing I would say to men coming into the Forest Service is that you must make up your minds to work under policies and procedure laid down. If you don’t
like them, get them changed if you can, but until they are changed, play the game as the rules prescribe. But have charity for and tolerance of the other fellow’s views. Don’t spend your time crabbing about requirements made by Congress, by the Secretary of Agriculture or your immediate superiors. Most of such crabbing is due to one kind or another of exaggerated ego. Men usually crab not because they know so much but because they know so little about the reasons for existing requirements. One can’t be loyal in public service without loyalty to the organization and the men and women with whom one works. There are instances where men do good through disloyalty, but remember that they are very rare. There is the extreme individualist who just cannot adjust himself to harmonious working with other men. He may be right. Usually he is wrong. Whether right or wrong he doesn’t belong in an organization and when he finds himself out of step and can’t get in step, he should drop out. All trite sayings again, and yet none of us learn the lesson in them as well as we should. And some seemingly do not learn it at all. It is one that must be practiced in small things as well as large. In the hour to hour and day
to day contacts—it is a continuous performance—an ever-present need—not one that comes along just once in awhile.

Many men fail through a wrong attitude toward the public whom they serve. A public officer is a public servant. He is at the same time a public manager. The dual role of manager and servant is not always an easy one to fill. One must get the clearest understanding possible of what his duties are as laid down by statute, regulation and policies. This must be his guide, because it is the expression of the public majority which engages him. Any departure from the course dictated by statute, regulation and policy, any effort to follow a course that seems to him wise, is likely to be wrong to the extent that it diverges from that prescribed as above indicated.

The public, as individuals, is constantly objecting to what the majority decide should be done, and therein lies the public officials' greatest difficulty. In the main, they must in some way be made to subscribe to the will of the majority. Persuasion, tact, firmness, and force when necessary must be used to compel them.

The exact methods to be employed in going about this task cannot be defined in a general way. They will differ with each case. But the general statement can be made that here, as in contacts with men in the organization, tolerance and charity toward the other man's views are essential. Find out what he wants, and why he wants it. Put that down on one side of a line and on the other put down what you want him to do and why. See how far apart you are. Learn his motives, and his reactions. Remember that your job isn't well done unless you get done what Service policies require and leave your user satisfied. That isn't always possible, but it is desirable. Approach your task always with dignity, humility and patience. You are supposed to be a manager of a public property. That requires that you be, first, able to manage yourself, and, second, competent to manage other men.
The subject of timber land and cutover land taxation is so extensive and leads directly into so many of the related economic problems confronting you, it will be impracticable for me to do more than touch upon a few of its phases, and possibly to suggest some remedial measures. I believe we will agree that the present Montana law is highly unsatisfactory not only in the amount levied, but in the method, or rather lack of method, in the arbitrary discretion left to more or less irresponsible or possibly incompetent officials, in the lack of any stabilized or uniform policy and in the failure to understand the true nature of the forest property or the value of soils whose primary function is the production of timber.*

To equitably tax any commodity it is necessary to understand the production of that commodity and the relation of this

*We are now in the midst of a state and nation wide discussion of the taxation question, particularly the taxing of natural resources, among which we must consider our present virgin timber stands. In this discussion the expression "severance tax" has been widely used. I am quite sure the use of this more or less technical term has caused confusion, since the various legislative measures and the explanation indicate a "yield tax" and not a "severance tax". A severance tax is levied as an additional tax. Louisiana has a severance tax on its timber. A yield tax, on the contrary, is not levied as an additional tax but normally supplants other forms of taxation, save possibly in timber land taxation, a nominal soil tax based on the capacity of the soil to produce.
production to similar forms of wealth, requiring equal protection from the State. Adam Smith, in laying down the principles of taxation since followed, has said:

1. "The people of a Nation should contribute towards the support of the government in direct proportion to their ability to pay"—this is, in proportion to the revenue they secure by virtue of the protection afforded by the State.

2. "The tax which each individual is bound to pay should be certain, not arbitrary"—i.e., should vary only with increased or decreased service rendered the individual by the State.

3. "Every tax ought to be levied at the time or in the manner most likely to be convenient for the contributor to pay it." These maxims, among others, have received general assent as they are manifestly the common sense of taxation. Do we, or does our system of timber taxation adhere to these fundamental principles? Have we a system based upon the sound judgment recited above, modified only as far as the peculiar nature of our product requires, or have we an illogical make-shift translated from other forms of property? An analysis shows:

1. That considering Adam Smith’s forest maxim, i.e., owners of timber lands should pay for the protection afforded their property in accordance with the revenue that property returns—our Montana procedure, while assumedly fair, leaves the most important part of all taxation, the assessment, in the hands of an elective officer, usually without special training or experience or sometimes without other qualities. If he be able to judge timber values we may expect an assessment approaching the marketable or actual stumpage value of the stand and consequently a tax comparable to those levied on other forms of real property. This is not unfair as long as our statutes and court decisions declare the land and the timber on it both to be realty rather than soil and crop. If, however, he is untrained in timber values, or as sometimes happens entertains a more or less unfavorable attitude toward all or certain forest owners the latitude afforded him allows excessive values and with excessive values more taxes than are warranted by the protection afforded. This is well illustrated by scanning the values placed on similar stands in different counties. The legal remedies against injustice, i.e., an appeal to the State Board of Equalization sometimes grants relief, usually not. The new tax commission has yet to establish its worth.

2. "Taxes should be certain and not arbitrary."

Here Montana departs sadly. In the first place values are left to the judgment of the assessor. The law provides a 100% valuation. What is full worth? How is it to be derived? What factors enter into its make-up? The law provides no standard, fixes no procedure. No two counties follow the same method, hardly any two successive assessors in the same county. This uncertainty, intangibility, appears whenever any phase is left to
the judgment of one man and will continue until a rigorous and standardized method of computation of cutover land and timber values is adopted.

3. "Taxes should be levied at the time and in the manner most convenient for the contributor."

Not a timber land owner, hardly a stump land owner but has heard the necessary and oft repeated demand "Conserve timber, save the reproduction, plant the burns and cutover lands, protect these from fire. Grow a second crop." There is nothing unreasonable in these widespread demands, fostered wisely by both Federal and State Forest agencies—yet neither are practicable owing to the laws prohibition of an adherence to Adam Smith’s third maxim. Holding a stand for the use of the next generation—say 20 years from now, means—

1. You may lose your timber by fire.
2. You may secure a sufficient increase in value to pay your protection expenses.
3. You will pay taxes year after year on land and timber despite the fact that no revenue is accruing you from the property nor will it accrue until the crop is harvested.

The average tax per M feet in western Montana is about 4 cents. The average timber land owners pays about 8% for
money. His taxes compounded annually, have amounted to $1.85 per M in this short period of 20 years, this assuming no increase in either assessed value or levy. He leaves a thousand feet of timber per acre as seed trees. It will, assuming he and his posterity retain the land, take 100 years say, to ripen this second crop. He will, under our law and its enforcement pay 4 cents taxes and more per year on those seed trees, pay about 10 cents per acre per year additional as a land tax, and when the young stuff becomes large enough to measure in terms of marketable products pay full value taxes annually. If by that time we have reduced the fire hazard he should be able to borrow 5% money. The 14 cents alone has jumped to $364.00 per acre.

On one hand we find one branch of government, fostered by public sentiment demanding both the reforestation of burns and stump land and the maintenance of the present stand, and on the other hand another political subdivision precluding compliance by an ascending scale of taxes. Governor Dixon, of Montana, recently said:

"Under our constitutional mandate the present system of taxing our diminishing timber supply is not only an economic crime but threatens the future welfare of the state. It enforces the cutting of our timber supply for the future ahead of its natural time, by its present owners in order to avoid absolute confiscation.

"Timber, like minerals, should contribute an extra heavy tax when severed from the soil. It is my belief that Montana, in self-defense of its own future development, and in order to conserve its valuable timber resources, should change its present unscientific method of taxing timber, providing a moderate tax on the land and a heavy toll from the timber itself at the time it is harvested.

"This can only be accomplished by an amendment exempting standing timber from the recurrent annual taxes on the same identical forest crop and giving the next legislature power to adjust the severance tax in accordance with the unanimous judgment of all political economists and forestry officials."

Our operative plan is now based on constitutional provisions. Any permanent relief must come through a change in our constitution rather than a lowering of assessed values, advocated by some. Lowering assessed values is an untrustworthy, temporary expedient open to all the objections of uncertainty and arbitrariness. It does not grant permanence to the industry or guarantee of continuity of policy. You want, and the public needs, a fixed and definite state control, guided by laws based upon the peculiarities of your industry, allowing you full play to use or conserve your holdings, regenerate your cutover lands and forest areas and, while redeeming your public duty, make a reasonable return on the capital you have invested.

To accomplish this, and I speak from the experience of other states and nations, not from theory, your timberland taxation code must provide for:

*Note—I feel sure the Governor means a yield tax.
(a) The recognition of the fact that timber is a crop, and as such must be divorced from the land. The only element of difference between wheat and timber is the longer period required to bring it to marketable condition. A tree is a plant grown from the soil. The application of the present law does not tax the farmer’s growing crop. There is no more reason for taxing yours. If the stand is large enough to cruise—say 10 inches on the stump—you are taxed—yet it may not be of saw size or marketable size, for 20 years or more.

(b) The classification of your land as either forest or agricultural. Practically any land that can be put to farm purposes will return a higher soil rental than in the growth of timber. Lands permanently devoted to timber growth must be those producing their highest financial return in that form of use. This classification, applicable, largely to your stump lands should be provided by the State, upon application of the owner of the property.

(c) The imposition of a soil or ground tax. Theoretically, farm lands are taxed in accordance with their ability to produce. Forest lands should be assessed in the same manner—not on a mythical grazing or pasturage value but in direct proportion to that land’s ability to grow timber. The poorer the land for the production of timber—the lower the value. This nominal ground tax is advisable since the state affords continuous protection while the land is growing its crop.

(d) Freedom from all forms of taxation except the soil tax until you receive financial returns from your investment.

(e) A yield tax to be paid when your timber is cut and marketed. This makes payment easy as you have realized on

(Continued on Page 93)
THE TROPHY

A giant elk, with swollen growing horns,
Lay during summer noons in icy ooze of alpine lakes,
Or stood in shady thickets where the flies were few.
As days grew shorter, and the horns
Began to harden, he rubbed the velvet from them,
Scarring the limber pine trees with the thrustings
And fierce lungings at a half-dreamed foe.
When tamaracks turned golden, and the blue-jays thronged
In open parks where berries of the ash were red
The tines were ivory white, and the elk’s shrill call
High noted, full throated,
Sent echoes down the rocky gorges,
The battle call—the mating call—all one,
That wild far-reaching bugle note.
But now—he’s just a trophy—on a wall—
Artificial eyes—and a brass plaque—
“Presented by Brother James Wolfe—1921.”

JACK FROLICHER.
Tabulation of civil-service examinations in Greater New York reveals that a metropolitan policeman must know five thousand things. Also, he must be able to apply this encyclopedic knowledge and to function quickly in the application. The forester must know more than a New York policeman. To attempt to enumerate all the things he has to know would make an extended catalogue and it is likely that it
would not be complete—for there is always something new for him to master.

Axman, botanist, veterinarian, weather observer, marksman, packer, sprinter, farrier, lecturer, cook, smoke-eater, general, private—all these he is by the very nature of his calling and because of the absolute isolation which his profession often imposes upon him. If he gets into trouble, he has to get himself out; he cannot summon any reserves by blowing a whistle. The walls which hem in the canyon along which his beat runs are, it is true, skyscrapers, as are those which bound the vision of the copper, but the forester's skyscrapers were not built by human hands. The mountains are his inclosing walls.

If the forester is to succeed in his profession, he must equip himself for the performance of yet another duty than those which are included in the list usually recognized as constituting the range of his work. He must be a good salesman—the salesman of an idea.

Upon the salesmanship of those in the forest service—which is the public's service—depends to a very great extent the success of that service in so far as its central idea, conservation, is concerned. This is particularly true of the man in the field; he is the contact point between the public and the service which he represents; sometimes, too, it is a public unwilling to be convinced and then the task of selling becomes all the more difficult.

No public service—forestry, education, journalism—can afford to disregard public opinion. It is true there is often a disposition to discredit this thing we call public opinion—to consider it as a myth—but it is a powerful force and there is no service, no organization, in the class mentioned which is not benefited by a friendly public opinion and which is not injured by one which is hostile.

"That great compound of folly, weakness, prejudice, right feeling, wrong feeling, obstinacy and newspaper paragraphs"—so did Sir Robert Peel in 1820 mention public opinion. So, too, do many of us in this century profess to regard it. But it is something to be reckoned with; it is a force for good or evil which we cannot ignore.

In the beginnings of practical forestry in the West, it required the actual demonstration of the forestry idea by the men in the field to overcome rather a firmly established hostility to the new plan. But it was the field men who put across the sale; their wise and conscientious execution of the policy which had been planned by their superiors accomplished what could not have been done by an army of lecturers or by mountains of printed argument.

These pioneers in the service sold to the western public the idea of conservation. It appears to be a reasonable state-
ment, that the people of the West believe in the doctrine of conservation and have faith in the efforts which are being put forth by the forester to apply that doctrine.

But conditions are constantly changing; new problems present themselves with regularity and persistence that are discouraging; new forest foes; new economic questions. So there can be no rest; there can be no abatement of the salesmanship campaign. The public must be served but first it must be convinced.

In no other way can the forester so well establish a friendly relationship with the public as by the thorough and faithful performance of his duty. To his particular local public this will in itself carry conviction almost always. It goes without saying that this salesmanship involves as a fundamental a belief on the part of the forester—a belief in the forestry idea which amounts in its sincerity to a religion. This is an element of all successful salesmanship.

The man in the field has the advantage over his superior officer, back at headquarters, in that he is in personal contact with his public. He can adapt his course to meet local conditions without deviating in any way from the general policy which has been outlined for his guidance. It is not difficult for him to demonstrate to nearby farmers, to stockmen, to those who travel through his range, to the lumberman cutting under permit—to any and to all of the varied interests represented, that he and the organization which he
represents desire to render the most effective and helpful service possible.

He can rouse interest in conservation which will make of every man in his field a willing co-operator in fire-prevention and in fire-fighting. He can secure this co-operation from the women, too, and from the youngsters. They are all helpful allies in one phase or another of his varied work.

He can supplement the stereotype placards and posters with others which he designs to meet some local problem or to solve some local question. He can give helpful advice and assistance to a farmer who wants poles of firewood. He can render almost unnumbered services to his public which will line up those men and women solidly behind him and the idea for which he stands.

These opportunities are daily presented; they vary with location; they come in new form every season. Alertness to recognize these opportunities and the ability to take advantage of them combine to insure high-class salesmanship of the Great Idea of forestry. The local newspaper office, the schoolhouses, the country store, the community clubs which are becoming so important a part of rural life even in remote places—all these offer the chance which the earnest salesman
wants. If he is wide awake he will not be slow to seize them whenever and wherever they occur.

This is a meager outline but about it the forester will be able to shape his own campaign of education and enlightenment. In the forest regions of Montana such a campaign has been well arranged for the 1925 Forest Week. The Great Idea is carried wherever voice can reach, wherever a newspaper can deliver the message, wherever earnest pleaders and competent instructors in fire prevention can find a hearing.

No suggestion even is offered here as to the subject matter of formal and informal talks in a campaign of this kind, except that it must be as graphic as possible and must have the ring of truth and sincerity. The forester's technical knowledge and his familiarity with his community will supply the rest. One local illustration in this connection is worth volumes of theory. One plain talk often reaches farther than a long programme of oratory.

Convince the individuals and the groups—public opinion will be formed. The right sort of public relationship will be established. This is as essential to good forestry work as is an axe.

When I cash in my checks, and that thing preachers call a soul
Goes hunting in the great beyond for some new resting place,
I want to be a chipmunk, and I think I'll have my hole
Near the cabin of some ranger who has a friendly face;
Some man who knows a chipmunk's every need,
Who has some woolen clothes that I can ravel for my nest,
Who leaves bread and rice to furnish me with feed,
Who doesn't care a little bit when I disturb his rest
As I frolic with my playmates in an early game of tag
All through the room—beneath—upon his bed,
And I know my friendly antics will not make the hours drag;
Yes, I want to be a chipmunk—when I'm dead!

JOHN C. FROHLICHER.
GATHERING THE BITTER ROOT

In scarlet shirt and gray sombrero,
Driving his lean-limbed broncho team,
Black-Wind turned to the girl beside him,
With smiles as sweet as a girl might dream.

Emerald-basqued and purple-kerchiefed,
Aspen-Leaf, tremulous, leaned to his arm.
There in the wagon, rickety, rattling,
Life spread the spell of its ancient charm.

Comrades they were, and more than lovers,
Simple, unlettered, but feeling for truth,
From some great Spirit, potent, all-knowing,
Buying a partnership with their youth.

Full of the sweet exulting of springtime,
Black-Wind and Aspen-Leaf answered the call,
Guessing its purpose, braving its hazards,
Asking and giving not less than all.

MARY BRENNAN CLAPP.
IN APPRECIATION

"After all this is a friendly old world in which we live." This statement is substantiated by the generosity of our contributors, who have given a vast amount of time and labor to the preparation of the articles herein published. Every contributor is in some way identified with our Forestry School, either as special lecturers from the United States Forest Service or as faculty members and students.

We thank them for their kind and generous cooperation which has made possible the realization of our ambition—A Strictly Montana Kaimin.—The Editors.

THE BISON RANGE

This issue of the Kaimin contains a short history of the Montana Bison range. This place is one of the easily accessible points of interest which may be visited from Missoula. Mr. Rose’s work is being observed with considerable interest. It marks a progressive step in game conservation and the results, thus far, are more than an indication that big game raising on forest lands might well become a very profitable source of revenue.

INACCURACY

Digging your own grave is most certainly a gruesome assignment and one which very few men would undertake willingly. Should a man voluntarily set about this task, his sanity would be questioned, yet a great many fairly brilliant men prepare the final resting place for their professional aspirations with appalling carelessness. The chief tool used for excavating is inaccuracy.

The winning lies not in the holding of a good hand, but in the ability to play a poor hand well.—"Parson" Sandvig.
In every generation a few men are born whose hearts beat a little faster, whose minds are a trifle clearer, whose ideals are slightly higher, and whose souls desire a greater freedom, than the rest. These men are seldom noticed in their day and, perhaps, their final rewards are unmarked graves at the ends of dimly blazed trails.

When these dim trails have been widened into thoroughfares and the footprints of the first travelers have been trodden deep into the dust, they who blazed the trails may be remembered and hailed as pioneers. Whether remembered or forgotten matters not. Their works are eternal and will benefit the living forever.

The old frontiers have passed as we once knew them, with their pathless wilderness but we still have a vast unknown, marked by the outposts of knowledge, beyond which the pioneers of today may blaze new trails.

No science offers a richer field for exploration than forestry and no scientist represents the true pioneer so perfectly as does the forester. The blood of the pioneer truly flows in his veins. The feel of newly blazed trails beneath his feet is meat to his hungry soul. The odors of the forest are the sweetest of incense to his nostrils. He toils not for fame or gold, but to create and care for a forest which is his tribute to his God and his bequest to posterity.

We all have lots of troubles, but most of them never happen.—"Chief" Myers.

There is a "density" which shapes our ends.—"Gen." Lee.
Baby Elk.
THE MONTANA NATIONAL BISON RANGE

By FRANK H. ROSE
Warden.

The Montana National Bison Range, located on the Northern Pacific Railway between Ravalli and Dixon about forty miles west of Missoula, comprises an area of 18,521 acres or 29 square miles. For varieties of rich grasses, pure water, picturesque interior and picturesque surroundings the Bison Range is believed to be absolutely beyond compare. This range was purchased from the Indians sixteen years ago. It was fenced by the Forest Service and is under the administration of the Biological Survey of the United States Department of Agriculture. A 23 mile fence 77 inches high of No. 9 woven wire, with one barb wire below and three above, surrounds the range. Ten thousand 10-inch cedar posts are used in this outside fence. Elk, deer and mountain sheep occasionally jump this fence, but for the majority of the animals this height has proven satisfactory. These posts have recently been numbered and a record is kept of replacements, which eventually will give a good record of the life of posts under our conditions. At present there are no interior fences, the whole range being in one big pasture.

From the original small beginnings sixteen years ago there are at present 490 buffalo, 28 mountain sheep, 8 antelope, 100 deer and over 500 elk on the range, which is considered 22 per cent overstocked. Spring feeding of buffalo from April 1st to July 30th is practiced to prevent overgrazing of the forage during its principal growing season, in this way balancing
the excessive numbers and maintaining the range even while too heavily stocked. Four hundred and sixty buffalo are now being fed alfalfa hay purchased locally.

The original native grasses, which have disappeared from so many outside ranges, are still abundant on the Bison Range and will be maintained. This, with the exceptional winter climate, gives this range a higher capacity than most Montana ranges now used for domestic stock. With a variety of game animals of widely different feeding habits, better distribution on the range is possible than is ordinarily secured on ranges used exclusively by one class of domestic stock.

Three pens of about twenty acres each have been built for feeding the buffalo, and a heavy plank corral 9 feet high with a loading and separating chute have been constructed for handling the buffalo and eventually the elk. The improvement most urgently needed is interior fences separating the range into a number of pastures. These would permit more ready handling, rotated grazing, segregation and other features of a range management plan. Feeding part of the buffalo and part of the elk would give a somewhat more uniform reduction over the range as a whole, but it is not possible at present without interior fences to get the elk into the feeding pens.

It is the intention to reduce the game herds to the normal capacity of the range. This will require the removal of about 250 head representing the 22 per cent now overstocked, and in addition the annual removal of a number equal to that year's calf crop, at present about 250 head a year. Two hundred and twenty buffalo were disposed of last year, part
as live animals and part as dressed meat. The sale of live animals, dressed meat, buffalo robes and heads for mounting will return to the Government the money spent in administration of the range and more.

Much of the work on the Bison Range is more or less experimental, as little has previously been done toward placing wild herds under administration and just how a buffalo or elk will act under a given set of conditions is more or less problematical. Opportunity is offered on the Bison Range for many interesting observations on the needs and management of wild life, especially big game. Special studies will be made on carrying capacities, forage requirements, game palatability tables, etc., as well as observations on breeding and feeding habits and management methods applicable on fenced and open ranges. The most urgent problem on the Bison Range is putting under management the game which has heretofore run in a more or less wild state. This is in order that the necessary reductions may be carried out in such a way as to maintain properly balanced herds of fine type animals, with breeding and exhibit stock always available to states, parks and individuals for stock depleted ranges or other purposes.

The Montana National Bison Range is also a bird refuge, and many ducks, five varieties of grouse and other game and non-game birds nest and find refuge here. Predatory animals and birds, including magpies, are kept under control by systematic trapping, hunting and fencing.

On account of the nature of some of the animals within the enclosure and the work to be accomplished on the limited funds available, the public is generally not admitted to the

Mountain Sheep.
range. Exception is made during the spring feeding while the buffalo are penned and an attendant always at hand. It is hoped eventually to develop the range to care for all who wish to see considerable numbers of big game animals grazing under natural conditions.

Ptarmigan in Winter Plumage.

IN SEASON

If daffodils and roses were to blossom in the snow,
Or sunrise touch the hill-tops when I looked to see the moon,
It wouldn't be more lovely than a lovely thing I know,
That Christmas candles grow upon horse-chestnut trees in June.

MARY BRENNAN CLAPP.
During the period prior to 1906, there was no provision through which anyone could acquire, through homesteading, any National Forest tract whose chief value was for the raising of farm crops. Homestead entries made only before the withdrawal of the lands for National Forest purposes could be maintained so long as the entryman complied with the requirements of the Homestead Law.

Within the gross area of the National Forests, there was a considerable acreage of land which was chiefly valuable for agriculture. This mainly included meadows lying practically or entirely on the river bottoms or lower benches, and areas of brush land or willow and alder bottoms, lying at the lower altitudes where soil, climatic, and other growing conditions were favorable. In laying out Forest boundaries at the time they were withdrawn, it was, of course, not possible to exclude scattered tracts such as these. While the total area of such tracts was large, it comprised an extremely small portion of the total Forest area.

The use of such lands for agricultural purposes could, of course, be regularized and permitted through special-use permits under the regulations of the Secretary, through the authority granted him under the Act of 1897. But any system of leasing agricultural lands as a general policy has always been considered unsound economically and sociologically.
Consequently there was enacted on June 11, 1906, what is known as the Forest Homestead Act. With certain differences from previous homestead legislation not greatly affecting the major object, this act permitted the homesteading of National Forest areas, which could properly be applied to such use. Of the differences, the most pertinent one was that whereas the original homestead act permitted the entry of any public lands not otherwise reserved or withdrawn, or under a prior entry, the Forest Homestead Act limited the right to make entries only to lands which had been examined and determined by the Secretary of Agriculture to be "chiefly valuable for agriculture, and which in his opinion may be occupied for agricultural purposes without injury to the Forest reserve, and which are not needed for public purposes." At first the procedure under this act amounted to examining lands as they were applied for by those interested, and then either approving or denying such applications, depending upon the findings. Under this procedure a great many homestead tracts were thrown open to settlement, and subsequently passed into the hands of people who developed them into farms.

The demand for lands under this act in time became so great, the pending applications became so numerous, and the volume of work involved in the Department of Agriculture so large that there began to be sought a more systematic way of disposing of these areas than to examine tracts piece-meal upon individual application. Consequently there was enacted on August 10, 1912, in connection with the Agricultural Appropriation Act, a Federal statute which has been the basis of so-called Land Classification work that has been carried on
since that time. This provision read in part that "The Secretary of Agriculture is hereby directed and required to select, classify and segregate as soon as practicable all lands within the boundaries of the National Forests that may be opened to settlement and entry under the homestead laws applicable to the National Forests, . . . ." Congress also appropriated certain moneys to carry the cost of this additional work and subsequently provided similar funds from year to year.

The great job of Land Classification was undertaken by the Forest Service with close co-operation with the Bureau of Soils. The first step in the classification was to determine, after field examination, those areas of the National Forests which unquestionably were not chiefly valuable for agriculture as against the major purposes for which they had been withdrawn as National Forests,—timber production, watershed protection, and purposes incidental to these as defined in the provisions of the Act of June 11, 1906, above quoted. This work was called extensive classification. Because of the very nature of the Forest areas, the lands definitely classified as permanent Forest lands comprised all but a very small portion.

The areas which, through extensive classification, were determined to have possibilities within the scope of the Act of June 11, 1906, were left for intensive classification. In this work close contact by Forest officers was maintained with representatives of the Bureau of Soils, and most of the specific jobs were, in the field, handled by representatives of both Bureaus. Naturally, out of the acreage left for intensive classification, not all was finally classified as chiefly valuable for agriculture. The areas which finally were determined as chiefly valuable for agriculture were, as soon as possible thereafter, listed with the Department of the Interior for opening to settlement.

The field examinations and the subsequent analyses of findings were handled by men in the Forest Service who were specially selected for their experience, training, and ability in judging values of lands for farming purposes. Their very detailed and comprehensive reports were passed upon and approved by the Secretary of Agriculture before the findings were made effective. The general principles under which the examiners worked, which helped them arrive at a clear solution to many and various knotty problems, were developed during the course of the work by responsible higher officials in the two Bureaus, and were approved by the Secretary of Agriculture, himself.

While practically all the land classification work is done and all lands susceptible to farming have been opened up and have been acquired by settlers, there still remains a continuing amount of land classification work to be carried on. This is the result of, (1) changes in physical character of forestry
values on specific tracts, (2) recognition of possible errors in existing classification, or (3) the need of considering agricultural possibilities of lands whose addition to the Forests is contemplated under the various acquisition laws enacted in the last few years.

As to the first of these, it was found at the time of the classification that in some relatively few cases permanent classification had to be deferred. A temporary classification was all that could be made at the time. For example, lands which had on them a heavy stand of timber, but which contained soils of depth and character susceptible to agriculture and were situated where climatic conditions were favorable, had some value for agriculture. But as a general rule, this value did not equal or exceed the value of the land for the timber on it. The experience of the Government in opening to settlement lands of this class had demonstrated that economically the land could not be considered chiefly valuable for agriculture. Such lands, after title to them was obtained, were almost wholly used, not for the raising of agricultural crops, but for the holding of timber. Generally, areas of this character had been drawn into the ownership of large timber holding individuals or organizations who purchased them from homesteaders and held them in a forested state until the timber on them was removed. There was therefore, no stimulus or constant effort toward bringing such lands under cultivation and the making of farm homes on them, and thus the underlying purpose of the homestead law was defeated. After the cutting of the timber, lands of this character were put on the market by the owners and sold to agricultural homeseekers, not infrequently under conditions and terms which rendered success difficult.

The Government investigators came to the conclusion that (Continued on Page 98)
OCTOBER IN DEEP CREEK

All along Deep Creek the tamaracks grow.
Yellow aspens shiver on the bank below.
The grapes are purple and the rose-haws red,
And gray sand shows in the river-bed.

All along Deep Creek in the harvest glow,
The witch-trees wait in a crooked row,
Yellow arms stretched to the autumn sky,
Black veils waving as the wind goes by.

A white half-moon winks over the hill,
The sun’s slant shifts and the winds turn chill.
The witch-trees glimmer like ghosts of light,
Pale ghosts gathering for All Hallo’s night.

I wish I could stand in the empty house
That faces the narrows where a ferry used to cross,
And listen to the gossip of forgotten years,
With a woman’s heart and a witch’s ears!

MARY BRENNAN CLAPP.

N. B.—Deep Creek empties into the Clark Fork about twelve miles northwest of Missoula. The tamaracks, yellow in the autumn, are draped with drooping of the black, hairy Alectorila fremontii. —M. B. C.
The old timer, wandering into a present-day meeting of the Forestry Club, would find that its activities have not changed in the least.

The club has grown from a membership of 25 to over 100 since its birth in 1914, which occurred with the starting of the present Forestry school.

In the fall of 1914 when the school was organized with about 12 students and a faculty composed of Dorr Skeels and James Bonner, a meeting was held at the home of Dorr Skeels and the club was organized. Harry Ade, president; Harold (Peg) Lansing, vice-president; Fred Haines, secretary, and Kenneth Wolfe, treasurer, were the first officers of the club. During the first year meetings were held at the homes of Skeels and Bonner.

In the spring the first Foresters' Ball was held in the old gymnasium. The ball was the continuance of the old Ranger school dance which the rangers used to hold for themselves during the late winter.

Most of the men who came to the Ranger school were married, and a dance was held that was different from other college affairs. "Woods" clothes were then, as now, the rule and later when the club was established this custom was continued and enlarged to include all University students. The first Foresters' Ball put on by the club was held February 15, 1915. No admission was charged, but holdup men extracted a dollar from each man on the floor after a gun-fight between sheriffs' posses and the stick-up men. Boughs were used as decorations, which custom still prevails.

The annual publication of the Forestry Kaimin is also a tradition of the club established by the first club members. The
first edition, dated March 11, 1915, was one of the achievements of that first year of existence. Harry Ade was editor and Harold Lansing assistant editor.

Since then the club has continued to publish this magazine devoted to promotion of forestry ideals and to advertise the school throughout the country.

The significant part of the history of the club is not in the growth of its membership, for that is but expansion with the growth of the entire University, but that the policies are now the same as when first organized. Policies remain the same today as then. An account of a meeting held at the home of Dr. Bonner in 1915 is practically the same program that is followed at meetings the present year.

In 1921 a constitution was adopted which all members sign when they join the club. It is a written expression of the policy of the club as conceived by the founders. Its achievements are many but no achievements can overshadow the work of those men who had an idea and put it into the Forestry club.

THE DRUIDS

About two years ago Ralph Fields, '25 F, and a member of the faculty of the School of Forestry, chanced to be discussing the various problems presented by the Forest Club. We knew it fully met the needs of the undergraduate student body in a social, a recreational and an educational sense, and in a large measure, provided for a unit action of the whole body of Forestry students, should such action be advisable. It was felt that its size and the communities of interests present even within this close knit group, did not provide for the maintenance of a sustained school spirit and mutual contact after graduation,—something woefully lacking in all branches of the newer, traditionless Western colleges and universities. *Esprit de corps,*—the ideals and ethics of the profession, an abiding faith in their University, and with these, confidence in themselves and the things they represent must come from other sources.

How could these be seized upon and implanted in the heart of Montana’s contribution to the profession? Not in the individual, or alone in the classroom or yet in the club, but best by making these things the soul of a group of well-tried upper
classmen,—who themselves have shown a spirit that best can be expressed as the soul of the profession. And this was done.

Need not to mention Colville, Bitney, Rowland, Brown and half a dozen others in their work of organization, for all of the original group gave heart and soul to the task of translating those intangible ideals into a code and a ritual and a spirit of service,—yes, even a creed, that those who come after may ever carry onward the vision of these few men.

Only time can tell the real worth of the Druids. May it live in and with the college. May it rise above the sordidness of greed and debasement. May it be worthy of the best in men. May its principles and tenets hold those of tomorrow as it grasps those of today. Then will it have proven itself and then will its altar fires forever live in the green wood.
THE DUAL MEET

The Longhorns versus The Shorthorns

By SAM F. HARRIS.

The Longhorns (regular students) registered revenge against the Shorthorns (ranger students) for the trimming which they received at the hands of the latter last year. Not only did the Shorthorns win the dual meet in 1924, but they added insult to injury by having their group picture taken and hung in the club room of the Forestry Club. Although the score was close enough to give the Longhorns little to crow about, still it spelt victory to them.

More enthusiasm and pep was exhibited at the meet this year than usual. Perhaps that picture hanging in the club room had something to do with it. Furthermore there were several of the last year rangers back in school this year.

The dual meet started off this year with a bang. "Bang" is right, for the short-course students won the rifle shoot over the Forestry Club rifle team in the Marcus Cook hall, giving them ten points to start on. The rope climbing contest was next, with an entry of six men, three on each side. The regulars took first and second. The packing contest was won by
the shorthorns, showing that practical experience in some lines leads over education. The short course men again showed their speed and endurance by winning the three-legged race. This brought the regulars up on their toes and the old fighting spirit began to manifest itself at last.

The back packing contest followed, with four men from each team entering the event. A fifty-pound pack was placed on the back of a man from each team. They raced the length of the gymnasium floor, placed the pack on another man's back and he in turn raced the length of the floor, and so on until the relay race was completed by each man. The regulars won this event by a few feet. The log-chopping contest was next up. Whiting, from the Kaniksu, was an easy winner in 1924. This year he went in a little more for style than speed, which cost the shorthorns ten points on the final count. The log-sawing contest was next up, with Whiting and Flodberg representing the shorthorns. Whiting realized that his grandstand play on the ax handle had cost him the chopping victory, so he decided to take no chances with the saw. They waded through a sixteen-inch log in fourteen and one-tenth seconds, beating the regulars by thirteen seconds, thanks to the Atkins saw.*

The wrestling and leg-wrestling events were very exciting. Burbank, of the regulars, won the decision in the six minutes wrestling bout with Aimisegger. Cornell, of the regulars, won from Cuff in a straight fall in forty-eight seconds. The leg-wrestling event was an elimination contest, which was won by Coburn of the regulars in two straight falls. The basketball contest, 24 to 10 in favor of the regulars, closed the events of the evening. The final points of the meet were: Regulars, 43; Shorthorns, 31.

Dean Spaulding acted as announcer; President C. H. Clapp, field judge; Dr. Schreiber, timer; and the judges were made up of officials from the district office.

Following the meet, hot lunch was served by the Forestry Club in their club room at Pinchot hall.

*Note: Atkins saw which was used was presented to the winners, by E. F. Mitchell, the C. E. Atkins Saw Company's representative from Spokane, Washington.

ANNOUNCEMENT

The engagement of Monroe DeJarnette and Miss Hazel Campbell of Seattle has been announced. The wedding will be held June 10 at Seattle, after which the couple will make their home in Sandpoint, Idaho. Miss Campbell is a student at the University of Idaho and a member of Kappa Kappa Gamma sorority.
About the time when spring fever has conquered the co-eds' wiles and the boys begin to long for the hills, the Forestry School greases its boots and starts for spring camp. Some go by car, some ride Tom's truck, but the most go by train, leaving at eight in the morning and getting in at noon if the trainmen don't pick flowers or flirt too long with the squaws. Every town along the way is given its annual treat by the boys, although it is doubtful if the towns consider it as such. Polson, where they all disembark, comes in for the lion's share, as the gang surely takes the town in. After the bunch gets corralled and all the restaurant furniture paid for, they start for camp. This is usually accomplished in one of two ways, either by boat or by auto. The boat is the best as it is cooler and more enjoyable. Camp for the last two years has been at Yellow Bay at the Biological Station of the University. Last year no guns were allowed and this was a very good thing, as the birds, animals, etc., are all protected on the tract, which is kept as close as possible in the wild state to better study the wild life there. After arrival at the station, everyone "falls to" in regular army style and the tents are put up in a jiffy. beds are laid and all are set for the program.

The camp is run on a regular schedule: classes are checked carefully, everything runs as smoothly as though they were back at the school. Last year the sawmill at Somers was visited and studied from every angle, from machinery to the finished product. Then the men went over to the tie-treating plant and watched the process. The next day the class in grazing went over to Wild Horse island and figured the carrying capacity of it. Skeels' classes in management and silviculture went over the station the next day and examined types, growth and volume. Mr. Graff of the Botany department conducted the class in ecology and had the pleasure of having the class run a transect from the edge of the lake to 3,000 feet elevation. This was enjoyed by everyone, especially Mr. Graff. Sergeant Truman of the R. O. T. C. had the pleasure of drilling the boys a few times to kind of keep them in trim. Professor Wilson of the Geology department took the class in forest geology upon the Swan range to look at the
rocks and work up a good appetite. Jerry had his bunch out surveying, and Fay had his class in mensuration out in the woods on volume tables and growth studies.

But the camp is not all work. Fishing season was not open but the gang consoled themselves by listening to Chief Myers orate on the big ones he got when they were up there before. Horseshoes was a favorite sport, with many contests, and Tom Spaulding with Ralph Fields holds the coveted horseshoe championship. Every night there was a big bonfire on the beach and a fine Liars' Convention was held there, with Ananias far in the rear. The war was fought over again, with variations on who hiked the farthest and who had the least to eat. The rowboats and launch hired for the occasion were much in demand, and several "would be" marine mechanics had an opportunity of testing their ability or getting out and walking in the middle of Yellow Bay. Indoor baseball came in for a share of the boys' time, and there were some very spirited games. The night was tortured by the yowlings of some so-called "quartets" that would put any self-respecting tom-cat to shame.

Taking it all in all, though, everyone had a good time, and it is hoped that the Forestry school will get enough equipment of its own to hold one next year.
THE ELEVENTH ANNUAL FORESTERS' BALL

BY SAM F. HARRIS.

From the days of Paul Bunyan the world has steadily advanced through a maze of bewildering improvements. What is a fad today is unique tomorrow. People talk of the old-fashioned girl and the good old times they used to enjoy. That is where the Foresters' Ball surpasses even the old-time functions in a real democratic, jolly get-together party. Perhaps this very democracy is what enables it to surpass other social functions.

There are all kinds of social functions held on the campus during the social season. They range from formal affairs, when the men wear "soup-and-fish" and the ladies rival birds of paradise, to functions where gay costumes depict all stages of life, but none can compare with the Foresters' Ball, where the dress is that of the great out-doors. Here "cod-fish" aristocracy is laid aside and in its place honest good fellowship and naturalness prevail. Each is free at last to give full vent to that long-pent-up hilarious good feeling, and to have as thoroughly a good time as a boy with his first ball and bat.

It is not only that the Foresters' Ball can outclass any other social affair, but it can outclass as well any social function staged in the entire state. There were eight hundred participants in the Eleventh Annual Ball. However, the purpose of the ball is not for conquest or financial gain, but to solidify and unite the student body into one grand, democratic organization. Each student is given an opportunity to enjoy an evening free from
restraint, and each charming co-ed can feel, that no matter how slim her allowance might be, her costume is entirely appropriate. Her escort does not need to wonder if his lady love suspects that his "soup-and-fish" is rented. Regardless of your fraternal or sorority standing, you are on par with your fellowman and unconsciously you are learning the true purpose of education.

* * * * *

One pauses expectantly, wondering which pleasure will claim him first. The stars peer at him coquettishly through dark fir boughs. The entrancing music ensuing from the snug wickiup makes his feet trip and dance of their own accord. The happy-go-lucky throng of dancers seems to say, "Join us now! Join us now!" The corks popping in the bar-room and the laughter and shuffle of feet is a contrasting rival to the dim repose of the Ranger's Dream of Heaven, where couples are silhouetted against the ruddy glow of the fireplace, while others stroll through dusky timbered recesses.

At last he succumbs to the irresistible appeal of the music, and claiming a rosy-lipped senorita for his partner, he joins the swirl of bright dancers. Soon his fair lady must have her thirst quenched at the old-time bar and must needs then rest her nimble feet on a woody slope beside a dark fir tree in the Ranger's Dream of Heaven, which they soon claim as their very own.

Finally the big gong sounds, a welcome announcement that the first three hundred are to eat. Here the surprise of surprises awaits them. (The eats must have been exceedingly good or the dancers amazingly famished, for though there were but eight hundred dancers, over a thousand were fed.)

As the strains of "The End of a Perfect Day" dies away, weary revelers wonder if it will ever be their good fortune to again attend such a ball. More than one sympathizes with the sweet young thing, who exclaims fervently, "I've danced until I'm just dead tired, and I never knew it."
THE CLASS OF 1925

By H. W. HICKS.

After four years—at least that is the minimum that any of us have been struggling for this coveted honor—eight men will go out from Montana this year as graduate Foresters. It has been a rough sea for many of us, but the goal is well worth the effort. Education in Forestry, as in all college training, consists not only in the study of Silviculture, Mensuration, Forest Management, Grazing, Surveying, etc., but in the broadening of one's mind along other channels. It was once said that, "an educated man is one who knows everything about something and something about everything," and it has been with this axiom in mind that this year's class has strived.

At the head of the list comes the name of Raymond Bitney from Wisconsin, who has been a very active member of the Forestry Club for four years. His hobby has been shooting and he has been a member of the Rifle Club during his four years of school life, being president of the organization for the past two years. As manager of the Forestry Kaimin in 1924 and 1925, Ray has handled the business end with great success. Phi Sigma, national Biological fraternity, has been fortunate in having him as an active member for the last two years. Bitney was a charter member of the Druids, honorary Forestry fraternity, helping to organize it in 1923-1924 and was vice-president in
1925. He worked for the state forester on the Stillwater State Forest last summer, making working-plan studies under Dorr Skeels.

Linnell W. Brown, of Davenport, Wash., has also been an active member of the class. As student assistant in his junior and senior years, Walker has become quite adept with the level and transit. He handled the money for the Druids the last two years. The Forest Club has chosen Brown as its vice-president the last two years. Last summer he was assistant chief of party on a fire survey in the Selway National Forest.

Willard Centerwall is the athlete of the class, having won his letter "M" in baseball the last two years and is well on the way to another this year. Spitballs are Center's favorites, as the conference rulings show. Last year he worked as concrete and bridge inspector for the Minnesota Highway Commission.

Arthur Cramer has been a very active member in the Rifle Club while he has been in school, having been vice-president the last two years. Botany is Art's hobby, and nothing pleases him more than to find some unknown plant and trace it down. This interest in Botany led to his joining Phi Sigma, where he has been a very active member. He is a Druid and a member of the Forestry Club. Last summer he was with a grazing reconnaissance party in the Helena National Forest and is now waiting for an appointment as junior grazing examiner, having passed the Civil Service.

Ralph Fields, who hails from Ada, Ohio, is one of the grade-pointers of the class, making Kappa Tau, honorary scholastic fraternity, last year and will graduate with honors this year. Ralph has been a very active member of the Forestry Club, was on the executive committee two years ago, and was president of it last year. He belongs to Phi Sigma and Sigma Phi Epsilon. This year Fields is general chairman of the Interscholastic, one of the biggest events of the school year, over a hundred high schools from all over the state coming to Missoula to compete in the various field events. He was in charge of decorations for two years for Interscholastic. Ralph is a charter member of the Druids, was vice-president the first year, and was really the founder of them. He is waiting for an appointment as junior forester, having passed the Civil Service.

Harold W. Hicks, from the nation's capital, came out to Montana to get into some "real" country and a real profession. His first two years were spent in the University of Cincinnati taking chemical engineering, but the "call of the West" got him, so he is finishing up in Forestry. He has been a member of the Forestry club, being secretary of the organization the last year. Hicks is also a member of the Druids. Last summer he worked for the Priest River Experiment Station, getting data for White pine yield tables and making studies in White pine reproduction in the burned over areas of Idaho. This summer he
expects to pull Ribes in an effort to check the White pine blister rust out in northern Idaho, as he passed the junior forester's examination.

Bernard Lee comes from Wisconsin, and has been an active member of the Forestry Club for four years. Bernie is a Druid and a member of Phi Sigma, national Biological fraternity, as he is interested in Botany. He took the junior range examiner's examination and passed, so is waiting patiently for an appointment.

Tom Rowland is another grade pointer who made Kappa Tau, honorary scholastic fraternity. He expects to graduate with honors at the coming commencement. Tom has been an active member of the Forestry Club, being treasurer this last year; also belongs to the Druids and served as president the last year. Rowland belongs to Phi Sigma, as he is interested in Botany. Last summer he worked for the state forest department on management studies on the Stillwater forest. As Tom passed the junior forester examination, he is now waiting his appointment.

It is easy to see from the list of activities in which these men have been engaged in during their college careers that they will go out from the University better fitted for their life work than the student who becomes only a "bookworm" and learn his Forestry, but has nothing else in common with his fellowmen. It is with regret that we leave old Montana, but the daily cry of "Carry on!" compels us to begin our task and make room for those who will follow.

Am I contented? I don't know.
I've all I really need.
My belly's full—my back is warm—
I have a book to read—
(Food for the body and the mind!)
But yet there is a seed—
A tiny germ of restlessness—
Contented? No, indeed!

JOHN C. FROHLICHER.
The primary object of the nursery is to give the students a first-hand opportunity to study the tree-seeds, germination, care of seedlings, transplants and general nursery practice. The secondary object is to furnish the residents of Montana with shade trees, especially the ranchers in the eastern part of the state. Special studies are now under way to determine the species best suited to the dry climatic conditions of eastern Montana.

A year ago last Aber day, the first work was done on the nursery, the beds being laid out and seeded. In the fall the beds were mulched and put in shape for the winter. Last winter was especially hard on nursery stock, but the seedlings came through it very successfully. Despite meager appropriations from the State the work has progressed, the major part of it being done by the students. At the present time there are over fifty 4x8-foot
beds with seedlings from all the trees indigenous to the West, with a large number of horticultural varieties. The tool house is located just south of the gymnasium and was built by students on the above mentioned Aber day.

So far the greatest amount of success has been obtained with box-elder (*Acer negundo*), which will be one of our best suited species for ornamental purposes. A large number of coniferous seedlings are now in the nursery, and these will be used to plant the forest reserve in Pattee canyon and to carry on experimental projects at the base of Mount Sentinel. It is hoped in time that it will be possible to supply private timberland holders with enough nursery stock to carry on large planting projects.

A. G. O. 29

The men who showed their courage in the battle of the Marne and on the blood-stained plains of Picardy and at the crossings of the Meuse are now emerging victorious from the slow, dreary battle that became its peace-time sequel. No citations for bravery have been awarded, no hero-worship has been their mead of victory. No glory but the realization of a well-earned place in society and a new chance to contribute in some measure to the advancement of their communities, has been their incentive in their wearying fight. With courage they carried on in the days of horror and human holocaust. With unflagging fortitude they are carrying on in these days of slow grinding social and economic rehabilitation.

Pain-stricken bodies, jangling nerves, steel-bit limbs and ears that hear no sound, are not the only handicaps with which these men are burdened. Many of them have not attended school since the day when, 10 or 15 years ago, they went out to make their own way in the world with only a
fourth or fifth grade standing in the little old log school-
house. Very few of them had attained matriculation into a
high school. Yet, with the loyal support and encouragement
of the United States Veterans’ Bureau, they have established
a record that is far above the average of the regular univers-
ity students who are their schoolmates.

The Veterans’ Bureau students in the School of Forestry
afford a good example of the determination with which they
who were formerly the "Lads in Khaki" have applied them-
soever to the problem of "beating back." In view of their
physical handicaps and of their meager educational prepara-
tion, their record is little short of amazing.

Here are a few quarters’ records picked at random from
the files of the School of Forestry:

In the Autumn quarter of 1923 there were 25 Veterans’
Bureau trainees. Six of them were on the university honor
roll, and of the 10 students having the highest averages in
the School of Forestry, six were from among this same group
of 25. There were 62 regular students in the School of For-
estry during the quarter mentioned. Of this number, four
were on the honor roll.

During the Autumn quarter of 1924 there were 15 Vet-
erans’ Bureau students studying forestry. Of this number,
four won places on the honor roll of the university and six
were among the highest 10 in the School of Forestry. Out of
71 regularly enrolled students in this school, two were on the
honor roll, coping four of the highest 10 averages made by
forestry students.

In the Winter quarter of 1925 there were 22 Bureau
trainees and 58 regularly enrolled students in the school.
Seven trainees and three regular students were on the uni-
versity honor roll.

During the quarter just ended the Veterans’ Bureau stu-
dents continued this pace. There were 15 of them enrolled
as students of forestry. Of this number, four earned places
on the honor roll, the same number being among the highest
10 in the school, while out of 68 regularly enrolled students,
four were on the honor roll, six of them completing the total
of the highest 10.

During the period of training an average of 19 Veterans’
Bureau students have been registered in the School of For-
estry. An average of five have been on the university honor
roll, and an average of six have been among the highest 10
in the school. During this time the average number of reg-
ularly enrolled students in the school was 65. Of this num-
ber, an average of three were on the honor roll, four being
the average number among the highest 10 in the school.

Presented in statistical form, the comparison is even more
startling. Twenty-seven per cent of the total number of
Bureau trainees have been on the honor roll; four and one-half per cent of the regularly enrolled students have attained that honor. Thirty-one per cent of the trainees have been among the highest 10 in the school, while six per cent of the regular students have been numbered among this select 10.

This record has not been made by a sacrifice of other interests and activities. Since the time when they first came upon the campus, the men who made this record have been active—prominently so—in the various social and athletic affairs of the University. During the last few years a majority of the social fraternities, and a number of the honorary and professional fraternities, were managed or presided over by men receiving training under the Veterans' Bureau. Trainees have been prominent in debate, declamation and Glee club work, and those who were athletes before the war and whose injuries did not render it impossible for them to resume their athletic endeavors, have earned letters in football, basketball, track and baseball. A trainee who experienced considerable pain upon merely walking down the street became captain of the football team. Another trainee played in game after game though at times his injuries made him unable to rise from the scrimmage line. He silently endured the cries of "Yellow" until physicians peremptorily ordered him to stay off the field. Another man, who never mentions the Croix de Guerre with which he was decorated, became one of the university's most famous Kings of Swat and a star in the outfield and behind the plate. The spectators little dreamed that the man who made those mighty swats had his back tightly trussed up with a brace, or that the following night would find him writhing in torturous pain.

And so they carry on, smiling—with lips that in an hour may tense with pain; running—on legs that are a mass of shrapnel scars; laughing—those same men cursed a sniper's singing steel; reading—with eyes that once were almost glazed with death; throwing—with arms that once were burdened with a dying buddy's body.

Heroism? Hell no, they'll tell you! The government has given them a chance to go ahead again, and they're the boys to take advantage of it. The Veterans' Bureau, they'll say, is playing square with them, and they'll do no less by the Bureau—that's all!
MOTOR TRIPS

There are many trips which are inexpensive and require less than a day to make and return by motor. Some of these are: Seeley Lake, Flathead Lake, Swan Lake, the Rattlesnake Lakes, Lolo and Medicine Hot Springs, and the Bitter Root River to Hamilton.
RECREATION

The University city has a population of more than 15,000 and provides all the opportunities for recreation commonly found in a much larger city. Missoula is, however, unique in that it has the unspoiled West just beyond its city limits.

SPRING GULCH

Spring Gulch is reached by a ten-minute walk from Pinchot Hall, along the shore of the beautiful and historic Missoula River. This little gulch with its icy spring and fir-hidden nooks is just the place to recuperate from the day’s grind, provided, of course, a bear more or less only adds zest to your recreation. (A small bear was killed in Spring Gulch last month.)

MT. SENTINEL

Mt. Sentinel towers above the campus on the east. Upon her breast she proudly wears an “M”, to which she has an inalienable right. She has been on the campus for a long time. The old lookout tower on her crest is a favorite goal for the hiker. The visibility of this point is excellent. It includes all of the city, Fort Missoula, three silvery rivers and numerous snow-capped mountains.

PATTEE CANYON

A thirty-minute walk south of the campus brings you to the mouth of this canyon. A winding road entices you. You are soon lost beside a flower-decked stream. The hiker who visits this spot will long to return again.

HIKES WHAT AM

Many spend the summer vacation hiking through the National parks. The Yellowstone and the Glacier National are both near enough to Missoula to make these trips both feasible and appealing to anyone.

THE INDIAN RESERVATION

The Flathead Indian Reservation is one of the points of interest which is within easy access of our University city. A drive of thirty miles by car or stage, over excellent roads, brings you in contact with the survivors of the original American people. On numerous feast days they may be seen in all their tribal glory. The gaudy trappings and the tribal rites and dances far excell any of the studied pageantry often foisted on the public as genuine Indian dances, by hired performers. The shrill war whoop, the tom-toms and writhing war dance make the heart beat fast and, in spite of yourself, you are transported back into a bygone age.
SUMMER EMPLOYMENT

GEORGE A. BARNHART:
Employed during the summer on the Kaniksu National Forest above Priest Lake on white pine blister rust control.

H. H. VANWINKLE:
Employed during the summer on the Kaniksu National Forest as lookout.

REMLEY E. MYERS:
Employed during the summer on the Teton National Forest; character of the work was topographical mapping, timber estimating, and tabulation of data for working plan.

WALTER R. SUTTER:
Employed during the summer on the Mons National Forest, Alpine District, California, as assistant ranger.

SAM F. HARRIS:
Was employed by Long-Bell Lumber Company at Longview, Washington, as scaler and lumber grader.
Harold Russell:
Teton National Forest on timber reconnaissance work.

Thomas H. Van Meter:
Employed on Missoula National Forest on telephone construction, trail maintenance and lookout.

LaRue Thomas:
Worked on the Pend d'Orielle National Forest on trail crew work, and as timekeeper for fire crew.

R. E. Tennant:
Worked at the A. C. M. mill at Bonner, Montana, sorting lumber, trimmer man, edger, etc.

Earl Tennant:
Employed by Flathead Indian Service on telephone construction, drafting, surveying, fire patrol and scaling.

J. B. Stocking:
Lewis and Clark National Forest on fire patrol and maintenance work.

Matteson S. Spencer:
Kaniksu National Forest as foreman on white pine blister rust control crew.

Clarence Spaulding:
Lookout and smoke-chaser in the Copeland Ranger District on the Pend d'Orielle National Forest.

Donald W. Shaw:
Teton National Forest on intensive and extensive cruising of lodgepole tie timber and topographical mapping.
We Fish with an Axe in Montana.

Bringing Home the Bacon.

HAROLD C. PETERSON:
Timber cruising, for the U. S. Forest Service, Department of
Lands, District No. 1.

BRIGGS, LUND:
Worked on Minoe road location, control lines for timber
 estimator and homestead surveys, with the Department of
Engineering, U. S. Forest Service, District 1.

W. E. DUNSTAN:
Employed on Flathead and Nez Perce National Forests doing
topographical surveying.

W. L. YOUNG:
Worked for county surveyor of Gallatin county, Montana, on
road rights-of-way and checking cuts and fills.

RAYMOND J. BOWERS:
Employed on Stillwater State Forest, Montana, as fire
warden and scaler.

RAYMOND H. BITNEY:
Employed on Stillwater State Forest, Montana, getting data
for working plan.

JOHN B. THOMPSON:
Employed on Stillwater State Forest, as fire warden and
scaler.
John Baggs:
Bitter Root National Forest; measuring water in creeks and into ditches; estimating water from dam and pressure in the lake. Employed by the water users of Bass Creek.

Force Baney:
Kootenai National Forest; assistant ranger.

C. H. Bloom:
Selway National Forest; cruising timber.

L. W. Bloom:
Selway National Forest; fire and timber survey.

Roy H. Canfield:
Helena National Forest; intensive grazing reconnaissance.

E. W. Cooper, Jr.:
Missoula National Forest, Gold Creek District; packer.

Josephine Darlington:
St. Joe National Forest; lookout.

Herbert W. Everet:
Missoula National Forest; telephone construction, trails, and lookout.

Harold W. Hicks:
St. Joe and Coeur d'Alene National Forests; collecting data for white pine yield table.

Charles Kumler:
Nez Perce National Forest; lookout and smoke-chaser.

The End of a Perfect Day.
STANLEY M. LIBBY:
Bureau of Plant Industry in northern Idaho on blister rust control.

STANLEY M. LUKENS:
Savenac Nursery, Haugan, Montana; examination of old plantations and planting surveys.

MILTON RITTER:
Cold Springs Ranger Station, Superior National Forest, Minnesota; trail and portage work.

LAWRENCE McDoNALD:
Idaho; on white pine blister rust eradication.

LEROY A. MERRYFIELD:
Montana State Forestry Department; worked on land classification and exchange.

EVERETT E. RICHARDS:
Flathead National Forest; lookout.

THOMAS E. ROWLAND:
Montana State Forestry Department; gathering data necessary for working plan.

ALBAN ROEMER:
Cabinet National Forest; smoke-chaser and lookout.

The End of the Season.
MONTANA'S TIMBERLAND TAXATION PROBLEM
(Continued from Page 49)

your investment and can be charged, without interest, against operating expenses. This tax has been variously applied at from 6% to 10% of the value of gross yield. This appears heavy—but it is an accumulation of deferred tax obligations payable at a time most convenient to you.

(f) If the sudden application of this form of timber tax deprives countries or other political subdivisions of necessary revenues provision can be made to commute a part of the yield tax to a yearly basis at the normal rate of interest paid by the State, county or other subdivision on all outstanding accounts. The summation of these yearly payments between the application of the law and the year of cutting may be subtracted from the yield tax due when the timber is cut. The remainder would constitute the net yield tax payable. By using current stumpage values as bases for calculations, adjustable only over five or ten-year periods, the commutation should not exceed the normal yield tax—except when lands may be left uncut for a long period of time. Provision for adjustment in contingencies of this kind might readily be adopted.

This tends toward the present form of property tax. It has the advantage of certainty, freedom from local whims and politics, and guarantees the lumberman an opportunity to forecast his profits more clearly than at present. Again, if the timber is destroyed by fire, his tax ceases except for the soil tax.

There are several forms of this yield tax. Some have been successful. Others not. Massachusetts has had laws similar in intent for a decade or more.

It must always be borne in mind that for the present at least a transference from the present form of timber tax to a formal classification with its yield tax basis must be optional with the owner of the cutover or timber land. He can and should be permitted to choose.
MONTANA FOREST.

FIRE-WEED

Where the black scar of vanquished fire was made,
Darkening the loveliness of forest green
With obscure threat, as when a cloud is seen
To turn bright waters murky in its shade,
In the springtime a shining cavalcade
With purple trappings shall venture along, between
Charred, goblin stumps, and blackened limbs that lean
Criss-cross to earth like fears in flight delayed.

Oh, valiant weed Toss up your blooms to the light!
Purple means grief, but royalty as well.
You are a challenge to the ravaged soul.
Transmutor! Making crippled beauty whole!
Blazing new trails to make dark vistas bright,
Spreading slim roots where mightier verdure fell!

MARY BRENNAN CLAPP.
as the controlling factor in the local distribution of the species in this part of its range.

In the moister areas of the Montane zone the white pine may become dominant, sometimes pure but often mixed with lodgepole, grand fir, western larch and mountain hemlock. In the northern parts of the Clearwater where precipitation is ample thousands of square miles were formerly covered with a dense stand of this species which was destroyed by fire in 1910 and subsequent years. Some areas are still green, samples of what was lost by the conflagration. Regenera-
tion of the burned forest is slowly going on, but it is practically doomed by the fire risk of the deadened timber.

The white pine is the most valuable tree of these forests but it is also the most sensitive to drought, fire and disease. Its prevalence is indicative of a climatic condition very similar to that of the humid transition, the more adaptable species of which often mingle with those of the cooler overlying Canadian Zone.

The Engelmann spruce is a forest tree of wide distribution, occurring here at altitudes from 4000 feet to the upper limit of tree growth. It thus extends its vertical range over two zones, although it can seldom be found dominant in the Canadian. At lower levels it appears sparingly in sheltered gulches along water courses, and with increasing frequency toward higher elevations where it is widely diffused through various situations. While always dependent upon considerable soil moisture its local occurrence apparently is limited more sharply by a comparatively high atmospheric humidity. Consequently on the eastern slope of the Bitter Roots it is general in its distribution only at comparatively high elevations while on the west side its area of general occurrence extends much lower.

One of the trees strictly confined to the Canadian Zone is the western larch. Its vertical range in the Bitter Root Mountains is mostly between 3300 and 5000 feet, on creek bottoms and northern slopes. Its zone of distribution can be clearly seen in the autumn when the leaves turn yellow and stand out in sharp contrast to the dark green of pine and spruce. While decidedly partial to moisture in its environment the temperature factor must here be recognized as influential in its local occurrence. The Bitter Root Mountains represent the southern limit of its distribution in the Rockies. As the higher temperatures are the determining factors at the southern boundary of specific ranges it follows that species will cling to the localities and exposures where suitable temperature conditions are preserved. Such behavior is not a feature of the lodgepole pine and spruce in this area which lies far within the bounds of their natural distribution.

The Hudsonian Zone in the Bitter Root Mountains extends from the upper limits of the Canadian to the timber line. Timber line in intermediate latitudes differs materially from the polar boundary lines of forest growth in the diurnal variations of temperature and illumination and the differences of atmospheric pressure and movements. High mountain tops and polar latitudes, however, are both physiologically deserts, though not operating precisely in the same way. In the case of the mountain tops, with which we are concerned here, the desiccating influences of wind, rarified air and cold increase with the altitude. When these conditions become insupport-
able by trees, timber line is reached. But since the velocity of wind and the temperature varies with exposure and location, the level of timber line may vary on the same and on different peaks. On most of the Bitter Root summits no timber line is apparent. Only where the peaks rise isolated and high do we find their summits partially or wholly bare. A striking instance of this is seen in Trapper Peak where a definite timber line occurs at an altitude of approximately 9500 feet and the summit rises several hundred feet higher with bare rocks or characteristic alpine matted vegetation.

The trees of the Hudsonian or sub-alpine zone in the Bitter Root Mountains are the sub-alpine fir, Engelmann spruce, whitebark pine, Lyall’s larch and mountain hemlock. The shrubs are chiefly heaths, subarctic willows and alders. The spruce and fir extend downward along the streams into the Canadian, but with the pine constitute the dominant species of this belt. The pine appears first conspicuously above the Canadian and in old stands may be uniform, orchard-like, with cylindrical boles and rounded tops. In the higher levels of their range they become more sparse and irregular. The typical sub-alpine forest is one of groups of trees scattered over meadow-like areas or “parks.” This may be partly the effect of intolerance induced by the severity of the conditions, but may also be attributed to soil conditions and competition with herbs and shrubs in the seedling stage.

The most interesting of all the trees of the Hudsonian forest is Lyall’s larch. It stands aloof from all the other trees of its zone, clear above them in altitude, braving the gales with erect rigid stems and vigorous outstanding branches. Its summer is brief and stormy and its winter long and rigorous, with intense cold and driving winds. Its growth is exceedingly slow and its annual rings can hardly be counted without the aid of a lens. An unusually large specimen of its kind stood on the south slope of Trapper Peak. It was less than two feet in diameter with an estimated age of around 600 years. Here this tree also, like its relative the western larch, finds the southern limit of its range in the Rocky Mountains.

The Mountain, or black, hemlock as it occurs in this area is found mostly in the drainage of the North Fork of the Clearwater River, where it is actually dominant in many localities from the mountain tops down several hundred feet. It is mingled often with other trees of its range, the whitebark pine, fir and spruce. It is a singular tree in its appearance and habits and can scarcely fail to be noticed even by the casual observer. Its frequent association with the white pine and its partiality to regions of heavier precipitation indicate moisture as the prevailing factor in its abundance and distribution.
Of the Alpine Zone in this region there is little to say. It lies above the lines of forest growth and as stated above is of very limited area. Its low vegetation, however, in relation to the strenuous environment is an interesting subject for study. In another respect also it deserves attention and that is from the standpoint of its sources and past history. It is the least known of the botany of our region, probably because of its isolation and the brevity of the season during which it is accessible.

LAND CLASSIFICATION AS A PART OF THE NATIONAL FOREST WORK IN MONTANA AND NORTH IDAHO

(Continued from Page 68)

lands of this character could not be classified as chiefly valuable for agriculture. They also concluded that the classification could not be considered permanent. Upon the removal of all or a part of the timber through logging operations which would ultimately take place, the relation between the value of the land for agriculture and for forestry might be reversed in that even though the lands would still have a value for forestry, the removal of the timber, which had been a part of the land, might so reduce the aggregate forestry value that the value for agriculture would outweight it. As a corollary of such a policy, these lands would not be obtained by those interested in acquiring the land for the timber on it and thereafter transferred to the ownership of timber holders, but if ultimately found to be chiefly valuable for agriculture, would be thrown open to bona fide settlers whose interests would lie in developing the land for agricultural use. Furthermore, these bona fide settlers would obtain this land free, whereas if it became available to them only after title to it had passed through the hands of a timber owner, they would have to pay that timber owner the full market price of the land.

There is the second phase of current work in land classification. Conditions change. Concepts become more definite and may vary from previous concepts. In such a large job as the general classification, some errors, due to human fallibility, are unavoidable and to be expected. After the classification of any particular National Forest was finally completed, approved, and become established, it was found, occasionally, that a correction in the classification of some particular tract might be necessary.

On the one hand, a relatively few scattered tracts, classified originally as chiefly valuable for forest purposes, were
found, upon more close investigation based on re-examination, to be properly classifiable as chiefly valuable for agriculture. There were, however, many requests made for reclassification which after field examination could not be acted on favorably. This was to be expected, since these lands had been examined carefully by experts, and their errors and oversights would be only few. Consequently, it is the policy to place the burden of proof, that the findings in regard to any tract were incorrect, upon those who question the findings. Individuals who are interested are asked to file, as a part of their requests for review of classification, data regarding topography, soil, climatic, and other conditions, which would support the contention that the lands have a real and permanent value for farming superior to their value for National Forest purposes, and that therefore, the classification hitherto made is erroneous. Where such showings raise a doubt as to the existing classification, a re-examination is directed. Considering the vast amount of territory covered by the original classification work, there has been very little correction of classification to be made, even though in the last 15 years and subsequent to the completion of the general classification work the Forests have been very finely combed over by people seeking opportunities to exercise their homestead rights in establishing a farm home.

On the other hand, experience has shown that some areas at one time considered chiefly valuable for agriculture are not after all in fact chiefly valuable for the production of farm crops. Either such lands have been refused by prospective homesteaders, or have been entered and abandoned, in some cases by as many as three or four entrymen, who have
found that they could not successfully cultivate such lands. The influences which have affected the use to which these lands have been put, are a reflection in small part of the general agricultural trends of the country. For a long period up to about 1920, there was a great demand for farm lands which resulted in attempts to put under cultivation lands which the agricultural economist terms submarginal. By this is meant lands which for agricultural purposes are poorer than the poorest lands which through experience under existing economic conditions, have been found profitable to use for producing farm crops. For the last four or five years learned students and careful investigators of the agricultural land problem in the United States have asserted that what is needed as an adequate farm land policy in the country is not the putting under cultivation of any more lands; as a rule these of necessity would be of the poorer class from the standpoint of crop production and accessibility to market, since naturally the better lands and in the better localities would have been first picked for farming. Rather they find that better farming methods on lands already under cultivation would be advantageous, since the increase in return through an added intensiveness in farming practice on such lands would be greater than the production through a corresponding amount of effort on the poorer lands.

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very distinct reduction in recent years, of the area under cultivation and of even the number of farms, particularly in Montana and north Idaho. While it is true that in some individual cases men especially qualified, or under a particularly fortunate set of circumstances, have been able to persist in farming sub-marginal lands, they are exceptions. Economic laws are immutable and the Government’s land policy must be based on these economic laws, since the Government’s action must have in mind the welfare of the general commonwealth in the long run. So it occurs that a small portion of the areas originally classified as chiefly valuable for agriculture are now found to be truly submarginal, and hence less valuable for agriculture than for other purposes to which they can be put as permanent parts of the National Forests in which they lie. In such cases also cor-
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rections are being made of the classification where title has not already passed from the Government.

The third phase is a very important and constantly growing need for land classification wherever forest values exist whether inside or outside the forests. Under the General Exchange Act of March 20, 1922, the way is opened for the establishment of Government title to lands in the National Forests now privately owned which are chiefly valuable for timber production or watershed protection. These lands must be very carefully examined and intensively classified, since it is the aim not to acquire any areas which are chiefly valuable for agriculture.

The Clarke-McNary Act of June 7, 1924, provides for the addition to National Forests of outside government-owned lands which are chiefly valuable for watershed protection and timber production. These lands must also be classified, since lands chiefly valuable for agriculture are not desired. This last work requires especially intensive analysis, since virtually all of the lands which are to be considered for such addition are much more accessible than the National Forest lands and lie closer to developed and growing farming regions in which the lands are truly agricultural in character. The boundary
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between lands which will always best be used for forests, and those which ought to be, for the common welfare soon, and permanently, put under agriculture must be closely determined. There are large areas of such lands to be considered in various localities in Montana and north Idaho.

It is quite possible that there will be other acts from time to time for the purpose of adding to National Forests, lands which are chiefly valuable for timber production and watershed protection and which their present owners are either unwilling or cannot afford to administer and protect. These will have to be classified.

The land classification work in connection with all these acquisition laws, involves the very fundamentals of land utilization and is therefore basic to the practice of either agriculture or forestry.

In the present land classification practice of the Forest Service, certain definite principles are kept clearly in mind in determining whether a piece of land is chiefly valuable for agriculture.
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The land must be of greater permanent value for agriculture than for timber production or watershed protection, the primary purposes for which the National Forests were created.

The use and need of the land for agriculture must have a sound economic basis. Its acreage and soils must be such as to afford the reasonable presumption that under the growth conditions controlling its use, it will produce crops sufficient in quality and quantity to justify the cost of labor, equipment and implements, required to bring it into, and permanently maintain it in a state of cultivation.

Its occupancy for farming purposes must not injure the National Forest by unduly increasing the hazard of protection, the difficulties of administration, or the obstacles to proper economic utilization of all the resources of economic importance upon tributary National Forest lands.

The land must not be needed for public purposes such as National monuments, administrative sites, public camp grounds, municipal water supply, reclamation work, or quasi public uses like water and irrigation developments.

In classifying a piece of land under these principles, a very intensive investigation is made, on the ground, of the
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factors which have a bearing on the classification. The type, quality, depth and area of soils which would produce agricultural crops are carefully determined. There are observed the topography and slope of the lands, which must not be so steep that when cultivated the soil would erode, or so steep that the application of ordinary farming methods are impracticable. The elevation of the land must be known since above certain readily determined limits of altitude, climatic conditions reduce the length of the growing season below the limits of practicable crop production. Consideration is given to the prevailing temperatures which affect the growing period and the amount and distribution of precipitation or of water available for irrigation. There is determined the quantity, value and marketability of the timber or forage resources or other usable resources which the land supports. Analysis is given to the economic practicability of permanently conducting farming operations upon the area of the size of the particular tract under consideration, which analysis involves the knowledge of the character and quantity of crops, possibility of sale or utilization, distance from market, and any other features bearing on the agricultural use of the land. There is studied the relation of the particular tract to the economical utilization of natural resources upon adjoining non-agricultural land; that is, there are considered such things as suit-
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ability and need for sites for utilization of forest products, or likelihood of exclusive control by means of access to forest lands or resources, or control of important sources of public water supply. Thought is given to the value of the land for water power, irrigation, or other public or semi-public purposes.

It is the aim and policy of the Department of Agriculture to have all lands entrusted to it for handling put to their highest use. Therefore, it is the desire and purpose that where National Forest land is chiefly valuable for agriculture, it be thrown open for that use and be privately acquired under the Forest Homestead Act. The factors affecting the determination of what is the highest use are carefully weighed and coldly and judiciously considered.

Up to December 31, 1924, there were thrown open to settlement in the National Forests of Montana and northern Idaho, an aggregate area of about 465,000 acres, comprising somewhat less than 4,100 separate tracts. So often and so carefully have the available areas been gone over by the original land classifiers in the first place, by Forest officers subsequently, and principally by agricultural land seekers since first the region began to be settled, that practically everything available has been opened up and acquired, and it is safe to say that there is very little if any land left that is chiefly valuable for agriculture.
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