

NATIONAL PARKS BULLETIN

To Conserve Nature and Win All America
to Its Appreciation and Study



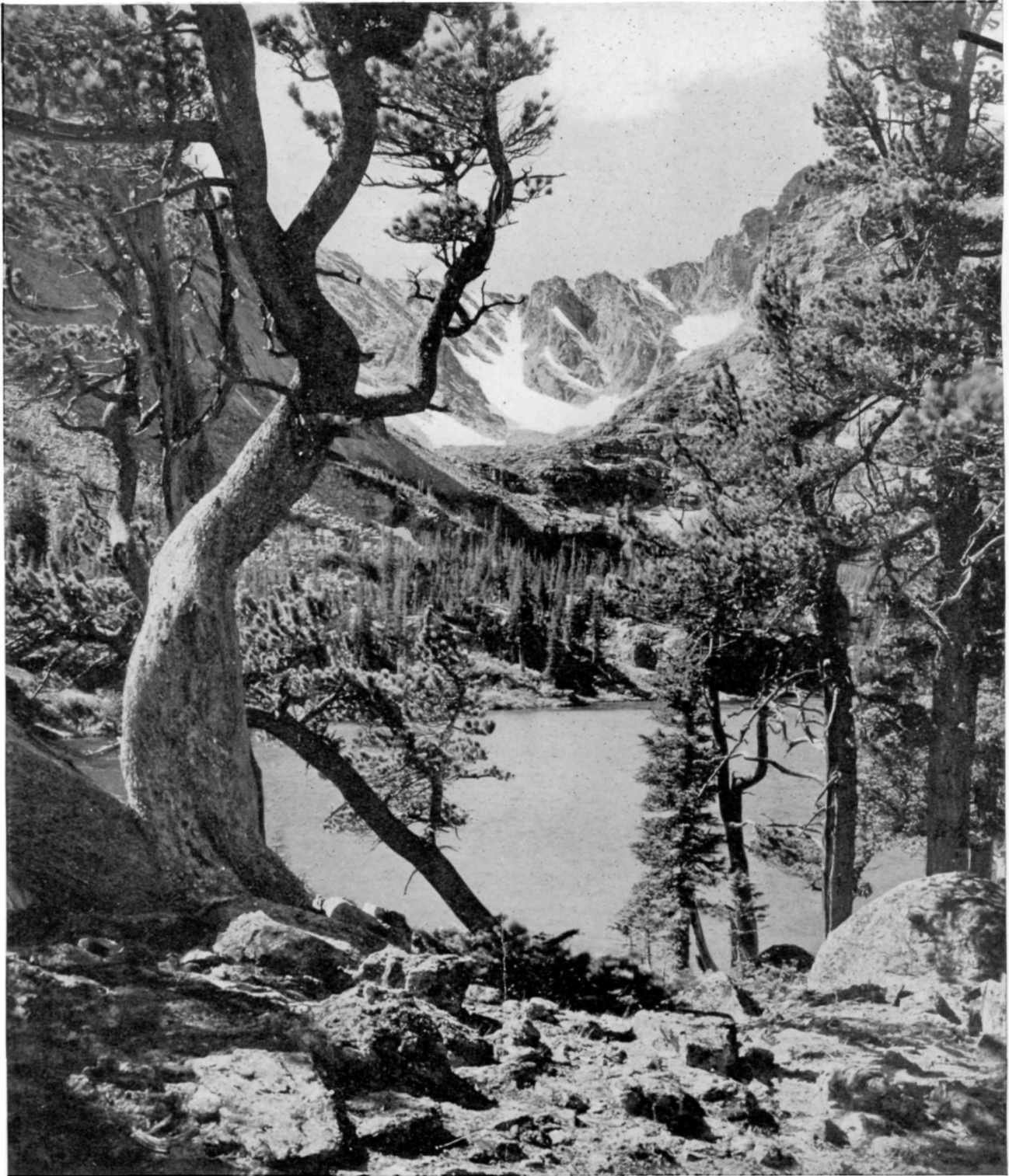
Photograph by WALTER L. HUBER

HOARY MARMOT OF GLACIER NATIONAL PARK

This is the grayer species, *Marmota caligata nivaria*. The darker Mount Rainier species is shown on Page 9, both illustrating Vernon Bailey's article in this number

ISSUED TO ITS MEMBERS BY
THE NATIONAL PARKS ASSOCIATION
WASHINGTON, D. C.

Shall GREAT SMOKY be a REAL or MAKE-BELIEVE National Park?



Photograph by MILE HIGH PHOTO. COMPANY

LOCH VALE, ROCKY MOUNTAIN NATIONAL PARK

Lake recently acquired by the Government, showing Andrews Glacier hanging from Continental Divide, there 12,000 feet in altitude. This canyon, originating in a lake-dotted cirque behind Longs Peak, is one of the most beautiful in America

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EDITOR

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Announcing a Definitive Study of the National Parks System

INSPIRATION AND EDUCATION IN NATIONAL PARKS

By JOHN C. MERRIAM

*President of the Carnegie Institution of Washington, and Chairman of the Advisory Board
on Educational and Inspirational Uses of National Parks*

THE need of education is never met merely in accumulation of facts. In some of its most important aspects education is essentially inspirational. It is through this form of expression that it exerts the largest influence in stimulation to constructive thought and in forming of ideals. Inspiration can develop in the lowliest types of effort. A bricklayer may take such pride in learning to lay a wall that his work becomes artistic. In general it is from great or outstanding sources of influence that inspirational education arises.

Human interest in natural phenomena, whether from the point of view of the lover of nature, the investigator, the teacher, or the preacher is of real significance only when the individual is brought face to face with reality, and forms his judgments on the basis of observation. Great teachers sometimes utilize the most commonplace materials in such a manner that the message carries without possibility of misunderstanding. Similar effects may be produced by great expressions of nature which explain themselves by striking contrasts or aspects so unusual as to make their interpretation unavoidable.

Recent study of means by which the average intelligent person may increase appreciation of nature has indicated the importance of great opportunities for self-teaching. In the field which touches natural features of the earth, we discover that a tremendous influence can be exerted by adequate utilization of such resources as Niagara, the Grand Canyon,

or the Yosemite. In the presence of these extraordinary aspects of nature, it is possible to widen and deepen our knowledge in such a way that the enlargement of thought or mental vision becomes a permanent condition, making possible fuller understanding of many things which might otherwise seem less striking.

The Advisory Board on Educational and Inspirational Uses of National Parks was established for the purpose of securing the best judgment possible from leaders of thought in education, science, and study of inspirational values in Nature. It was intended that through this body careful examination be made of fundamental questions in education

and research which have bearing upon the great problems presented by National Parks. It is recognized that many important approaches are now being made to the study of these questions. The program of the National Parks Service, and that of many cooperating institutions has been directed toward development of adequate means for meeting public needs and for using the enormous assets of these parks to greatest advantage. The work of this Advisory Board must be considered as only supplemental to other efforts, but it will be directed more specifically toward examination of the basic questions relating to general educational policy as it concerns the public interests of America.

In consideration of the value of National Parks as outstanding opportunities for inspirational and educational work, I have already

HEAR YE!

By VERNON KELLOGG

Permanent Secretary National Research Council

THE National Parks Association makes an important announcement in this issue of the Bulletin. No more important announcement has been made by the Association in all its history. A long step forward is to be undertaken. The National Parks have for years offered recreation and pleasure to their many visitors. They are now to be made to reveal their high usefulness as centers of education and inspiration. They are to become a super-university, unique in character, unsurpassed in effectiveness.

Positive action to this end, with cooperation of the National Park Service, is under way. There is not only a plan: the carrying out of a plan, under the guidance of devoted men peculiarly competent to give such guidance, has begun. It is with profound satisfaction and with full confidence, both in the character of the plan and the happy results that are to accrue from its achievement, that the National Parks Association makes its announcement. *Do not fail to read the statement by Doctor John C. Merriam beginning on this page.*

discussed certain phases of the subject in an earlier number of the National Parks Bulletin. There is perhaps reason for quoting this statement here, rather than to present the problem in another form.

"For many purposes the purely educational value of our National Parks is far beyond that of any regularly-established formal educational institutions. Among the most important features are those which concern the nature of the earth—the manner of its building—the forces which have come into play—the meaning of the almost limitless history of earth-making as it is pictured before us. The work of the Creator's hand presents itself here in such a way that all may comprehend. Here is found also much that represents the unmodified primitive life of the world, both plant and animal, remaining just as it was moulded over the mountains and valleys. Nature is said to be an open book to those who really wish to read it, but there are grades and shades of meaning which may be hard to understand. There is certainly no place where the leaves are more widely spread or the print more clear than in these portions of the book.

"With all that has been done by geologists and other scientific men, by central administration of the government, and by officials concerned with immediate administration of National Parks, we have only begun to convey the really great lessons to the multitude. Science needs itself to know more fully what the story is, and then simplification and clarification must help to carry the great essentials over, so that the casual visitor may read and may interpret without depending upon the word of another. To attain such clearness of expression is to stand upon the highest plane of education. For many objectives this level can nowhere be reached so easily as in the National Parks. There are not in America other places where, for these purposes, comparable possibilities for effective adult education concerning nature can be found, with the grandest products of creation themselves as teachers. For utilization of this opportunity we need support adequate to prepare for most effective use. In such a super-university, professors would be only guides and not instructors, but there should be a faculty chosen from leaders in thought and appreciation, a group of men who, standing in the vivid presence of the Creator, would serve to point out the road.

"But the parks may not be pictured solely in a setting of science as it is commonly known. In ways we can define only imperfectly they express peculiar elements of beauty

and grandeur which lie beyond the realm of formally associated facts and logic. Partly does this attractiveness reside in that which stirs emotions through influence of aesthetic and artistic values, partly it is recognition of sublimity in the power and order behind nature.

"While the National Parks serve in an important sense as recreation areas, their primary uses extend far into that more fundamental education which concerns real appreciation of nature. Here beauty in its truest sense receives expression and exerts its influence along with recreation and formal education. To me the parks are not merely places in which to rest and exercise and learn. They are regions where one looks through the veil to meet the realities of nature and of the unfathomable power behind it."

The first work of a body such as that set up by the National Parks Association must concern itself with two aspects of the problem of inspiration and education in the Parks. First, a general statement of the broad principles or ideals which we may recognize as those which should naturally guide in a program of educational or inspirational type in National Parks or in any other region; second, the working out of definite illustrations which may serve as concrete examples representing the highest use of available materials.

For present purposes of the Advisory Board there seems to be no more effective method of study of our problem than by utilization of the program for educational and inspirational use of the Grand Canyon as it is being worked out by cooperation of various agencies, including the American Association of Museums, and the Committee of the National Academy of Sciences working in cooperation with the Geological Society of America and the National Research Council. This program is being realized by a Committee of men who have been concerned with intimate study of the Grand Canyon problem. It presents one of the most extraordinary opportunities in the world for expression both of the general principles involved and of their application in detail.

The features of the Grand Canyon which it is planned to illustrate will be represented by fifteen or twenty localities clearly visible from Yavapai Point. These stations will be pointed out to the visitor on an exceptionally useful relief map and will then be seen in detail in the Canyon through a telescope. They will thus appear with the perspective of the whole Canyon about them. The localities will be represented at the observation station on Yavapai Point by specimens of the original materials brought up to the sta-

NATIONAL PARKS ASSOCIATION
—
ADVISORY BOARD
—
on
**EDUCATIONAL AND INSPIRATIONAL
USES OF NATIONAL PARKS**
—

To secure the best judgment possible from
leaders in education, science and study
of inspirational values in nature

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President Carnegie Institution of Washington
Chairman

JAMES ROWLAND ANGELL
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of Natural History*



Photograph SANTA FE RAILWAY

GRAND CANYON FROM GRAND VIEW

tion. The localities will then be made accessible by special trails. They will also be described in a small, clearly written, fully illustrated publication available for all who may desire to read.

It is proposed to tell the story of the Canyon in such a manner as to illustrate the meaning of its development. The outline will be divided according to the following groups of exhibits:

1. Evidence of disturbance of the earth's crust as illustrated in faults and other unmistakable proofs of instability or movement in past periods. It is recognized that such a statement is necessary not only to show the nature of the crust of the earth upon which we live, but also to make clear how the walls of the Canyon were built and how the gorge was cut. It is through movement of the earth's crust that basins for accumulation of deposits are formed. It is through movement that great cycles of erosion are initiated. It is through movement of the crust that present features of the earth's surface, and in part the climate, were determined, thus leading to development of existing variety in physical conditions, reflected in the variety of life.

2. Building of the Canyon walls. Evidence indicating the manner of accumulation of sandstone, conglomerate, limestone, and other formations piled up for ages and represented in the layers of the Canyon walls.

3. Evidence indicating the method of cutting the Canyon. This will be shown, first, by illustration of a bar on the river at the bottom of the Canyon, consisting of boulders, pebbles, and sand which are the tools by which the cutting

has been carried out, and the swift water of the river is the power which has driven the blast.

4. The story of life of the earth as represented in the great succession of strata in the Canyon walls, illustrating the nature of the life at different periods and its changes through the ages.

5. The variation in present-day life as it is spread over the Canyon region, adapted to different altitudes, different types of climate, and other physical conditions. This illustrates the relation of life to its surroundings, a relation that is of interest when considered in the light of what is shown in the history of life recorded in the Canyon Walls.

6. Aspects of the Canyon which are of exceptional artistic, inspirational, or spiritual value. The Canyon as seen through the eyes of great scientific philosophers, great artists, and great interpreters of human interests. In the practical sense this means the pointing out of localities from which exceptional aspects of the meaning of the Canyon can best be understood.

Many of the exhibits have already been worked out. An attempt to plan the series has made it clear that as yet the scientific world is only in part acquainted with the phenomena expressed by the Canyon. This has led to much research, which will necessarily be continued. The planning of the exhibits and their use will be a real stimulus to fundamental scientific work and to its interpretation.

A statement regarding progress in development of the series of exhibits at the Grand Canyon will appear in the next number of this Bulletin,

COMMITTEE TO ANALYZE AND STUDY USES OF LAND

Object is to secure Bases for Determination of a Sound Policy of Utilization throughout the United States

ON FEBRUARY 15 and 16 and April 25 of this year, sessions have been held in Washington of the "Joint Sub-Committee on Bases of Sound Land Policy," organized under a resolution passed last December at a conference called by the Federated Societies on Planning and Parks. It will consider utilization of land through the United States.

Its personnel is: Frederic A. Delano, chairman; Horace M. Albright, representing the National Park Service; Ovid M. Butler, representing the American Forestry Association; Dr. L. C. Gray, chief of the Bureau of Agricultural Economics, Department of Agriculture; Dr. John M. Gries, chief of the division on Building and Housing, Department of Commerce; John Ihlder, of the Civic Development Department of the United States Chamber of Commerce; Dr. Vernon Kellogg, representing the National Conference on Outdoor Recreation; L. F. Kneipp, representing the Forest Service; Dr. Elwood Mead, Commissioner of the Bureau of Reclamation, Department of the Interior; Dr. John C. Merriam, representing the National Parks Association; Wilbur A. Nelson, representing the National Conference on State Parks; Frederick Law Olmsted, of the National Conference on City Planning; Dr. George Wehrwein, representing the Institute for Research in Land Economics and Public Utilities; and Miss Harlean James, secretary.

The need of this study is self-evident. The time has come when ever-increasing and complicating utilization of land requires scientific analysis and balance of competing demands if the nation is to approximate maximum benefits from its land and water resources.

Socially minded people began speculating on this subject many years ago. Later on the several great movements for conservation approached from the view point of preservation of natural resources. Comparatively recently, science has importantly entered the field, and economists are now becoming deeply interested. Need is great to bring these and all other agencies studying land use to a common view point, establishing principles which may be applied by all.

The function of the Joint Sub-Committee, it was decided, is to assemble and digest existing data to show:

Portrayal of present uses of land (so far as data is now available, possibly suggesting studies to furnish needful data not now available)

Present data in form to picture as graphically as possible:

- (a) Present uses of land.
- (b) Trends of utilization.

Consideration of Requirements taking a period of about thirty years and a prospective population of 150,000,000 as a basis for estimate.

Application of the above general program to specific uses:

Agriculture—arable and grazing:

- Present areas in use
- Potential areas
- Present Requirements
- Prospective Requirements

Forest:

- Present Areas in use
- Potential areas
- Present Requirements
- Prospective Requirements

Mineral:

The mineral areas should be indicated on maps; but mining interferes so little with surface use

that it seems unnecessary to make detailed studies at this time

Water:

This subject cannot be studied alone but is interwoven with all the other subjects

- Power
- Agriculture
- Urban

Recreation and wild life Reserves:

Data showing *present* reserves—National, State, and local
Estimates of possible expansion

Urban and related uses:

Map showing present population, densities and urban concentration and main lines of communication
Estimates of additional areas for future urbanization
Demands of urban centers for water-recreation.

To facilitate this great task, the committee has divided itself into the following groups:

Agriculture, arable and grazing: Dr. Gray, Mr. Kneipp and Dr. Wehrwein.

Forest: Mr. Butler, Dr. Gray and Mr. Kneipp.

Mineral: Mr. Nelson and Dr. Mead.

Water: Dr. Mead, Dr. Gries and Mr. Nelson.

Recreation: Dr. Kellogg, Mr. Olmsted, Mr. Albright and Mr. Nelson.

Urban and Related Uses: Mr. Olmsted, Dr. Gries and Mr. Ihlder.

Inter-relations: Dr. Merriam.

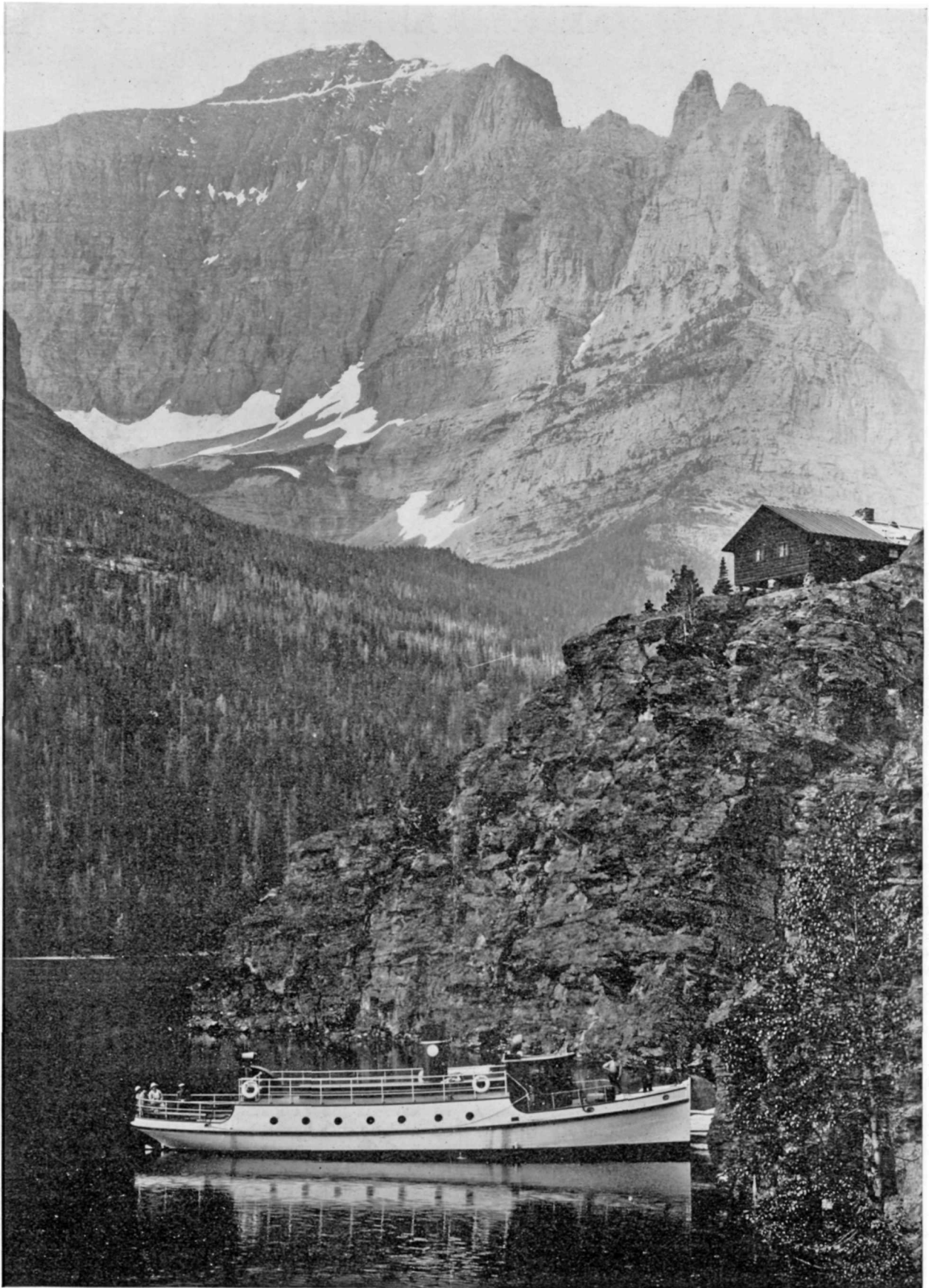
STATE AND NATIONAL PARKS

Adirondack State Park, New York, has become by recent purchases only two hundred square miles short of the area of Yellowstone National Park. It is nearly five hundred square miles larger than Mount McKinley National Park in Alaska, and more than double the size of Glacier National Park.

It is seven hundred square miles larger than all the Pacific National parks, Mount Rainier, Crater Lake, Lassen Volcanic, Yosemite, General Grant, and Sequoia, combined. It is a hundred and fifteen square miles larger than the national parks in the Rockies, except Yellowstone, with Grand Canyon and Zion National Parks of the high desert plateaus added.

It is not size that makes a national park either valuable or celebrated, but the qualities of incomparable scenery and original unmodified natural condition. Each possesses one great central exhibit which is the reason for its creation, the cause of its fame, and its sole drawing power. Beyond that exhibit, mere acreage may be extravagance, holding unused in perpetual reserve natural resources invaluable for far different purposes.

For it should be recognized, and will be some day, that those who visit our national parks are interested in little besides their famous central exhibits; of these visitors, more than three-quarters are passers-by in touring motors who detour or stop for a few hours or a day or two, and concentrate in one or two comfortable hotel centers in sight of the central spectacle.



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LITTLE CHIEF MOUNTAIN, GLACIER NATIONAL PARK

Seen from St. Mary Lake, with glimpse of St. Mary Chalets on the right. All of Little Chief seen here is massive gray limestone. The strata rising directly from the water are of dull red argillite, weathering nearly to black. Algonkian.

"PRESERVED AND REVERED AS NATURE MADE THEM"

Reasons for Refusing to Permit a Cableway to the Summit of Mount Hood

By WILLIAM B. GREELEY

Chief of the United States Forest Service

(FROM AN OFFICIAL LETTER, BY PERMISSION.)

I MUST confess a strong personal hesitation to approve the permit requested. This is partly due to the same sentimental regard for the sacredness of Mount Hood which has been expressed by a number of people in Oregon. It is not a question of how conspicuous or inconspicuous the projected cableway would be, or just what types of refreshment houses and other buildings for the accommodation of tourists would accompany it.

"It goes rather to the deep-seated regard or reverence that I believe we should preserve for mountain peaks having the grandeur and commanding position, both geographically and historically, of Mount Hood.

"It is impossible to deal with these spiritual or esthetic qualities of great natural features in tangible terms. Nevertheless, peaks like Hood, Shasta, and Whitney, preserved and revered as nature made them, do represent one of our greatest assets. And I can not but believe that the esthetic, or sentimental, value of such outstanding natural features would be impaired through subjecting them to this type of development. You can not measure this loss in any specific terms. Nevertheless some loss there would be; and in my judgment the material gains in tourist traffic, even the opportunity afforded more people to visit such points, are not sufficient to compensate for it.

The Gasoline Motor Possesses Our Souls

"It may be desirable to construct cableways to some of our western peaks where commanding views are afforded. I would not necessarily preclude it in all instances. But I believe that the points selected for such projects should not be those having an outstanding distinction and hold upon public sentiment like Mount Hood.

"Another reason which underlies my conviction in this matter is the general need of preserving a substantial portion of the more beautiful and scenic areas in the National Forests in as nearly a natural condition as practicable. We are in a period of rapid road building and extension of motor traffic all over the western States. We are more or less in a state of mind that conceives of the recreational values of any attractive region in terms of volumes of traffic and speed of access.

"The gasoline motor has gotten possession of our souls. It is my own conviction that this aggressive conquest of the western wilderness may go too far. I believe that it is time to bring positively into our conceptions on this whole question the social need for keeping some of our mountains and forests 'undeveloped.' I think we must consciously set up in our plans for the use of the National Forests the very important social service rendered by retaining substantial areas available exclusively for unmotorized and non-mechanical forms of recreation. This is necessary in order that the people may continue to obtain from these regions the same sort of vigorous recuperation and spiritual stimulus that they have afforded in the past.

Let us Move Slowly in Road Building

"Hence I believe that the public agencies responsible for the administration of these lands should be conservative in permitting the unrestrained opening up of isolated country where practical considerations do not compel it. Of course each case must be considered on its own merits and no

general rule can be laid down. But as a general policy or conception, I am for moving slowly or holding back in road building and like forms of development in areas where recreation is the prime motive and outstanding natural qualities for wilderness forms of enjoyment are involved.

"For these reasons I cannot justify to myself an authorization of the Mount Hood cableway at the present time. It is assuming a good deal of responsibility for any one man to undertake to settle a question of this nature which involves primarily the manner in which the public shall use resources which the public owns; I am not attempting to settle it finally, but I do believe that we shall go slowly.

"I believe that the public attitude on these questions may change materially in the next five or ten years, with a fuller realization of the value of preserving some of our grandest mountains and most attractive wilderness areas from mechanical modes of access."

THE BALANCE OF NATURE

Yellowstone National Park Point of View Concerning Killing of Predatory Animals

IT IS because nature is so seldom disturbed in National Parks, writes Park Naturalist E. J. Sawyer of Yellowstone, that so many persons ask why predatory wild animals are killed off.

"We fully sympathize," he says, "with the visitor whose desire to see coyotes and mountain lions is quite equal to his desire to see antelope and elk. To us, a wolf, a coyote, a mountain lion or a lynx is just as graceful, just as interesting, fully as profitable for study and contemplation as any hoofed animal.

"Why, then, it may be asked, should these predators be discriminated against? The question has, indeed, been most seriously put: nor is authoritative opinion by any means unanimous as to ways and means and extent of this control. The matter is being studied carefully, and there is still room for data and intelligent unbiased opinion. To the above general question, however, an equally broad reply is, 'wolves and other predators are killed in this haunt of deer and mountain sheep on much the same ground that they would be killed if found in a deer-park or sheep-fold.'

"Without restriction as to area, nature can be left to strike her own fair balances, to make her own adjustments, with assurance of 'room for all.' But a National Park even as large as the Yellowstone is, relatively, a very restricted area. The safe-haven accorded its 'game' animals has, to a large extent, the restraining effect of an actual boundary fence. Such animals are still farther protected and their increase fostered by man in the supplying of hay during severe winters. What a hotbed such conditions would make for the undue increase of predatory animals to a point where, by reason of their numbers and boldness, they might become a real and unbearable menace to tourists or, at least, tourist property—were it not for the use of trap and rifle. For, while the mountain lion would and does prey on the elk and deer, practically nothing preys on the mountain lion—unless, man. If there were no control of the predators, the expression, 'hay-fed elk,' might be just a preliminary way of saying, 'elk-fed mountain lions.'"



Photograph by F. W. SCHMOE

HOARY MARMOT OF MOUNT RAINIER NATIONAL PARK

This is the darker colored *Marmota caligata okanagana*, which has migrated down the Cascades from Canada

THE HOARY MARMOT, OR GREAT GRAY WHISTLER

By VERNON BAILEY

Chief Field Naturalist, United States Biological Survey

AROUND the evening campfire at Granite Park we sang
 "Up in the mountains free as air
 Finding new life and ideals there.
 We're Sierra Club hikers out for fun,
 Hiking from dawn to set of sun
 With a song in our hearts when the day is done,
 High, high, high."

At dawn we were out of our sleeping bags, had shaken off the frost, rolled them up, packed and stacked our dufflebags, eaten a hearty breakfast and with lunches and cameras in our haversacks, were off for the Hanging Gardens and Logan Pass along the new trail below the Garden Wall. To the many thousands of Glacier National Park visitors these are familiar names with thrills in them, and there were many thrills that perfect first of August day before we had crossed the pass and reached Sun Camp above St. Mary Lake.

The scattered line of hikers in little groups or singly wound up the east trail, along the roaring brooklet, over the top of the long ridge, gilded with dogtooth lilies where the grizzly bears had been digging a breakfast of lily bulbs, around the head of the next gulch with undisturbed animal life and a broad view of the Hanging Gardens between

Mount Oberlin and Clements Peak and far below in the dim hazy distance, the faint blue streak of Lake McDonald.

Just around the first point of the Garden Wall, in an avalanche-swept cirque below the trail, two big mule deer in bright sorrel summer coats were sleeping, or basking in the morning sunshine, and the field glasses brought them so close we wanted to reach out and stroke the soft velvet on their great forked horns. Everyone stopped to admire and to pass on the word to the next in line as the hikers came straggling along the trail.

Around the next spur of the mountain side a fine old bighorn ram stood between us and the edge of the cliff below, and, as we came abreast, broke through our lines and trotted up the slope under fire of a dozen cameras. When last seen this monarch of the crags stood gazing down at us from the ledge above, with our crack mountain climber close on his heels, taking careful aim with his lens from behind a big rock. In the next gulch eleven more sheep in a mixed bunch of rams and ewes and lambs were on the slope just below us, and, as they crossed a big snow bank to get above, some rather foggy pictures were taken.

A few white goats were seen at close range by several of the party who took a higher trail, and ptarmigans and coney were seen by others, but on that whole glorious



Photograph by FRANK M. OASTLER

MARMOT OF YOSEMITE NATIONAL PARK

Somewhat smaller and brown, a shrill whistler like his cousins of the North. Photograph taken in Kings River Canyon.

twenty miles of hiking our closest and happiest greetings of the wild things were with the hoary marmots, or big gray whistlers, along the sides of the trail.

As the trail brought us up into the last dwarfed timberline trees, a big furry ball on a flat rock below uncurled itself into a gray whistler, watched us for a minute to make sure we were the right kind, stretched to full length for a better look, then, as we held out our hands and called softly, came hopping over the broken rocks toward us, stopping occasionally to make sure of our hospitable intent, until he was at our very feet and reaching up for offered food. A bit of hard tack made a nice scrunchy noise as he sat bolt upright eating it with both hands. Raisins were tucked in his mouth with one hand and greatly enjoyed, a piece of cheese was eaten, some chocolate, and then a flake of chipped beef. He was either too hungry or too polite to refuse anything from our lunch bandannas. Many photographs were snapped, but they generally left out the whistler or showed only his head or his tail, and told only half the story.

Later as we sat at lunch on top of the ridge one of the hikers, after finishing her lunch and dividing it fairly with a friendly whistler, left her empty bandanna on the grass while she rested. The whistler was still hungry for dainties and in trying to get the last crumb of chocolate clinging to the handkerchief tore it to shreds with powerful teeth and claws.

There were dainty tilting titlarks, shy rosy finches, noisy Clark nutcrackers, friendly chipmunks and fat little roly poly ground squirrels; but the friendly whistlers were our heroes of the day just because we came in closer touch and more intimate friendliness with them. There was not time to answer all the questions about them; but they are still there and are seen and enjoyed by thousands of park visitors every year, not only in Glacier but other national parks.

From central Idaho to northern Alaska the great gray whistlers, hoary marmots, or mountain woodchucks inhabit the high mountain crests near timberline or the low country of the far north with the same Arctic climate. In different mountain ranges they vary slightly in color and size, so

that nine different forms, species or subspecies, have been recognized; but in general appearance they are very similar. All are very different in appearance from the brown woodchucks or ground-hogs of the lower country, differing in the long coarse hair, larger and more bushy tail and in varying amount of black and white mixed in their light or dark gray coats. They are also much larger, and, with their long hair, suggest little bears. Timid campers have even mistaken them at a distance for mountain lions.

Largest of the squirrel family, they are heavy-bodied, muscular burrowers and rock climbers, as un-squirrel like in habits and appearance as possible; but true rodents and purely vegetarians. Their manner of life has fitted them for homes among the rocks as perfectly as the lithe squirrels have become adapted to the tree tops, or the burrowing ground squirrels and prairie dogs to the treeless plains.

They are built for great strength, which is needed in digging deep burrows among rocks and tearing out stones in the way of their tunnels and cavernous retreats. Their heavy coats of warm fur are well protected by the long coarse outer hairs, well named guard hairs, for they take the rough wear and friction with rocks and banks and bushes, and also give to these timid, gentle animals some of the fierce appearance of the grizzly bear. Fortunately for the whistlers their fur has never attracted much notice, and generally they have been allowed to keep their own coats on their own backs, where most useful.

In the flower-starred alpine meadows between the snow-banks and glaciers of Glacier National Park on Mount Rainier, in the Olympic Mountains and on Mount McKinley, the whistlers spend happy summer days feasting on the tender green plants, wild clovers, spring beauties, stonecrops, tender grasses and a host of nutritious leaves, stems, flowers, seeds and berries of the rapid growing vegetation, stuffing their elastic sides to the limit, and, after long sun baths on top of safe boulders or sound sleeps in warm burrow nests, again feasting to full capacity before darkness sends them to the nest for another night's sound sleep. Eating and sleeping are their principal industries during the short summer, for they must store up fat.

Also, during the short brilliant summer, the families of young must be reared, and, from the mating time of the early spring awakening, the mother whistler is as keenly alert and anxious as any human mother could be, first for the warmth and comfort and health of her naked and helpless brood in their warm soft nest deep under the rocks; then, as their eyes open, their fur grows, the spirit of adventure develops and the white-ringed noses are pushed inquiringly out from between the rocks, the mother is fairly frantic with fear and worry. Again and again with shrill command she sends them scurrying back out of sight as some real or imaginary danger approaches, but gradually, as they become larger and hungrier and better equipped with teeth and claws and better clad with furry coats, they venture to the nearest clover patch and begin to nibble.

Soon they are gathering their own food, and the tired, thin mother can begin to feast and bask and store up the necessary fat for next winter. But her vigilance does not relax. From the home rock she keeps an eye on the youngsters, while the father from higher up on his watch tower, seemingly asleep, never misses the shadow of an eagle overhead nor the silent approach of a gray bear from below. His long level whistle, a cross between a police call and a steamboat whistle, warns every whistler for a mile around of danger. The quick sharp reply of the mother brings all the young scampering to the rocks and many pairs of keen eyes render stealthy approach impossible.

Thus, through the summer days, in the midst of wonderful flower-decked meadows, beside the bubbling and roaring brooks from the snowbanks and glaciers above, among the woolly white goats and big-horned sheep, where the little coneys bleat and the gentle ptarmigans lead their downy broods, the young whistlers grow up and learn the lessons of life most necessary for their good. By early autumn, which in their high zone begins in September with blankets of snow, the old male whistler has stored up all the fat his skin will hold and, weighing twenty or twenty-five pounds, waddles back to the big burrow under his watch tower and curls up in a soft bed of grass deep down below the frost to sleep away the winter—the first to bed in the fall and the first up in the spring.

A little later, the mother has acquired her necessary store of fat, and gone down into her newly prepared winter nest in a new clean burrow or the old one well cleaned out and refurnished for the winter sleep and spring nursery. Still the young are not very fat, are rapidly growing as well as storing fat; and come out every warm day as long as a green blade is to be found. At last however, perhaps a whole month later than their parents, they prepare winter nests, individually if well grown and well fattened, or crawl in with their mother if too young to make their own homes, and all the whistlers are safely tucked in.

Hibernation is the name given to this long, deep sleep, for it is more than sleep and just short of what we call death. Deep below the frost line the body temperature goes down to nearly that of the air, and all the bodily functions are greatly reduced. Respiration and circulation are at their lowest ebb and the brain is far beyond the land of dreams. To all external appearances the animals are dead, but each remains curled up in a ball, neither rigid nor relaxed, but silent, cold and motionless, until the first warm days of spring. Just when that is at these heights is not very definitely known, but Chief Ranger Carter says it is generally well along in May. With the brown woodchucks two zones below, it is April when the first old males are seen venturing from their burrows to wake up the rest of the family. The females sleep a little later and the children still later, but apparently they all get in seven or eight months of rest

and relaxation. Is it any wonder their lives are full of vigor and energy during the short period of activity?

During this deep sleep there is so little bodily waste, so little real living, that it seems fair to presume that not all of the sleeping time is deducted from their natural span of life, that their period of active life may be just as long or longer than that of the squirrels which do not hibernate.

But the question so often raised with such animals again comes up: "What are they good for"? To those who can ask such a question the same question could be applied. To be sure they are not convertible into ready cash; their fur is not especially attractive, their meat while good food is not generally in much demand; they do not serve man in any utilitarian way. But have they no value?

Twenty-four years ago a few specimens of these great marmots were collected above timberline in what is now Glacier National Park. They were as shy and wary as lynxes and could only be secured at long rifle range. Bears, wolves, mountain lions, lynxes, wolverines and fishers were then more numerous than now, and to them the whistlers were daily bread. No wonder they were shy.

Now with reduced numbers of predatory animals and a National Park organization for protection of wild life, they have come to realize that man is a friend, and it is no uncommon occurrence for a grizzled old whistler to come waddling up to the trail and stand straight up expectantly waiting to be fed some dainty cake or nut.

If offered food in a friendly manner, he takes it from your hand without alarm, often clasping your finger with one soft paw while he takes the food with the other. If the touch of that soft little hand does not go through your whole frame with the thrill of kinship to the animal world, you are not worthy of the confidence that is offered you. To the nature lover it is a truce with the wild life, one little link that shows how much we miss in our harsh and unsympathetic attitude toward most of our fellow creature; a softening and ennobling influence in our lives, worth all the long climb to the clean meadows of the "high, high, high" mountain passes.

Nine Species and Subspecies

The hoary marmots belong to a group very distinct from the brown woodchucks. Nine species and subspecies are recognized with names and type localities as follows:

Marmota caligata caligata (Eschscholtz). Type from near Bristol Bay, Alaska.

Marmota caligata vigilis Heller. Type from West Shore Glacier Bay, Alaska.

Marmota caligata sheldoni Howell. Type from Montague Island, Alaska.

Marmota caligata oxytona Hollister. Type from head of Moose Pass branch of Smoky River, Alberta, Canada.

Marmota caligata okanagana (King). Type from Gold Range, British Columbia.

Marmota vancouverensis Swarth. Type from Vancouver Island, British Columbia.

Marmota olympus (Merriam). Type from head of Soleduc River, Olympic Mts., Washington.

Marmota caligata cascadenis Howell. Type from Mt. Rainier, Washington.

Marmota caligata nivaria Howell. Type from mountains near Upper St. Mary Lake, Montana.

For full descriptions with details of characteristics, distribution and habitat see the Revision of the American Marmots by A. H. Howell, North American Fauna No. 37, April 7, 1915, for sale by the Superintendent of Documents, Washington, D. C. Price 20 cents.



Photograph by GEORGE L. BEAM

GRAND CANYON FROM BRIGHT ANGEL POINT, NORTH RIM

Following South Rim left to right: above horizon, San Francisco Mountains an inch to right of man's head; at center, distant peak of Red Butte; an inch to left of right margin, Yavapai Point is merged in wall. In Middle Distance: Brahma and Zoroaster Temples right of man; Bright Angel Canyon in right middle, carrying trail to South Rim. Transept in lower right.

NORTH RIM OF GRAND CANYON TO HAVE HOTEL

One of the Western Mountain Kind with Sleeping Lodges Surrounding Central House

OPPPOSITE El Tovar and the public camping grounds on the South Rim of the Grand Canyon, a camp hotel will be built immediately on the North Rim. Accompanying a central structure with all hotel conveniences, will be sixty-seven two-room sleeping lodges, five of which will have private baths. The plant will cost \$550,000.

The new concessioner, known as the Utah Parks Company, a subsidiary organization of the Union Pacific Railroad Company, has acquired the present Bright Angel Camp on the North Rim, which it will operate until the new hotel is ready for use. It has also acquired the Grand Canyon Transportation Company which runs stages from the railroad terminal at Cedar City to Zion National Park, Bryce Canyon, and the North Rim of the Grand Canyon.

RED ALDER ENTERS THE LUMBER MARKET

A Forest Service release dealing with northwestern lumber conditions says:

"Because of the scant supply of other commercial hard-

woods native to this region, and because of the excellent qualities of red alder for the turned and flat parts of furniture, novelties, and the like, wood-using industries of the Northwest are now consuming more than twice as much red alder as of all other local hardwoods combined. This demand is growing rapidly, mainly because of the increasing use of the wood for cores in high-grade panels."

AT PAPAGO SAGUARO NATIONAL MONUMENT

The National Park Service reports that 4,468,695 motorists passed through Papago Saguaro National Monument in Arizona during the past year. This reservation preserves cacti and other desert plants from destruction.

These millions did not visit the monument, however, to see the cacti, which grows plentifully thereabout over many thousands of square miles. They were passers-by over the State Highway. Fifty-three thousand of them who stopped and showed some interest in the vegetation were counted officially as visitors to the National Monument.

REAL OR MAKE-BELIEVE?

Editorial

NORTH CAROLINA and Tennessee have before them, to accept or reject, an opportunity of utmost importance to the nation as well as to themselves.

With five million dollars available for purchase of a national park in the Great Smoky Mountains, it is possible for them to acquire lands of commanding scenic magnificence clothed with more than a hundred thousand acres of original unmodified forest, quite enough, together with a protecting border of flatter lands, to make Great Smoky rank, in her own way, with her famous sisters of the west. That is the ideal and practical, but expensive, way.

Or it is possible for them to choose from the purchase area prescribed in the Temple Act a very much larger national park, including the entire 668 square miles proposed, which would contain comparatively little that was extraordinary. That is the cheap way—cheap in every sense.

Many, including certain advisers of particular influence, favor compromise by purchasing part of the expensive central uplift to establish a showy claim of magnificence, while confining all other purchases to the low second-growth cheap lands surrounding. That is the shoddy way—like a poor building behind a pretentious front.

A Park to Meet the Test

We are confident that States of the quality and enterprise of North Carolina and Tennessee will, before committing themselves to any purchase, carefully canvass their responsibilities and opportunities. In selecting lands for this park, they are stewards first of the nation, second of the National Parks System, third of their state interests. But their duty to themselves chords perfectly with their duties to nation and system. The future ranking of their national park in the system will depend wholly on quality, not at all on quantity. Upon Great Smoky must fall responsibility of upholding eastern national park quality in the inevitable future comparison between east and west and it is their supreme duty to their own states to sponsor a national park only of the highest order.

All the lofty ridges and all the original unmodified forest in the Great Smokies will barely suffice to meet this test. To these, the addition even of millions of acres of low-altitude second-growth country would add nothing to the repute of Great Smoky as a National Park; rather, it would detract from it; and it is solely upon its repute throughout the nation as a standard part of the System that these states must depend for return in prosperity upon their investment of capital, enterprise and years of hard work.

Analysis of travel to existing national parks shows three classes of visitation: local pleasure seekers, lovers of scenery and nature, and motorists on tour. Local visitors will add nothing to state wealth by transferring spendings from one locality to another, lovers of scenic sublimity and students of nature will number many thousands, and casual touring motorists stopping off for a look will constitute here as in other national parks three-fourths of all.

To all comers from outside these states, any number of thousands of square miles of beautiful hills and second growth forests will mean nothing, for these are found everywhere in state and private possession, and in national forests, throughout our beautiful east. To see Great Smoky's lofty impressive central massing, and the original forest which exists in conspicuous area and quality nowhere else, will be their only desire. A few thousands annually will explore these mountains and forests by trail. Many thousands annually will stay awhile at well-equipped hotel and camping centers overlooking it. All other lands but these will prove superfluous investments.

To Take No Chances of Success

This, then, is the property which the park makers should make sure of at the outset, for their own sake as well as the nation's. Not a dollar should be risked on lesser area while an acre of the best remains unsecured. Every acre of this will return its high cost a thousand times in tangible as well as intangible values.

There is another reason why every acre of the lofty central uplift and its clothing of original forest should be nailed down at the very start. To make sure that the area requirements of the act include the whole of the great central feature upon which the park's fame and prosperity will solely depend will cost far more than these states can raise. Nearly five millions are in sight, North Carolina having appropriated two millions and Tennessee a million and three quarters, and a million having been raised by private subscription. Two and a half million dollars more, it is estimated, will be required to buy the whole, good and bad, standard and commonplace, which the acts require.

Where will that come from?

From the people of other states, is the prompt reply, from the super-wealthy and other national park enthusiasts throughout the country. The idea is encouraged by the Southern Appalachian National Park Commission.

But for what?

To help load upon the national treasury the development, protection and upkeep forever of an immense recreational area of state-park quality? Or to procure for the nation an addition to its National Park System which shall meet highest national standards, and worthily represent the east from which these contributions will be asked?

The Pledge of Good Faith

Something much surer than hopes and intentions must precede any such money-raising, if it is to succeed. If North Carolina and Tennessee will go to the country with the whole of this lofty central uplift and all its gorgeous mantle of original forest already safely tied up by contract to purchase, it will offer an acceptable pledge of good faith.

In order that we may better understand the situation, it is well to explain that the Great Smoky Mountains are unique among the many ranges constituting the

"MARCHING HAND IN HAND"

By STEPHEN T. MATHER
Director National Park Service

In the national parks education and recreation are marching hand in hand. As the number of visitors to these reservations has shown a marked increase from year to year, so have the facilities afforded visitors to study their absorbingly interesting natural phenomena, and these facilities have been used to the utmost. I am sure that 1927 will be a banner year throughout the national park system from both recreational and educational standpoints.

Appalachian System. They are, in fact, its climax, and their own climax is this central group of lofty summits which, not only because of height, commanding outline and majesty, but because they still retain their pristine forest, possess standards for admission to our National Parks System. Several miles of ridges in this central group exceed 5000 feet in altitude, and many summits exceed 6000 feet, which, measured from the region's base of 1500 feet, offer commanding heights even in comparison with mountains of the far west. It is because of their precipitous contours and difficult wilderness that it has not proved profitable yet to lumber them; but the hordes of the axe are now creeping up their slopes on every side.

Outside of this region of the best, the Great Smokies decline immediately to the average of eastern mountain country. Most of the ridges enclosed in the purchase area rise less than a thousand feet above broad levels, and all have been lumbered long since except several small tracts which now are falling or about to fall.

There is No Other "Just as Good"

Influential advisers tell the local park makers that, since deciduous forest grows rapidly in this well-watered country, second growth is "just as good" for national park purposes as original unmodified forest; that, in a few years, "no one can tell the difference"; that second growth will "accommodate more campers." But paste jewels, however beautiful, are not crown jewels. "Just as good" second or third growth does not constitute our national museums of the original wilderness which our pioneer forefathers conquered. Some of it may be necessary for protection of the great central exhibit, and, because flatter and lower, for administrative and other practical purposes, but not to "accommodate more campers". If motor tourists camp in considerable numbers outside of two or three well-equipped points of concentration within sight of the main exhibit, they will do in Great Smoky what they refuse to do in every other national park.

The Temple Act provides a purchase area of 704,000 acres (1100 square miles) out of which park property must be chosen. It permits acceptance of a first instalment of 150,000 acres (235 square miles) for government protection and administration, which automatically will create the national park, officially so entitled. But it specifies that this area nevertheless shall not be developed for use until a major part of the remaining purchase area shall also have been acquired. The completed park under this program would enclose 427,000 acres, or 668 square miles.

Opportunity Invites

Temptation to acquire the first 150,000 acres at cheapest possible prices (Tennessee already has contracted for half of it at cost of a quarter million), in order to possess and claim at once the coveted title "national park", has its appeal. A "national park" of such low quality, however, would damage the project's prestige beyond recovery.

But this provision of the act also offers opportunity. A hundred and fifty thousand acres could include all the great central uplift with its covering of original forest, and some protecting lower lands besides. North Carolina and Tennessee have both granted power of condemnation. It is therefore possible to purchase the whole of this essential part with cash already provided, or contract for it even though actual purchase must wait upon securing also other lands. But agreements and laws can both be altered to meet requirements of wiser second thought.

In this way, the two states may promptly guarantee to the nation their purpose that Great Smoky shall be a real, not a make-believe, National Park.

HAWAIIAN TREASURES OF THE PRIMITIVE

WITH representatives of many Pacific nations recently gathered at Honolulu to discuss subjects of common interest, among them parks and recreation, Mr. Emerson's article on another page on Hawaii's Contribution to the Story of Creation should command particular interest.

Much of the richness, novelty and indescribable charm of Hawaiian native vegetation are safe within the forest reserves which already, with wonderful foresight, have been set apart for the future use of the territory; but within these, and elsewhere in the islands, specially fine examples may well be defined and dedicated to particular uses. Startling volcanic phenomena so characterize our one National Park that few are even aware of its vegetational treasures. These are few and small, however, compared with the islands' great range of examples.

It is not only from destruction that these preservations must be made, but from invasions of foreign species to which the gracious Hawaiian soil and atmosphere offer hearty welcome. As carefully chosen areas of particular significance in our own national forests and other classified federal lands are dedicated to scientific uses forever under the title of National Monuments, so might Hawaiians profitably segregate definite areas already protected in their forest reserves, and others still unprotected, perhaps as Territorial Monuments, for the scientific research and study of the future.

Great sympathy with such a policy would be discovered in the continental part of our nation, which has suffered much from lack of foresight during decades past, but it must initiate, if at all, in the islands themselves.

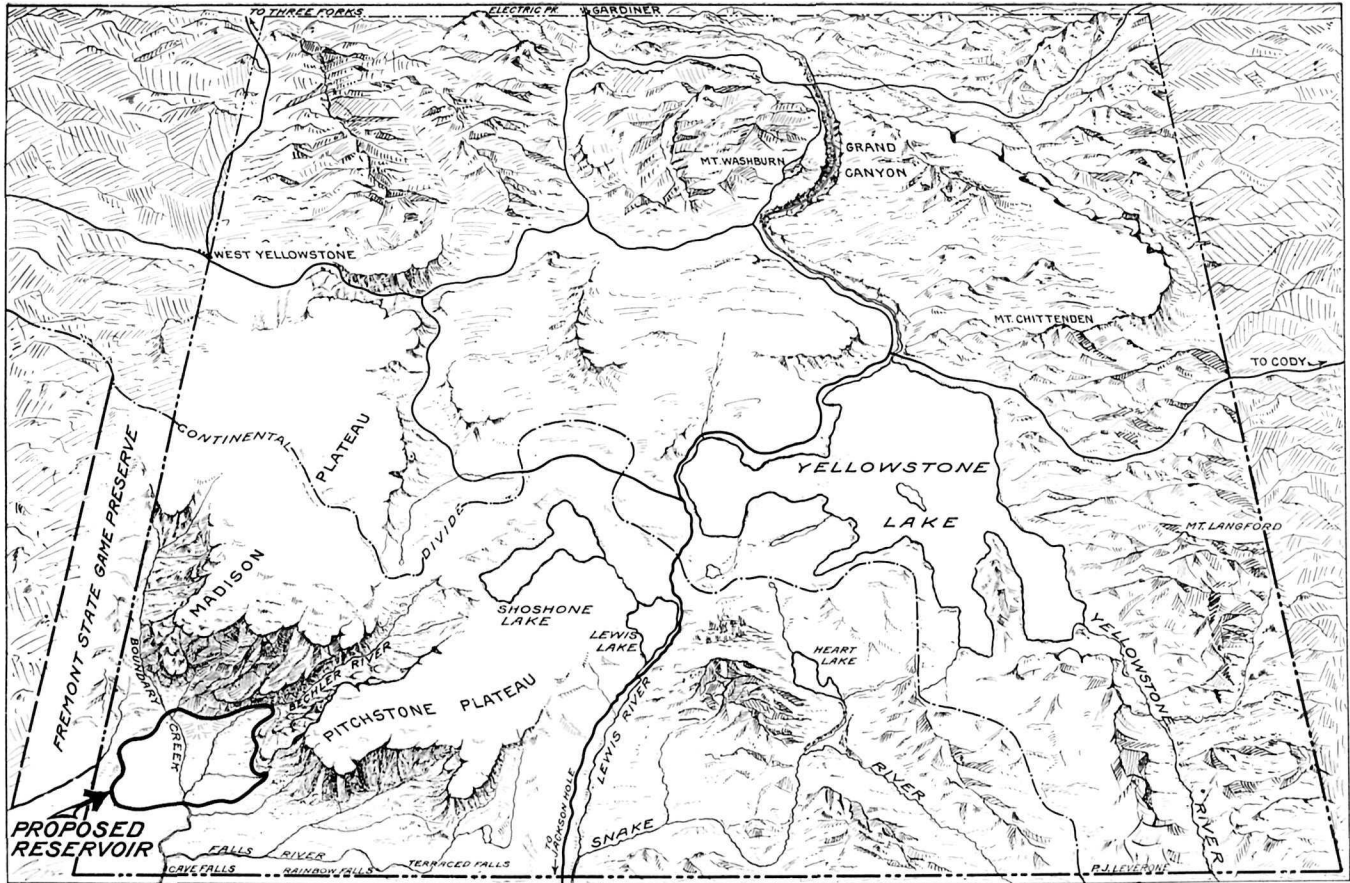
NATIONAL PARK OR STATE PLAYGROUND?

WITH two thousand California motorists availing of the new "all-year road" to eat Christmas dinner in Yosemite Valley, astonishing thousands making it the turning point of winter runs, forty thousand registering during the Memorial Day week-end, and all daily records soundly smashed thereafter, it seems appropriate to ask what National Parks are for.

It is also desirable to ask what the official National Park statistics mean. There was a time when the people of the nation visited national parks to revel in the magnificence and enjoy the inspiration of their scenery. Is that true today? Or has Yosemite Valley become merely a popular local touring terminal? That some at least of these neighborhood trippers enjoy scenery is indicated by the serious suggestion that parallel valley roads be built high up the talus to afford views unobstructed by the crowds awheel.

The time has long passed when our high-flying national park statistics mark the popularity of anything else than stations on the road. Acting on unanalyzed statistics is a national vice. Lured thereby, sections of the country are demanding national parks of their own for the wealth they are supposed to bring to states which possess them; and campaigns for election to Congress are based on "getting national parks" to enrich the good people at home. Yet this year's enormous increase in Yosemite patronage will profit California nothing, since it merely will transfer dollars from California pockets to the coffers of California oil companies and California park concessioners.

It is time for the nation to discover what national park patronage consists of, and the conditions controlling increase. We have lived too long in a fool's paradise, assuming facts which no longer exist. In February we made a preliminary survey of national park travel conditions. In this number, we analyze them section by section.



Location of Bechler Basin, Yellowstone National Park, and the proposed Reservoir in Relation to the Surrounding Plateaus down whose Precipitous Fronts drop many exquisite Water Falls and Cascades. Relief Map by Paul Leverone, formerly National Park Service

BECHLER MEADOWS NECESSARY TO PARK UNITY

To Turn Them Into a Reservoir, In or Out of Yellowstone National Park, is to Besmirch the Foreground of a Masterpiece in Nature's Scenic Gallery

By HAROLD A. CAPARN

(From an article in *Landscape Architecture*, by permission)

REGARDED superficially, the proposed Bechler Basin reservoir site appears to be merely a piece of flat land surrounded by pines. Why not put it in the class of other flat lands and make it serve a really useful purpose? The fallacy of those who take this point of view arises from mentally putting a fence around the meadows and cutting them off from their surroundings; in trying to separate the inseparable; in looking at a part and not the whole; in seeing not what is really in front of them, but only what they desire to see; in closing their eyes to the obvious. Of all such meadows that the writer has seen, in or out of Yellowstone National Park, the Bechler Meadows are by far the most interesting; but it is not this that makes them so valuable to the park, but their relation to their surroundings. Possibly some of the hundreds of other meadows in Idaho may be as attractive in themselves as the Bechler, but they are not within the boundaries of a national park, nor are they a part of its structure.

The real way to regard the Bechler Meadows and to get a true idea of their value to Yellowstone National Park is not to look at them as an isolated unit, but as an integral part of the park scenery. It is quite possible to separate them from the Park physically by putting a fence around them or converting them into a reservoir, but no power

short of destroying the encircling mountains can separate them from the park scenery or prevent them from exercising a potent influence thereon. In proportion as the Meadows are spared or damaged, the integrity and charm of the entire picture will be preserved or injured. As a painter would put it, the Meadows are the foreground to the nearby and distant mountains, to the wooded slopes that run down into and form a part of them, and to the rare silhouette of the distant Tetons. Seen from some places, they would form the middle distance, and if one could look down on them from the upper heights of the Tetons, they would be part of the distance.

But from any point of view, both the near and distant mountains depend for much of their fascination on the Meadows which form the complete and perfect foreground of the whole picture.

It is complete and perfect because it was produced by the inter-action of all the natural forces that produced both meadows and mountains. All the parts of the scene are inter-dependent. Anything that interferes with these processes, that injects any new and inconsistent element into their slow and orderly progress, will mar the perfection of the picture and interfere with the purpose for which the Park was created, which is the preservation of rare scenery,

in its natural state as far as may be possible consistent with making it accessible.

The interest and fascination of Yellowstone lies not alone in its containing wonderful and startling features like the Canyon, the Old Faithful geyser, or the view from Mount Washburn, but in the connection and separation of these by an endless variety of scenery of less striking character. To the unity and completeness of this, meadows or open flat spaces are as necessary as steep mountain sides covered with forest, and the attraction of the great features themselves lies in no small degree in their not being huddled together like specimens in a vast museum, but separated by intervals of tamer country, giving the visitor time to assimilate his impressions and avoid the weariness and mental staleness of a surfeit of crowded wonders.

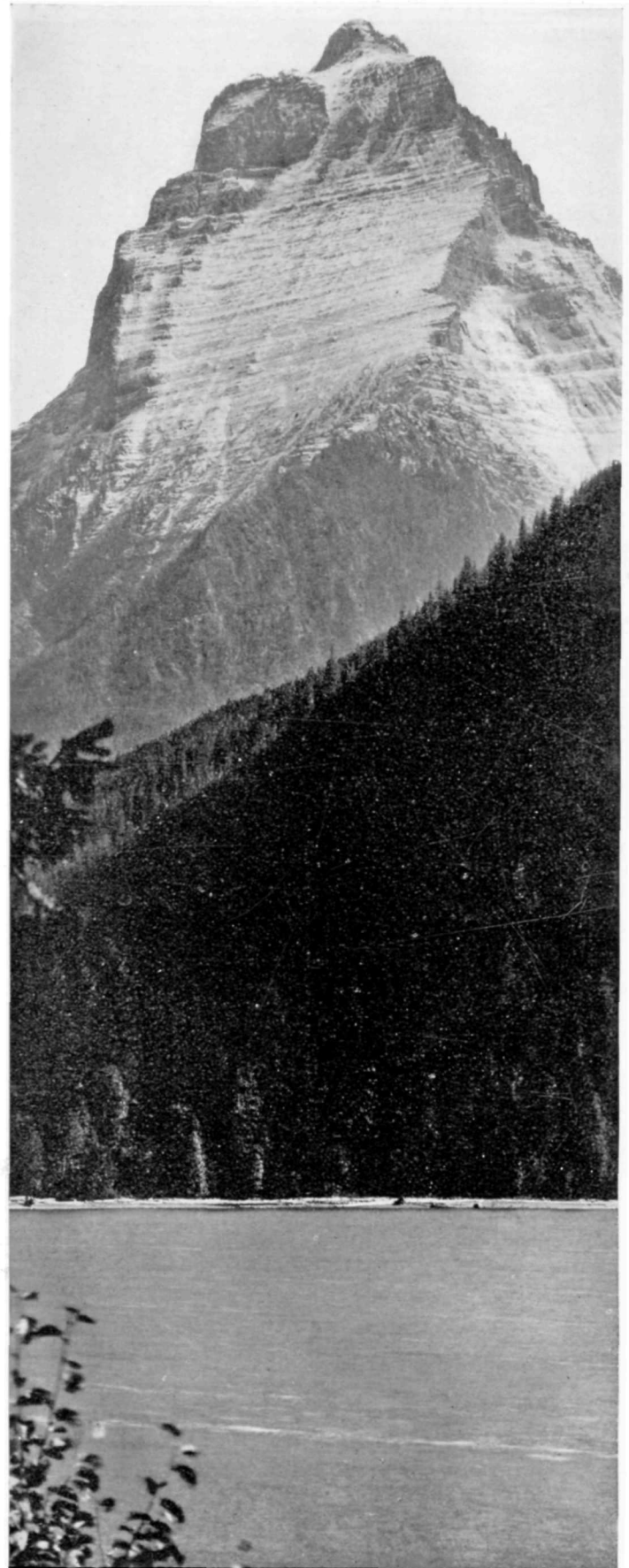
There are, therefore, two ways of getting an idea of the value of the Meadows to the scenery of this part of the park. One of them is to stand in the proposed reservoir site itself, and imagine what would be the effect on the scenic picture if this site could be eliminated; the other is to go to some vantage point outside of the Meadows and look down upon them. One such point is the rocky height near Silver Scarf Falls, from which a picture of mountain, forest and meadow of extraordinary perfection and beauty can be obtained; another is on the railroad a few miles from West Yellowstone where a picture of the same meadows and mountains, yet totally different, is visible; and there will be pictures of similar quality from every point from which the Meadows can be overlooked.

Perhaps it may not be so easy for the average spectator to imagine the elimination of the Meadows from the scenic picture; but anyone who has seen the ghastly mud flats of the Jackson Lake reservoir at the foot of the Teton Mountains in August and September would have little imagination, indeed, if he could not picture for himself the scene of stark desolation that would be introduced into the panorama of a national park, if not into its technical boundaries, if the irrigation interests could have their way. Even if the reservoir site should be excluded from the Park by rearranging the boundaries, the new lines on the map would make no difference to the picture—from which the meadow area cannot be separated no matter how the boundaries may be changed or what destruction may be wrought.

To sum up, the Bechler Meadows are not only a highly interesting type of meadow scenery in themselves, with very unusual character and grouping of forest growth, as to the causes of which the writer feels very curious but can only speculate; they are also an area which is necessary in its natural, unspoiled state to the park scenery, which means to the park itself. They are as necessary to the mountains and forest as the mountains and forest are to them. There could be no greater fallacy than to assume that the park scenery could be separated into its component parts and some arbitrarily subtracted from others. To say that the Bechler Meadows are not of National Park quality and could be separated from the park without detriment is a good deal like cutting a piece out of one's coat and saying that the loss of a piece of cloth would not damage the coat.

TO PRESERVE LONG-HORNED CATTLE

A herd of the long-horned cattle of pioneering live-stock days in the West is to be maintained in the Wichita National Forest in Oklahoma. For many years these have been superseded by modern stock, but enough of them remain here and there for selection of an excellent herd for preservation. It was Will C. Barnes of the Forest Service who conceived and carried this plan into execution.



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KINNERLY PEAK

Rises five thousand feet above Upper Kintla Lake, Glacier National Park. The picture shows Lower Kintla Lake. Gray Algonkian limestone

THE MOTOR TOURIST AND THE NATIONAL PARKS

Second Paper on Tendencies in National Park Patronage, based on Official Statistics and Recent Observations

By ROBERT STERLING YARD

OUR prophecy of February last, that Yosemite Valley was destined to become a local holiday city, has already been fulfilled. During the Memorial Day interlude, forty thousand Californian motorists rushed the valley, more than twenty-four thousand crowding it at one time. Checking stations worked around the clock. Motor parties camped where they stopped on any part of the valley floor. Bear show, concerts, museum and dancing pavilions were crowded to limit. Only by sharp work was food provided sufficient for the emergency.

Twelve years ago Yosemite concessioners despaired of winning visitors enough to pay interest on investment. The overwhelming increase has come almost wholly awheel.

What brought it? The "lure of the national park," of course! No one has ever sought a more specific answer. Upon assumption that every area called "national park" would work the same wonder, millions have been raised in the east, and Congress has been bombarded scores of times to provide national parks for other states, east and west. Upon this popular delusion political campaigns have been founded, and lost. Upon success or failure of drives in the east for local profit based on government statistics of national park travel in the west, hangs the fate of one of this nation's proudest possessions.

How Statistics Have Misled

In our February number, we analyzed statistics to show an annual gain of 25.2 per cent in National park attendance for the last decade, of which the first five years showed 37.4 per cent increase and the last five years 13 per cent increase. This decrease of increases is significant.

But during that same period, national forests have shown visitation increases considerably greater, and western states have developed travel increases elsewhere than in national parks, largely local, which often are greater than in the parks themselves. It isn't, then, national park pull only.

Statistics, therefore, have lied; not by misstatement of national park increases, but by failure to show anything else. Late, but not too late, let us discover what national park statistics really have to disclose.

Pacific Coast Situation

We have seen that the new all-year road which was opened into Yosemite last August already is turning the Valley into a popular neighborhood community, and that the fine new highway into Sequoia National Park is destined to produce in time another local summer city on the borders of the Giant Forest.

This is also true of little General Grant National Park, whose patronage last year averaged 12,400 persons for each of its four square miles of area. General Grant's small size and the new road to connect it with the Giant Forest in near-by Sequoia National Park, will, by completing a circle drive including both, settle its future for all time as a day, week-end, and summering resort for southern California residents. Other local resorts are growing even faster.

The fact that Lassen Volcanic National Park still has less than nineteen thousand visitors, we conceive to be wholly due to poorer road connections with the superlative tourist highway system of the Pacific coast. As soon as motorists can glide to it over perfect surfacing and find

facilities for a comfortable night's rest before gliding back to the main highways, no doubt we shall hear that Lassen, also, is attracting visitors by very many thousands annually.

The future of Crater Lake appears settled by its regraded and resurfaced loop road, which also touches beautiful Klamath Lake. Eighty-six thousand visitors were recorded as entering it last year, a year's increase of twenty-one thousand, but the immense majority were touring motorists who gave it merely an admiring glance in passing.

Similar Conditions Spreading North

Still farther north, in Washington, Mount Rainier National Park remains one of the grandest wildernesses in the continent, with Paradise Valley, south of the mountain, its only point of concentration. Last year, attendance actually declined more than eleven thousand, attributed to forest fires along the approach roads which made touring detours unalluring for some weeks. Extensive road plans to open up the entire west side and penetrate the park from the east suggest a future similar to the California parks. The ice-clad volcano is only forty miles from Tacoma and sixty from Seattle. The round detour, in one way and out the other, will lure through it many additional thousands of motorists on tour who now pass it by.

We must recognize the patent fact that the entire Pacific coast, under California's leadership, has entered the resort business on a great scale as a major industry, and that its national parks are merely one of many groups of advertised attractions. Were no national parks created in its mountains, it is probable that its patronage from other states would scarcely be less than now, and that its own inhabitants would be as persistent motorists.

Largely Records of Passers-By

Not only because of the summer warmth of her valleys, but as a natural result, perhaps, of tourist example and highway opportunity, California's restless permanent population has itself taken ardently to the wheel. Automobile licenses equal a third of her total population including babies. To these, and to the increased permanent population which is expected to follow the extensive advertising campaign now conducted throughout the country, the cool altitudes of the national parks will offer irresistible attractions for day and week-end runs. Because of the excellence of the roads, the charm of mountain motoring, and the attractions of their hotel centers, national parks will lead all other mountain resorts accessible by excellent roads to pleasure seekers living in the warm Californian valleys.

If we are to comprehend the bases of national park patronage in the Pacific states, and it is high time that we did, conditions such as these must engage our serious consideration. We must understand that new records of immense park patronage are largely records of passers-by dependent on the quality of the roads, and of neighborhood visitors out for motor runs or week-end trips.

Starting out to estimate the character of average national park patronage, a matter of growing public concern, it becomes evident that the time has passed when safe conclusions may be drawn from the very special conditions existing in California and spreading rapidly northward. Let us look, then, to Yellowstone, whose conditions are more

nearly normal. At least Yellowstone is farther from large permanent populations. At the same time, we must remember that perhaps a majority of eastern motor tourists bound for the Pacific coast stop there incidentally, and that it is in line of the regular summer motor migrations from the semi-arid states to cooler mountainous regions.

Fortunately, Yellowstone's enterprising administration provides well analyzed statistical information concerning visitation.

We learn, for example, that, of the 187,807 visitations last summer, 141,643 came in 44,472 private automobiles, whose drivers represented 380 different occupations. Of these, agriculture claimed the largest number, 6,360, of which 5,200 were farmers, 833 ranchers, 244 stockmen, 45 fruit growers, and 4 planters. Salesmen, with 2,648 representatives, were listed second, followed by 2,062 professional men and women, 2,035 merchants, 1,817 teachers, 1,455 mechanics, 1,454 laborers, 1,384 students, 1,293 proprietors of various businesses, and 1,089 clerks. Those registering as retired numbered 1,006, and the rest were unclassified.

Yellowstone Travel by States

Montana naturally furnished the largest state quota, namely 16,451 persons arriving in 4,813 automobiles; many of these doubtless were frequent repeaters from near-by towns. Idaho came second with 12,505 visitors in 3,199 cars, California third with 12,337 visitors in 4,269 cars, and Utah fourth with 8,760 visitors in 2,458 cars. Indiana, Iowa, Colorado and Washington were represented by more than 5,000 motor visitors each, Kansas, Minnesota and Nebraska by more than 4,000 each, Michigan, Ohio, Oklahoma, Oregon and Wyoming by more than 3,000 each, Missouri, New York, North Dakota, South Dakota, Texas, and Wisconsin by more than 2,000 each, Indiana and Pennsylvania by more than 1,000 each, and all other states by hundreds except six which contributed less than a hundred, with little Delaware's 25 tailing the list.

Of eastern states ambitious to possess national parks of their own, Tennessee sent 203 travellers by motor, North Carolina 106, and Virginia 111.

Sectionally, 41,567 motorists visited Yellowstone from the 26 states east of the Mississippi, an average of 1600 from each state. Of these, 15 northern states sent 38,221 motorists, an average of 2548 each, and 11 southern states sent 3346 motorists, an average of 304 each. Canada sent 1,768 visitors, Hawaii 88, Panama 8, Mexico 7, and Porto Rico and Cuba 2 each.

So much for the motorists.

Of 40,960 visitors by rail, 4,924 came from Illinois, leading the list. New York scored second place with 3,805, Ohio third with 2,942,

and Pennsylvania fourth with 2,352. Twenty-nine foreign nations were represented.

The analysis suggests much, but for average conclusions we must discount for travel from Yellowstone's immediate neighbor states, for transcontinental tourist travel stopping incidentally in Yellowstone, and for the fact that very many unquestionably were habitual motorists who, had there been no Yellowstone, would have found some other objective for long summer drives. As measuring the pull of the park itself, rail travel, most of which came from the Central, Middle and Eastern states, is probably a sounder index.

Conditions in Glacier and Rocky Mountain

To approximate national park visitation for its own sake, Glacier National Park, because outside the usually traveled highway routes from coast to coast, might better have served us, but the season's statistics are not available in detail so complete as Yellowstone's. Visitors to Glacier last year numbered 37,235, a decline of more than two thousand from the year before. Completion of the trans-mountain road, long building, which will carry motor travel through the park, doubtless will greatly increase patronage by making this park also a station in the summer motor swing between coasts.

Rocky Mountain National Park suggests Pacific Coast conditions. Comparatively few of last year's 225,000 visitors stopped within its boundaries. The high Estes Park plateau east of the mountains commanded 50,000 summer visitors before the national park was created, and the majority of those who now stay for days or weeks still live outside. Most of the decade's increase is clearly due

to the motor touring invasion rather than the fact that this popular region was meantime declared a national park. Similar increase is observable over a large neighbor area of extensive road development. Besides the park's trails, the Front Range carrying the continental divide is crossed only by the Fall River Road through a deep ravine-long valley which effectually conceals the glory of the park mountains; through this passes the ceaseless procession of automobiles from and to Denver, seventy-five miles south, each of whose passengers is recorded officially as a park visitor.

Until a summit road supersedes the present route, which may be many years, the gorgeous wilderness of Rocky Mountain National Park will remain comparatively a solitude, notwithstanding the park's great and growing official visitation.

Grand Canyon for Its Own Sake

In the nature of things, Grand Canyon National

LEST WE FORGET

SECRETARY WORK ON NATIONAL PARKS

(From a letter to Senator Fletcher, Jan. 14, 1924)

“UNDER the theory and practice of the United States Government since 1872 when Yellowstone National Park was created, our National Park System is made up of areas enclosing scenery of quality so unusual and impressive, or natural features so extraordinary, as to possess national interest and importance as contradistinguished from local interest. * * *

“The National Parks, therefore, must not be lowered in standard, dignity, and prestige by the inclusion of areas which express in less than the highest terms the particular class or type of exhibit which they represent. * * *”

(From a letter to the Editor of the National Parks Bulletin, October 16, 1925)

“Municipal and State Parks and National Forests together offer outdoor opportunities in countless numbers, and easily accessible. The Government finds itself duplicating these areas down to the smallest picnic park. We have gotten away from the fundamental principle that the Government should do nothing an individual municipality or state can do for itself, and we are competing in little things, benumbing public spirit and thwarting local pride of possession and development.”

Park probably will retain its vast superlative desert wilderness untouched forever, but only, notwithstanding the immense cost of such an undertaking, because public opinion forever will resist invasion of its gulf by a road from rim to rim.

Both its points of concentration, one well developed on the South rim and the other about to be developed by a large hotel on the north rim, are termini of long up-mountain drives from main highways, for which reason, and the additional reason that the concessioners permit no entertainments of any kind, the motives of motor visitors are unimpeached. They come solely to see the Canyon. Patronage has increased steadily from 37,000 in 1919 to 140,000 last year.

Perhaps Merely the Beginning

From this rapid touching of crowd conditions a decade or more after dawn of the automotive age, many interesting inferences may be drawn; and those personally not familiar with National Park conditions beyond the points of concentration may easily predict therein the certain doom of the System's precious primitive quality. In fact, thousands are worried over what they find in the points of concentration, assuming that it will spread in time throughout the parks.

Such a conclusion, we feel sure, is far from warranted.

It is true that the new conditions cannot be cured; motor touring doubtless is in its infancy. A million a season may camp week ends in Yosemite City, or sweep in an endless procession of cars past the bowl of Crater Lake, stopping to look in, or swing around the double-eight in Yellowstone, or file through the Fall River gorge in the Rockies, without disturbing in the least the loveliness, purity and isolation of the surrounding fastnesses of mountain, forest, canyon, lake and river. On the contrary, I am sure that we should not want these unchangeable travel conditions changed, for the more who see these spectacles, even in this desultory modern way, the more there will be who benefit by impressions at least of their great gifts of revelation and inspiration.

Road Limitation the Solution

The vital questions are whether it is possible to hold the growing motor invasion to points of concentration and their connecting ribbons of road, and to subordinate road programs to preservation of the System's irreplaceable primitive.

The very nature of the invasion, as we have pointed out, carries with it the key to its control. Motorists are motorists. They can be concentrated because they refuse to be anything else. They stick by the road. They demand, on tour, the comforts of the road house and the public camp and the night pleasures of a resort. Their travel schedules rarely can be disarranged.

Limitation of roads within national parks, then, is the ultimate solution. The National Park Service is between fires. On the one side, many park concessioners hoping to keep profitable patrons longer under pay, and neighborhoods within easy driving distance desiring extension of customary pleasures, join in demand for roads to "develop" this or that outlying point within this or that park. These pressures are constant. Against them is arrayed the national public desire, in which the present administration joins, for maintenance of the irreplaceable, untrampled purity of nature. This sentiment, however universal and deeply felt, unhappily seldom rises to actual pressure.

As always, expressed public opinion will rule. It is up to you and me in this generation, and to those who follow us, to preserve or by silence destroy.

POLITICAL EXPEDIENCY

Shall Our Park System, Through Bartering and Regional Rivalry, Become Commonplace?

By GEORGE D. PRATT

(From an address to the American Forestry Association)

IT IS unfortunate that we are compelled to witness this past year a lowering of the high standard which we have set for our National Parks.

In the first session of the Sixty-ninth Congress legislation was passed providing for three National Parks in the southern Appalachians contingent on the lands being purchased by the public and donated to the Government.

With respect to one of these areas, at least, political expediency was a dominating factor. Congress failed signally to demand a careful determination of whether or not the area conforms to those scenic and scientific standards which distinguish our present National Parks. As the National Parks are such an important part of that immense inheritance which we are trying to do our share toward preserving for future generations, it behooves us to uphold the hands of those who are trying to keep alive the high standard of these parks, by which they will forever remain as places where, as Dr. Merriam says, "one looks through the veil to meet the realities of nature and of the unfathomable power behind it."

The precedent raises a challenge of whether our national park system shall remain a system of restricted areas comprising the highest and most inspiring shrines of nature or, through political bartering and regional rivalry, shall become an extensive chain of commonplace areas imposed upon the Federal Government for administration as public playgrounds.

To me this spells the destruction of the ideals and principles which have made our National Parks the outstanding scenic and educational institutions of their kind in the world. It assumes that the Federal Government's obligation is to administer at public expense vast playground areas for its people—an obligation I personally do not admit.

Carried to its logical conclusion, it would mean a withdrawal of great areas chiefly suitable for forest production from the economic uses of the country, and would burden the people with an increase in taxes that would halt the economic development of federal and state forestry in the United States.

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HAWAII'S CONTRIBUTION TO STORY OF CREATION

Remarkable Conditions Suggestive of Conservation Activities in which Our National Park Should Play a More Important Role

By OLIVER H. EMERSON

HAWAII has to a high degree two features necessary for the development of an extraordinary fauna and flora, namely isolation and a wide range of climatic conditions. In its extreme of isolation, Hawaii is rivaled only by St. Helena, whose native life has unfortunately been largely destroyed by immigrant pests. Due to this isolation, many large groups of plants and animals have never reached Hawaii; thus there are no native mammals, and no native conifers. The forms which did arrive have differentiated, until now, of the 1200 species of flowering plants, about eighty per cent are found nowhere else in the world. Insects, land-shells, and reef fish are equally unique.

The Hawaiian Islands are mountainous, all the larger islands having summits at least 4000 feet high, while the great volcanic domes of Maui and Hawaii rise to 10,000 and 13,800 feet, respectively. The result is a semitropical climate in the lowlands, a temperature zone at about 4000 feet with occasional frosts in winter; and sub-arctic cold on the highest mountains. The annual rainfall varies from 10 to 20 inches on the lee side of the mountains to 100 to 300 inches on the windward slopes, while the cloud-swept summit of Kauai receives 500 inches, said to be the heaviest in the world. These changes in rainfall often take place within an incredibly short distance, so that two or three miles may take one from desert to tropical jungle.

Remarkable Wealth of Living Species

It is these two factors, in addition to a rich soil, which explain why Hawaii should have as many as twelve hundred species of native flowering plants. New Zealand, with an area sixteen times as great as the Hawaiian archipelago, has no more species, while Japan, with an area twenty-eight times as great and including in its flora many plants common throughout eastern Asia, has only three hundred more. Nor is this wealth of forms limited to the plants, for Dr. R. C. L. Perkins, in 1913, after twenty years' study of the insects, knew of 2700 native species of these, and estimated that there were an equal number undiscovered.

It is also interesting to note the effect of these varying climatic conditions on certain plant forms; thus the lehua, *Metrosideros polymorpha*, is common on all the islands from sea level to 9000 feet, in wet regions and in dry. In favorable locations in the lower and middle forest zones it grows as a tree, often eighty to one hundred feet tall, while in the swamp on the summit of Kauai it grows as a trailing vine, often a few inches in length.

Geologically, Hawaii is built up of flows of lava, dominantly basalt, with occasionally a thin veneer of coral limestone near the shore. The great volcanoes, Mauna Loa and Kilauea, are frequently active, giving superlatively grand displays of Nature's fireworks. Hualalai and Haleakala have been active within historic times, while the vents which built up Kauai, Oahu, Molokai, West Maui, and the Kohala Mountains of Hawaii have been faulted and eroded beyond recognition, and great valleys, in some cases four thousand feet deep, have been carved in them.

The nature and age of the basement upon which the relatively young mountains of Hawaii rest is at present unknown. In terms of years, a very long time is required

to carve a valley four thousand feet deep; geologically not much time is required to remove mountains. The Achatinellidae family of land shells and the plant family Lobeliaceae have attained a degree of development which must have required a long period of time, even from the geologist's viewpoint. Thus there are more species of lobelias in Hawaii than in any single portion of the world, with the exception of the entire continent of South America.

Lobelias and Achatinellidae are land forms, and must have required land on which to live and develop.

How the Island Group Developed

From a very extensive study of these shells, H. A. Pilsbry concluded that in Mesozoic a land mass existed in the site of the present Hawaiian archipelago upon which the ancestors of the modern Hawaiian forms lived and commenced differentiation. Since the fauna and flora of Kauai differ considerably from those of the other islands, Pilsbry concluded that when the Pan-Hawaii land subsided, Kauai was the first island to be separated, which event may have occurred about Eocene time.

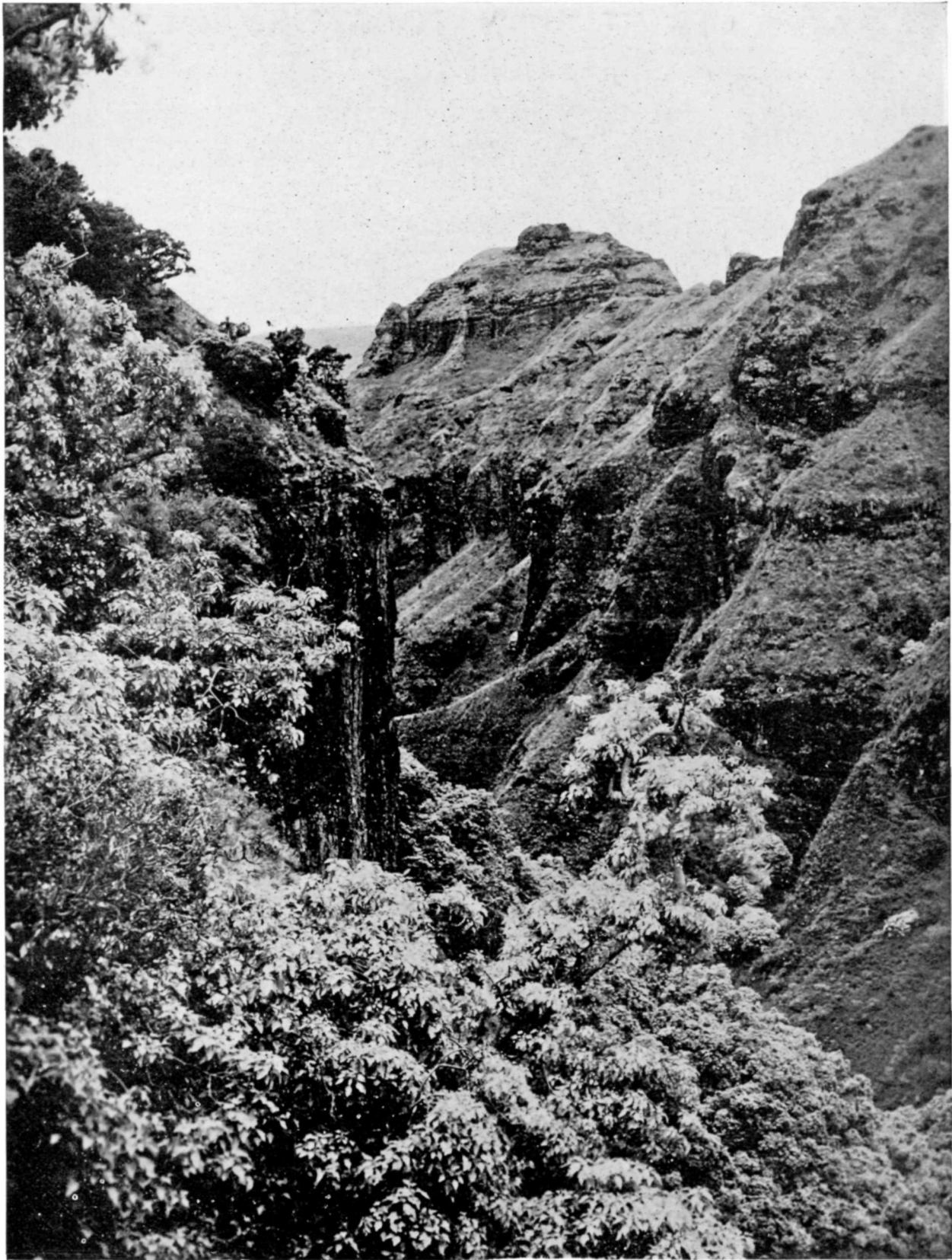
Northern Hawaii was next isolated, leaving a large intermediate island including Oahu, Molokai, Maui, and Lanai. Next Oahu was separated, and for a long time its two mountain ranges formed separate islands whose union again was accomplished in relatively recent times. Dr. Pilsbry believes that Maui, Molokai and Lanai remained united until Pliocene, or perhaps even Pleistocene time.

One of the most striking features of the Achatinellid shells, as well as of many types of plants, is the extraordinarily restricted areas in which many varieties occur. For this reason the Achatinella are one of the most interesting genera of shells. They are a rapidly evolving race with little tendency to migrate, and high ridges, deep valleys, and large streams are effective barriers to them. Thus specimens of *Achatinella fulgens* from the eastern side of the ridge between Waialae and Wailupe valleys on Oahu are generally yellow and brown, while green specimens are almost unknown. On the western slope, however, green is the dominant color.

A variety of *Achatinella casta*, named *casta margaretae* by Pilsbry and Cooke, has been found only on three lehua trees. Doubtless this is a very recent mutation which has not had time to spread. A deep valley separating two cloud-swept peaks is an effective barrier to plants of the misty summits, and each isolated peak has forms peculiar to it. On Hawaii and Maui there are some extremely interesting formations known by the Hawaiian name, kipuka. There are small areas of ancient lava which has thoroughly disintegrated, yielding a very rich soil, surrounded by recent and sterile flows.

Forty Species of Trees in Bird Park

One of the best examples of these is the Kipuka Puaulu, or Bird Park, some three or four miles west of the Volcano House within the Hawaii National Park. In its fifty-six acres, as many as forty species of trees have been found, many of which do not occur elsewhere in the whole region around Kilauea. Unfortunately until recently Bird Park



Photograph by OLIVER H. EMERSON

OLOKELE CANYON, KAUAI, HAWAIIAN ISLANDS

Showing in the foreground some of the typical native forest of the lowland zone, Hawaiian Forest Reserves

was used as a paddock for fattening cattle, with disastrous results to the vegetation.

One feature characteristic of all forms of Hawaiian life, which explains to a certain degree their restricted ranges, is a high degree of specialization. Thus, on the peaks back of Honolulu occurs a form of labelia which thrives on the windward slopes up to the very summit of the ridge, but is never found on the lee side, even ten feet from the crest. Plants which have become specialized to an extent to meet one set of conditions lose their adaptability, and if change occurs in their environment they become extinct.

Destructive Cattle, Goats and Pigs

During the past century the changes in the Hawaiian forests have been great indeed. Cattle and goats have roamed unchecked, and in the opinion of J. F. Rock, have been the primary cause of the destruction of hundreds of square miles of forests. In certain sections sheep and pigs have also done extensive damage. Immigrant insects have also proved a serious pest. In the wet country *Paspalum conjugatum*, known locally as "Hilo Grass" has proved a great curse. Worthless itself as food for stock or for any other purpose, it grows in such dense mats that it prevents the germination of seeds of desirable plants.

The number of species of plants and animals which has become extinct during the past century is hard to estimate, but we do know that many kinds of Passerine birds and Achatinellid shells, common sixty years ago, are now very rare or extinct. Extensive deforestation has resulted in an increase in the amount of silt washed into the sea, and has profoundly influenced the reef fauna in many localities. Perkins, in 1913, estimated that at least three hundred species of insects had become extinct. In this case extinction was partly due to deforestation, but more especially to the introduction of foreign carnivorous species, notably the ant, *Pheidole megacephala*.

Sandalwood Returning Slowly

Having outlined the scientific aspect of the Hawaiian forest, let us briefly consider its economic importance. At present it is not yielding any products of great commercial importance. In 1792 the native chiefs discovered that the sandalwood forests were a veritable gold mine, and a wild scramble resulted to exploit them. Even the roots were dug up in many places. The trade declined after 1830 due to the exhaustion of the sandalwood forests. At present there is a considerable amount of young sandalwood scattered through the woods, but none mature enough to be profitable to cut. In more recent years there has been some lumbering of koa and lehua, two valuable hardwoods, but the difficulty of transportation discouraged the operators.

However the forest cover is all important as a protection of the water sheds. The irrigation of the dry land on the lee side of the islands requires all the available water, and, since the economic basis of Hawaii lies in agriculture, water is very literally the wealth of the land. The threat of a water famine hangs over Honolulu like the sword of Damocles, and the steady decline of the water level in the Artesian wells can be regarded only with concern.

The seriousness of the situation was recognized at an early date, and a Territorial Board of Agriculture and Forestry was formed. One important work of the Board was the establishment of a quarantine against plant and animal diseases and insect pests. Since ships are coming in almost daily from all parts of the world and bringing all manner of noxious things, this quarantine has saved the territory untold millions. In 1904 forest reserves were

established in Hilo, Hamakua, and Kohala on Hawaii and at Kaipapau on Oahu. All stock was to be excluded and wild goats and hogs were to be exterminated.

Quarter of Total Area Now in Forest Reserve

In 1925 there were forest reserves on all the important islands, with a total area of 884,000 acres, nearly a quarter of the total area of the Territory. It is worthy of note that 295,000 acres of this is privately owned land. Securing this great area and fencing it to keep out cattle has been a very great accomplishment. Entomologists have been waging war on insect pests, and have imported parasites to prey upon the worst offenders. Goats have been hunted and poisoned and their numbers greatly reduced. Due to the extreme roughness of the country the extermination of goats is a very difficult matter, but they are no longer a serious menace on any part of Oahu.

Extermination of pigs is even more difficult, as they frequent the dense forests in the wet country, which includes some of the most inaccessible regions of the Territory. A great deal of reforestation work has been done, both by the Board and by private parties. This entailed considerable experimentation to determine the most advisable trees to plant. Koa has proved very successful in many localities, but a number of hardier foreign trees have been even more successful, particularly swamp mahogany, Australian red cedar, redgum, and silver oak. During 1925 the Board alone planted over 75,000 trees.

Thus, although a great deal remains to be done, the Board has accomplished a noble piece of work, in spite of many handicaps. What has been done, moreover, the people of Hawaii have done themselves; so far they have received very little assistance from the outside. It is unsafe at present to make any prophecies as to the future of the native forests; in many places they are showing marked powers of recuperation when the cattle are removed. At best the growth of a new forest requires many years, and when the seedlings have to struggle with Hilo grass and similar weeds it will indeed be slow.

However, we can safely say that the period of destruction is drawing to a close, and the faith and zeal of the men in charge of the Board, together with the increasing interest which is being taken in the Hawaiian forests both in the Territory and abroad, gives much hope for the future.

TO JOIN THE NATIONAL PARKS ASSOCIATION

and do your part in the important work of this Association (see page 20), mail your name and address to the Treasurer, 1512 H Street, N.W., Washington, D. C., enclosing your check for first year's dues. You will receive regularly the *National Parks Bulletin* and other publications of the Association, and will soon find your own working place in the ranks of service.

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GRAND CANYON ANTELOPE

How the Experiment of Stocking the Tonto Floor of the Canyon is Working Out

By E. T. SCOYEN

*Formerly Chief Ranger, Grand Canyon National Park,
now Superintendent Zion National Park*

ABOUT 3100 feet below the south rim, at the foot of Hermit Trail, the Grand Canyon flattens into a half-mile-wide shelf between the south wall and the precipice of the Granite Gorge. When here on a visit, Dr. E. E. Brownell of San Francisco conceived the idea of liberating a band of antelope on this shelf; elsewhere the species was decreasing.

The location seemed ideal. The animals could not escape, water was plentiful, and there were no large predatory animals. The question was whether the wild burros which had lived there for years had left enough forage. High wire fences from wall to gorge enclosed an area so large that the animals would never be conscious of confinement, and the experiment was made.

Fawns on Muleback

On September 30, 1924, six buck and six doe antelope were received from Reno, Nevada. These had been caught while only day-old fawns, and raised on ordinary nursing bottles by the United States Biological Survey. All were exceedingly tame, and have remained so to this day.

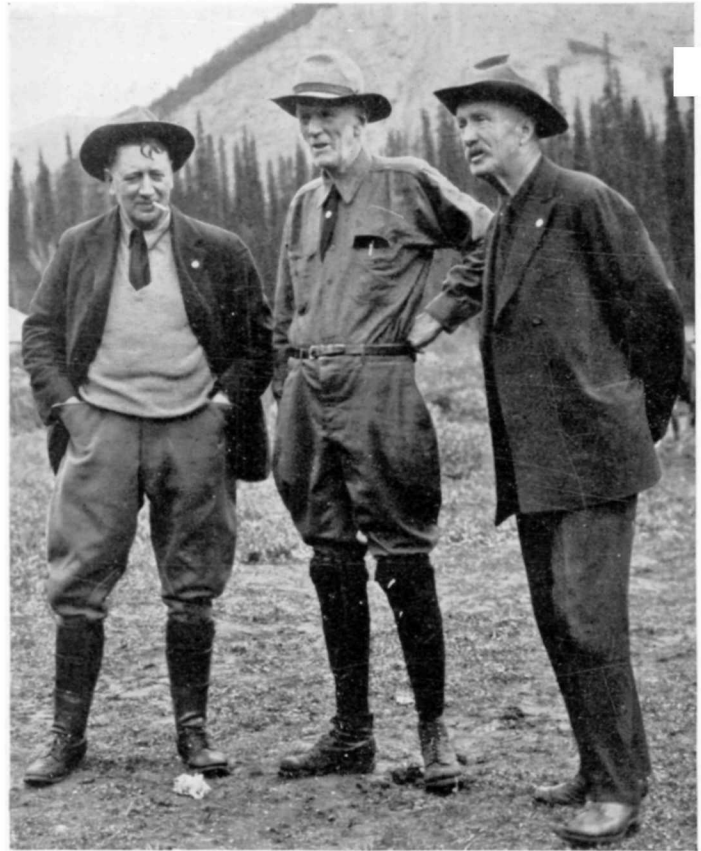
The next problem was to transport these timid and delicate animals over seven miles of trail that wound down over the canyon walls from the rim to Hermit Camp. It seemed the most logical method to pack them in, each in its crate, on mules. The uncertain elements were the antelope and the mules. We did not know how the fawns would act on muleback, or how this traditionally stubborn animal would act under a live load. The results showed our worries entirely unnecessary. No trouble was encountered.

During the past spring, five fawns were born; thus settling one problem. Of this number, three have survived, and we consider it lucky that all of these are does. We have suffered the loss of three does and two bucks. Counting the increase this year, there are now ten animals in the herd, a net loss of two since they were introduced.

Photographing Under Difficulties

It has been necessary to feed the herd except for a very few months. This is the one vital problem for final solution. The animals graze during the greater part of the day, but if their grain ration is reduced, they fall off in condition. However, the new generation may be able to shift for themselves.

In many ways, this is one of the most interesting little bands of animals to be found anywhere. They are as tame as any domestic animals. I have seen tourists photograph them only by expending a considerable amount of patience. This was due, not to the wildness of the animals, but to the difficulty in keeping far enough away. One morning a man trying to photograph one with a reflex camera was considerably put out because a doe insisted on licking his lens. But the three fawns which were born this spring are quite wild, and can not be approached closely; which is rather strange in view of the tameness of their elders.



THE LATE CHARLES D. WALCOTT IN YOHO NATIONAL PARK, CANADA
Left, J. M. Gibbon, Secretary-Treasurer of the Trail Riders of the
Canadian Rockies; right, Tom Wilson, guide, founder of
Lake Louise

CHARLES D. WALCOTT

NONE would have joined more heartily in the vigorous forward movement announced in this number than Dr. Charles D. Walcott, whose passing has cost the National Parks Association an invaluable councillor and unflinching leader.

He was a conspicuous figure in the National Parks Educational Committee which created the Association in May, 1919. As Vice-President of the Association, his experience went far toward wisely shaping its early activities. Upon the death of our first President, Henry B. F. Macfarland, he served as President for more than two years and a half, resigning under pressure of increasing duties in direction of the Smithsonian Institution; but, as member of the Executive Committee, he was potent in its counsels until failing health recently demanded retirement from all except Smithsonian management.

Dr. Walcott was an out-door man in the fullest sense of the word. A strong advocate of recreation, he clearly visioned the higher usefulness of our National Parks System, and entered eagerly into its defense against industrialism, just as, years before, he had borne his influential part in establishing and defending the forest reserves which afterward became our National Forests.

To secure official recognition of "the finer things", as once he termed the National Park uses for realization of which this Association was founded, he devoted time and effort. He saw the Association as perpetually their defender, while defending the System from industrial assault. In defense, he was uncompromising. His wisdom was practical. He never failed in emergency.

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1. To conserve nature and win all America to its appreciation and study.

2. To encourage use of the National Parks System for enjoyment of its unsurpassed spiritual and educational value.

3. To protect National Parks against whatever may tend to disturb their continuity of natural conditions or to diminish their effectiveness as supreme expressions of beauty and majesty in nature.

4. To promote use of National Parks for purposes of popular education and scientific investigation.

5. To promote a national recreational policy under which publicly owned lands of the nation shall be equipped for recreational service of the people so far as this is consistent with other requirements.

6. To protect wild birds, animals and plants, and conserve typical areas existing under primitive conditions.

7. To aid specialist organizations, and to interest organizations of many kinds and the people generally, in these objectives.

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