



Menu

Crab Meat Cocktail

Celery ——— Olives

Cream of Tomato

Roast Chicken

Cauliflower Saute — Boiled Potatoes

Peach Melba

Coffee

THE USE OF ECOLOGY IN FORESTRY.

By. A. E. Pickford.

In dealing with ecological problems we base our considerations on the influences on plants and trees of natural factors such as (1) Altitude, Exposure, Slope, etc., grouped as Physiographic Factors (2) Water content, Humus, Acidity or Alkalinity, etc., grouped as Edaphic factors; (3) Temperature, Rainfall, Humidity, Winds, etc., grouped as Climatic factors; (4) Logging, Burning, Landslides, etc., grouped as Accidental factors.

All of these factors influence plant growth either in assisting or deterring in the struggle for existence and thus effecting constant changes. In order to understand what Ecology means we must first of all fully comprehend the importance of these influences and bring ourselves to see that in every state of growth, leading up to the ultimate forest, these changes are taking place constantly. Certain species are being stamped out and other species, perhaps not so quick in establishing, but of a more permanent nature, are coming in. Changes in the nature of the individual species also take place very slowly. Although these last mentioned evolutionary changes are not of much practical importance in the art of Forestry they are of the utmost importance in the age-long war of the survival of the fittest.

In looking over our list of factors we cannot help being struck by the variety of influences at work, each with its own pull in its own direction and many with forbidding limits beyond which certain plant species may not pass. With so many complexes concerned the work of grouping plants ecologically is not an easy matter. One naturally seeks some primary division line along which to begin to split up our groups. Those investigators who took the lead in this work originally, were inclined to follow individual channels; during the past few years, however, great strides have been made in bringing uniformity of method to bear in all ecological classifications. It is now generally accepted that a plant formation (=Forest type) is an ecological genus, while a plant association (=Forest sub-type) is an ecological species. Associations are further subdivided into societies, communities and families. The most abundant or pronounced species are used as a basis for classification of vegetative units, unless as sometimes occurs some striking physical or physiographical characters of the habitat offer more convenient lines of demarkation. Thus we might have in a report on lands in British Columbia, classification of the forest on the following lines:- (The Riverbottom type, (2) Lower Slope type; (3) Upper Slope type. Each type is again subdivided into associations, as for example the Riverbottom might be divided into two associations (a) Cedar - Hemlock; (b) Spruce-Balsam; It must be borne in mind that the vegetational differences giving rise to the naming of associations such as the above is one of degree rather than of kind, in other words each association is named from its predominant trees, but does not necessarily exclude all specimens of the trees used in the naming of the other associations. It is agreed we cannot do better in dealing with our Forest problems than follow lines similar to those

which the ecologists have set. Unless we classify our ideal, our work will be in confusion, and unless we each and all try to follow some commonly accepted line of classification we are due to experience great difficulty in correlating our results.

Before turning to the application of Ecological methods let us first understand the meaning of some of the terms generally used in similar discussions. Although these meanings are familiar to most of us yet a recital of them will serve to line up our subject. Someone has stated that silviculture aims to produce from a given area the most timber of the best quality and of the most desirable species, in the shortest time and at the least expense. Silvics is in short forest ecology, but it is practiced with this definite object, viz:- that supplying the Forester with the knowledge necessary to accomplish in as full a measure as possible the aims of silviculture. Ecology may be taken to have a broad meaning embracing silvics as well as Floristics. This latter name is given to distinguish the study of the minor Flora. This study while by no means covering the whole field of Ecology is very important in that through the pronounced habits of certain plants it gives us many a valuable insight into habitat conditions merely by observation of the flora growing in the particular locality under study. Systematic Botany is the bedrock of all these subjects. A thorough knowledge of the physical and morphological characteristics of plants and trees is essential to obtain full value from any of the above so called applied sciences. Dendrology is the systematic botany of trees and includes their identification, classification and botanical description. A Habitat is the complex of climatic edaphic and biotic factors which influence the life, growth and reproduction of a plant. Succession shows the stages which a forest burned or cut over must go through before it can revert to its original or climax form. Invasion shows the relative rapidity with which the various species are capable of re-establishing their kind by natural reproduction on bare or cut over lands.

It is not possible in the scope of this paper to discuss very fully the usual stages of succession, invasion and other phases of forest development, nor the effects produced during their developments by the influences of the habitat. A study of dendrology will throw much light on these subjects by revealing information as to the depth of rooting, dependence on soil moisture, tolerance, weight of seeds, comparative sizes of seed wings. A knowledge of these and many other facts is indispensable to explain the phenomena of forest life.

The study of what happens in unguided nature must precede the study of Silviculture; we must know as much as we can about the forces we are to overcome, or to harness, before we can hope to solve our Management problems satisfactory.

Our lumber is at present largely drawn from what is known as the Original Stand, or from second growth where we have no control over the percentage of species occupying the ground.

The balance of our tree distribution, however, is being upset by our annual cut, by our annual burn, by insects, and in a minor degree by fungi and other causes. Areas opened up by logging may have been occupied until recently by say 80% Fir; 15% Hemlock, and 5% Cedar, but when reproduction comes in there will probably be a considerable revisal of these percentages, the hemlock being perhaps the most abundant in the new stand and fir very low in proportion. It may be considered desirable to maintain a high percentage of Fir in the new stand. (Here is where silviculture comes in. In the above we have an example of what happens when logging is done as it most frequently is now-a-days only for the sake of harvesting, the crop without thought of what shall become of the land after logging. A logger's business is to take out logs, and under present economic conditions he cannot afford to pay much attention to what happens to the land after logging. Silviculture seeks an improvement on this lack of method. Silviculturists chief aim is to know definitely what can be obtained under given conditions and especially how natural phenomena can be used to the best profit in the production of wood; he will not be content until his knowledge is more and more complete so that as times goes on he may be able to lay his plans with more fixity of purpose and with more certain knowledge of results to follow.

We have been able to learn much from the silviculture practiced in Europe where they have the advantage of long experience, but Europe is not B.C. and their problems are not quite the same as ours. Every country has its own variation of conditions, and local variations of factors influence in one way or another the possibilities of silvicultural management of the locality to which they pertain. The values or weights of these influences must be stated in terms of relative benefit or detriment to the various species of forest trees in order that the possibilities of one site may be scientifically compared with another. If these values can be determined in a practical way a very considerable advance will be made towards the solution of our silvicultural problems. The question is, how can this be done? Empirical or unorganized methods are slow, and costly in the long run, and our urgency is so great that we cannot afford to wait for "hit and miss" results. Obviously our solution lies in experiment; by carefully planned intensive experiments conscientiously carried out we must arrive at our results. If possible this will be done by field experiments of a practical nature, but it yet remains to be seen how far we are dependent for our solutions on the fundamental facts which perhaps laboratory experiments alone can reveal.

The study of ecology with its analytical methods is of help to us in this work, first by assisting us in studying and measuring our habitat factors, second in helping us to understand the reasons of success or failure of both natural and artificial reproduction, and thirdly in giving us the ecological view point in studying the origin development and succession of forest formations.

If the Ecological method is adopted in attacking the various problems, and we add to our own local observations the knowledge gained through the work of other investigators, we may then hope to arrive at a true and satisfactory interpretation of the possibilities of the various sites under our care. Thus may we hope to achieve the ultimate aim of planning with the assurance of obtaining the greatest yield possible under existing conditions.

AS A "GRAZING FORESTER" VIEWED THE CONFERENCE

T. P. McKenzie.

The trend of thought and opinion expressed through the medium of the many excellent papers presented at the recent conference of the Western Forestry and Conservation Association suggested in a very marked degree that the satisfactory advancement of forestry and lumbering practice on this Coast will depend upon the thorough co-operation of allied interests, particularly the private owner of forest land, State and Federal Governments, and the expenditure of greatly increased effort in all the phases of Forest Research and Investigation.

The spirit of the Conference breathed co-operation and the discussion as a whole tied in every subject to "Research".

Fire Review and Lessons:

"Research" will discover facts determining the ultimate value of any area for permanent forest establishment or otherwise and will, consequently guide the formulation of adequate fire protective measures.

New Development in Timber Insurance:

"Research" will discover facts pertaining to the degree of hazard existing in the uncontrolled or controlled condition of any area thereby improving the insurance risks and encouraging its consideration.

Weather Forecasting and Humidity:

Studies: "Research" must of necessity utilize independently available weather data and will add to its value for any area or region by information elicited by reforestation studies in particular.

Timber Diseases:

"Research" works proper in its narrow meaning.

Slash Disposal:

"Research" effort must be consulted in any question of slash disposal as it directly affects the reforestation problem; a fact clearly in evidence throughout the discussion.

Spark Arresters, etc*:

"Research" work in its broad sense for fire prevention studies and methods will develop largely in accordance with reforestation requirements, for in the ultimate Protection has as its main object Timber preservation and conservation.

Insect Control:

"Research" work proper in its narrow meaning.

Recent Evidence Affecting Reforestation:

"Research" work proper in its narrow meaning.

Private Forest Management.

Co-operation and Research.

Status of Tax Reform:

"Research" only is competent to determine true forest value and submit fact to aid in formulating fair and acceptable timber tax laws.

Economic Division of Forest Land Ownership, etc.:

The general theme of this paper was co-operation but it pointed conclusively to the fact that successful co-operation depended upon the disclosures of "Research".

Localizing Protection, etc.

This paper was, in effect, conclusive of the argument that the study of any forested area from any viewpoint whatever presented a problem in itself and emphasize the fact that, while general principles will apply, "Research" is necessary to determine the detail within those principles in order that their successful application in any given case may be possible.

If "blanket regulatory legislation" is to be departed from and initiative is to be encouraged by adequate local regulation "Forest Investigations and Research" must not be curbed or restricted in any undue manner for the intelligent consideration and application of the suggested departure is dependent upon "Research" for its facts.

RELATIVE HUMIDITY AND ITS EFFECT ON DRYING

By J. H. Jenkin.

During recent years, great attention has been paid by forest officers to the relation between the occurrence of fires and the relative humidity of the surrounding air. Rangers are relying more and more upon their daily readings of relative humidity and temperature for determining danger periods. It may, therefore be interesting to briefly outline the significance of this same factor - relative humidity, in the seasoning of lumber.

There are two methods of seasoning lumber practiced in British Columbia, (1) Air drying, and (2) Kiln drying. In both methods, relative humidity plays an important part.

In air drying, there is a definite relation between the moisture content of wood and the humidity of the atmosphere. Wood exposed to a temperature of 70°F. and a relative humidity of 75% will finally attain a moisture content of 15%, while at a relative humidity of 30%, and a temperature of 70°F. it would be reduced to 6% moisture content. On account of the seasonal variation in humidity and temperature there is a marked difference in the rate of drying and the final moisture content of the stock. On the lower coast, lumber piled in the yard can be dried down to 12% moisture content, occasionally lower, in the summer, while in the winter, when the humidity is very high, it generally doesn't come below 18%-20%. Rapid drying at the start is liable to cause end checks and other defects, therefore, there is less loss from checking in seasoning lumber cut and piled in the winter when the drying is slow.

The effect of differences in locality on the drying rate is very marked. The high relative humidity on the coast prevents the air drying of the upper grade lumber down to a moisture content low enough for use in heated buildings, therefore, dry-kilns have to be used. In the Interior Dry Belt, where the relative humidity is lower and the temperature in summer is higher, it is possible to air-dry the stock to a very much lower moisture content and in a much shorter time than on the Coast, therefore, dry kilns are not used extensively in this region.

In kiln drying it is possible to control the drying rate and ultimate dryness of the lumber by controlling the humidity and temperature in the kiln. In kiln-drying, great care has to be exercised in order to prevent the surface of the lumber from drying too fast, thereby causing surface and end checks and honey-combed centres. In order to prevent these defects, the rate of evaporation from the surface of the lumber is reduced until it is not much greater than the rate of transfusion of the moisture from the interior to the surface of the lumber. This is done by carrying a high relative humidity of 80% during the initial stages of drying. This high humidity is generally produced by special steam sprays in the kiln, assisted by the moistures evaporated from the lumber. When the most critical period of drying is passed, the relative humidity is gradually lowered to about 30%, thus permitting the lumber to dry down to a moisture content of 6% - 8%, depending upon the temperature in the kiln.

After the stock has been dried and manufactured into the finished product, the relative humidity of the surrounding air is still an important factor. When the humidity of the air in the storage shed or room is high, the dry wood will absorb moisture and when the humidity drops, the moisture content of the wood is lowered. This causes a corresponding swelling and shrinking of the lumber, and as a result doors and drawers stick in damp weather, and become loose in dry weather. In special tests conducted at the Forest Products Laboratory, Vancouver, a large number of pieces of dressed lumber were dried down to a moisture content of approximately 9%, and then stored in a dry-shed. By the end of four months, the stock has absorbed moisture from the surrounding air until the moisture content of the lumber had increased to 17%, causing an increase in width of $\frac{3}{8}$ " in 1 x 6 flat-grain stock.

Although this outline on the effect of humidity on drying applies particularly to the drying of lumber, yet the rate of drying is an important factor in determining periods of high fire hazard. The greatest fire hazard exists when the forest materials have dried to the point where their moisture content is lower than that of their inflammability points. To state this in another way, the fire-hazard varies with the rate of drying and the surface moisture content of the forest materials. When the humidity is low, very rapid evaporation takes place from the wet surfaces, causing rapid drying of the forest cover. The moisture holding capacity of the air decreases very rapidly with any decrease in temperature or vice-versa, therefore, when the temperature falls at night, the moisture holding capacity of the air is lowered and the humidity is raised. For example, if air at a temperature of 80° and a relative humidity of 30% is cooled to a temperature of 46° the relative humidity will rise to 100%, and any drop in temperature below this point will cause condensation, probably in the form of dew. Another factor in drying is the rate of circulation. In stagnant air, the moisture evaporated from the object increases the humidity of the surrounding air and so retards the drying. A current of air carries away the moisture as fast as it is evaporated from the object and so keeps down the humidity.

Footnote: Moisture content represents the weight of water in the wood compared with the weight of the oven-dry wood fibre, e.g., a moisture content of 8% means 8 pounds of water to every 100 pounds of dry wood fibre.

PATROIMEN

By Ranger R.B.W. Eden.

The importance of our temporary staff and responsibility placed on patrolmen during the danger period of our fire seasons, is a subject which might well call for some practical views from the permanent field staff. It is at this time of year, when another fire season comes along all too soon, with its many hurried preparations, that stock can be taken of our resources in men and equipment.

Let it be understood at this point in my remarks on the subject that I do not in any way overlook the importance of Prevention, in the matter of public education, advertising or otherwise, which is said by the best of authority to be the key to the Forest Fire Problem.

In this article it is my intention to deal with our temporary man power who have to superintend and organize the battle against the red demon after the show starts on a bad year. The development of methods of prevention should never stop, but in the mean time we must have a cure when the storm breaks. So the importance each year of short term men, who so often have to be picked up at I might say the zero hour, is a vital part of our organization in the field, and should be treated as such. When a Ranger can get a patrolman who has done good work, for to go back on the job next season, then both him and the Service are in luck, with the organization of a ranger district made that much easier. On the other hand a new man is employed, and generally at a time when the hazard in a certain patrol district has reached a danger point to warrant the appointment. From my observation the margin of time between the no hazard stage and a hazard is very short in many sections of the Northern Interior. We have seen this new man's application form, on paper he appears to be everything that is required, yet he is like a raw recruit to the army, being put into an officers position of command and importance, taking a portion of the responsibility in a district, where if it be a bad spell, which we have presumed it is, he has to organize a small army of men and sometimes go over the top with them, to do battle against fire and smoke.

All goes well if this particular man is naturally by the gifts of god fitted for the job, but its not always the case, and the wrong man in that position will let down the percentage of a districts efficiency quicker than anything else.

There are several good reasons why the ideal patrolman cannot always be had, but the most important must be, the short term of employment, which however seems unavoidable under present day economic conditions in the matter of Forest Protection.

Going back to our new man, you might well ask what has the Ranger or Assistant Ranger been doing in the matter of supervision, the answer is given in the fact that it is a year of high hazard, for instance 1922 or 1924 other portions of the

district might have blew up first and are still going, everybody is working at top notch, both the Ranger and Assistant Ranger have given Mr. Patrolman what time was possible along with an organization chart, then he has had to go up the line to make good.

In the last few years great improvement has been felt I am sure, throughout the northern Interior in having the Assistant Rangers put on a little earlier. The same results would be obtained if this could be applied to the patrolmen and even a two weeks earlier start in the Service, would have the effect of preparing them for the work ahead. Some little improvement projects could be undertaken by our own staff, besides the supervision and instructions that are necessary.

It takes some time to train a soldier, but a patrolman very often goes to the job overnight, with the prospects of getting most of his training from some wise firefighter from no where, who thinks he knows all about how to handle a certain fire situation.

To my opinion the importance of our choice in the employment of a temporary staff cannot be over estimated, and on the Patrolmen and Assistant Rangers rests the foundation of an efficient Service, at the time of year when the vital issue of Forestry is at stake.

A SEPTEMBER WEEK-END WITH THE TIMBER CRUISERS
OF THE CANADIAN NORTH WEST.

(Anonymous)

A pack, and what to put in it, that has always been the question with this particular pack, though during the war it was usually decided in favour of cigarettes, socks, and candles. Today there is an unaccustomed tramp of six miles, and various articles are included and discarded before the final decision is made, and even at the last moment slippers are left out as an unnecessary appendage for a camp amid the 'big timber', though we were wrong in this as will presently appear.

Added to the tramp is the barest tinge of adventure - bear may be encountered, and the writer carries not gun or automatic; even did he do so it would not be of considerable value in emergency, as it is probable that anything might be hit rather than the target! However, bear is not met, and our tramp continues to its destination where we are met by the gas-boat in charge of the 'chief' at whose invitation we have undertaken the trip. On the wall of the 'shack' at the landing stage, occupied exclusively by bush-rats, is stretching the skin of a recently shot male bear, who was not to reach that mate he was swimming the lake to find. This is about the only time of year that one must give way to the male black bear, who as a rule will retreat to the bush, but now it is well to use discretion in contesting with him the right of way, and a cautious retreat may save trouble.

The landing stage has been reached on time and the 'chief' is in buckskin slippers, we note rather sadly as ours have been left behind. He is in good fettle, as we have not kept him waiting, and merrily we skim the placid waters of the crest-bound lake. In a little while the small bay is left and there breaks upon our view, stretching into the distant mists an expanse of water bewilderingly beautiful, some three-quarters to a mile-and-a-half wide by twenty miles long, bounded on either side by lofty hills covered as by a carpet with tier upon tier of spruce, cedar, fir, hemlock, and here and there standing out in bold relief, by reason of its now changing colour, an intruding poplar. These hills are the footsteps to the towering mountains beyond, of which now and then one catches a glimpse through the clefts.

We have a two hour journey over the lake which only this morning was in anything but its present calm state, for squalls rush through this gorge in which the lake rests with very short notice - are of brief duration and in a little while are no more.

I learn, as we pursue our way, of the aim of this 'timber-cruising' party, that it is to assess the quantity of merchantable timber in this area, having regard to the various uses it may be put, as well as to ascertain the means by which it may be most readily made available for the use of man. The term 'cruiser' applied to members of these parties quickly becomes appreciated when one understands that from the moving central camp 'fly' parties of

two, compass-man and a 'cruiser, radiate in all directions - to return when an estimate of their section has been completed. The 'cruiser' it is who keeps the tally of all the merchantable timber - noting its diameter, breast-high B.H.D., also its height in sixteen-foot logs, five, six or seven logs as it may be. He notes as well the state of the timber and the progress of reproduction, and is all this time following his compass-man who must keep an undeviating straight line as his compass bids, despite all obstacles - and they are many; and the pace of the compass-man must be swift, regardless of quickly increasing elevation; windfalls of which there are many; devil-clubs (*fansia horrida*) truly a diabolic plant when piercing any portion of the anatomy to which it may find an entrance: regardless of all, the compass-man must find time to take his bearings and to keep note of the percentage of elevation, and on no account must he impede the progress of his 'cruiser' who, as he follows at a pace nearly as swift must do his more important work of estimation.

The camp, which, owing to the all-encompassing timber is hidden from view until one is almost there, is reached at about 6 P.M. We are glad to reach our destination, for despite the exhilaration of the lake trip we are not a little chilly, as the western sky is clouded and the sun has nearly set. We are greeted with hearty handshakes by those whom we have met and those to whom we are introduced, and our welcome is really hearty, for the sons of the timber are glad to meet those from the outside world. After five months intimate contact with each other in the woods, topics of conversation have become scarce and the romance of the woods is almost threadbare; and here to hand is an enthusiast who has forsooth come up to this God-forsaken spot of his own accord for a week-end trip - truly wonders have no end; could folly be greater? This is the apparent viewpoint of these men of the woods, 'for they are now about to return to the flesh-pots of Egypt' and their souls long for change; yet, I suppose there is not one of them to whom a city life would be for any length bearable, or who will not be back in the woods again next year!

We are osconced in the "chief's" tent, and nothing will serve but that we take his bed, while he sleeps where he may. This is against all our principles, to turn anyone out of their bed; but remonstrances are unavailing, and unwillingly we acquiesce. It is now supper-time and keen appetite prove better than any sauce yet invented by French chef, and the plain fare washed down by tea goes with a gusto. The cook's job is no sinecure at present, as only one 'fly' party is out and he is a busy man from 4:30 a.m. until about 7.30 p.m.; and he must be patient too for the necessary sameness of the fare is becoming tiresome to city-hungry men.

Supper is now over and after a short adjournment to our tents for a cigarette, anon we are seated round campfires which blaze cheerily. Anecdotes from all parts of the world succeed one another until it is time to seek an early couch, for there is strenuous work on the morrow and we must be up for breakfast at 6 a.m. We note that a preponderance of daily and weekly English pictorials come in with the mail; as many of these boys are from the Home Land and are hungry for the news and pictures of all forms of sport, which only these papers supply.

Awakened by the cook at about 5.45 a.m., after a dip in the lake we have breakfast, and before leaving the table those who are going on a day's trip into the woods put up a few sandwiches; we follow suit and then adjourn to accoutre for the trip in heavy socks and boots and a waterproof short coat. It is cloudy, rain threatens and presently comes on with a vengeance, so much so that it is decided that today shall be Sunday (it is really Saturday) and all adjourn to their camp-fires or blankets; some to do a little necessary laundry or to sew up garments which passage through the bush has almost rent to pieces; or yet again to write letters or to read. We wander from one tent to another, eager to learn the lore of the woods and pick up not a few tips as to adapting oneself to the conditions that the woods impose.

A 'fly' party that was expected in last night has not yet arrived and surmise is rife as to the cause of delay; it is decided that another party shall go to the rescue if they do not make their appearance soon as they took but little 'grub' with them and it must have given out by this. Whilst we are still speaking footsteps echo coming through the bush, and two bedraggled apparitions make their appearance soaked from head to foot with rain and perspiration, the lighter one of the two carrying a heavy pack while he of larger build follows behind - he has succumbed to irritation of the skin brought on by perspiration: his smaller companion has had to bear the burden alone for the last few miles. Their journey has been much more strenuous than expected, and they have had nothing to eat since breakfast, and then only a few sandwiches. They have a wash and a dip in the lake, which the toil of the journey makes most refreshing, and presently make their report on the country they have been through. This is the last piece of country to be 'cruised' this trip, and interest is aroused as to how long it will take; it is a very precipitous piece, and anxiety is felt as to who will have the work to do.

Incredulity is expressed as to professed facts of the returned 'fly' party. One hears how - taking refuge at a neighbouring ranch difficulty has been found by one to keep his speech within the parliamentary, whilst the other confesses to being dumb for fear he might trespass beyond ordinary bounds!

Thus another day passes, and again around the camp-fires at night one hears of hopes and fears for the weather of tomorrow; tomorrow parties must go out, no matter what the weather, and it is our last day and come what may we will go a part of the way with one of them.

Surely, one feels, it is good to be here as one lies on one's back near the camp-fires and looks up to the myriad stars that twinkle through the tree-tops. It is at such times as these, in intimate communion with Nature that one realizes how small is man and how immense is the Creation of God, and so that even here, one may be in as close a communion with things divine as in any tabernacle made with hands. And perhaps it is only amid these solitudes that many can find rest from the thousand and one questions of the day to which there are no end and often no answer. While here amid

these awful surroundings one may forget for a little the turmoil without, of the greed of man and the lust for power. Surely it is good to be here - especially if one has a tendency to be cynical, a tendency easily acquired in these days. Here one learns that men are really good at heart; the 'chief' turned out of his bed for me, and a man who had just come in from a very strenuous 'fly' trip burned out with me next day to see me home safely; everyone did their 'bit' to make my week-end a happy one.

Sunday come, and again I accoutred myself in heavy boots and socks, and away we go. The first stage is in a small gas-boat, and there are six of us in the boat, and but a few inches separate us from the water. I am glad to be out of the boat, for a 'ducking' in present accountments would be no joke. The compass-man gets his line and we are off; the pace is good - perhaps, I surmise, to try my mettle, though due no doubt in part to the volunteer who is to guide me back, for he acts as tally-man, or takes down the 'cruiser's' estimates of the timber through which we pass, thus enabling the 'cruiser' to do quicker work. We were 'cruising' this morning a strip a mile long, by half a mile wide. To do this the party passes up and down each side, and a line is also taken through the middle; the merchantable timber is estimated on either side for so many paces, and from this estimate turned into the office an accurate general estimate is made of all the merchantable timber in the block; notes are also made as mentioned before, with regard to the nature of the country and its accessibility.

We did some good climbing this morning, and considering rising elevation, windfalls to be climbed over, and brush to be gone through the pace kept was very good. Soon we had a pause for a 'breather' and cigarette, and my volunteer guide opines that as he has not brought a lunch with him it is about time to return. On the return trip I receive further initiation in following a 'blaze' through the bush from one tree to another; also I learn of various diseases of trees, and how much deduction of timber has to be made in the estimate for trees so diseased. We reach the trappers hut where lies the canvas canoe that is to take us back, and on our return are quite ready for the regulation dip of the returning 'cruiser'.

All good things must come to an end, and at about 3 p.m. we make our adieus and invite all and sundry to partake of the hospitality of our 'residenza' as they pass through our little village in the backwoods, upon their return journey to the city - to which their eyes now turn.

The lake had been a little 'choppy' but all is again serene and there is a bright sun in the high heavens. Though sorry to return we enjoy the return trip more than the outgoing one, for the elements are kinder and we are able as we skim along to take in the sublimity of the scenery, lying at full length over the bow of the boat or gazing into the pale green depth of the lake, sometimes so clear that its bed becomes quite visible.

Our week-end has been full of a wonderful content where every passing moment held some charm; that content goes with us as we return home, with now and again a shadow of regret that we will not see that lake again until winter has clothed it with her virgin mantle of snow.

The charm of our first visit to the big timber is one of those joys which never passes away, but always clear and fresh, is at hand to hearten us, in storm and stress, on our journey through life.

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"S Q A T!"

By A. Harby.

The trouble with some of us short season field men when we start writing, is that our feet get cold and our hands and eyebrows sweat till, finally owing to excessive precipitation we have to quit. Another "mute inglorious Milton" washed away.

To survive the desperate struggle I have got on four pair of socks and also got a nice block of ice about a foot square to rest my head and hands on.

Some people think life in the Clearwater is dull but this does not always hold good.

Two Patrolmen came back to Hemp Creek Station one time and found it over-run with mice. Traps were of no avail, so finally the two lads visited a neighboring "batch" who had a cat. By talking nice to Kitty they persuaded her to come home with them, unbeknown to her owner.

Well! Kitty had the time of her life, she caught and ate mice till she could hold no more, then she curled up in the port side bunk along side it's occupant and went to sleep.

In the "wee sma' oors" the man in the starboard bunk was wakened by the cat going through that process which polite dairymen term "Freshening" - Port side man was a sound sleeper but finally the hilarity of his neighbor woke him. He looked at the cat, her progeny and his H.B. blankets "That's the last blasted cat I'll ever pet" etc.

Eventually he went to sleep with the starboard watch.

THE BATTLE OF BOREDOM

(W. H. C.)

We were terribly bored. The battery was out "on rest" after a strenuous tour of duty in the Ypres salient. Our days were a dreary monotony of stables, harness-cleaning, and languid "physical jerks", and we were wearied to distraction.

To add to our miseries, we were "broke". The field pay which was so amply adequate in the forward area was barely sufficient here in Petit Servins for one convivial night, or two at the best, which left us to our own resources for the rest of the drouthy fortnight.

On this particular night we three were at our wits' end. Our joint capital had been pooled and handed over to Scottie so that he might try his proverbial luck at "Crown and Anchor", but Scottie's luck was out and our last case was worse than our first. We had canvassed the entire but in our efforts to negotiate a loan, but had succeeded only in making ourselves unpopular.

Usually, we were able to beguile the tedium by pitching horse shoes, for which purpose a set of four was cached behind the horse-lines. But now even that solace was denied to us since some miscreant had looted the cache. Scottie discovered our loss earlier in the day and was exceedingly wroth. "Ah'll juist bet ye that auld rascal o' a former took them", he said. "Ah'm gaun tae ask him". Accordingly we approached the old Frenchman and Scottie opened up on him. "Parrly-voo frongsay, M'seer?" "Ah, oui" responded the Frenchman, smilingly. "Er--uh---Compree cheval?" "Mais certainement". "Er--uh--compree--compree "What's French for shoe, Bill?" We suggested "bottine" but Scottie rejected it with a snort of contempt.) "Er--uh--compree--compree-----Ah Hell! compree SHOE, SHOE, SHOE. Shoe poor pitch!"

Anyhow, whoever took them, the shoes were gone, and we must either seek refuge in slumber or raise a loan.

Presently Snuffle Clark conceived the idea of pilfering a sack of oats from the horse-lines and peddling it to the farmer for (say) thirty francs. We wrung his hand and proceeded to put the scheme into effect. Unfortunately, we were short of forage at the time and a cursory search of the feed shack revealed only two sacks. To remove one would have been to court disaster. Once more we were plunged in gloom, until Scottie suggested that we might try the feed shack of the 12th Battery whose lines were adjacent.

We sauntered across to the 12th, but found their pickets keenly on the alert, no doubt on account of the proximity of the 10th.

Discouraged, we returned. Well, if it had to be, it had to be, and Snuffie shouldered one of our sacks of oats and disappeared into the night, presently to return with thirty francs.

With the financial barometer at "SET FAIR"-- and having with difficulty dissuaded Scottie from having another whirl at "Crown and Anchor", we took the road for Petit Servins and the sign of the "Clef d'Or".

Mine host of the "Clef d'Or" was an unmitigated rascal, with a penchant for short-changing, and his cognac was no more above suspicion than Petiphar's wife, but his was the only estaminet within a radius of several miles.

On this particular night we were his only patrons save for a couple of infantrymen, whose overtures were so coldly received that they presently took their departure. "We're daein' no sae badly" remarked Scottie, "but we're in nae poseechun tae gie a pairtie."

The evening sped along on flying feet, and all too soon we realised that we had reached the end of our resources. What was to be done? The evening was till young and so far we had asquired nothing more than a mellow glow. Snuffie got to his feet. "Encore le cognac, M'sieur", said he briskly. The inkoeper produced the bottle, and like a flash Snuffie snatched it from his grasp, reached the door in two bounds, and was gone. For a moment mine host stood petrified then "Ah, sacre nom! Ah, le cochon, le scelerat!" bawled he, as he started in pursuit. For a moment neither Scottie nor myself grasped the full measure of our good fortune. "Weel, it's an ill wind blows naeboddy guid" said Scottie, as he reached over the bar and appropriated two more bottles, whereupon we too departed into the night.

"Len' me yer corkscrew, Bill." (An interval for refreshments.) "Ah wunner whaur Snuffie's gane" remarked Scottie presently. "It's a kind o' a peety aboot that sack o' oats. Ah doot they'll miss it." Ah, true. There was the fly in our ointment. There had been two sacks, now there was but one, and we who had been flatly and flagrantly broke were now redolent of prosperity. Would they put two and two together? Undoubtedly they would. Well, at least we could not be brought to book until tomorrow.

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Towards eleven pip o'ma, Snuffie returned. "Well, that's that," quoth he as he began to divest himself of his boots. "Aye, Snuffie, everything's fine until they miss that sack o' oats." "That's what I meant" said Snuffie. "They ain't gonna miss it. I've just been an' stolen it back again from the farmer."

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And so, as Pepys says, "and so to bed."

HOMING PIGEONS IN FOREST PROTECTION.

Wm. Lowry.

Mr. TAIT's offer in his Comments on 'Winged Words' to let me have a pair of young birds from stock that have flown 500 to 600 miles will be gladly accepted. By the same token, I shall consider myself well paid for my half page of "copy" in "ROOT AND BRANCH" as I have already found out since my start in pigeon keeping that pedigreed homers are worth money! He may be assured that I still intend to run a loft, (the word is used as is "stable" for race-horses), during the coming season. In fact I have already made preliminary preparations, obtained a pair of pedigreed homers and am bringing in a few more pairs with which I expect to make a start.

His Comments have not tended to discourage my opinion that a homing pigeon service would be worth while; indeed he largely substantiates my contention and his suggestions were of much interest.

It may be of interest to him to know that I have already "settled" a pair of young birds and have tried them out, sent informal messages home with them, timed them in their flights, (which reached as high as one mile per minute), and found that, on the whole, they were measuring up to expectations. Mr. Tait suggests that the hawks are a serious menace to the birds, yet I am inclined to think that unless the birds are sitting around on the house tops and are taken unawares, they have a good chance to escape. It is a matter of dispute, locally, whether a hawk could catch a pigeon in flight or not. At any rate, my birds have, so far, escaped.

In his Comments, Mr. Tait suggests that the Rangers or Field men keep the pigeons, whereas my original idea was to encourage the Public to keep the birds for racing purposes, as a sport, and the Forest Branch could easily obtain the pigeon keeper's co-operation during the season in giving a pigeon post service for fire protection purposes. In this way the racing pigeon owner would be considered in pre-organization plans. However, this matter could be settled according to personal inclination. If the Ranger maintained a loft, he would require a confederate to deal promptly with incoming intelligence when he, himself is in the field or absent from headquarters. The confederate would act as a Fire Dispatcher attending all messages originating in the field, giving information regarding the occurrence of fires or pertaining to service and supplies for fire fighting. This service could be given by any intelligent person provided with a pre-organization chart.

No doubt there are many obstacles in the way before such a service could be established but, on the whole, it would appear to offer a solution to the problem of communication in forest protection schemes where the telephone and wireless are out of the question. The same birds have served as message carriers for Greeks and Romans of old. They were used at Waterloo. They played an interesting and gallant part in the great war. It is a far cry from the bird of the

genus Columba that brought back its message to Noah to the pigeons at the Airdrome at Jericho Beach still performing unobtrusively their useful service, contributing to the happiness and welfare of mankind. Telegraph, telephone and radio increase the efficiency of communication until time itself is annihilated, yet strip ourselves of these mighty accessories to our civilization, as we must in the wilderness and we again find use for these same messengers of the air that have had such a long and honorable history.

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COMMENTS ON "HOMING PIGEONS IN FOREST PROTECTION!"

W. R. Tait.

It was not with the intention of discouraging a pigeon service in the Forest Branch. I wrote comments on 'Winged Words' but to show if started right, it could form another link in the chain of Forest Protection. I know Ranger Lowry's original idea was to encourage the Public to keep the birds for racing, and obtain them for a post service during the fire season. I would like to point out to him where the public or Racing Pigeon Clubs would let the Forest Branch down.

In the first place pigeon racing clubs start their racing season in April and finish in September and would mean that the Forest Branch would not get the best birds for Forest Protection. To be a successful winner in a racing pigeon club, all birds must be trained in a straight air line from race point to the loft. All race points are in one direction extending from 100 to 500 miles, and as fires are North, South, East and West it would be hard to get any of the racing pigeon men to let the Forest Branch use a South trained bird to go to a fire in the North, no matter how short the distance was and the same would apply to any direction, except the one in which the birds are trained. Therefore the Forest Branch could not rely on getting co-operation from the men who keep the right kind of pigeons. Yet if Rangers and Field men would only take it up as part of the service I am sure the pigeon men would be only too pleased to help by giving pigeons and advice how to train them to get the best results.

To give the readers of ROOT AND BRANCH some idea how the carrier pigeon service was organized during the war. Major Osman who is one of the greatest pigeon fanciers in the world today was put in charge, classes were then held on all fronts to give lessons to thousands of officers and men in the management of pigeons. As a rule these classes were held at one of the Government lofts and every officer and man were taught how to handle pigeons, feed, water and general management. Three days were allowed to teach the members of each class which sometimes contained as many as two

hundred pupils. A mobile loft was attached to the Brigade, and one man put in charge. Each battalion going into the line took a basket of pigeons, the pigeons being released with messages when necessary. One must remember that the birds used were bred from the finest birds in England.

My idea of starting a Forest Branch pigeon service would be to have one of the rangers who is favorable to a pigeon service, secure three or four pairs of the best young birds in British Columbia, settle them to his loft, and train them thoroughly in a circle from his loft, starting at a mile and working up, say 3, 10, 20, 30 and 50, learning the birds direction, and also to come into the loft on returning as soon as possible. Make notes on everything that the pigeon does; the time taken on flight; losses if any. Start to use them on fire line work or when necessary keeping details of everything done. The Branch would then have facts and know if the establishment of a pigeon service would help in the protection of our forests.

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The following items are quoted from Berhhimer's "Homing Pigeons for Military Purposes".

It is said that when King Louis IX invaded Egypt in 1249, his arrival at Damietta was made known to the Sultan at Cairo by a pigeon.

When Paris was about to be besieged in 1870, the pigeon fanciers in that city suggested to the military authorities that the pigeons within the city limits be sent out, and that others from the provinces be sent into the city. The latter proposition was acted upon, but the former was not, until balloons were used, when there was an opportunity to send out pigeons in the balloons, it being intended that the birds should return with messages.

Pigeons had been declared contraband of war early in the Franco-Prussian War of 1870. There were taken out of Paris, in balloons, 363 pigeons. Of this number, 57 only returned. These bore letters, photographed in minute characters upon scraps of paper so small that 200 of them weighed only one-eighth of a grain. Newspaper reduced by photography to microscopical characters, were carried by these pigeons. The magic lantern was made use of to enlarge the letters which thrown upon a prepared surface were read by the people. These 57 birds were not the only ones sent into Paris during the siege. A pigeon-post service was established at Tours for the purpose of conveying messages into the capital. The regular rates for this service made it possible for one bird to carry \$500. worth of dispatches, but, during the latter days of the sieges, the Germans introduced trained hawks that were used to kill the pigeons.