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THE BOY SCOUTS ASSOCIATION

(Incorporated by Act of Parliament of Canada)

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REVISED
HANDBOOK FOR CANADA
of
The Boy Scouts Association

Copyright, Canada, 1930
By Canadian General Council of the Boy Scouts Association



FIRST EDITION

Originally Published by

THE CANADIAN GENERAL COUNCIL
of **THE BOY SCOUTS ASSOCIATION**
(Incorporated by Act of Parliament of Canada)

HEADQUARTERS — OTTAWA, ONT.

THE SCOUT PROMISE

*On my honour I promise that I will do my best,
To do my duty to God and the King,
To help other people at all times,
To obey the Scout Law.*

THE SCOUT LAW

- (1) A Scout's honour is to be trusted.
- (2) A Scout is loyal to the King, his country, his officers, his parents, his employers, and to those under him.
- (3) A Scout's duty is to be useful and to help others.
- (4) A Scout is a friend to all and a brother to every other Scout.
- (5) A Scout is courteous.
- (6) A Scout is a friend to animals.
- (7) A Scout obeys orders of his parents, Patrol Leader, or Scoutmaster without question.
- (8) A Scout smiles and whistles under all difficulties.
- (9) A Scout is thrifty.
- (10) A Scout is clean in thought, word and deed.

WHAT SCOUTING MEANS

To Boys —

Good comradeship with other boys in out-of-door pursuits and games.
Training and resourcefulness, observation and self-reliance.
Instruction in handicrafts or hobbies, which may help them to make their way in life.
A chance of being ready, when need arises, for any public service that a boy can render.

To Parents —

A safe outlet for boy energy and enthusiasm.
Out-of-school education for their boys.
Outdoor interests that make for their boys' health, strength and happiness.
The strengthening of boy character through the Scout Law and practice — under such influences the boy minds is more easily turned to the higher things of life.

To the Nation —

The conservation of boy life.
The training of the rising generation in intelligent patriotism and earnest public spirit.
A potent force for international peace and goodwill.



HIS EXCELLENCY VISCOUNT WILLINGDON, G.C.S.I., G.C.M.G., G.C.I.E., G.B.E., etc.
Governor-General of Canada
Chief Scout for Canada



LORD ROBERT BADEN-POWELL OF GILWELL, K.C.B., K.C.V.O., LL.D. etc.
Chief Scout of All the World

FOREWORD

by

LORD ROBERT BADEN-POWELL OF GILWELL

Chief Scout of the World

BE PREPARED is the motto of the Boy Scouts. If you want to prepare yourself for getting the best value out of Scouting you have got to do a certain amount of preliminary study of its aims and methods. You will find these given in this book with great clearness and conciseness by Canadians for Canadians; and they follow closely the lines of the original scheme which I have explained more fully in "Scouting for Boys."

But whatever alteration of detail may be necessary, to meet the conditions of different countries, one thing is universally essential to success and that is that the same spirit should pervade our wonderful Brotherhood throughout.

For that reason I would emphasize the need for developing the same steps everywhere —

- 1st. The Promise and Scout Law as the guiding principle for Scouters as well as Scouts.
- 2nd. The development of self education from within in place of instruction from without.
- 3rd. The wholehearted use of the Patrol System with full responsibility placed on the Patrol Leader.
- 4th. The study of nature lore and woodcraft, camping and pioneering, etc., that is the jollity of the out of doors, as the important means of leading the boy to develop for himself his Character, Handiness, Physical Health, and using the efficiency thus gained for the good of others in the Community.

With these points achieved you are on the high road to the best and happiest citizenship, so with all my heart I wish you Good Scouting.

Baden-Powell of Gilwell

PREFACE

IN presenting this Revised Edition of The Handbook for Canada of The Boy Scouts Association it is desired to pay tribute to the important work done in the compilation of the First Edition by the Honorary Dominion Secretary, Mr. Gerald H. Brown. This original Edition, first published in 1920, and repeated in several impressions, had a wide sale, and played a most helpful role in spreading an understanding of Scouting throughout Canada.

While making such modifications as were necessary in order to bring certain sections into conformity with later developments in Scouting, much of the original matter has been retained; and our thanks are again due to all those who contributed articles on Nature Lore and Woodcraft, or who placed illustrations and photographs and other matter at our disposal. Credit for such contributions is given in footnote where used.

Sections deleted include chapters of interest only to Scoutmasters and which are now covered in our publication, "The Scoutmaster's First Year," "Minimum Standards for Troop Camps," or which will be found in the forthcoming book, "The Scoutmaster's Second Year."

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CHAPTER I

THE ORIGIN OF SCOUTING

The origin of the Boy Scout Movement can best be described in the words of General Sir Robert Baden-Powell, its originator, as found in the Fifth Annual Report of the Boy Scouts Association. His statement is as follows:

“It has been suggested to me that a few notes to show how the Boy Scout Movement originated might be of interest.

“The idea of training boys in Scouting dates from 1884, when I applied it to recruits in my regiment, and, in revised form, from 1897, to young soldiers in the 5th Dragoon Guards. I had then found the good of developing the man’s ‘character’ before putting upon him the routine training of drill at that time considered necessary for a soldier.

“When I came home, in 1902, I found my book, ‘Aids to Scouting’, being used in schools (and by Boy Organizations, etc.) for teaching boys. As this had been written for soldiers it was unsuitable for boys, and in 1908, I re-wrote it (after an experimental boys’ camp held in 1907). It was not then intended to have a separate organization of Boy Scouts, but that the Boys’ Brigade, the Junior Y.M.C.A., the C.L.B, and other recognized boys’ organizations would utilize the idea.

“However, such a large number of men and boys outside these organizations took it up that we were obliged to form a directorate to control it.

“This at first consisted of Major McLaren and myself, with Miss McDonald, as the entire Headquarters Staff, in a room given us by Mr. Arthur Pearson, who generously helped us to a start. Lord Strathcona also gave us a donation of five hundred pounds to put us on our feet.

“The Movement grew up by itself, and assumed such proportions that in 1910 I gave up the Army and took charge of it.

“The idea of the dress of the Scouts was taken from a sketch of my own dress in Kashmir in 1897 — in every detail.

“The fleur-de-lis badge was that which I used for Scouts in the 5th Dragoon Guards; it was taken from the sign of the North Point of the compass, as shown in maps as a guide to their orientation.

“The methods, aids and organization of the Movement underwent close examination by the Privy Council in 1910, and a Royal Charter of Incorporation was granted to it (1912).

“His Majesty the King became its Patron, and H.R.H. the Prince of Wales became Chief Scout for Wales. “And the leading men in religion, education, and affairs came on our Advisory Council.

“We work in accord with other associations for boys, such as the Boys’ Brigade, Church Lads’ Brigade, Young Men’s Christian Association Junior Branch, and others. All of us are working to the same end.

“In the Scout Movement we also aim to make our training complementary, outside the school walls, to the scholastic training within the school. We work, therefore, in touch with the Education authorities.”

The Scheme of organization of the Movement in Canada is fully set forth in Chapter II of this book. Generally speaking, the form of organization is that of rather loose voluntary association, in free but guided comradeship, towards the accomplishment of the end sought — the instructing of boys of all classes in the principles of discipline, loyalty and good citizenship.

CHAPTER II

Policy, Organization and Rules for Canada

*NOTE: — (a) The vertical marginal lines indicate a change from previous editions.
(b) Rules concerning Sea Scouting are under consideration for possible revision.*

This edition comprises the authorized statement of the Policy, Organization and Rules governing the work of the Boy Scouts Association in Canada, sanctioned by the Executive Committee of the Canadian General Council in virtue of powers vested in this Council by Act of Parliament.

At the time this issue of Policy Organization and Rules for Canada was going to press, the practice in England was to refer to the three sections of the Troop — namely the Cub Pack, the Scout Troop and Rover Crew — as the complete “Scout Group.” This was discussed carefully at the conference of Provincial Commissioners in Ottawa, October, 1928, and it was decided not to follow the English practice in that respect for the present.

Where possible and convenient the word “Troop” should be interpreted to mean the complete Scout Unit, composed of a Cub Pack and Scout Troop with its Rover Crew.

GENERAL PRINCIPALS

Sec. 1. — Aim

The aim of The Boy Scouts Association is to develop good character in boys by preparing them for good citizenship — training them in habits of observation, obedience and self-reliance — inculcating loyalty and helpfulness to others — teaching them services useful to the public and handicrafts useful to themselves and promoting their moral and physical development by true comradeship and by healthy open air pursuits and games. The motto of the Association is “Be Prepared,” which means that the Scout is to be always in a state of readiness in mind and body to do his duty and meet any emergency.

Sec. 2. — Age Limits

The age limits for enrolment are: —

WOLF CUBS. — 8 to 11, both inclusive.

BOY SCOUTS. — 12 to 18, both inclusive. This does not imply that a Scout must leave the Troop when he reaches nineteen.

ROVER SCOUTS. — The usual age at which a youth (whether previously a Scout or not) may be admitted as a Rover Scout is seventeen, but in view of the fact that boys are often old or young for their age, discretion is left to the Rover Leader as to individual cases. Only in exceptional cases should a youth under seventeen be admitted.

Sec. 3. — Promise and Law

The promise which every boy takes on joining the Association as a Scout is in the terms following: —

On my honour I promise that I will do my best,
To do my duty to God and the King,
To help other people at all times,
To obey the Scout Law.

The Scout Law is: —

- (1) A Scout's honour is to be trusted.
- (2) A Scout is loyal to the King, his country, his officers, his parents, his employers, and to those under him.
- (3) A Scout's duty is to be useful and to help others.
- (4) A Scout is a friend to all and a brother to every other Scout.
- (5) A Scout is courteous.
- (6) A Scout is a friend to animals.
- (7) A Scout obeys orders of his parents, patrol leader, or Scoutmaster without question.
- (8) A Scout smiles and whistles under all difficulties.
- (9) A Scout is thrifty.
- (10) A Scout is clean in thought, word and deed.

[For the promise made by a Wolf Cub on enrolment see Sec. 32. A Rover Scout makes the same promise as a Scout.]

Sec. 4. — Officer's Promise

All officers, on appointment, are expected to subscribe to the Scout Promise; if desired the third section may be modified to read: "To carry out the spirit of the Scout Law."

Sec. 5. — Membership

The Association can only recognize bodies which accept as a basis the three-fold Promise of the Scout (Sec. 3) or the two-fold Promise of the Wolf Cub (Sec. 32), the system of instruction contained in "Scouting for Boys" or "The Wolf Cub Handbook," by Lord Baden-Powell, and these Rules.

Membership in The Boy Scouts Association in Canada is open to British subjects of all classes and denominations, and comprises members of the Canadian General Council, members of the several Provincial Councils, members of the various District Councils and Local Associations, all officers properly holding warrants and officers holding honorary rank, together with all Wolf Cubs, Scouts and Rovers registered by Local Associations (see Sec. 21) or with the several Provincial headquarters. Churches, Sunday Schools, Day Schools and other Boys' Organizations may raise troops connected with such bodies.

The Association is anxious to promote international peace by entering into friendly relations with organizations outside the British Empire which have similar aims in view, and to exchange visits, correspondence and ideas with them, but it is not permitted to extend affiliation to foreign societies or membership in the Association to aliens. Adult alien friends may be attached to troops as honorary members, but should not be granted badges of rank or warrants, except by special permission of Headquarters. Boys who are subjects of foreign countries and who are living in Canada may become

members of Wolf Cub Packs and Scout Troops provided they and their parents sign the usual application form for membership.

Sec. 6. — Educational Policy

Scoutcraft has not been put forward as a substitute for schooling; its purpose is rather to utilize the boy's time out of school, which after all is in the ratio of four to one to the time he spends within school walls.

Many men of eminence in the teaching profession are giving their hearty support to this work as a supplementary means of attracting a boy's interest, of stimulating his ambition, of fixing in him habits of observation, honour and duty, and as a vocational guidance, through the training for proficiency badges.

Sec. 7. — Religious Policy

The policy which has guided The Boy Scouts Association in religious matters since its inception is as follows: —

(a) It is expected that every Wolf Cub, Scout and Rover Scout shall belong to some religious denomination, and shall carry out his religious duties.

(b) Where a Pack, Troop or Rover Crew is composed of members of one particular form of religion, it is expected that the Scoutmaster or Cubmaster will arrange such denominational religious observances and instructions as he, in consultation with its Chaplain or other religious authority, may consider best.

(c) Where a Pack, Troop or Rover Crew consists of Wolf Cubs, Boy Scouts or Rover Scouts of various religions, they should be encouraged to attend the service of their own denomination, and Pack, Troop or Crew Church Parades should not be held without the special permission of the Commissioner. In camp any form of daily prayer and of weekly Divine Service should be of the simplest character, attendance being voluntary.

Sec. 8. — Finance

The spirit of the Movement is that, on the part of the boys themselves, money should be earned and not solicited. Scouts are not allowed to solicit money either for their Troop fund or any other purpose. (See Sec. 78.)

(a) *Headquarters Finance.*

The Boy Scouts Association depends mainly upon voluntary support for the expenses of Dominion and Provincial Headquarters.

(b) *Local Association Finance.*

Local Associations should raise locally the sums required for working expenses or for helping Troops in the Association.

A Local Association may require a small local registration fee from each Troop, and subscriptions from members of the Local Association.

(c) *Pack and Troop Finance.*

Where outside subscriptions are received these should be administered by a Committee and not by any individual Leader. (See Sec. 23.)

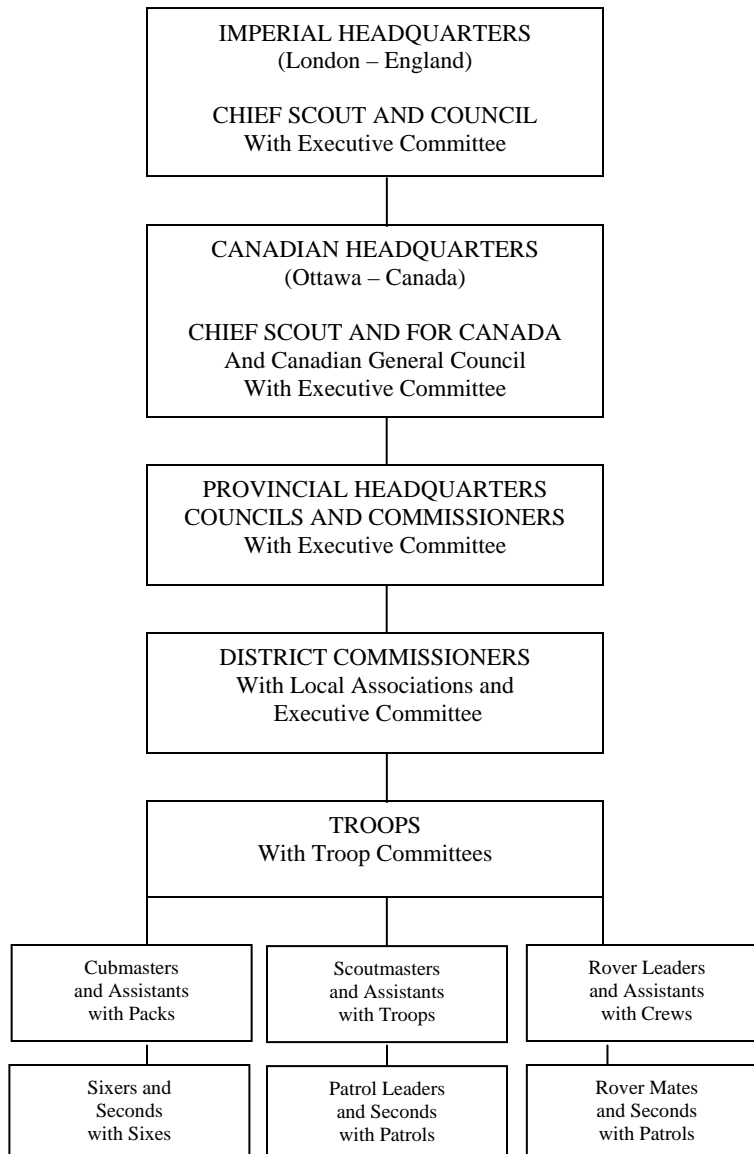
(d) *Administration of Funds.*

Particular care should be exercised in the handling of all funds belonging to or entrusted to the Boy Scout Movement whether individual boys' subscriptions or otherwise. An account should be kept of all funds and a balance sheet published. The funds should be under joint control of two people.

PLAN OF ORGANIZATION

Sec. 9. — Organization Chart

The plan of organization of the Association is shown in the following chart: —



In the above chart the word Troop indicates the complete Scout Unit, viz., Cub Pack, Scout Troop and Rover Crew.

Sec. 10. — Imperial Headquarters

The Boy Scouts Association is incorporated throughout the British Empire by a Royal Charter granted by His Majesty, King George V., in 1912. Under the terms of incorporation the control of the Association's affairs is vested in a representative Council having its headquarters in London, England, to which a Headquarters Committee is responsible in turn for general administration. His Majesty the King is the Patron of the Association; His Royal Highness the Duke of Connaught is its President. Lord Baden-Powell, the Chief Scout, is Chairman both of the Headquarters Council and Committee. The work at Headquarters is supported by voluntary subscription and an endowment fund raised to that end. Since its inception in the United Kingdom in 1908 the Boy Scout Movement has spread into many foreign countries. The Movement in foreign countries is controlled in each case by a national council or committee.

Sec. 11. — Canadian General Council

The Canadian General Council was incorporated by an Act of the Parliament of Canada, in 1914, for the purpose of promoting and carrying out in Canada the objects of The Boy Scouts Association, viz.:

- (a) The instructing of boys in the principles of discipline, loyalty, and good citizenship, and otherwise as provided in and by the Royal Charter of the said Association.
- (b) To promote and make, and assist in the establishment of: Provincial and Local Associations, Committees, and Councils, on such terms and under such regulations as the Corporation may from time to time by by-law provide.
- (c) To publish, distribute, and sell books and other information for the furtherance of the objects of the Association in Canada.
- (d) Generally to do all things necessary or requisite for providing and maintaining an efficient organization for the purposes of the Association in Canada.

The Canadian General Council is composed of its Charter members and officers, and other representative citizens from all parts of Canada. New members are elected by the Executive Committee.

Each Provincial Council is entitled to representation on the Canadian General Council by its Provincial Commissioner and one other member duly elected by the Provincial Council.

His Excellency the Governor-General is the Chief Scout for Canada, and also Chairman of the Council and the Executive Committee. The other officers are: the Chief Commissioner, who is elected on the nomination of the Chief Scout for Canada; the Honourary Dominion Secretary, the Honourary Treasurer and the Honourary Counsel; these are elected yearly at the Annual Meeting of the Council.

The affairs of the Canadian General Council are managed by an Executive Committee of not less than nine or more than eighteen members who are elected at the Annual Meeting.

Sec. 12. – Provincial Councils

Provincial Councils are constituted by the Canadian General Council under the authority of the Act of Incorporation (1914) to promote, encourage and assist the further establishment of the Boy Scout Movement in accordance with the Plan of Organization set forth and with the duties and powers hereinafter stated.

The membership of Provincial Councils is made up as follows: —

- (a) Members appointed by the Canadian General Council, when the Provincial Council is regularly constituted.
- (b) Members elected by the Provincial Council.
- (c) The officers of the Council. The officers are: — Provincial Patron and Provincial President, who are appointed annually by the Chief Scout for Canada, on the recommendation of the Provincial Council; Provincial Commissioner (see Sec. 13); Vice-President, Treasurer and Secretary, who are elected annually by the Provincial Council.
- (d) Representatives of Local Associations: — Each Local Association is entitled to appoint two representatives, and one additional representative for every ten troops in excess of ten troops within the area of the Association.
- (e) Troop Committees in charge of troops which are not under the jurisdiction of Local Associations are entitled to one delegate each at Provincial Council meetings.
- (f) The District Commissioners.

An Executive Committee composed of the officers of the Provincial Council and other members is elected annually by the Provincial Council.

The duties and powers of the Provincial Council are as follows: —

- (a) To promote the welfare of the Boy Scout Movement in accordance with the Policy, Organization and Rules of the Canadian General Council and without interfering with the independence and initiative of Local Associations and the Packs of Wolf Cubs, Troops of Scouts or Crews of Rover Scouts under them.
- (b) To advise the Provincial Commissioner in the administration of Scout work in the Province.
- (c) To obtain Provincial funds and control their expenditure.
- (d) To promote harmonious co-operation with all existing organizations for welfare work and for boys.
- (e) To promote and assist in the establishment of Local Associations, Committees and District Councils on such terms and under such regulations as the Council may from time to time and by by-law provide.
- (f) To make by-laws and submit the same for approval by the Dominion Executive Committee.

- (g) To furnish an annual report to the Canadian General Council.

Sec. 13. — Commissioners

All Commissioners are appointed for two years (as is the case in the United Kingdom), subject to re-appointment.

Sec. 14. — Chief Commissioner

The Chief Commissioner for Canada is elected by the Canadian General Council on the nomination of the Chief Scout for Canada.

- (a) He is the principal executive officer of the Canadian General Council and the Dominion Executive Committee.
- (b) He is charged with leadership in fostering and encouraging the interests of The Boy Scouts Association and in promoting intelligent zeal, enthusiasm and harmonious co-operation among all Scout officers and authorities throughout Canada.
- (c) He is responsible for efficient supervision and administration by the Provincial Commissioners within their respective Provinces.
- (d) He deals, in the first instance, with appeals from Provincial Commissioners and Provincial Councils.
- (e) If and when so directed by the Dominion Executive Committee he may advise the Chief Scout for Canada to suspend any officer or to recall his warrant.

Sec. 15. — Assistant Chief Commissioner

The Assistant Chief Commissioner is appointed by the Dominion Executive Committee on the recommendation of the Chief Commissioner. He acts under the Chief Commissioner, and in the absence of the Chief Commissioner performs the duties pertaining to that officer. The Dominion Headquarters staff and office are under his control.

Sec. 16 — Provincial Commissioner

The Provincial Commissioner is appointed by the Chief Scout for Canada, on the recommendation of the Provincial Council. He is the principal executive officer of the Provincial Council, and is responsible for the active prosecution of the Movement in the Province. He is *ex-officio* a member of the Canadian General Council.

If and when the office of Commissioner is vacant, and there is no Assistant Provincial Commissioner, the duties are performed for the time being by the Chief Commissioner for Canada, or some one appointed by him for that purpose.

The duties and powers of the Provincial Commissioner are: —

- (a) To supervise and to promote efficiency in the work of all District Commissioners and Local Associations in the Province, and to secure their harmonious co-operation.

- (b) To endorse recommendations for the grant and withdrawal of warrants in the Province.
- (c) To consider appeals from District Commissioners and Local Associations.
- (d) To approve all applications for awards for acts of gallantry and meritorious service before these are sent to the Dominion Executive Committee.
- (e) To foster and encourage the Movement generally throughout the Province.
- (f) To suspend a Local Association pending enquiry by the Provincial Executive Committee.

The Provincial Headquarters staff and office are under his control.

If the Provincial Council and the Provincial Commissioner differ, the question must be referred to the Chief Commissioner for Canada, with the right of appeal to the Dominion Executive Committee, whose decision must be accepted as final.

Sec. 17. — Assistant Provincial Commissioners

An Assistant Provincial Commissioner may be appointed by the Chief Scout for Canada on the recommendation of the Provincial Commissioner and the Provincial Council. He acts under the Provincial Commissioner, and in the absence of the Provincial Commissioner performs the duties pertaining to that officer.

Assistant Commissioners may also be appointed for Wolf Cub, Scout, Sea Scout or Rover Scout duties.

Sec. 18. — District Commissioner

The District Commissioner is appointed by the Chief Scout for Canada, on the recommendation of a Local Association and the Provincial Commissioner. He acts under the Provincial Commissioner, and is the principal executive officer within his District. He is *ex-officio* a member of the Provincial Council.

The duties and powers of the District Commissioner are: —

- (a) To inspect Packs, Troops and Crews, and advise how to conduct them on the lines laid down in official publications. The Troops and Packs at rallies and parades are generally in charge of a Scoutmaster or District Scoutmaster (Cubmaster or District Cubmaster if parade of Cubs only), but the District Commissioner may take command if he so desires.
- (b) To test badge wearers in the knowledge of their subjects, with power to withdraw the badge from them if inefficient.
- (c) To secure the harmonious co-operation of all Associations, Cubmasters, Scoutmasters and Rover Leaders in the District.
- (d) To endorse recommendations for the grant and withdrawal of all warrants and certificates of registration for Officers, Troops, Packs and Crews in his area.
- (e) To foster and encourage the Movement generally throughout the District.

- (f) To approve the formation of Sea Scout Troops and Patrols, and notify Provincial Headquarters immediately; and to satisfy himself that the necessary rules for the safety of Scouts on the water have been made and are carried out.
- (g) To suspend for cause any Officer, Pack, Troop, Crew, Wolf Cub, Scout, or Rover in his area, pending enquiry by the Local Association. If withdrawal be recommended by both the District Commissioner and the Local Association, the matter need only be reported to the Provincial Commissioner, who will withdraw the warrant or certificate or advise the Chief Commissioner that the warrant or certificate should be withdrawn.

If the District Commissioner and a Local Association differ, the question must be referred to the Provincial Commissioner with the right of appeal to the Provincial Executive Committee.

When a vacancy occurs in the District Commissionership, and there is no Assistant District Commissioner, the Provincial Commissioner will appoint someone to perform the duties, pending the appointment of a new District Commissioner.

Sec. 19. — Assistant District Commissioner

Assistant District Commissioners are appointed by the Chief Scout for Canada, on the recommendation of the District and Provincial Commissioners. Assistant Commissioners may be appointed for Wolf Cub, Scout, Sea Scout or Rover Scout duties.

Sec. 20. — Field Commissioner

The Provincial Commissioner may avail himself of the services of men who, by reason of their profession or the position they hold, may be able to co-operate in the extension of the Boy Scout Movement. The Field Commissioner is appointed by the Chief Scout for Canada on the recommendation of the Provincial Commissioner and the Provincial Council.

Sec. 21. — Local Associations

Local Associations are desired in all localities where two or more Wolf Cub or Boy Scouts Troops are organized. A Local Association exists for the following purposes: —

- (a) To supervise and encourage the Movement within its area, with the least possible amount of interference with the independence and initiative of the Packs, Troops or Crews; also to work in co-operation with other recognized organizations for boys.
- (b) To recommend Packs, Troops, Crews and Officers, up to the rank of District Commissioner, for registration and warrants.
- (c) To suspend for cause any Pack, Troop, Crew, Officer, Wolf Cub, Scout or Rover in its area.
- (d) To appoint Badge Committees of independent ladies and gentlemen to examine candidates for the Proficiency Badges, and be responsible for the granting of all Scout or Wolf Cub badges and awards to Packs, Troops, Rover Crews, Wolf Cubs, Scouts or Rovers under its jurisdiction.
- (e) To encourage the formation of Troop and Pack Committees, for finance, the trusteeship for Troop or Pack property, etc.

- (f) Where Sea Scouts exist, or boating is part of the Scout training of a Troop, or where boats or canoes are used, to appoint a special committee to frame by-laws for the proper supervision of the use and equipment of all vessels and boats for the safety of the Scouts using them.
- (g) To submit all by-laws for approval by Provincial Headquarters, supplying a duplicate copy for filing. (a model set of by-laws may be obtained from Provincial Headquarters.)
- (h) To raise locally money required for working expenses or for helping Packs, Troops or Crews in the Association. Subscriptions and donations for this purpose should be paid in to the Treasurer of the Local Association and not to any individual Cubmaster, Scoutmaster or Rover Leader.
- (i) To submit to the Provincial Council an annual report including a duly audited financial statement.

Sec. 22. — Formation of Local Associations

Where it is desired to form a Local Association, a meeting should be held, at which some leading citizen should be invited to act as chairman. The Provincial Council will arrange if practicable to have a representative present for the purpose of presenting to the meeting the whole scheme of Scouting. Representatives from boys' organizations in the locality should be invited to attend, as well as schoolmasters, clergy of different religious beliefs, and other citizens who are interested in work among boys, to elect the members of the Local Association.

A person is a member of a Local Association: —

- (a) If he is a District or Assistant District Commissioner, Cubmaster, Scoutmaster or Rover Leader, holding warrant and registered within the area.
- (b) If he is duly elected by a Troop or Pack Committee.
- (c) If duly elected by the Local Association.

The Local Association should elect a President, Vice-Presidents, Secretary, Treasurer, or Secretary-Treasurer (subsequently elected annually).

Where necessary, an Executive Committee may be elected with its own Chairman and Vice-Chairman, to carry out the duties assigned to it by the Local Association. The Committee should consist of at least as many other members as there are Cubmasters, Scoutmasters and Rover Leaders.

It is most important that an efficient Secretary be appointed.

The Local Association bears a similar relationship to the Wolf Cub Pack, Boy Scout Troop or Rover Crew, that the School Board does to the schools, and should be composed of citizens who are interested in the welfare of the boys. No boy should ever be present at meetings of the Local Association.

| It is not advisable that a Commissioner be also President of the Local Association, and Cubmaster, Scoutmasters or Rover Leaders are not permitted to act in this capacity, except with the sanction of the Provincial Council.

Assistant Cubmasters, Assistant Scoutmasters and Assistant Rover Leaders may attend meetings, but unless they are elected members, may not vote, except when representing their Troop in the absence of their Scoutmaster, in which case one Assistant may vote.

Cubmasters and Assistant Cubmasters, Scoutmasters and Assistant Scoutmasters, Rover Leaders and Assistant Rover Leaders are not *ex-officio* members of the Executive Committee of the Local Association.

The area to be administered by the Local Association should be settled by the Provincial Commissioner.

Where there is only one Troop or Pack in the area, the Troop or Pack Committee will take the place of the Local Association.

Sec. 23. — Troop and Pack Committees

Troop and Pack Committees exist for the following purposes: —

- (a) To recommend for appointment a Cubmaster, Scoutmaster, Rover Leader and one or more Assistants.
- (b) To promote harmonious relationship between the Cub Pack, Scout Troop, Rover Crew and the institution with which they are connected.
- (c) To see that the Pack, Troop or Crew works in harmony with other boys' organizations in the community.
- (d) To assist the Cubmaster, Scoutmaster and Rover Leader in obtaining a room for Headquarters purposes.
- (e) To assist the Cubmaster, Scoutmaster and Rover Leader in finding instructors and examiners in special subjects.
- (f) To ensure as far as practicable the permanency of the Pack, Troop and Crew.
- (g) To assume active direction of the Pack, Troop or Crew in case of the inability of Cubmaster, Scoutmaster or Rover Leader to serve, until his successor has been duly appointed.
- (h) To be responsible for Pack, Troop and Crew property. (For Real Estate See Sec. 96.)
- (i) To assist the Pack, Troop or Rover Crew to obtain money if necessary. (See Sec. 8.)

A common form of account keeping should be adopted. Annual accounts, duly audited, with schedule of property, should be submitted to the Local Association, or where there is no Local Association, to Provincial Headquarters.

A balance sheet should be posted in a conspicuous place at Pack, Troop and Crew Headquarters at least once a year.

Where there is no Local Association the Troop or Pack Committee shall assume all the duties of a Local Association in respect to its own Pack, Troop or Crew.

A special Scout badge is issued and may be worn by members of Troop or Pack Committees.

Sec. 24. — The Wolf Cub Pack



A Pack is in charge of a Cubmaster, with one or more Assistant to ensure continuity. The Pack should retain the name and number of the Troop with which it is affiliated and adopt the same neckerchief.

It is divided into Sixes, each Six consisting of six Cubs, including Sixer and Second. Sixes are known by colours — Black, Grey, Red, Brown or White.

If the Pack consists of more than three Sixes, an additional Assistant Cubmaster is desirable. Except in special circumstances, a Pack should not consist of more than 36 boys.

A Pack is entitled to carry a Totem Pole.

In deciding matters of internal administration the Cubmaster should, as far as possible, consult the Sixers' Council. This is an informal body composed of the Sixers; Seconds may also be members.

Sec. 25. — The Scout Troop

A Scout Troop is in charge of a Scoutmaster. There should be at least one Assistant Scoutmaster to ensure continuity.

It is divided into Patrols consisting of 6 to 8 Scouts, including Patrol Leaders and Seconds. The Patrol should be the unit in all competitions and exercises.

Patrols are named after birds and animals, preferably those common to their locality. (See page 78 for patrol colours.)

If the Troop consists of more than three Patrols an additional Assistant Scoutmaster is advisable. Except in special circumstances, a Troop should not consist of more than 32 boys.

No Troop may be recognized unless holding a Troop Charter granted by the Canadian General Council of The Boy Scouts Association.

No boy may be accepted for enrolment in any Troop of Boy Scouts who has been a member of another Troop within two months of his application, unless he is provided with a transfer signed by his former Scoutmaster.

The internal affairs of the troop (including the expenditure of money subscribed by the boys) are administered by a Court of Honour consisting of the Troop Leader (if any), the Patrol Leaders and the Scoutmaster and Assistants; Seconds may also be members, but their presence is not desirable in cases concerning discipline. The Scoutmaster and Assistants should act in an advisory capacity only. The Scoutmaster has power of veto.

Sec. 26. — The Rover Crew

A Rover Crew is in charge of a Rover Scout Leader. It should retain the name and number of the Troop with which it is affiliated and wear the same neckerchief. It consists of one or more Patrols, each

of which usually is called after a famous man. The minimum Rover Patrol consists of four Rover Scouts, including the Rover Mate and Second.

Sec. 27. — Lone Patrols and Lone Scouts

Where in a district it is impossible to obtain the services of a leader to take charge of boys who wish to become Scouts, the senior boy should apply to the Executive Secretary at Provincial Headquarters for permission to form a Lone Patrol.

Individual boys who wish to be Scouts should apply to the Secretary at Provincial Headquarters, to be registered as Lone Scouts. The Executive Secretary will then enroll the Patrol or Scout, after receiving the approval of the Commissioner in whose district the Patrol or Scout is domiciled. The Commissioner should not grant approval when it is possible for the boy to join an existing patrol.

Sec. 28. — Branches of the Movement

Wolf Cubs, Scouts, Rover Scouts, Sea Scouts, and Rover Sea Scouts, all are branches of The Boy Scouts Association, and for organization come under the same scheme.

RANKS AND UNIFORMS

Sec. 29. — Ranks

Each branch of the Movement (Wolf Cubs, Scouts and Rovers), has its own ranks and grades as set forth in Sections 30 to 52.

There are four ranks of Executive Officers, with various grades in each (as set out in Secs. 53 to 65), viz., Commissioners, Rover Leaders, Scoutmasters and Cubmasters.

Certain other offices, as described in Secs. 66 to 75, carry Honourary Rank.

The use of other titles and terms denoting naval or military rank is not authorized.

The SCOUT BADGE in appropriate form must be worn by all ranks of Scouts, Rover Scouts and Scout and Rover Scout Officers, when in uniform, to indicate membership; the Wolf Cub Badge must be worn by all ranks of Cubs and Cub Leaders.

Wolf Cubs

Sec. 30. — The Wolf Cub Badge



THE WOLF CUB BADGE is granted by the Local Association on the recommendation of the Cubmaster. It consists of a Wolf's head embroidered in red on a dark green ground, and is worn both on the front of the cap and on the left breast (sewn on the jersey). It is also issued in the form of a brass buttonhole badge to wear when in mufti.

The possession of this badge is important as it indicates the wearer to be a Cub. In order to recover the badge upon resignation or suspension of a Cub, the Local Association should retain ownership. (For Investiture of Wolf Cubs see Wolf Cub Handbook.)

Sec. 31. — Wolf Cub Uniform

CAP. — Green with yellow piping, with Wolf Cub emblem in front.

SCARF. — Of the Pack colour; worn loosely knotted at the throat and ends. If the Pack is affiliated with a Troop the colours should be the same.

JERSEY. — Grey, green or navy blue, with WOLF CUBS — CANADA badge on right breast.

SHORTS. — Dark blue or khaki.



STOCKINGS. — Black with plain green or khaki tops, Navy with khaki striped or green striped tops, or plain khaki worn turned down below the knees with green garter tabs showing on the outside.

BOOTS OR SHOES. — Brown or Black.

HAVERSACK. — On appropriate occasions worn on the back, not on the side.

SHOULDER PATCH. — 1½ inch triangular patch of cloth of the colour of the Six, sewn at top of left sleeve, immediately below the shoulder, with point upwards.

SHOULDER BADGE. — Indicating the Pack, worn on right shoulder.

PROVINCIAL EMBLEM. — If authorized (see Sec. 87).

OVERCOAT OR RAINCOAT. — Optional.

AUTHORIZED BADGES. —

CUB BADGE. — Of cloth worn on the left breast of the jersey and on front of cap.

PROFICIENCY BADGES. — Worn by Second Star Cubs in parallel rows between the shoulder and elbow of the right arm.

SERVICE STARS. — On left breast of jersey above the Wolf Cub Badge.

FIRST STAR. — Worn in the front of the cap, on the right side of the Wolf Cub Badge.

SECOND STAR. — Worn in the front of the cap, on the left of the Wolf Cub Badge.

Belts, knives and articles of equipment other than those described above may not be worn visibly.

WOLF CUB GRADES

Sec. 32. — Tenderpad

To become a Wolf Cub, a boy must be over 8 and under 12 years of age. He must satisfy his Cubmaster that he knows the Cub Law, signs, and salute. He is then invested (Sec. 91) and makes the following Promise: —

I promise to do my best —

1. To be loyal, and to do my duty, to God and the King, and to keep the law of the Wolf Cub Pack;
2. And to do a good turn to somebody every day.

The Law of the Wolf Cub Pack is —

1. The Cub gives in to the Old Wolf;
2. The Cub does not give in to himself.

He is then a Tenderpad, and is entitled to wear the Wolf Cub Badge and uniform.

Sec. 33. — One Star Cub

Before being awarded his First Star a Tenderpad must: —

- (a) Know the composition of the Union Jack and the right way to fly it.
- (b) Be able to tie the following knots, and know their uses: — Reef knot, sheet bend, clove hitch and bowline.
- (c) Turn a somersault; leap-frog over another boy the same size; bowl a hoop, or hop round a figure-of-eight course. Throw a ball, first with the right hand, then with the left, so that a boy ten yards away catches it four times out of six. Catch a ball thrown to him from ten yards distance four times out of six.
- (d) Skip with both feet together thirty times. It must be done backward on the toes with the knees slightly bent all the time. The Cub must turn the rope himself. Carry on head, walking upright, for ten yards, three books 8 by 5 inches (the size of Wolf Cub Handbook) which should be placed flat across the head.
- (e) Know how and why he should keep his hands and feet clean, his nails clean and cut, and his teeth clean; and why breathe through his nose.
- (f) Be able to tell the time by the clock.
- (g) Have at least 3 months' service as a Wolf Cub.

The Star is granted by the Local Association on the recommendation of the Cubmaster and is worn in the front of the cap on the right of the Wolf Cub Badge.

UNIFORM. — As for Tenderpad.

Sec. 34. — Two Star Cub

Before being awarded his Second Star a Cub must: —

- (a) Know the alphabet in Morse or Semaphore, and be able to send and read three letters out of four correctly.
- (b) Know eight points of the compass.
- (c) Recite the first two verses of "God Save the King." (See Wolf Cub Handbook.)

- (d) Have one dollar in the Savings Bank.
- (e) Produce a satisfactory model made entirely by himself of wood, metal, cardboard or clay; or an article knitted or netted, woven or carved; or a set of at least eight sketches drawn by himself in colours (chalk or paint) of National flags, or medal ribbons or flowers, with their names clearly written.
- (f) Clean and polish a pair of boots or shoes. Fold his clothes neatly. Know how to lay and light a kitchen fire, or how to turn on and light a gas stove burner safely, or how properly to turn on and turn off electric stove elements. Be able to run or cycle with a verbal message of not less than fifteen words, to go by a certain route, and deliver it correctly; or to tidy a street or road by collecting a basket or bag full of waste paper, or weeds, etc.
- (g) Perform the toe-touching and knee-bending exercises shown in the Wolf Cub Handbook. Walk a plank 12 feet by 6 inches, the height of an ordinary table above the ground.
- (h) Know how to clean and tie a cut finger, cover a scald or burn, and understand the danger of dirt in a scratch.
- (i) Have at least six months' service as a Wolf Cub.

The Second Star is granted by the Local Association on the recommendation of a qualified and independent examiner approved by the Local Association. It is worn in the front of the cap, on the left side of the Wolf Cub badge. (For Investiture of Two Star Cubs, see Wolf Cub Handbook.)

UNIFORM. — As for Tenderpad.

WOLF CUB RANKS

Sec. 35. — Wolf Cub Second

A Second is selected by the Cubmaster to assist the Sixer and to take the place of the Sixer when the latter is away.

UNIFORM as for Tenderpad, with armlet of yellow braid, ½ inch wide, worn 3 inches above the left elbow.

Sec. 36. — Sixer

A Sixer is a Wolf Cub appointed by the Cubmaster to take charge of a Six of Wolf Cubs. A Sixer ranks before all other Cubs.

UNIFORM as for Tenderpad, with two armlets of yellow braid, ½ inch wide, and 1 inch apart, worn above the left elbow.

BADGE (for use in mufti), a white metal Wolf's head.

Sec. 37. — Senior Sixer

The appointment of not more than one Senior Sixer is permitted in each Pack, the selection being made by the Cubmaster, who is guided by the following qualifications: —

- (a) Not less than one year's total service.
- (b) Not less than six months' service as a Sixer.
- (c) The rank of Two Star Cub.

The Senior Sixer wears a third armband of yellow braid similar to those worn by a Sixer.

BADGE (for use in mufti), as for Sixer.

Boy Scouts

Sec. 38. — Scout Badge



THE SCOUT BADGE, which is granted by the Local Association on the recommendation of the Scoutmaster, must be worn in cloth on the centre of the left-hand pocket of the uniform shirt, and the metal badge worn in the buttonhole of the coat when in mufti.

The possession of the badge is important, as it indicates the wearer to be a Scout. In order to recover the badge upon the resignation or suspension of a Scout, the Local Association should retain ownership.

Sec. 39. — Scout Uniform Officially Recognized

Official recognition of the Boy Scouts' uniform was granted in Canada by Militia General Order No. 27-17, March 15th, 1917, in the following terms: —

“The Boy Scouts uniform (B.-P. Hat or Sea Scout Cap and Fleur-de-lis essential) is recognized as the uniform of a public service non-military body.”

The attention of the Canadian General Council was subsequently drawn to the possibility of the uniform of officers of The Boy Scouts Association being regarded as an infraction of an Order of the Governor-General-in-Council (P.C. 17) of Jan. 4th, 1918. In order that Scoutmasters and other uniformed officers might be under no misapprehension in the matter the following routine order of the Canadian Expeditionary Forces and the Active Militia called out on Active Service in Canada was published for information.

“699. UNIFORM WORN BY SCOUTMASTERS AND SCOUTS. — Attention is called to General Order No. 27, 1917, which states that the Boy Scout uniform is recognized as the uniform of a public service (non-military) body. The uniform to be worn by Scoutmasters and Scouts as laid down in “Policy, Organization and Rules for Canada, March 1916,” published by The Canadian General Council of The Boy Scouts Association, is not to be considered as coming within the provisions of the Order-in-Council, No. P.C. 17, Jan. 4th, 1918.”

Sec. 40. — Scout Uniform

The Scout uniform is as follows, with appropriate badges of rank as described in Secs. 41 to 47.



HAT. — Khaki colour (four dents, one in front, one at the back and one at each side), flat brim, leather band round crown, and lace. (The lace should be worn at the back of the head and tied in front on the brim of the hat.)

NECKERCHIEF. — Of Troop colours. Each Troop is entitled to make its own choice of neckerchief colours, subject to the choice being ratified by the Local Association. The neckerchief is worn knotted at the throat (or held in position by a Troop ring, other than Gilwell pattern), and a half hitch bent on the shorter end.

SHIRT. — Blue, khaki, green or grey, with two patch pockets (buttoned) and shoulder straps; and **BOY SCOUTS — CANADA** badge over right breast pocket.

SHORTS. — Blue or khaki. When standing, the bottom of the shorts should reach the top of the kneecap. (Scottish Scouts may wear the kilt and sporran in place of shorts; in other details the standard uniform must be adhered to.)

BELT. — Brown leather of official design.

STOCKINGS. — Black with plain green or khaki tops, Navy with khaki striped or green striped tops, or plain khaki worn turned down below the knees with green garter tabs showing on the outside. (Scouts must not wear puttees.)

BOOTS OR SHOES. — Brown or black.

SHOULDER KNOT. — Six inches long, of patrol colours, on left shoulder. (For Patrol colours see page 78.)

SHOULDER BADGE. — Indicating Troop, worn on right shoulder.

PROVINCIAL EMBLEM. — If, and as authorized by Provincial Headquarters (Sec. 87.)

STAFF. — Every Scout should be equipped with a natural wood staff, five feet six inches in length, marked in feet and inches, to be carried on all appropriate occasions.

WINTER UNIFORM. — All members of the Association may wear in winter the following uniform: — Toque, mackinaw coat, breeches, stockings and boots or shoes.

The above items comprise correct Scout uniform, and with the exception of authorized badges and decorations, and the optional articles mentioned below, nothing must be added to it. Correct Scout uniform must be worn in public. Scouts in camp may, at the discretion of the Scoutmaster, wear any clothing they desire, but whenever they appear outside camp limits, they must be properly dressed in Scout Kit.

Optional Articles

LANYARD. — To carry whistle, worn around neck, free of neckerchief.

KNIFE. — This may be worn on belt if desired.

HAND AXE. — For camping and hiking, First Class Scouts may carry on belt.

RUCKSACK. — Worn on all appropriate occasions.

OVERCOAT OR RAINCOAT. — When not worn, these should be carried in the most convenient way, and so far as possible in a uniform manner.

AUTHORIZED BADGES. —

SCOUT BADGE. — Of cloth worn on centre of left breast pocket (Sec. 38).

KING'S SCOUT BADGES. — Worn on left arm. King's Scout Badge above First Class Badge, qualifying proficiency badges surrounding King's Scout Badge (Sec. 44) with the Ambulance Badge at top nearest shoulder.

PROFICIENCY BADGES. — Worn on right arm in parallel rows between shoulder and elbow, except those badges which qualify for the King's Scout Badge.

SERVICE STARS. — In a row above left shirt pocket (Sec. 114).

MEDAL OF MERIT AND LIFE SAVING MEDALS. — Worn on right breast.

ALL ROUND CORDS AND BUSHMAN'S THONG. — Worn on right shoulder, around arm, under shoulder strap of shirt and looped across pocket (Secs. 119 and 120.)

PATROL LEADER'S HAT BADGE. — Worn on front of hat.

TROOP LEADER'S HAT BADGE. — Same as Patrol Leader, but worn on left side of hat.

RANK STRIPES. — Troop Leader, three stripes. Patrol Leader, two stripes. Second, one stripe. These stripes are worn on left shirt pocket as follows: — Troop Leader, one on each side of pleat and one on pleat itself, with the Scout Badge superimposed. Patrol Leader, one on each side of pleat. Second, one on right side of pleat. Stripes to be one-half inch wide, and three inches long, of white tape.

SEA SCOUT UNIFORM (*under revision*). — As for Scout, with the following exceptions: —



CAP. — Bluejacket's cap (with white cover for summer) with ribbon inscribed "Sea Scouts."

SHIRT OR JERSEY. — Blue. Jerseys having the words "Sea Scouts" in white letters across the chest. Shirts, with an anchor badge on the right breast.

SHORTS. — Blue.

STOCKINGS. — Blue, long enough to turn up over the knees, if necessary, in bad weather.

While there is no objection to Sea Scouts wearing trousers when fishing or boating in bad or cold weather, on shore and for ordinary occasions shorts are to be worn, and no Sea Scout should ever be seen in trousers except in the special circumstances mentioned. The wearing of such articles of clothing as a bluejacket's jumper is not permitted. Waterproofs or oilskins and sou'westers may be worn at the discretion of the Scoutmaster.

Scoutmasters may use a boatswain's pipe instead of a whistle.

DEEP SEA SCOUTS UNIFORM. —

Deep Sea Scouts have a special badge, and may wear Scout or Sea Scout uniform with a special royal blue neckerchief. (See Sec. 99.)

SCOUT GRADES

Sec. 41. — Tenderfoot Scout

The age limits for Scout enrolment are twelve to eighteen years, both inclusive, except in the case of the non-Scout about to be enrolled as a Rover Scout (Sec. 49).

The applicant must satisfy the Scoutmaster that he knows the Scout Law (Sec. 3); signs and salute; the composition of the Union Jack and the correct way to fly it; uses of the Scout Staff; how to whip the ends of a rope; using rope, how to tie the following knots, and explain their special uses: — Reef, sheet bend, clove hitch, bowline, fisherman's, sheepshank.

He is then invested by his Scoutmaster (Sec. 91), and is entitled to wear the Scout Badge and uniform.

Sec. 42. — Second Class Scout

Before being awarded the Second Class Scout's Badge, a Tenderfoot Scout must: —

- (a) Have at least one month's service as a Tenderfoot Scout.
- (b) Pass the following tests in Health Rules and First Aid: —
 - (1) Know the general rules of health as given in "Scouting for Boys."
 - (2) Be able to deal with simple First Aid problems as follows: —
 - Scratches and Cuts.
 - Bruises and Sprains.
 - Burns and Scalds.
 - Grit in the Eye.
 - Bleeding from the Nose.
 - Insect Stings and Animal Bites.
 - (3) Know how to make a large and small arm sling, using a triangular bandage.
Know how to apply a triangular or other effective bandage to keep a dressing on a wound, burn or scald on the hand, foot, arm, leg and head.
Know how to bandage a sprained ankle.
Know how to apply a tourniquet.
- (c) Know the Semaphore (or Morse) sign for every letter in the alphabet and for the numerals.
- (d) Follow a track half a mile in twenty-five minutes, or describe satisfactorily the contents of one shop window out of four, observed for one minute each; or Kim's game, to remember sixteen articles out of twenty-four well assorted small articles after one minute's observation.

- (e) Go a mile in twelve minutes at "Scout's Pace," unless physically unfit. This is not an athletic feat, but a test on judging distance by time. A margin of thirty seconds each way may be permitted.
- (f) Lay and light a wood fire in the open, using not more than two matches. No paper or birch bark may be used.
- (g) Cook in the open, over camp fire, a quarter of a pound of meat (not bacon or wieners) and two potatoes.
- (h) Know the sixteen principal points of the compass.

UNIFORM as for Tenderfoot Scout.



THE BADGE of the Second Class Scout is embroidered in cloth in the form of a scroll with a knot suspended therefrom. The badge is granted by the Local Association, on the recommendation of the Scoutmaster. It is worn on the left arm, between the shoulder and elbow.

Sec. 43. — First Class Scout

Before being awarded this badge, a Second Class Scout must pass the following tests, to the satisfaction of at least one independent and qualified examiner, approved by the Local Association: —

- (a) Have at least one year's service as a Second Class Scout.
- (b) Swim fifty yards; or if a doctor certifies that bathing is dangerous to the boy's health, or where the Provincial Commissioner considers that water for the purpose is not within reasonable distance of the Troop, pass one of the King's Scout badges; such badge not to count towards the King's Scout rank.
- (c) Have saved and paid into a Savings Bank Account, a sum consistent with his opportunities of saving (minimum \$1.00).
- (d) Send and receive a message either in Semaphore, at the rate of four words (twenty letters) a minute; or in Morse, at a rate of three words (fifteen letters) a minute. The Scout must also understand the use of calling-up signs, including RU (an unknown station), the preparatory sign, VE; its answer, K (go ahead) or Q (wait a minute); the General Answer, A in Semaphore and T in Morse; the end of the message sign, AR, and its answer R; the Alphabetic Check for numerals, and the Erase signal (the reverse of L in Semaphore and eight dots in Morse.)
- (e) Pass the following tests in First Aid: —
 1. Be able to explain the functions of the principal organs of the body
 2. Know the position of the main arteries (names unnecessary) and be able to stop bleeding.
 3. Know how to apply First Aid to fractures.

4. Know how to restore the apparently drowned by Schafer's method.
 5. Understand the treatment of unconsciousness and fainting.
 6. Know the proper method of dealing with any of the following accidents: Fire, drowning, run-away horse, gas suffocation, frost bite, fits, sunstroke, ivy poisoning, object in the ear, substance in the throat, electric shock, breaking through ice.
- (f) Cook satisfactorily over campfire in the open porridge, stew, rice, pancakes and a "damper" of half a pound of flour, or a "twist" baked on a thick stick; as an alternative for stew, skin and cook a rabbit, or pluck and cook a bird, or clean and cook a fish.
 - (g) Read conventional signs of a map correctly and draw an intelligible rough sketch map of a section of country designated by the examiner. Demonstrate methods of finding the north, day and night, with and without the aid of a compass.
 - (h) Demonstrate proper use of an axe for felling or trimming light timber, or, as alternative, produce an article of carpentry or joinery, or metal work, made by himself satisfactorily, or make a working model of any kind of machinery in metal or wood.
 - (i) Judge distance, area, numbers, height and weight with reasonable accuracy.
 - (j) Go on foot, or row a boat, or paddle a canoe alone or with another Scout, to a point seven miles away, and return, preferably by another route; or if conveyed by any vehicle (railways and automobiles not allowed) or animal, go a distance of at least fifteen miles and back (mileage in the city not to count). Make a sketch map of the journey and write a short report (not essay) showing observation, self-reliance and initiative. He should take at least twenty-four hours over the journey, spending the night in bivouac or tent, and should cook at least three meals. *This test should be taken after passing (a) to (i) inclusive.*
 - (k) Recruit a boy and train him in the points required to pass the Tenderfoot tests. (This may be postponed if recruits are not immediately desired, but must be carried out within three months of its being required, of the badge is given up.



UNIFORM as for Tenderfoot Scout.

THE BADGE of the First Class Scout, is a combination of the Tenderfoot and Second Class badges.

It is embroidered on cloth and is worn on the left arm between the shoulder and elbow.

Sec. 44. — King's Scout

Must be a First Class Scout, and has earned four of the following proficiency badges (of which Ambulance and Pathfinder are compulsory): — Ambulance, Cyclist (or Horseman), Marksman, Pathfinder, Signaller, Fireman, Rescuer, Interpreter, Public Health Man.

For Sea Scouts, must be First Class Sea Scout and have badges of Boatman, Signaller, Rescuer, Swimmer and either the Watchman or Pilot.



A King's Scout must be re-examined annually for all his qualifying badges and must cease to wear the King's Scout Badge should he fail to re-pass any of them.

UNIFORM as for Tenderfoot Scout.

THE BADGE of the King's Scout is a golden crown worn on the left arm above the First Class Badge, and surrounded by the qualifying badges.

SCOUT RANKS

Sec. 45. — Patrol Second

A Second is selected by the Patrol Leader to be his Assistant and to take charge of the Patrol when he is absent.

UNIFORM as for Tenderfoot with a single white braid, vertical stripe, 3 in. long by ½ in. wide, worn on the right side of pleat of left shirt pocket.

Sec. 46. — Patrol Leader

A Patrol Leader is appointed by the Scoutmaster who should consult the Court of Honour or the Patrol.

UNIFORM as for Tenderfoot, with two white braid vertical bars, 3 in. long by ½ in. wide, worn one on either side of pleat of left shirt pocket.

THE PATROL LEADER'S BADGE is a white metal Scout Badge and scroll with motto, worn on the front of the hat. A white metal button hole badge is worn when in mufti.

THE SEA SCOUT PATROL LEADER'S BADGE is the Scout Badge on the cap ribbon between the words "Sea" and "Scout."

Sec. 47. — Troop Leader

The appointment of not more than one Troop Leader is permitted in each Troop, without limit of age; the selection being made by the Scoutmaster, who is guided by the following qualifications: —

- (a) General knowledge of "The Handbook for Canada";
- (b) Ability to command;
- (c) Not less than six months' service as Patrol Leader;
- (d) The rank of First Class Scout.

The Troop Leader wears a third stripe on left shirt pocket and the shoulder-knot of his former Patrol.

THE HAT BADGE, a white metal Scout Badge and scroll with motto, is worn on the left side of the hat. A white metal buttonhole badge is worn when in mufti.

Rover Scouts

Sec. 48. — Rover Scout Uniform

The Scout Badge must be worn by all grades of Rover Scouts in uniform.



A special metal R.S. Badge may be worn in the lapel when in mufti.

A Rover Scout wears uniform as for a Scout, with the following exceptions: —

HAT. — A bar with R.S. thereon, worn in front, on the strap.

SHIRT. — With green shoulder straps marked “Rovers.”

SHOULDER KNOT. — Red, Yellow and Green.

GARTER TABS. — Red.

THUMBSTICK. — May be carried in place of staff. The length varies, but usually reaches up to about the centre of the shirt pocket.

Upon joining a Rover Crew, a former Scout will wear uniform as for a Scout except that the Shoulder Knot will be yellow and green.

ROVER SEA SCOUT UNIFORM (*under revision*). — as for Rover Scout, with the following exceptions:—

CAP. — As for Sea Scout, but with ribbon inscribed “Rover Sea Scouts.”

SHIRT OR JERSEY. — Blue, with green shoulder straps as for Rover Scout.

SHORTS AND STOCKINGS. — As for Sea Scout.

The Rules with regard to uniform in bad weather in case of Sea Scouts apply also to Rover Sea Scouts.

BADGES. — Rover Scouts may not wear Scout proficiency badges nor cords just as Scouts may not wear Cub badges.

When they meet together for combined activities, Rovers in an Association or District may, with the permission of the District Commissioner and Local Association, wear special neckerchiefs other than their own Troop neckerchiefs.

No uniform except the above may be worn outside the camp limits.

Sec. 49 — Rover Scout

The usual age at which a young man whether previously a Scout or not, may be admitted as a Rover (and is entitled to apply for membership in a Rover Crew) is 17, but in view of the fact that young men are often old or young for their age, discretion is left to the Rover Leader. Only in quite exceptional cases may anyone under 17 be admitted.

Before he may be invested the applicant must carry out the following to the satisfaction of his Rover Leader: —

- (a) Take part in at least three week-end hikes of one week camp, under instruction, except in the case of a First Class Scout.
- (b) Make an elementary study of social needs, civics, hygiene and first aid.
- (c) Perform some specific acts of service.
- (d) Study ideals of Scout Movement as set forth in “Scouting for Boys” and “Rovering to Success”.
- (e) Study the interpretation of the Scout Law for Rovers.
- (f) The Vigil.
- (g) Serve for at least three months with the Rover Crew. He may then present himself for investiture as a Rover Scout, making or reaffirming the Scout Promise. He is then entitled to wear the badges and uniform of a Rover Scout.

In the case of a non-Scout joining and wishing to wear uniform before he is invested as a Rover Scout, he must pass the Tenderfoot Tests, make the Scout Promise, and be enrolled as a Scout.

A Rover Scout may remain as a Patrol Leader in his Troop, if desired by the Scoutmaster.

A Rover Scout may hold a Warrant without ceasing to be a Rover Scout, but the possession of a Warrant will not give him precedence in the Crew.

ROVER RANKS

Sec. 50. — Rover Second

A Rover Second is selected by the Rover Mate to be his Assistant and to take charge when he himself is away.

UNIFORM. — As for Rover Scout, with a single vertical red braid strip, 3” long, ½” wide, worn on the right side of the pleat of the left shirt pocket.

Sec. 51. — Rover Mate

A Rover Mate is elected by the Patrol, with the approval of the Rover Leader.

UNIFORM. — As for Rover Scout, with two vertical red braid stripes 3” long, ½” wide, worn on either side of the pleat of the left shirt pocket.

BADGE. — The Patrol Leader’s Hat Badge as for Scout but with R.S. bar in place of scroll. Sea Rover Mates wear the Scout Badge on cap ribbon between words “Sea” and “Rovers.”

Sec. 52. — Senior Rover Mate

Where there are more than two Rover Scout Patrols in a Crew, they may appoint a Senior Rover Mate, with the approval of the Rover Leader.

UNIFORM. — As for Rover Mate, with three vertical red braid stripes, 3 in. long, ½ in. wide, worn on left pocket of shirt.

OFFICERS

Sec. 53. — Responsibility in making Appointments

In view of our responsibility to parents and of dangers which have been found to exist, Local Associations and Commissioners should take every precaution to ensure that no one whose moral character is open in any way to suspicion should be admitted into the Movement, and they should act firmly and promptly in any case where such a person has gained admission.

When a person whose antecedents are not fully known offers his services to a Cub Pack, Scout Troop or Rover Crew, in any capacity, it is very desirable that enquiry be made at Provincial Headquarters before accepting the applicant as a probationer.

Sec. 54. — Warrants

Warrants signed by the Chief Scout for Canada are issued by Dominion Headquarters to: —

- (a) Provincial Presidents (Sec. 66) and Provincial Commissioners (Sec. 16) on the recommendation of the Provincial Council.
- (b) Assistant Provincial Commissioners (Sec. 17) and Field Commissioners (Sec. 20) on the recommendation of the Provincial Commissioner and the Provincial Council.
- (c) District Commissioners (Sec. 18) on the recommendation of the Local Association and the Provincial Commissioner.
- (d) Assistant District Commissioners (Sec. 19) on the recommendation of the District and Provincial Commissioners.
- (e) Rover Scout Leaders, Scoutmasters, Cubmasters, Assistant Rover Leaders, Assistant Scoutmasters and Assistant Cubmasters on the recommendation of the Local Association and District Commissioner, when such Leaders, in addition to fulfilling the requirements as to age, fitness, etc., (Secs. 56 to 61) have: —
 - 1. Served to the satisfaction of Troop Committee and Local Association for a period of at least three months.
 - 2. Satisfactorily met the requirements of such course or courses of training as may be recommended by the Chief Commissioner for Canada, and required by the Provincial Commissioner.

Applications for warrants for officers listed in Subsection (e) must be made on forms obtainable at Provincial Headquarters.

Scoutmasters or Rover Leaders who are acting as Cubmasters should apply for Cubmasters' Warrants.

Rover Leaders who are also acting as Scoutmasters should apply for Scoutmasters' Warrants.

When an officer ceases to have charge or joint charge of a unit his warrant lapses, and should be returned to Provincial Headquarters through the proper channels.

When an officer takes up work with another unit or in another Local Association, the appointment is to be treated as a new one and his old warrant should be returned by the Secretary of the Local Association, from which he resigns, to Provincial Headquarters for cancellation.

All warrants remain the property of The Boy Scouts Association, and must be returned to the Commissioner at Provincial Headquarters on demand without his being called upon to state any reason.

Warrants of officers giving up work should be returned through the Local Association Secretary to Provincial Headquarters for cancellation. When cancelled, the warrant may be returned to the holder, if he wishes to preserve it at the discretion of Headquarters. No warrant issued in the United Kingdom is valid for work in Canada, unless the signature of the Chief Scout for Canada is attached. Citizens of other countries resident in Canada may be granted interim warrants, to be replaced by regular warrants on the completion of the naturalization requirements.

No warrants are issued for acting or honorary ranks.

In no circumstances will warrants for Rover Scout Leader ranks be granted to ladies.

Sec. 55. — Uniforms

The uniform for Officers is as here described, together with the appropriate badge as described in Secs. 56 to 76.

No other uniform may be worn outside of camp limits.



Flat-brimmed khaki hat (four dents, on in front, on at the back and one at each side); in case of Troop officers, shoulder badge indicating Troop on right shoulder; Provincial or other emblem if and as authorized; thumbstick; boots or shoes; *and either:*

- (a) Khaki coat with belt of same material and leather or bone buttons; khaki, green, blue or grey shirt with collar to match, and green tie; shorts or breeches to match coat; stockings and garter tabs. (Puttees, leather leggings or field boots are permissible but not desirable.) *or:*
- (b) Shorts, khaki or blue; shirt, khaki, blue, green or grey with collar of some colour and green tie, or with neckerchief of Troop colour.



Officers of Troops wearing the kilt may wear the kilt and sporran instead of breeches or shorts.

Military uniform and accoutrements, including "Sam Browne" belts, or any parts thereof, must not be worn or copied.

WINTER UNIFORM. — Toque; mackinaw coat; breeches; stockings; boots or shoes.

(c) FOR SEA SCOUT OFFICERS (*under revision*). — Blue serge double breasted jacket with horn buttons and green tie, or blue shirt or jersey with collar and green tie or neckerchief of Troop colours; blue shorts and stockings and blue peak cap (with white covers for summer) and black band. Hat Badges are made in cloth with design in coloured silk according to rank, for COMMISSIONERS, SCOUTMASTERS, ASSISTANT SCOUTMASTERS and INSTRUCTORS.

(d) FOR LADY OFFICERS the following uniform is recommended: — Scoutmaster's hat; khaki, green or blue shirt, with green tie or neckerchief of Troop colours; or Norfolk jacket; khaki, green or blue skirt; Scout belt; brown shoes and stockings.

BADGES OF RANK. — These are described under each rank.

Officers may wear Scout or Cub Badge in bronze, if desired, as an alternative to the ordinary buttonhole badges of their individual rank.

Sec. 56. — Cubmaster

The qualifications for Cubmaster are the same as those for Scoutmaster (Sec. 58), but in addition he must be familiar with "The Wolf Cub Handbook."

Ladies are eligible for this rank.

Where a Pack is attached to a Troop, although the Scoutmaster will exercise general supervision, he will delegate the fullest amount of responsibility in the actual management of the Pack to the Cubmaster.

UNIFORM. — *See Sec. 55.*



Hat Badge

BADGES. — Cubmaster's Hat Badge in green enamel, worn on the front of the hat. Buttonhole badge in green enamel or bronze Cub pin.

Sec. 57. — Assistant Cubmaster

The qualifications are the same as for Cubmaster except that an age of 18 years only is required. Ladies are eligible for this rank.

UNIFORM. — *See Sec. 55.*

BADGES. — As for Cubmaster, in red enamel.

Sec. 58. — Scoutmaster

A Scoutmaster is a person who is registered at Provincial Headquarters as being in charge or in joint charge of a Troop of Boy Scouts.

Ladies are eligible for this rank under special circumstances.

Scoutmasters are registered upon the nomination of their Troop Committees and the endorsement of the Local Association (if any) having jurisdiction over their Troops. In making such a nomination the Troop Committee and the Local Association concerned testify that the person so recommended: —

- (a) Has, to their knowledge and belief, personal standing and character such as will ensure a good moral influence over the boys and sufficient steadfastness of purpose to carry out the work with energy and perseverance.
- (b) Is at least twenty-one years of age.
- (c) Has a full appreciation of the religious and moral aim underlying the scheme of Scouting.
- (d) Is willing to subscribe personally to the Scout Promise.
- (e) Has a general knowledge of “Scouting for Boys” and these Rules.

For Warrants see Sec. 54.



UNIFORM. — *See Sec. 55.*

BADGES. — A Hat Badge with a green plume on left of hat; green shoulder knot; buttonhole badge in green enamel, or bronze pin badge.

Sec. 59. — Assistant Scoutmaster

Each troop of Scouts has one or more officers known as Assistant Scoutmasters, who, as the title suggests, act as assistants to the Scoutmaster, performing such duties as the latter may assign to them. Assistant Scoutmasters should, however, have a definite share of responsibility for some portion of the troop management.

The qualifications for Assistant Scoutmasters are the same as for Scoutmaster, with the exception that they need only be eighteen years of age.

UNIFORM. — *See Sec. 55.*

BADGES. — Hat Badge, red plume; red shoulder knot; buttonhole badge in red enamel or bronze pin badge.

Sec. 60. — Rover Scout Leader

The qualifications for the Rover Scout Leader are: —

- (a) A general knowledge of “Scouting for Boys,” “Rovering to Success” and “Policy, Organization and Rules.”
- (b) A full appreciation of the religious and moral aims underlying the scheme of Scouting. A general knowledge of the social needs of the community in his neighbourhood, and ability to find service for his Rovers.
- (c) A personal understanding, character and experience of life such as will enable him to lead young men, and an understanding of the principles of leadership involved.

- (d) Age not less than 30, but in special cases, warrants will be granted down to the age of 25, on the recommendation of the Commissioner.
- (e) Three months' service with a Rover Crew.
- (f) Acceptance by the Rovers of the Crew concerned.

UNIFORM. — As in Sec. 55, but with Rover shoulder straps and red garter tabs.

BADGES. — Hat badge with green plume and buttonhole badge in green enamel, as for Scoutmaster, but with the letters R.S. superimposed. Red, yellow and green shoulder knot.

Sec. 61. — Assistant Rover Scout Leader

The qualifications are the same as for Rover Scout Leader.

UNIFORM. — Same as Rover Leader.

BADGES. — Hat badge with red plume and buttonhole badge in red enamel with letters R.S. superimposed. Red, yellow and green shoulder knot.

Sec. 62. — District Cubmaster

With the approval of the Local Association, the District Commissioner may appoint a Cubmaster or other suitable person as District Cubmaster to take command of combined rallies or for any duties compatible with these rules with which he may invest the appointment.

The appointment must be renewed annually. Ladies are eligible.

Uniform as for Scoutmaster, without shoulder knot or badge, but with Cubmaster's Hat Badge in *white* enamel, worn on the front of the hat.

Sec. 63. — District Scoutmaster

With the approval of the Local Association, the District Commissioner may appoint a Scoutmaster, or other suitable person as District Scoutmaster, to take command of combined rallies or for any duties compatible with these rules with which he may invest the appointment.

The appointment must be renewed annually. Ladies are not eligible.

UNIFORM. — As for Scoutmaster, with white plume, but no shoulder-knot or shoulder-badge.

Sec. 64. — District Rover Scout Leader

With the approval of the Local Association, the District Commissioner may appoint a Rover Leader or other suitable person as District Rover Leader to take command of combined rallies or for any duties, compatible with these rules, with which he may invest the appointment. This appointment must be renewed annually. Ladies are not eligible.

UNIFORM. — *See Sec. 55.*

BADGES. — Hat Badge as for District Scoutmaster, but with the letters R.S. superimposed.



Sec. 65. — Commissioners

For the various ranks and duties of Commissioners see Secs. 13 to 20.

UNIFORM. — As part (a), Sec. 55.

BADGES. — A hat badge with purple plume worn on left of hat and a Commissioner's pin, worn in left lapel of coat.

Sec. 66. — Provincial Presidents

Are appointed by the Chief Scout for Canada on the recommendation of the Provincial Council, and rank as Commissioners.

UNIFORM and BADGE may be worn, if desired, as for Commissioner.

Sec. 67. — Presidents of Local Associations

Presidents of Local Associations rank as Commissioners. Uniform and Badges may be worn if desired as for Commissioners.



Sec. 68. — Badge for Honourary Secretaries

Honourary Secretaries of Headquarters Councils and Local Associations may wear a miniature red enamel and Silver Badge with "S" superimposed, and are given rank as Scoutmasters.

Sec. 69. — Executive Secretaries

The salaried executive officers of Provincial Councils or Local Associations may be designated as Executive Secretaries. Their duties shall be defined by their respective Councils or Associations.

UNIFORM. — As part (a), Sec. 55.

HAT BADGE. — Blue Plume.

Sec. 70. — Field Secretaries

Persons employed on salary to do field or organization work may be called Field Secretaries. Their duties shall be as defined by their respective Councils or Associations.

UNIFORM. — As part (a), Sec. 55.

HAT BADGE. — Blue Plume.

Sec. 71. — Instructor

Local Associations may appoint Instructors in any subject provided that the Local Association is satisfied that the Instructors have expert knowledge of their special subject or subjects.

Instructors must be at least 18 years of age.

Instructors must not act as Examiners of Scouts whom they have instructed, unless another examiner cannot be found.

No Warrant is issued to Instructors.



UNIFORM. — *See Sec. 55.*

BADGE. — Buttonhole badge in yellow enamel with the letter “T” superimposed.

For Scouts acting as Wolf Cub Instructors see Sec. 121.

For Rover Scouts acting as Scout or Cub Instructors see Sec. 112.

Sec. 72. — Examiner

Local Associations may appoint as Examiners, persons having expert knowledge of any of the Scout or Cub Proficiency Badge requirements or of the Two Star Cub, First Class Scout or Rover Scout Tests.

Leaders may be appointed Examiners for Packs, Troops or Crews other than their own.

Examiners who are also Instructors may not examine anyone whom they have instructed except as in Sec. 71.



No Warrant is issued for this rank.

Examiners must be at least 18 years of age.

UNIFORM. — *See Sec. 55.*

BADGE. — Buttonhole badge in yellow enamel with the letter “E” superimposed.

Sec. 73. — Surgeon

The Local Association may confer this rank on a Surgeon giving his services to a Troop or Troops, Wolf Cub Packs or Rover Crews.

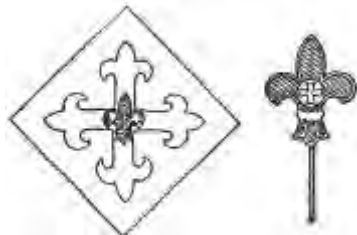
No Warrant is issued for this rank.

UNIFORM. — If desired, as in Sec. 55.

BADGE. — A red cross on a circular white ground, with a Scout Badge superimposed, to be worn in buttonhole.



Sec. 74. — Chaplain



A Chaplain is a minister of religion appointed by the Local Association or one of the bodies alluded to in Sec. 5. Chaplains hold honorary rank as Scoutmasters or Cubmasters, but do not receive warrants.

UNIFORM. — If desired, as for Commissioner.

BADGE. — A green Scout Badge enamelled pin with a cross superimposed, to be worn with ordinary clothes.

When in uniform, a square green cloth badge with cross superimposed is to be worn on the left pocket of the Scout shirt or coat.

Sec. 75. — Lady Worker

This rank is granted by a Local Association to ladies who are members of Ladies' or Mothers' Auxiliaries formed and existing for the purpose of co-operating with the Troop or Pack Committee in supporting troops or packs.

BADGE. — A small Scout brooch worn at throat or on breast.

Sec. 76. — Honourary Ranks

The Local Association and District Commissioner have the power jointly to confer on a person ceasing to hold a Warrant as a Cubmaster, Scoutmaster or Rover Leader, the corresponding honorary rank.

In the case of Commissioners giving up Warrants, the Provincial Commissioner has the power to confer the rank of Honourary Commissioner.

No warrants are issued for Honourary Ranks.

UNIFORM. — *See Sec. 55.*



BADGES. — A cloth badge in the appropriate colour of rank, worn on the left breast pocket. Shoulder knot, buttonhole or pin badges as the corresponding active rank.

Hat badges are confined to active ranks.

MISCELLANEOUS RULES

Sec. 77. — Bands

The general attitude of the Association is to discourage the formation of Scout bands. Where such exist, however, they should not play when passing churches, hospitals or any house where there is known to be illness. No bands should play after 9 p.m., in the streets, and bugle practice out of doors must not be carried on within 600 yards of houses.

Sec. 78. — Begging

Scouts and Wolf Cubs are not allowed to solicit money either for their troop or pack funds or any other purpose. It is bad for the boy and lends itself to fraud by outsiders.

Sec. 79. — Boating and Bathing

No Scout shall take part in any boat training until he can swim fifty yards with clothes on (shirts, shorts and socks as a minimum.)

Bathing will be permitted only *under strict supervision*, to prevent non-swimmers getting into dangerous water.

A picket of not less than two good swimmers must be on duty in bathing suits, in a boat or on shore as the circumstances may demand, ready to help any boy in distress. The picket itself may not bathe until the others have left the water.

Wolf Cubs must not take part in any boating or bathing unless under the special supervision of the Cubmaster.

Rover Scouts are expected to exercise all reasonable precautions in both bathing and boating, and where a number of Rovers are bathing together the above precautions should be taken.

Sec. 80. — Camps

Enough sleeping bags or blankets must be provided to enable each Scout to make up a separate bed. Ground-sheets must be used when sleeping on the ground.

Camp raiding is strictly prohibited.

When any troop is camping outside its own district, at least one week's notice must be given by the officer in charge to the Commissioner of the Province or District in which the camp is intended to be held, for his information.

All districts, Associations or troops holding camps shall notify the District Commissioner and Provincial Headquarters of the date and place so that a visit may be made, if possible.

Sec. 81. — Camps for Wolf Cubs

The general attitude of the Association is to discourage Wolf Cub camps and Cubs camping with Scouts. Cub camps should only be held with the express permission of the District Commissioner. Great care must be exercised, and the following rules (additional to those in Secs. 79 and 80) complied with: —

- (a) Some form of clean, permanent shelter or weatherproof marquee, large enough to accommodate all the Wolf Cubs in camp in case of wet weather must be available.
- (b) In normal circumstances there should be at least one adult for every six Wolf Cubs in camp. In no circumstance should a camp be held with less than two adults.

Sec. 82. — Census Returns

An annual census of the Boy Scouts of Canada is taken on 31st Oct. in each year. Simple forms of return must be forwarded by the Provincial Councils to the various Local Associations or Troop or Pack Committees for this purpose not later than October 15th, and must be returned to the Provincial Headquarters on or before November 15th for transmission to the Canadian General Council.

Sec. 83. — Changes

Provincial Headquarters should be immediately informed of any changes of Local Association Secretaries and other officers, and the new address given.

Sec. 84. — Church Parades

Combined church parades of Troops and Packs of different denominations are not allowed without special permission from the District Commissioner. In no circumstance should Scoutmasters or Cubmasters insist upon Scouts or Cubs attending places of worship other than those of their own denominations.

Sec. 85. — Competitions

The greatest care should be used in the promotion of inter-Troop or District competitions, as there is a danger that they may otherwise interfere with the more legitimate activities of the Movement, and with the objects for which Scouting was primarily instituted. The Boy Scout training is co-operative rather than competitive. Competition usually involves winning by one and losing by another; in Scouting, however, there are no losers. The Scout Badge is an evidence rather than a standard attained, and no matter how often a boy fails it is still open for his final achievement. The element of competition should be used sparingly, and care exercised to see that the winner does not become such because of natural ability, but rather through self-developed accomplishment.

Sec. 86. — Dominion Registration

Scout troops register with the respective Provincial Headquarters to secure a Dominion Troop Charter. This Charter must be renewed annually. Forms for registration may be obtained through Local Associations, by whom the applications must be approved before a Troop can be registered. In case of Troops not under Local Associations application should be made direct to Provincial Headquarters.

An annual registration fee of fifty cents for each Scout or Rover Scout is payable to Dominion Headquarters at the time of application for Charter or for renewal of Charter. An illuminated registration card bearing the signatures of the Chief Scout for Canada, the Chief Commissioner and of the Provincial Commissioner, is issued to each Scout and Rover Scout.

There are no fees for the registration of Scout Leaders.

Wolf Cub Packs should also register, but Cubs do not pay fees and do not receive Registration cards.

The money received from Registration is returned to the province of origin, for use in field work, particularly the work of carrying Scouting to outlying districts, where often it is as much needed as in larger centres.

Sec. 87. — Emblems

The wearing of Provincial Emblems is authorized upon approval of Dominion Headquarters.

The wearing of Troop and other emblems is authorized upon the approval of Provincial Headquarters.

Such emblems are to be worn as instructed by the Provincial Commissioner, but in no case must their location conflict with badges of rank.

Sec. 88. — Flags

THE NATIONAL FLAG. — Scouts and Cubs on land use the Union Flag, commonly called the Union Jack; at sea, the Red Ensign.

THE SCOUT FLAG. — The flag of the Scouts is dark green in colour and bears in the centre the Scout Badge and scroll in gold, the latter containing the motto, "Be Prepared." The troop name and number in gold may be inscribed on the green ground.

THE WOLF CUB FLAG. — The flag of the Wolf Cubs is yellow in colour and bears in the centre the Wolf Cub Badge in green and the motto, "DO YOUR BEST" in black letters. The Pack name and number may be inscribed on the yellow ground.

The Union Jack is used with the Scout or Cub Flag on all ceremonial occasions and on parades. The two flags should never be flown on one pole.

The foregoing flags, being symbols of the Empire and of The Boy Scouts Association, should be treated with suitable honours. When presented to a unit they may be dedicated to their appointed use by some fitting religious ceremony. Such dedication, however, does not imply that the particular pieces of bunting are in any way sacred. The purpose of the ceremony is to emphasize the reverence and respect with which our flags should be treated.

When flags are carried, the flag pole should be either sloped over the right shoulder, the flag gathered in (for ordinary occasions), or held vertical in the carrier, the flag flying free (for salute).

Sec. 89. — Girl Guides

The Boy Scouts Association is in sympathy with the objects of the Girl Guides, but would remind all District Commissioners and Scoutmasters that the Girl Guides are an entirely separate organization, under separate management, and that it is most undesirable that Boy Scouts and Girl Guides should be trained together. Commissioners are asked to see that the rule prohibiting these joint trainings is strictly enforced.

The Dominion Headquarters of the Girl Guides is located at 22 College Street, Toronto, to which address all inquiries with reference to their work should be sent.

Sec. 90. — Industrial and Public Utility Disputes

The Boy Scouts Association should not take any part, on either side, in any industrial or public utility dispute which may occur but, if it be notified by any recognized public authority that voluntary workers are required to avoid grave public danger resulting from such a dispute, there is no objection to a Scoutmaster, with the consent of the Provincial Commissioner, lending the assistance of his Troop.

However, no compulsion should be brought to bear on any individual Scout to volunteer his services, and no penalty should be attached to him for not volunteering.

Sec. 91. — Investiture Ceremony

For the minimum ceremony for investiture of : —

- (a) Wolf Cubs, see “The Wolf Cub Handbook.”
- (b) Boy Scouts, see “The Scoutmaster’s First Year.”
- (c) Rover Scouts, see the pamphlet “The Presentation of a Rover Scout,” which may be obtained free of charge from Provincial Headquarters.

Sec. 92. — Mourning

Official mourning for Scouts in uniform is a 1-in. crepe band to be worn round bottom of the crown of the hat; for officers a 3-in. crepe band to be worn on the left arm above the elbow.

For Wolf Cubs a 1½ in. crepe band to be worn on left arm above the elbow.

In the case of a band the drums should be draped and muffled. A large crepe bow should be tied to the top of the flag, if carried, when the troop is in mourning.

Sec. 93. — Night Marching

Troops of Boy Scouts on the march at night shall carry a lantern showing a white light at the head of the column, and one showing a red light at the rear, as a precaution against accidents.

Sec. 94. — Physically Defective Boys

The First and Second Star Tests and the Second and First Class Scout Tests may be amended in the case of physically defective boys with the approval of the District Commissioner and Provincial Headquarters.

Sec. 95. — Politics

The Boy Scouts Association is not connected with any political body. Scouts and officers in uniform are not allowed to take part in meetings or demonstrations of a political nature.

Sec. 96. — Real Property

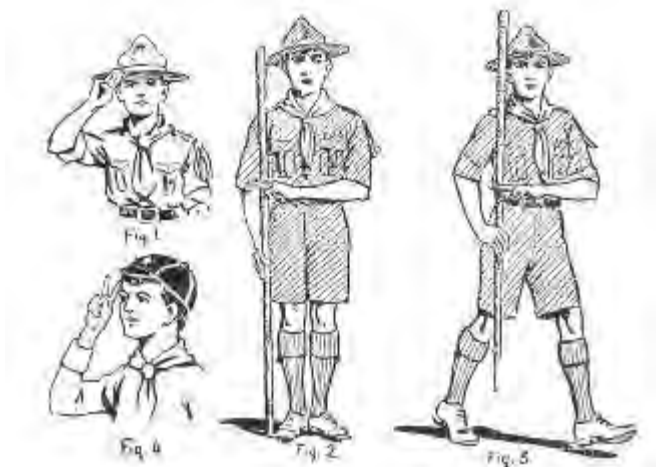
All real estate, leases of real estate or other interests in real property belonging to Packs, Troops, Crews, Local Associations or Provincial Councils should be held in the name of The Canadian General Council of The Boy Scouts Association, the only incorporated Scout body in Canada.

Packs, Troops, Crews, Local Associations and Provincial Councils are urged to secure proper titles in the name of The Canadian General Council of The Boy Scouts Association to property given them or purchased for them.

The Canadian General Council arranges for the use of such properties by the local organizations concerned and facilitates their sale, transfer, etc., upon proper application. Local organizations are responsible for upkeep, insurance and taxes on such property.

Sec. 97. — Salutes

1. The salute is given by Officers, Rover Scouts and Scouts (whether wearing hat or not) with the right hand as shown in Fig. 1. When carrying a staff a Scout salutes as in Fig. 2, or if marching as in Fig. 3. When carrying a thumbstick, Officers and Rovers pass stick into left hand and salute as in Fig. 1.



2. Wolf Cubs salute (whether wearing cap or not) as shown in figure 4.

3. When his hands are occupied, a Scout salutes by turning his head and eyes smartly to the right or left as the case may be. When riding a bicycle, a Scout salutes in a similar manner; in no circumstances should he remove either hand from the handle bar.

4. When an Officer approaches a group of Scouts, the senior Patrol

Leader or Scout present will call the party to alerts, and will himself salute.

5. Scouts salute all Officers holding His Majesty's Commission or a Commission in the Naval, Military or Air Forces of any friendly nation.
6. Officers and Scouts salute the Union Jack when carried by an organized body, and also all regimental and Scout's colours, unless cased.
7. During the playing of the National Anthem (and those of other countries) Scouts and officers will stand at alert and will not salute.
8. Scouts salute when the Union Jack is hoisted or broken on a flag staff. They stand at the alert when it is lowered.
9. The Scout Sign, which consists in raising the right hand level with the shoulder, upright, palm to the front, fingers as in the Salute (Fig. 1), is given at the Scout or Rover Investiture by the person being invested and by the Leader conducting the ceremony. All other invested Scouts or Rovers come to the full salute. The Scout Sign is not used on any other occasion.

Sec. 98. — Sea Scouts (*under revision*)

The Sea Scouts area branch of The Boy Scouts Association, and, for organization, come under the same scheme.

- (1) Scoutmasters desiring that troops or patrols should be registered as "Sea Scouts" must obtain the consent of their Commissioner and must satisfy him that the requisite training will be provided. On receiving the Commissioner's authorization of their formation, such troops or patrols are to wear hat or cap ribbons with the words "Sea Scouts" on them.
- (2) *(a)* No boat shall be taken over for use by Sea Scouts until it has been approved by a Committee for the purpose, or, where there is no committee, by a Commissioner.

(b) No boat shall be used by Sea Scouts unless in charge of a competent person, and properly manned.

(c) No Sea Scout shall form part of the crew of any rowing boat until he can swim fifty yards with clothes on (shirt, shorts and socks as a minimum), or form part of the crew of a sailing boat until he has passed for the "Swimmer" and "Boatman" Proficiency Badges.
- (3) Sea Scout Committees should frame by-laws: —
 - (a)* For the inspection of all boats used by Sea Scouts in their area, and for approving or disapproving their use with or without conditions.
 - (b)* For restricting the sail area, and the number of Scout they may carry, for the provision of air tanks, life belts, or other safety devices.
 - (c)* For insuring that such vessels or boats when in use shall be properly manned, and in charge of a competent person.
 - (d)* For the proper care and maintenance of any vessels or boats.

A copy of all rules frames by Sea Scout Committees should be forwarded to Provincial Headquarters for approval.

Sec. 99. — Deep Sea Scouts

Deep Sea Scouts are Scouts who are members of the Royal Navy, the Merchant Marine, fishing fleets, crews of ocean-going yachts or Sea Training Establishments. Application for enrolment should be sent to Provincial Headquarters by the former Scoutmaster of an applicant, or by any Scout Officer by whom he is personally known. The following particulars should be given in the application: — Full name; home address; date of birth; former Scout Troop; former Scout rank; name of ship and owners, or the name of the Training Establishment. Application should be accompanied by \$1.25, to pay for: — Enrolment card, a badge with strap for wearing round wrist or waist belt, and a royal blue neckerchief with the Deep Sea Scouts' Badge embroidered in gold.

Sec. 100. — Scouts' Own

A Sunday meeting of Scouts, in Sunday School, or at camp, usually with the Scoutmaster in charge, the programme consisting of considerable singing and discussion of some feature of the Scout Promise or Law, or the application of Scouting of the regular Sunday School lesson.

It should be noted that a Scouts' Own in camp should be held only with the full knowledge and consent of pastors and parents.

Sec. 101. — Scout Stationary

All stationary and other printed matter circulated by Local Associations, District Councils and Provincial Councils should carry the full name of the Association which is "The Boy Scouts Association," and no variation of this should be used. To this may be added the name of the Local Association or Provincial Council concerned.

Sec. 102. — Shooting

Scoutmasters must not allow their Troops to practice rifle shooting or to shoot at shooting matches except on an officially approved range, and no shooting must ever take place except under the supervision of a competent officer, who will be responsible that the range rules are strictly adhered to.

Sec. 103. — Theatres

Wolf Cubs, Boy Scouts and Rover Scouts in uniform are not allowed to appear on the stages of theatres or music halls in commercial entertainment enterprises. There is no objection to Cubs, Scouts or Rovers appearing as such in programmes put on by the school, Sunday School, church or Institution with which their Pack, Troop or Crew is connected.

Sec. 104. — Transfers

No boy may be accepted for enrolment in a Troop of Boy Scouts or Pack of Wolf Cubs who has been a member of another Troop or Pack, within two months of his application, unless he is provided with a transfer paper duly signed by his former leader.

In case of dispute as to transfer, the matter must be referred to the Commissioner for decision.

A Wolf Cub becoming a Scout will only require a transfer in cases where his Pack is attached to a Troop and he wishes to join another Troop.

Sec. 105. — Uniforms and Equipment

All Cub, Scout, Rover Scout and Officers' uniforms and equipment are stocked at Dominion Headquarters. Price lists will be forwarded on application. Great care is exercised in selection.

(See under each rank for its uniform.)

Sec. 106. — Wolf Cub Training

The training of Wolf Cubs should be kept distinct from the training of Scouts.

BADGES AND DECORATIONS

Sec. 107 — Copyright

The Badges, Decorations and term "Boy Scouts" are protected by an amendment to the Act of Incorporation of The Boy Scouts Association in Canada, in the terms following:

“The Corporation shall have the sole and exclusive right to have and to use all emblems, decorations, descriptive and designating marks and titles, now or heretofore used by The Boy Scouts Association, and also the title “Boy Scouts”, and shall also have the sole and exclusive right to have and to use any emblem, badge, decoration, descriptive or designating marks and titles, hereafter adopted by the Corporation for carrying out its purposes, provided that a statement and description of such emblem, badge, decoration, descriptive or designating mark, words or phrases is filed with and approved by the Minister of Agriculture or other Minister administering the Trade Mark and Design Act.”

The Badges and Decorations in these rules are intended for use by members only, unless otherwise sanctioned, and can be obtained only from Provincial Headquarters.

Sec. 108. — Decorations Allowed

No badge, cord, chevron or other decoration may be worn on Scout or Wolf Cub uniforms except: —

- (a) Those described in these Rules;
- (b) King’s medals, war medals, decorations and orders;
- (c) The St. John’s and St. Andrew’s Ambulance Badges (Senior) Course (worn on the right arm in the centre amongst the proficiency badges, is any).
- (d) The life-saving medals of the Order of St. John, of the Order of St. Andrew, of the Royal Life Saving Society and the Royal Humane Society.
- (e) Officers possessing war medals and decorations may wear the miniatures or ribbons on inspection and ceremonial parades.

Sec. 109. — Issuance of Proficiency Badges

Application for these may be made to Provincial Headquarters by the Secretaries of Local Associations, or, in the case of Troops or Packs not under Local Associations by Secretaries of Troop or Pack Committees.

Candidates must be First or Second Class Scouts (or Two Star Cubs). Second Class Scouts may qualify for and wear not more than six proficiency Badges.

Local Associations may be authorized through Provincial Headquarters to grant Proficiency Badges on tests other than those prescribed in these Rules, provided that the tests —

- (a) Are laid down by a recognized authority in the subject, and are submitted for approval by the Provincial Executive to Dominion Headquarters;
- (b) Are not easier than the tests in these Rules;
- (c) Fulfil the same general purposes.

Tests must be passed before at least one independent and qualified examiner approved by the Local Association. Those so marked must be passed annually.

Sec. 110

Wolf Cub Proficiency Badges

The 12 Proficiency Badges, for which a *Two Star Wolf Cub* may qualify, are divided into four groups, as follows: —

- | | |
|------------|---|
| Group I. | Character (Colour of badges — blue). |
| Group II. | Handicraft (Colour of badges — yellow). |
| Group III. | Service (Colour of badges — red). |
| Group IV. | Physical Health (Colour of badges — green). |

These are worn on the right arm in parallel rows, with the First Aider in the centre at the top.

GROUP I.

Before a Cub can receive any badge in Group I he must make the following promise: — “I will do my best to keep on practising (or collecting, or observing) after I have won my badge.”

Collector



Must make a collection of stamps, botanical or geological specimens, medal ribbons, post cards, crests or postmarks, etc., the test being a systematic and neat arrangement and intelligent labelling.

Alternative. The keeping of a scrap book diary.

Observer

Must know something of the history and habits of five Canadian animals (wild);

Or birds;

Or know the names and appearances of 20 Canadian flowers or trees; and what common plants (berries, etc.) are poisonous to animals and human beings.



Must be able to distinguish mushrooms from poisonous toadstools, and know the danger of eating the latter. (Alternative to mushroom test, for town boys only: — Know the seasons at which different kinds of fruit and vegetables can be obtained in grocery stores, and their approximate prices.)

Must be able to track (by landmarks, compass, direction or ground signs).

Must be able to play Kim's Game, “shop window,” or “billboard advertisements.”

(Special promise to be made by Observers: — “I promise to do good turns to animals just as much as to human beings.”)

Signaller

Must have a knowledge of the alphabet in either Morse or Semaphore.



A knowledge of the commoner special signs (general answer, alphabetical sign, etc.).

Read and send simple words in Morse or Semaphore, slowly but correctly. Have a practical knowledge of field signalling, viz.: smoke signals, sound signals (whistle), movement signals (hand or staff), and Scout signs.

GROUP II.

Before a Cub can obtain any badge in Group II he must make the following promise: — “If I fail at first I will go on trying till I succeed.”

Artist

Must copy in pen and ink or pencil a drawing of an animal or human being or still life.

Draw with pencil, brush, pen or crayon an illustration of any incident or character in a short simple story; or an incident in battle, or in history (size not less than 7 in. by 5 in.); or



Draw, from nature, a landscape or still-life group.

Alternative. — Model, in clay, plasticene, or wax, etc., a human figure, an animal or bird, which the examiner can recognize (not less than 7 in. high). Also model in clay, plasticene, cardboard or sand:

- A farm or village;
- Or a man-of-war.

NOTE. — The natural bent of the boy is to be encouraged in every way; the spirit and intention of his work to count as much as adherence to academic rules.

Weaver

A Cub may qualify for the Weaver's Badge by passing four of the following tests: —



1. Knit a woollen scarf.
2. Net a string bag or piece of netting for putting over seeds, etc.
3. Make a kettle-holder in cross-stitch work on canvas.
4. Make a rug on canvas with wool or pieces of cloth.
5. Make a small patch-work quilt or patch-work table cloth.
6. Weave a useful article in raffia.
7. Make a basket.

Woodworker

Chip Carving. — Must carve two out of the following articles: — Box, teapot stand, stool, card stand, tea tray, and also one according to his own choice.

Must understand the theory of designing and be able to draw simple designs, and transfer them to the wood.

(Alternative) **Fretwork.** — Make four of the following articles: — A pipe rack, knife box, hand mirror, paper knife, watch stand, bracket; and one article according to his own choice.

(Alternative) **Carpentry.** — Must be able to distinguish four of the following woods, and know the nature and common uses of each: — Pine, cedar, spruce, hemlock, basswood, maple, ash, oak, chestnut, elm, mahogany, walnut, birch.

Must know what is meant by, and the uses of, a housing, a tenon and mortice, a halved joint and a dovetail; show efficient samples of any two of them made by himself.

Must be able to use efficiently a saw, hammer, plane and chisel, and be able to sharpen the latter.

If a Cub is able to exhibit some small article of his own construction embodying the second and third parts of the test he need only be examined in his knowledge of the first part.



GROUP III.

Before a Cub can receive any badge in Group III he must make the following promise: —

“I will do my best to help other people before myself.”

First Aider



Must be able to bandage a hand in such a way as to stop bleeding, and be as aseptic as possible; and know how to “clean up” and treat a graze.

Know treatment for sprains; and how to apply the wide bandage to a sprained ankle.

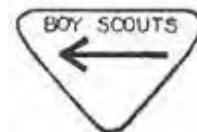
Know how to put on the “large arm sling” and the head bandage.

Know the treatment for stopping bleeding from the nose.

Know how to extinguish clothes that have caught fire; and how to treat minor burns and scalds; grit in the eye; choking and sunstroke.

Guide

Must know which road leads to nearest city, and how many miles away it lies; and the direction and distance of three neighbouring towns or large villages. (The Pack Headquarters should be taken as the centre from which distances are measured in the above test and those which follow.



Be able to give clear directions to a stranger asking his way, well expressed and distinctly spoken; and be capable of doing so politely and promptly.

Be able to deliver a short verbal message correctly.

Know the whereabouts and distance away of the nearest police-station, fire station, doctor's house, drug-store, hospital, clergyman's house, blacksmith shop, motor garage and hotel. Also the names and whereabouts of the best shops for various classes of goods.

Have a knowledge of all short cuts for an area of a quarter of a mile round the Pack Headquarters.

Be able to judge distance roughly (viz., for directing people).

Know the history of the community, or of any historical place in the neighbourhood.

In big cities the Commissioner may make appropriate modifications of paragraphs 1, 4 and 5.

House Orderly

Be able to clean a grate, lay and light a fire, or lay and light a kitchen stove fire, using not more than two matches; or know how to turn on an light a gas stove burner safely, or how correctly to operate an electric stove.



Make a good cup of tea, make toast, and fry or poach an egg.

Peel and boil potatoes, and clean and cook greens.

Wash dishes, crockery and cooking utensils.

Clean forks and knives.

Clean a window.

Clean and polish a pair of boots or shoes.

Make a bed.

GROUP IV

Before a Cub can receive any badge in Group IV he must make the following promise: —

"I will do my best always to keep myself clean in body and thought, and to play fair."

Athlete

These tests are divided into two classes. "A" and "B". Class "A" is for Cubs 8 to 10 years of age; "B" for those of 10 to 12. The tests are of the same nature in both classes, but the standards are different.



CLASS A

The average height of Cubs in Class "A" is 3 ft. 10 in. If a Cub in this class is unusually developed (not only in height) he shall be judged in Class "B".

- | To sprint 80 yards in 16 seconds.
- To jump 2 ft. 6 in. (high jump).
- To jump 6 ft. (long jump).
- To climb a rope or pole 10 ft.
- To throw a baseball 20 yards.
- To catch a baseball thrown from 15 yards.
- To do one of the four following things: —
 - (a) Stand on his head.
 - (b) Turn a "cartwheel."
 - (c) Be able to box (knowledge of correct attitudes, defence and striking).
 - (d) Be able to wrestle (in correct form).

CLASS B

- | To sprint 80 yards in 14 seconds
- To jump 2 ft. 8 ins. (high jump).
- To jump 7 ft. 6 ins. (long jump).
- To climb a rope or pole (10 ft.).
- To throw a baseball 30 yards.
- To catch a baseball thrown from 20 yards.
- To do one of the four following things: —
 - (a) Stand on his head.
 - (b) Turn a "cartwheel."
 - (c) Be able to box (knowledge of correct attitudes, defence and striking).
 - (d) Be able to wrestle (in correct form).

Swimmer

Must be able to swim 25 yards (any stroke).

Be able to float on back for 60 seconds in salt water or 30 seconds in fresh water.

Be able to take off pair of shorts in the water; or (as alternative), swim on back, with arms folded on chest, for 15 yards.

Be able to "duck dive" (i.e., dive while standing in the water or swimming); or (as alternative) perform a "honey-pot" (i.e., jump with arms clasped round knees) from a board, bank, or boat.



Team-Player



Must be a regular, playing member of a properly organized team. (The team must be under the control of the Cubmaster or other person approved by the Cubmaster.) Must have played in at least six matches in the season. (If for any reason a Cub is not chosen to play in the match team he must be specially recommended by his captain and by the person responsible for the club as being a keen, sportsmanlike player.)

Sec. 111.

Scout Proficiency Badges

Proficiency badges are worn on the right arm (in parallel rows between the shoulder and the elbow), except those badges which qualify for the King's Scout rank, which are all worn on the left arm, as and when they are acquired; and the King's Scout Badge, which is worn in the centre when it has been obtained.

The Ambulance Badge is worn at the top nearest the shoulder on the left arm only, not as heretofore on both arms.

Tenderfoot Scouts may not qualify for and wear Proficiency Badges.

Second Class Scouts may qualify for and wear not more than six Proficiency Badges.

Accident Prevention. — (See Safety Man.)

Airman



1. Make a model of an aeroplane which will be judged for (a) design, (b) workmanship and (c) performance. (Ten marks each.)
2. Explain how the various forces work to produce flight in (a) gliders, (b) aeroplanes and (c) dirigibles. (Five marks each.)
3. Explain the effect produced on an aeroplane by the movement of (a) ailerons, (b) elevators and (c) rudders. (Five marks each.)
4. Name three outstanding men and tell what they achieved in aviation: (a) Twenty years ago; (b) today. (Ten marks each.)
5. Name and briefly describe three well-known make each of Canadian, British and American aeroplanes. (Total five marks.)
6. Name three well known distinct types of aircraft engines. (Five marks.)
7. Describe briefly the largest aeroplane or seaplane that has flown successfully, giving make, power of motors and carrying capacity (in passengers). (Five marks.)
8. Give outline of airship development in England, Germany and United States, stating name and any details you know of the most prominent example. (Five marks.)

Note: — A minimum of sixty marks is required for a pass.

Ambulance Man. — (To be passed annually.)



In addition to passing First Class first aid tests: —

1. Know the position of the bones and the main arteries.

2. How to tell fractures, sprains and bruises; how to improvise splints, and how to bind a fractured limb.
3. How to stop bleeding from a vein or artery, internal or external, and how to deal with shock.
4. How to improvise a stretcher.
5. How to transport the injured or unconscious without stretchers.
6. The Schafer method of artificial respiration.
7. How to deal with electrical accidents.
8. How to deal with choking, burns, scalds, frost bites, poison, grit in the eye, bites and scratches of dogs and other animals, snake bites and the stings of insects.
9. How to diagnose and treat fits, fainting and insensibility.
10. How to throw a lifeline.

Demonstration must be given as far as possible.

Angler

1. By the usual angling methods catch, and name, seven different species of fish. At least one species must be taken by fly-casting or trolling and one by bait casting. In single-handed fly-casting the rod must not exceed seven ounces in weight; in double-handed fly-casting one ounce in weight may be allowed for each foot in length; in bait-fishing and trolling the rod must not exceed ten feet in length nor twelve ounces in weight.
2. Show proficiency in accurate single-handed casting with the fly for distances of 30, 40 and 50 feet, or in bait-casting for distances of 40, 60 and 70 feet.
3. Make three artificial flies (either after three standard patterns, or in imitation of different natural flies). Make a neat single gut leader at least four feet long, or a twisted or braided leader at least three feet long. Splice broken joint of a rod neatly.
4. Give the open season for the game fishes in his vicinity, and explain how they are protected by the law.



Archer



1. Make a bow, string and arrow with which he will make an extreme flight of at least a hundred and thirty yards.
2. With any bow and arrows, make the following scores on a regulation 4 foot target, shooting thirty arrows at each distance:

At 40 yards a score of at least eighty.

At 50 yards a score of at least sixty.

At 60 yards a score of at least forty.

3. Give the meaning of York, American and Team rounds; wand; clout; flight, and butt shooting; and roving.
4. Know something of the history of archery and the records made by the principal archers of the past and present.

Artist

Must show that he takes an interest in, has practiced, and gain proficiency in some form of: —



- (a) Graphic art; drawing, painting, etching, woodcuts, etc., or
- (b) Decorative work; designing for wallpapers, posters, book jackets, stained glass, wrought iron, etc., or
- (c) Plastic art; modeling, pottery, etc., or
- (d) Carving; wood, stone, etc.

In no case is the work to be a copy and the Scout must be prepared to state on his honour that the work is entirely by his own hand.

Athlete. — (To be passed annually.)



1. Demonstrate the proper method of sitting, standing and walking.
2. Demonstrate proper method of starting and running in a race.
3. Give proof of proper training and diet for Athletics and of taking regular bodily outdoor exercise.
4. Pass five of the six athletic events given in schedule below if in classes (1) and (2), or

Pass seven of nine events if in classes (3), (4) and (5).

Schedule

EVENTS	All boys 12 years of age; Boys 13 years, under 81 lbs.	All boys 13 years over 80 lbs; Boys 14 and 15 under 96 lbs.	14 and 15 years over 95 lbs; Boys 16 and 17 under 111 lbs.	Boys 16 and 17 and over 111 lbs.	18 years and over and any weight.
	Class 1	Class 2	Class 3	Class 4	Class 5
Running	50 yards	75 yards	100 yards	100 yards	100 yards
Running High Jump	7 3-5 secs.	10 4-5 secs.	13 secs.	12 2-5 secs.	11 4-5 secs.
Standing Broad Jump	3 ft. 5 in.	3 ft. 7½ in.	3 ft. 10½ in.	4 ft. 1½ in.	4 ft. 1½ in.
Running Broad Jump	6 ft. 8 in.	6 ft. 10 in.	7 ft. 1½ in.	7 ft. 6¾ in.	8 ft. 6¼ in.
Throwing Baseball	11 ft.	12 ft.	12 ft. 6 in.	13 ft. 6 in.	15 ft.
Chinning Bar	105 ft.	129 ft.	153 ft.	180 ft.	220 ft.
Push up from Floor			8 times	10 times	12 times
Shot Put, wt. 8 lbs.			12 times	14 times	16 times
Scout Pace	1 mile	1 mile	26 ft. 6 in.	28 ft. 6 in.	30 ft. 6 in.
			2 miles	3 miles	4 miles

Basket Worker



Have a general knowledge of the raw material used in one or other of the branches covered by the Badge.

He must know where that raw material is obtained and how prepared for working; and must produce an article of practical use in either basket, cane, raffia or straw work, made entirely by himself.

Bee-keeper

Have a knowledge, *gained in practice*, of swarming, hiving, hives, and general apiculture, including a knowledge of the used of artificial combs, etc.



Bird Warden



1. Know regarding local bird life: —

(a) The chief natural dangers (animal, bird, etc.) to which birds are exposed, and how to prevent their destruction.

(b) Any social customs, ideals or superstitions which threaten their existence.

(c) Any laws passed, or practical steps taken to prevent them.

2. Have a practical knowledge of the construction of the three types of nest boxes for different species of birds, and how they should be used to best advantage.

3. Have fed birds in his district for at least one year by means of food houses, food tables or food sticks.

4. Produce a notebook of, and be familiar with, the habits, calls and appearance (plumage, size, etc.) of at least twelve distinct species of birds in his district.

5. Have kept a record of birds and nest in his district for over a year, giving such particulars as: —

Date of finding nest. Species of birds. Date when first seen or heard. Number of eggs or young. Kind of tree or bush or tussock. Height above ground. Date leaving nest. Remarks.

Blacksmith

1. Make an open link $\frac{3}{8}$ inch stock.

2. Forge a chain hook out of $\frac{3}{4}$ x $\frac{1}{8}$ inch soft steel, or $\frac{3}{4}$ inch round iron.

3. Bend and weld three links to be fastened by a ring to the hook made as above, links and ring to be made of $\frac{3}{8}$ inch round iron.

4. Make a bolt of $\frac{1}{2}$ inch stock; make a straight lap weld of $\frac{1}{4}$ x 1 inch stock.



5. Make a cold chisel out of $\frac{5}{8}$ inch hexagonal tool steel.
6. Temper a rock drill or plow share, and explain how to harden and temper a cold chisel.

Boatman

1. Demonstrate ability to swim fifty yards in clothes (shirt, shorts and socks as a minimum), and be able to manage a boat singlehanded, rowing, and sculling over the stern; to steer a boat under oars and bring her alongside a vessel or landing stage.
2. Be able to box the compass.
3. Know how to tow or be towed.
4. Be able to distinguish the various classes of sailing vessels by their rig.
5. Be able to make at least twelve bends, hitches, or knots and four splices, and be able to throw a line.
6. Understand the nature of small rowing and sailing craft and the terminology applied to their parts.
7. Know how to handle a boat in smooth or rough water.



Bookbinder



Perform the following operations in the binding of a book: —

Preparing the parts or sections for sewing; marking out and sawing the back for cords or kettle-stitches; sewing, glueing up; rounding and backing, cutting and lacing un boards; covering with cloth or paper.

Bugler. — (Will not be issued in future).

Camp Cook

1. Make a cooking place with a few bricks, stones, or logs, light a fire in same and cook the following dishes thereon: — Porridge, Irish stew, vegetables, plain egg omelet, boiled, fried, scrambled and poached eggs; make tea, coffee or cocoa; rice pudding, batter pudding and pan cakes, also clean, and cook fish in the fireplace.
2. Mix dough and bake bread in an oven or make a damper or twist (around a stake) at a camp fire.
3. Have a knowledge of the methods used in cooking meats and explain the uses of baking powder and baking soda.



Camper

1. Must have camped out a total of thirty nights either in bivouac or under canvas.
2. Know the minimum requisites in kit, utensils, and rations required for seven boys for a week's camp in summer.



3. Demonstrate what kit he would take on a hike or canoe trip by himself, and have taken part in a tramp, trek or canoe trip of not less than three days' duration, covering at least nine miles per day.
4. Know how to select and lay out a camp for (a) patrol, (b) troop of 32 boys, making necessary kitchens, rubbish pits or incinerators, latrines, etc.
5. Must have cooked 30 camp meals.
6. Demonstrate how to pitch and strike a bell or other standard tent can carry out ordinary repairs to same.
7. Demonstrate that he understands the use and care of an axe.
8. Build a shelter for three Scouts, using only natural materials.
9. Know the precautions to be taken against forest or prairie fires, or both.
10. Know the precautions to be taken to avoid the danger of contaminated drinking water.

Canoeman



1. Demonstrate ability to swim at least fifty yards in clothes.
2. Show skill in paddling a canoe with single paddle at bow, stern and amidships; know the precautions to take in rough water and have a knowledge of paddles.
3. Demonstrate ability to climb into an empty canoe in water at least six feet deep.
4. How to make minor repairs to a canoe.
5. How best to portage a canoe.
6. Must have paddled, either in a number of small trips or in one long one, a total distance of fifty miles and have done his full share of the paddling.
7. Know how to paddle a canoe ashore in case of loss of paddle, or, in the event of canoe upsetting, the best modes of keeping afloat until assistance arrives.

Carpenter

1. Know how to write out a stock list for lumber required in making (a) a rough door, or (b) a ten-foot square floor, using narrow boards.
2. Explain how to dress up a piece of rough lumber to a finished size of 2"x4"x48".
3. Know when and where to use soft woods instead of oak, maple or birch.
4. Know the difference between the teeth of a rip-saw and a hand-saw, stating why each is used for its particular purpose.



5. Make a half-lap joint, mitred joint, or some well made article in which tenons, housing joints, or glued joints have been incorporated.

Citizen



1. Know the qualification for voting at Dominion, Provincial and Municipal elections in the Province in which he lives.
2. How people become British subjects.
3. How Canada and the Province and the Municipality in which he lives are governed.
4. How the United Kingdom is governed and what control its government exercises over Canada.
5. The leading principles of the British North America Act.
6. The principal functions of a good municipal government.
7. What the principal courts of justice of the Dominion and his province are and the duties of the principal officer of such courts, and particularly of jurymen, how they are chosen, and their duties.
8. What a Scout can do to beautify and make healthy the place he lives in, and
9. What the principal duties are of a good citizen; stress to be laid upon general principles and not upon details which do not concern the ordinary citizen, the main object being to teach a Scout those duties which every good citizen should perform or may be called upon to perform.
10. Produce a certificate, signed by the Scoutmaster, showing that he has personally devoted at least thirty hours to the performance of some useful public service.

Clerk

Pass a test in: —

1. Handwriting.
2. Hand-printing.
3. Typewriting, using proper fingering, 20 words per minute; or as an alternative, shorthand, 50 words a minute as a minimum.
4. Write a letter from memory on a subject given verbally five minutes previously.
5. Know simple book-keeping, and have a general knowledge of the use of cheques, bank deposit slips, drafts, promissory notes and receipts.



Cyclist. — (*To be passed annually.*)



1. Sign a certificate that he owns or has available a bicycle in good working order, which he is willing to use in public service if called upon at any time in an emergency.

2. Demonstrate ability to ride a bicycle satisfactorily and repair punctures, take a bicycle apart, clean it and put it together again, etc.
3. Be able to read a road map, make a written report, and repeat correctly a verbal message given fifteen minutes previously.
4. Have a knowledge of local by-laws governing street or road traffic.

This badge must be returned when the holder no longer owns, nor has the use of an available bicycle.

Dairyman

1. Have a knowledge, gained by practice, of management of dairy cattle (or milch goats) milking, making butter and cheese, pasteurization of milk, care of dairy utensils and appliances.
2. Have a practical knowledge of the use and purpose of the Babcock test.



Debater

1. Propose at least two motions and appose at least two others at properly conducted meetings.
2. Speak in the course of a debate in the presence of the examiner for at least five minutes on the subject under discussion; have prepared subject thoroughly and have submitted concise and orderly notes of his speech.
3. Know the ordinary rules of debate and parliamentary procedure including the duties and powers of the chairman.



Electrician

1. Name the elements of a chemical cell and by diagrams indicate its component parts.
2. Make a simple electro-magnet and describe its action in the case of an electric bell and a telegraph sounder.
3. Make a diagram of the electric circuit, when batteries supply the current, used for (a) an electric bell with one or more push buttons, (b) a telegraph key with relay and sounder, and (c) the telephone.
4. Explain how to make a simple electric motor and how it operates.
5. Explain what occurs in (a) an incandescent lamp, (b) an electric iron and, (c) a vacuum cleaner, when electric current is applied.
6. What precautions should be taken to avoid electric shock or burns when working with or near electric appliances or wires.
7. What First Aid methods should be applied to a person rendered unconscious by severe electric shock.
8. Explain the importance of electricity to every day life and to industry.



9. Have a general knowledge of the by-laws in his community governing the installation of electric wiring and fixtures.

Engineer (Auto Mechanic)

1. Take off and put on a pneumatic tire.
2. Explain the principles of construction and the functions of the clutch (two types), carburetor, valves, magneto, spark-plug, differential and two types of transmission; explain what special care each of these parts requires; explain three differences between a two and a four-cycle motor.
3. Demonstrate how to put out burning gasoline or oil.
4. If of proper age for his Province, be able to pass an examination equivalent to that required locally for a license to operate an automobile.



Entertainer



1. Entertain unaided (except by accompanist) a mixed audience for at least 15 minutes with a *varied* programme from the following: — Recitations, songs, playing wind or string instruments; conjuring tricks, character sketches, stories, ventriloquism, stump speeches, and step dancing.

Farmer

1. Have a knowledge, gained by practice, of ploughing, cultivation, drilling, fencing and draining.
2. Have a general knowledge of farm machinery, hay-making, reaping, loading and stacking, and an acquaintance with the routine seasonal work on a farm, including the care of cattle, horses, sheep and pigs.
3. Know how to lay down fire guards.



Fireman. — (To be passed annually.)



1. Have a knowledge of how to turn in a fire alarm. Know the local fire department telephone number and the nearest fire alarm box to his dwelling, school or place of business.
2. Have a knowledge of the dangers of the use of gasoline, celluloid products, illuminating gas; oil, gas, alcohol and gasoline stoves and lamps; Christmas decorations; and method of fighting a fire resulting therefrom.
3. How to work in fumes and smoke.
4. Have a thorough knowledge of fire prevention in home and factory.

5. Have a knowledge of the use of hose and hydrants; ladders, ropes, jumping sheets, and how to improvise same; passing buckets. Know the various types of fire extinguishers and their proper use for various classes of fires. Know the various ways of forming a scrum (using arms, hands, staves, ropes).
6. Have a knowledge of the different fireman's drags and lifts; First Aid for burns; artificial respiration and the method of changing operators.
7. Know how to control panic, rescue animals and salvage property.
8. Know how properly to attend a house furnace and be able to explain the drafts system.
9. Have a knowledge of why fires are caused by defective electric wiring and defective electrical appliances.

Forester



1. Identify fifteen principal native tree species in own locality, and explain their principal distinguishing characteristics.
2. Identify five kinds of native shrubs.
3. Describe the principal uses of ten species of Canadian woods. If possible visit a wood-using factory.
4. Explain the aim of forestry, and compare with unregulated lumbering.
5. Tell what are the effects of fires on soil, young forest growth and mature timber; the principal causes of forest fires and how best to overcome them; three general classes of forest fires, and how to fight each.
6. Describe the Government Forestry activities carried on in the province.
7. Successfully plant or assist in the planting of at least twelve trees.
8. Describe the general features of lumbering or shingle mill, or pulpwood operation, how the cutting is done in the woods, method of transportation to the mill, and manufacture there. Visit some portion of woods operation, or saw-mill, or pulp or paper mill or shingle mill.
9. Discuss one or more of the enemies of trees, such as insects (leaf-eaters, bark-borers, wood-borers), or decay (fungus diseases), and tell something of how damage from these sources may be lessened or overcome and produce a specimen of any one of these.

Friend to Animals

1. Have a general knowledge of the habits and principal points of a horse, and one of the following: — Cattle, sheep, goats, pigs, dogs, cats, poultry. Be able to recognize any form of cruelty or ill use to which they are subject.
2. Know, in respect to the above animals, the usual minor ailments to which they are liable, and what simple remedies may be employed.
3. Have kept a pet in good condition of comfort and health for at least three months.



4. Have an elementary knowledge of what to do in case of accidents to animals; also of any laws passed for their protection, and the power of the police with regard to them.

Gardener



1. Dig a piece of ground containing not less than 144 square feet.
 2. Plant and grow successfully six kinds of vegetables or flowers from seeds or cuttings.
 3. Know the names of a dozen plants pointed out in an ordinary garden.
4. Understand what is meant by pruning, grafting and manuring.
 5. Understand potting and growing of flowers from bulbs, indoors, and grow successfully one pot each of tulips, daffodils and hyacinths.

Handyman



1. Paint an article of furniture or piece of construction; use whitewash; repair gas fittings, tap washers, sash lines, window and door fastenings; replace gas mantles and electric light bulbs; hang pictures and curtains; repair spring roller window blinds; fix curtain and portiere rods and blind fixtures; lay carpets and beat same; mend upholstery; do small furniture and china repairs; sharpen knives, etc., and do simple soldering.

Or, as an alternative to requiring gas fittings and the replacing of gas mantles and electric light bulbs, be able to put glass in windows, prepare and hang paper on walls, and repair cane-bottomed chairs.

Healthy Man

1. Know the importance of keeping the heart, lungs, skin, teeth, feet and stomach, and organs of special senses (eye, ear and nose) in food order and the principal dangers to be guarded against.



2. Give general rule governing eating, drinking, breathing, sleeping, cleanliness, and exercising; give proof that he has kept fit by the observance of these rules for at least twelve months.
3. In the event of absence from Scout duty through illness show that same was not caused by failure to observe these rules.
4. Know the dangers incurred in the use of tobacco, and alcohol, and the breaking of the Tenth Scout Law.
5. Know the danger of overtraining the body and the continual use of one form of exercise.
6. Be able to train a patrol in simple exercises suitable for strengthening all parts of the body, and give reasons for such exercises.

Horseman



1. In the case of light horses, ride properly at all paces and jump an ordinary fence; saddle and bridle a horse correctly; harness correctly in single and double harness, and be able to drive single and pair; or
2. In the case of heavy draught horses demonstrate single and double harnessing.

And in either alternative: —

- (a) Know how to water and feed, and groom a horse properly.
- (b) Know how to clean and keep harness.
- (c) Know the evil of bearing and hame reins and ill-fitting harness.
- (d) Know the points of a horse, and be able to detect common ailments and lameness.

If this badge is taken as a qualifying badge for King's Scout it must be repassed annually, and the Scout must have a horse at his disposal.

Inland Fisherman. — (See Angler).

Interpreter. — (To be passed annually.)

Be able to carry on a conversation, write a simple letter on a subject given by examiner, read and translate a passage from a book or newspaper, in either Esperanto or any language that is not that of his own country, and be able to carry on a conversation in the deaf and dumb alphabet, or be able to read and write Braille.



A French speaking boy should be allowed to take English and an English speaking boy should be allowed to take French.

Journalist



1. Have served on the editorial staff of a professional paper or magazine, or school or Scout magazine, for at least six months.
2. Produce a report written by himself of Troop activities; and of one of the following: — News incident; lecture, sermon or political address; bazaar, open air fete, garden party or rally.
3. Produce a clipping of a published article or report written by himself.
4. Understand what is meant by "make up" and produce a dummy for the printer, representing one issue of an eight-page magazine, circular, catalogue or report.
5. Know the names of six different type faces and six type sizes.
6. Understand the ordinary printers' correction signs.

Laundryman



1. Wash and iron garments of linen, cotton, silk and wool.
2. Sew a patch on a shirt, sew on shirt buttons and darn a pair of socks.
3. Identify linen, cotton, silk and wool fabrics, and remove stains from each.

Leather Worker

Have a knowledge of tanning and curing and know the source of the different kinds and grades of leather; and either (a) be able to sole and heel a pair of boots, sewn or nailed, ad make general repairs to boots or shoes, or, (b) be able to dress a saddle, repair traces, stirrup leathers and harness, and know the various parts of harness; or (c) design and tool an article in leather such as a mat, table cover, magazine cover, blotter, desk pad, belt, etc.



Marksman. — (To be passed annually.)



1. Know thoroughly the safety rules for
 - (a) handling a supposedly empty rifle,
 - (b) when cleaning a rifle,
 - (c) when loading,
 - (d) when unloading
 - (e) when carrying on the street or road, and in the woods, and
 - (f) when climbing a fence.
2. Explain the danger of shooting with a .22 calibre rifle at a target on a fence, at tin cans or bottle, and across water.
3. Explain calibre, and those in general use.
4. Explain rifling and its purpose.
5. Describe the component parts of a cartridge.
6. Explain the sighting of a rifle for short and long distances.
7. Demonstrate the cleaning of a rifle.
8. Judge distances over unknown ground (five trials up to 300 yards, five between 300 and 600 yards); average error on ten trials not to exceed 25 per cent.
9. Demonstrate the correct position for shooting (a) in the prone position, (b) kneeling, and (c) off-hand standing.
10. With a sub-calibre rifle fire 10 rounds at a standard target at 20 yards, and obtain at least 70 points.

Master-at-Arms



Attain proficiency in two out of the following subjects: —
Single-Stick, Quarter-Staff, Boxing, Ju-jitsu, and Wrestling.

Mason

1. Lay at least four courses of a straight wall of stone or brick and build a corner on a suitable masonry foundation.
2. Understand the making and use of cement and lime mortar and concrete.
3. Understand the use of a plumb-line and trowel.



Metal Worker



1. Execute some work in beaten brass, copper or sheet iron.
2. Explain the names, uses and construction of metal work tools and apparatus in common use, and give reasons for shapes, cutting angles, etc., of tools.
3. Explain the composition and properties of solders, fluxes and metals.
4. Make and solder a tin box (to the measure of a six inch cube) with a lid to fit.

Miner

1. Study the safety practices of one particular mine, and if possible make at least one trip underground to observe the safety rules in use.
2. Explain what a placer deposit is and tell what minerals are extracted therefrom, or describe briefly one particular method of mining any one, metallic mineral or coal.
3. Explain a dyke; a fault; a vein; a room; an entry; an air course.
4. Explain “ore dressing” and give several examples.
5. Explain what precautions should be observed when handling powder or detonators.
6. Name the principal localities in Canada where any six of the following ten metals or non-metals are mined: — Gold, silver, nickel, cobalt, copper, zinc, asbestos, salt, gypsum and coal.
7. Name one or more of the ores of copper, iron, lead, zinc and nickel.



Missioner

1. Have a general elementary knowledge of sick-nursing, invalid cookery, sick room attendance, bed-making, and ventilation.



2. Show how to apply a gauze dressing to a sore so that it will not be contaminated; that is, do it in an aseptic manner.
3. Have general knowledge of the principals of personal hygiene and home sanitation.

Musician



1. Play correctly some recognized instrument and read simple music written for such instrument; the recognized instruments being piano, organ, and all instruments employed in military or orchestral bands, excluding drums and instruments of percussion, or toy instruments.
2. Play a simple sight test in any major key, such as God Save the King, O Canada, or The Maple Leaf.
3. Pass an oral examination on the staff, clefs, notes, rests and expression marks.

Naturalist

1. Explain: —

- (a) The fertilization and development of a wild flower, or
- (b) The development of a bird from an egg; or
- (c) The life history of an insect or a fresh or salt water fish; or
- (d) A month's observation of pond life.



2. Keep a nature diary, illustrated by sketches of the animals, birds, trees, plants, insects, etc., recorded; this diary to contain the dates and places of: —

- (a) First appearance of 12 spring or autumn migrants;
- (b) First flowering of 18 wild flowers, or description of appearance and habits of six sea-birds or water-fowl;
- (c) First appearance of six butterflies or moths, or description of six animals;
- (d) Make a carbon or other impression of 18 leaves of common trees.

In towns one of the following alternatives may be selected in place of 2 (the District Commissioner deciding whether the area may be considered a town for the purpose of this badge): —

Make a collection of leaves of thirty different trees; or of sixty different species of wild flowers, ferns and grasses, dried and mounted; be able to name these correctly and identify them in the field;

Or, alternatively —

Make coloured drawings of twenty flowers, ferns or grasses from life. Original studies, as well as finished pictures, to be submitted.

Pathfinder. — *(To be passed annually.)*



1. (a) For country districts and towns up to 5,000 population, have a knowledge of the history of the community and places of historical interest; also location of doctors, schools and churches.

(b) In Prairie Provinces, have knowledge of capacities and location of district elevators.

(c) Have knowledge of farms and their approximate acreage and registered stock, also the location of blacksmith shops and garages within two miles in all directions of troop headquarters.

(d) Have a general knowledge of the country including best roads within a 25 mile radius so as to be able to guide strangers to districts, towns or cities.

(e) Make and present a map, drawn in ink, showing as much as possible of the information required above. For purposes of re-examination the map must be brought up to-date.

Commissioners may use their judgment in excluding undesirable areas and substituting others.

2. (a) In towns and cities, population 5,000 to 50,000, have an intimate knowledge of the locality either round his home or troop headquarters as may be decided by the Scoutmaster, including fire alarm boxes, hydrants, fire and police station, general hospitals, post and telegraph offices and telephone exchanges, railway stations, street car routes and six doctors (three nearest troop headquarters and three nearest home); schools and churches, factories, livery stables, motor garages, the principle food and provision merchants, cab and taxi stands and cycle repairers.

(b) Make and present a map, drawn in ink, showing as much as possible the information required above. For the purpose of re-examination the map must be brought up-to-date.

(c) Have a general knowledge of his town or city, and its history and places of historical interest therein.

(d) Have a general knowledge of the country including routes of travel to places within a twenty-five mile radius, so as to be able to direct strangers to districts, towns or cities by railroad, electric railway, highways and water routes.

NOTE. — The area over which the above intimate knowledge will be required has a one mile radius from home of troop headquarters. The Commissioners will use their judgment in excluding undesirable areas and substituting others.

3. In cities over 50,000 in population, same as 2, but with an area having a half mile radius in (a).

Photographer



1. Have a knowledge of the principals of camera construction, what the camera lens does, the effect of light upon the sensitive film, and the action of developers.

2. Have a knowledge of the principal uses of photography.

3. Recognize by examination an under-exposed, over-exposed and correctly exposed negative.

4. Make six correctly exposed negatives of each of the following subject: — Landscapes; persons or animals; interiors; buildings.

5. Submit one print of good average quality from each of the above negatives, and have a knowledge of the printing paper used.

Pilot

1. Be able to sail a boat, tack, wear, reef, make and shorten sail.
2. Be able to read a chart and have a full knowledge of the chart for the nearest port and the coast or shore on each side of it. This must include a knowledge of the hydrographic markings on the chart.
3. Know the buoys, beacons, landmarks and leading marks into and out of the harbour and be able to heave the lead.
4. Know the rule of the road at sea, or in inland waters, the lights carried by the various vessels; the danger signals, storm signals and the mercantile code of signals.
5. Be able to fix positions by means of cross bearings, both from land and water.
6. Keep a log for at least a month, registering the wind, weather, barometer and thermometer, as generally carried out afloat.



Pioneer



1. Fell a 6-inch tree or scaffolding pole neatly and quickly.
2. Tie eight knots quickly in the dark or blindfolded.
3. Lash spars properly together for scaffolding.
4. Build a model bridge or derrick.
5. Make a camp kitchen.
6. Build a hut of boughs, sods, grasses or similar material, or alternatively,
7. Weave a satisfactory mattress of straw, hay or boughs on a camp loom.

Piper



Be able to play a March, a Strathspey and a Reel.

Plumber

1. Be able to use a soldering iron to repair a copper ball or similar job; be able to repair leaky taps and stopcocks and ball cocks.
2. Know how to hammer up a burst pipe.
3. Understand the ordinary hot and cold water system of a house; how to thaw out a frozen pipe and how to protect pipes from frost.



4. Understand the use of stock and dies and be able to cut a thread upon 1-inch pipe.

Poultryman



Know how to construct an all-year type of sanitary poultry house to accommodate at least 8 hens and a male bird.

Know how to care for a flock of at least 8 hens.

Know how to run an incubator and test hatching eggs; and have a practical knowledge of rearing chick by brooder; or, alternatively, how to take care of a setting hen, and of a hen with chicks.

Have a practical knowledge of feeding, killing and preparing birds for market.

Know how to grade and pack eggs for market.

Know the names of two light-weight laying breeds, four medium weight general purpose breeds and two heavy weight table breeds.

Know two methods of determining whether a hen is about to lay, is in full lay, and near the end of a laying period.

Printer

1. Set and print a handbill.
2. Know the name of six different type faces and six type sizes.
3. Be able to compose by hand or machine.
4. Understand the use of hand or power printing machines.
5. Read and mark ordinary proof correctly.



Prospector



1. Have a general knowledge of the origin and characteristics of Igneous, Aqueous, and Metamorphic rocks.
2. Have a detailed knowledge of the geological history and formations of his own district.
3. Make a collection of specimens of local common rocks and minerals, label correctly and know their uses.
4. Identify 7 out of 12 common minerals submitted, and 3 out of 5 common rocks, and give their uses, if any.
5. If fossils occur locally, submit a group, properly labelled.

Public Health Man. — (To be passed annually.)

1. Know the modes of transmission of the following diseases: — Scarlet fever, diphtheria, tuberculosis, measles, mumps, whooping cough, chicken-pox, typhoid fever, dysentery, summer diarrhoea, smallpox, malaria, ringworm, scabies; the measures adopted by sanitary authorities to prevent their spread, and the steps which should be taken by private individuals in case of infection.



NOTE: — Bacteriological and medical details are not required.

2. Explain the local health laws regarding notification of the presence of infectious disease, and the regulations regarding quarantine or isolation; and describe one or more methods for disinfecting a room and its contents, and for disinfecting a house, after a contagious illness.
3. Describe one or more methods of sewage and garbage disposal, including the method used in his own community. Describe a method of garbage disposal in a summer camp.
4. Explain how the house-fly carries disease.
5. Describe methods for assuring supplies of pure water, milk, meat and exposed foods.
6. Describe ways in which Scouts may aid the local health authorities in promoting good health in the community.
7. At the age of 16 or thereafter be instructed by a qualified physician (or his appointee) in the dangers of venereal disease.

Radio Man

1. Be able to send and receive at the rate of ten words (fifty letters) a minute, within 95 per cent accuracy.
2. Know the Government regulations respecting Amateur Wireless Stations and Operators.
3. Know the traffic and caution signals.
4. Know the correct procedure for sending a message.
5. Draw a diagram and explain the elementary working principles of a simple receiving station and a simple transmitting set; or demonstrate the same at his own or another wireless station.
6. Show at least two pieces of wireless apparatus made by himself and explain their use.
7. If the owner of a wireless station show a Government Permit for its operation.



Reader

1. Read and submit to an oral examination to ensure that the following books have been read with understanding: —



Scouting for Boys.
 Four books of Canadian Biography.
 Four books of British Biography.
 Four books of Travel.
 Five books of special interest to the individual.

2. Have a knowledge of the proper care of books.

Rescuer. — (*To be passed annually.*)



1. Perform in the water four methods of rescue and three of release from the clutch of a drowning person; the drowning person, about the same size as the rescuer, to be carried at least ten yards in demonstrating each of the rescue methods.
2. Dive from the surface to a depth of at least five feet and bring up a stone, brick or iron weighted object of not less than five pounds.
3. Demonstrate the Schaffer method of resuscitation and the promotion of warmth and circulation.
4. Swim 50 yards and then undress before touching the ground.

Rigger



1. Know the different kinds of canvasses, be able to use a palm and needle and make a cringle, and sew a round and flat seam and herringbone, and make some small repairs to sails.
2. Be able to splice hemp and wire and make fenders, mats, and lead and log lines.
3. Know the different strains and stresses of hemp and wire rope, the use of a jack, and be able to spin yarn and make two kinds of sennit.

Safety Man



1. Know four or more conditions in an average home which might cause a serious accident, and how to remedy these conditions.
2. Know in connection with street and highway safety: — (a) The Rules of the Road. (b) The value of signal lights and stop signs. (c) His own responsibility.
3. Know how to deal with: — (a) Children playing around freight cars. (b) Children walking on railroad tracks. (c) Children crossing railroad tracks.
4. Be able to recognize and correct dangerous fire hazards in — (a) The home. (b) The school or place of business.
5. Know how to organize a School Safety Patrol.
6. Understand the importance of Safety First and how to assume leadership in case of (a) fire, (b) panic, (c) other accidents.

7. Submit some practical safety device made by himself to prevent accidents in the home.

Signaller. — (To be passed annually.)

1. Send and receive by Semaphore flag at the rate of 7 words (35 letters) a minute, and in Morse at the rate of 5 words (25 letters) a minute. — 90 per cent accuracy, receiving; 100 per cent accuracy style in sending.



2. Send and receive at the rate of 6 words (30 letters) a minute on buzzer or sounder. — 90 per cent accuracy.

3. Send and receive at the rate of 5 words (25 letters) a minute by lamp, helio, or other flash system. — 90 per cent accuracy.

4. Understand how to call distant stations, and the procedure in handling messages. — 95 per cent accuracy.

5. Know the names given similar-sounding letters when calling-off or 'phoning. — 100 per cent accuracy.

6. Know the bird or other troop calls, staff and hand signals used in his troop. — 90 per cent accuracy.

Stalker

Take a series of ten photographs of ten different kinds of wild creatures (mammals, birds, reptiles or fish) from life, and be able to give particulars of their lives, habits and markings.



Starman



1. Have a knowledge of the Solar System, including general information concerning the Sun, Moon, Planets, Meteors, and Comets.

2. Describe the causes of Tides and Eclipses.

3. Have a general knowledge of the heavenly bodies beyond the solar system; their composition, size, distances, and movements.

4. Be able to name and point out at least 6 constellations, and know their principal stars.

5. Be able to find direction and tell time by the stars.

Stockman

1. Know the value and meaning of pedigrees and the principles of selection through the choice of pure bred sires of proper conformation.

2. Have a practical knowledge of the care of beef cattle and sheep.

3. Know the three best breeds of beef cattle and characteristics of each breed.



4. Know the breeds of sheep recommended for his district with the reason for selection.
5. Have a practical knowledge of the methods employed in the sheltering, feeding and watering of stock during the winter and be familiar with the other seasonal work of the stockman.

Surveyor



1. Map correctly from the country itself the main features of half a mile of road, with 440 yards each side to a scale of two feet to the mile, and afterward draw the same map from memory.
2. Understand the use of the plane table.
3. Lay out the building plan on the ground for a house or barn.
4. Measure the width of a river, also the height of a tree, church steeple or telegraph pole.
5. Know at least three ways of finding the North without the use of surveying instruments.

Swimmer

1. Swim 50 yards with clothes on (shirt, trousers and sock as a minimum).
2. Undress in water beyond his depth.
3. Swim (without clothes) 100 yards, using the breast stroke, and fifty yards on the back with hands either clasped on the arms or the arms folded in front of the body.
4. Dive when swimming in six feet of water and bring up some specified object of at least five pounds in weight from the bottom.



Tailor



1. Cut out and sew, either by hand or machine, a Scout's shirt and shorts to fit himself.
2. Insert a patch, and darn a small hole, in neat workmanlike manner, in any garment.

Telegrapher. — (Will not be issued in future.)

Textile Worker. — (Will not be issued in future.)

Tracker

1. (a) In Kim's game remember 25 out of 30 well assorted articles after one minute's observation three times running; each article being described.
(b) By smell alone recognize 8 out of 10 assorted liquids or solids in common use.
(c) By hearing alone recognize 8 out of 10 different sounds.



(d) By touch alone recognize 12 out of 15 assorted articles (including such things as dry tea leaves, flour, sugar, etc.).

2. (a) Recognize and explain 2 different characteristics in each of 5 different types of simple human tracks.

(b) Solve, within 25 per cent error, three simple tracking stories set in sand, snow or other suitable media.

3. Produce 6 casts of animal or bird tracks, all casts taken unaided by himself, 2 at least of the casts to be those of wild animals.

4. Follow a simple nature trail of at least one mile in length, containing at least 40 signs, of which 35 must be noted and described verbally or in writing when trail is complete.

Watchman



1. Know every rock and shoal within the five-fathom line on a four-mile stretch of coast near his headquarters.

2. Know the rise and fall of tides, both spring and neap, and how to ascertain the times of high and low water.

3. Know when the moon rises and sets in its quarter.

4. Know the set of the currents at all times of tide.

5. Know all danger spots to bathers and visitors, such as quicksands and places where they are liable to be cut off by the tide, and what to do if they get into difficulties.

6. Know the best landing places for boats and where they can find shelter in bad weather.

7. Know the marks of fishing boats which frequent the coast and the national flags of ships which pass.

8. Know the lighthouses which can be seen from his strip of coast and describe the lights they exhibit.

9. Know the beacons, storm signals, coast-guard stations, steam tugs, lifeboats and rocket apparatus, the nearest telegraph offices, telephones and addresses of doctor, available from each point, and the mercantile code of signals.

Weatherman



Must have kept a satisfactory record of air temperature and rainfall for at least two months; also wind, weather and cloud for a like period; must be able to recognize halos, coronas and aurora and the principal form of clouds.

Must be able to read a mercury barometer and understand the action of a barograph; must be able to apply Buys Ballot's Law, and to read the maps in the Daily Weather Report of the Meteorological Office. Must know the meaning of gale warnings and (if living on the coast) where and during what hours they are displayed. Must know for his own district the wettest month and the wettest day on record, the extremes of temperature and the prevailing winds.

Wireless Operator. — (See Radio Man.)

World Friendship

1. Be able to recognize the National Flags of no fewer than twenty foreign countries and the Flags of all British Dominions.
2. (a) Have corresponded with Overseas or foreign Scout for not less than a year, writing and receiving replies to at least eight letters; or, (b) have corresponded for at least one year, writing and receiving replies to four letters, and have camped with an overseas or foreign Scout for at least one week.
3. Have some knowledge of the Boy Scout and Girl Guide International Organizations and the League of Nations.
4. State, with reasons, which Dominion or country he would prefer to live in, other than his own.



Sec. 112. — Rover Scout Proficiency Badges

NOTE: — Rover Scouts may not wear Scout Proficiency Badges.

Rover Instructor

1. Demonstrate knowledge and ability to instruct in the subjects of the Scout First Class Tests or two of the Scout Proficiency Badges, or the First and Second Star Tests for Wolf Cubs and two Cub Proficiency Badges.
2. Produce a certificate from a Rover Leader, Scoutmaster or Cubmaster recording satisfactory instruction of Scouts or Cubs for a period of at least three months.



The badge is worn above the right breast pocket.

Rambler's Badge



The Candidate must walk an aggregate of 100 miles outside towns during week-end or holiday hikes (or alternatively trips aggregating 200 miles by canoe or 300 miles by bicycle); must keep and hand in a log of his journeys. This log should give dates, places and distances, and should preferably give information that would be of use to other hikers, such as places of interest to be visited enroute, good camping places, sketch maps and nature notes should be included.

The object of this badge is to encourage the Rover to hike for sheer pleasure. It is not an athletic feat.

The badge is worn on the left shoulder strap.

Sec. 113. — Officers' Proficiency Badges

NOTE: — *Officers must not wear Scout Proficiency Badges*



CANADIAN GILWELL OR WOOD BADGE: Awarded to Officers who complete satisfactorily the respective courses of training outlined in the pamphlet "*Training Courses in Cub, Scout and Rover Leadership.*"

Full particulars as to the conditions governing issue of the badge are contained in the aforementioned pamphlet.

The Badge consists of facsimili of two of the beads forming the necklace originally belonging to Chief Dinizulu, which was captured by the Chief Scout during the Zulu war. The beads are worn on a leather thong around the neck.

DEPUTY CAMP CHIEF'S BADGE. — Worn by leaders appointed by the Chief Scout for Canada to hold Recognized Training Camps for the Part Two Gilwell or Wood Badge Course. The badge is similar to the Wood Badge except that there are four beads instead of two.

Sec. 114. — Service Badges



(a) Cubs may wear a six-pointed white metal badge with yellow cloth background on the left breast above the Wolf Cub badge for each year's service.

(b) Scouts may wear a similar badge, with green cloth background, above the left pocket, for each year's service.

(c) Rover Scouts may wear a similar badge, with red cloth background, for each year's service.

(d) For a year in which a boy serves partly in one rank and partly in another, he is entitled to wear the service badge of the type (a), (b) or (c) for which he may have served more than six months.



(e) A Scout may continue to wear badges of type (a) and a Rover Scout badges of types (a) and (b).

(f) A six pointed gilt metal badge, with the appropriate figure superimposed, is substituted for five, ten, fifteen or twenty of the above.

(g) Officers may, if they desire, wear the above badges with the background of the colour appropriate to the nature of their service, but only one badge may be worn for any one year's service.

The Badges are also issued in embroidered cloth.

Sec. 115. — Supporter's Badge

Members of Provincial Councils and Local Associations may wear a miniature gold or enamel pin badge.



Its possession does not, however, of itself constitute membership in the Boy Scouts Association.

Sec. 116. — Old Scout's Badge



This badge may be worn by any Scout who has had three year's active service in any rank or ranks and has obtained a legitimate discharge from his Local Association. On taking up active work again the holder should discontinue wearing the badge.

Sec. 117. — Thanks Badge

The Thanks Badge is made up of a Swastika with a Scout Badge superimposed. It is the privilege of any Scout, of whatever rank, to present this badge of thanks to anyone who does a Scout a good turn, provided he obtains the approval of the Local Association; or in the case of members of the Canadian General Council or Provincial Councils the approval of the Chief Commissioner or Provincial Commissioner, respectively. It entitles the wearer to make use of the services of any Scout at any time, but does not constitute membership.



Sec. 118. — "Cornwell" Scout

To obtain the "Cornwell" Scout Badge a Scout must: —



1. (a) Be specially recommended by a recognized body of Scouts for preeminently high character, devotion to duty, and specific acts of physical courage. Or,

(b) Hold an award for bravery for having saved life under exceptional circumstances. Or,

(c) Have undergone great suffering in a heroic manner.

2. Be a First Class Scout.

3. Obtain a good report from his Scoutmaster and some independent responsible person for:

(a) Industry and effort.

(b) Obedience and discipline.

(c) Trustworthiness.

(d) Punctuality in attendance.

(e) Smartness of bearing, kit and appearance.

4. Have passed the Missioner's Badge.

5. Have passed for two of the following badges: — Boatman, Pilot, Angler, Signaller, Starman, Swimmer or Rescuer, Watchman.

Application to be made on forms obtainable from Provincial Headquarters.

The badge is worn on the right breast.

Rover Scouts are eligible for this badge.

Sec. 119. — All-Round Cords

Scouts with the following qualifications are entitled to wear All-Round Cords on the right shoulder.

Only one grade may be worn at the same time.



(a) Green and Yellow — For the holder of six proficiency badges. Open to First Class Scouts only.

(b) Red and White — For the holder of twelve proficiency badges. Open to King's Scouts only.

(c) Gold — For the holder of eighteen proficiency badges. Open to King's Scouts only.

NOTE: — (a) and (b) are double cords and (c) single cord.

Sec. 120. — Bushman's Thong



Scouts with the following qualifications are entitled to wear the Bushman's Thong, consisting of a leather thong on the right shoulder: —

Must be a First Class Scout and hold the Camper Badge, together with either the Naturalist or Stalker's Badge, and also one of the following Badges: — Starman, Weatherman, Forester.

Sec. 121. — Wolf Cub Instructor's Badge

Scouts acting as Instructors to Wolf Cub Packs are entitled to wear a Wolf Cub's Head in green on a khaki ground (cloth) over the left pocket of the shirt. This badge will be granted after three months' service on the recommendation of the Cubmaster. When the holder ceases to serve as a Cub Instructor, he must take the badge down.

For Rovers acting as Cub Instructors see Sec. 112.

Sec. 122. — AWARDS

All Rover, Scout and Cub Officers, Rovers, Scouts and Cubs, are eligible for the following decorations.

Applications for awards should be made within sixty days of the event.

The same action cannot be made a ground for application for more than one award.

Applications are made in the first instance by the officer of the Pack, Troop, Crew or District with which the person is connected and for whose action recognition is desired. This officer is responsible for the proper preparation and assembly of the evidence.

The prescribed forms must be used and may be obtained from the Provincial Headquarters.

The evidence as set forth in the application is reviewed and certified to by a Board of Honour appointed by the Local Association and is then sent to Provincial Headquarters or, if no Local Association exists, to a Board of Honour deriving its authority from the Provincial Council.

The Provincial Board of Honour then reviews the case and if considered worthy of recognition, recommends what it considers is the suitable award. All the papers are then forwarded to the Provincial Commissioner for approval, and after he has made his recommendation, they are sent by him to Dominion Headquarters where the whole case is reviewed and the final recommendation regarding the class of the awards is made by the Dominion Medal Board. This recommendation has afterwards to be approved by the Chief Commissioner and then finally it is for the Chief Scout to make the award.

For Gallantry

BRONZE CROSS. *Red Ribbon.*

Highest possible award for gallantry. It can only be won where the claimant has shown special heroism or has faced extraordinary risks.

SILVER CROSS. *Blue Ribbon.*

For gallantry with considerable risk.

GILT CROSS. *Blue and Red Ribbon.*

For those who do their duty exceptionally well in cases of emergency, though without special risk to themselves.

The crosses are worn on the right breast.

Bars may be awarded for additional acts of gallantry.

The above may also be awarded to a Troop for joint action, in which case the cross is attached to the Troop flag.

CERTIFICATES OF MERIT AND LETTERS OF COMMENDATION are granted in other meritorious cases.

For Meritorious Acts and Good Service



MEDAL OF MERIT. — For all Scout and Cub Officers, Scouts and Cubs who perform meritorious acts, or specially good work on behalf of the Boy Scout Movement; in the latter case it will, unless there are exceptional circumstances, only be awarded after a period of seven years' service. Full records must accompany the claim.

The medal is worn on the right breast. The medal may also be awarded to a Troop jointly, in which case it is attached to the Troop flag.

BAR TO MEDAL OF MERIT. — The Bar to the Medal of Merit is granted to a person who has held the Medal of Merit for a period of five years and who has during this period continued to render especially outstanding service on behalf of the Movement.

CERTIFICATES OF MERIT AND LETTERS OF COMMENDATION are granted in other meritorious cases.

HONOURARY SILVER WOLF.

HONOURARY MEDAL OF MERIT.

The Honourary Silver Wolf and the Honourary Medal of Merit are granted to any rank at the discretion of the Chief Scout for Canada for exceptionally valuable work on behalf of the Movement, on the recommendation of the Provincial Commissioner.



The "Silver Wolf" is worn as an "order" round the neck on a green and yellow ribbon.

NOTE: — *Cloth emblems for all medal awards are issued to be worn on the right breast above the pocket on occasions when it is not convenient to wear the medals themselves.*

PATROL COLOURS

PATROL	COLOURS
Alligator	Khaki and green
Antelope	Navy and white
Bat	Black and light blue
Bear	Brown and black
Beaver	Blue and yellow
Blue heron	Blue and white
Bob-o-link	Black and yellow
Bobwhite	Black and grey
Buffalo	Red and brown
Bull	Red
Bulldog	Light blue and brown
Cat	Grey and brown
Chickadee	Green and khaki
Chipmunk	White and mauve
Cobra	Orange and black
Cougar	Yellow
Coyote	Grey and black
Crow	Blue and black
Cuckoo	Grey
Curlew	Green
Dove	White and grey
Duck	Orange and white
Eagle	Green and black
Elephant	Purple and white
Fox	Yellow and green
Hawk	Pink
Hippo	Pink and white
Horse	Black and white
Hound	Orange
Hyena	Yellow and white
Kangaroo	Red and grey
Lion	Yellow and red
Loon	Green and red
Lynx	Violet
Meadow Lark	Purple and orange
Mongoose	Brown and orange
Moose	Khaki and grey
Muskrat	Orange and dark blue
Night Hawk	Pink and black
Otter	Brown and white
Owl	Blue
Peacock	Green and blue
Peewit	Green and white
Pelican	Grey and green
Ram	Brown
Rattlesnake	White and pink
Raven	Black
Reindeer	Green and grey
Rhino	Orange and navy
Robin	Grey and red
Rooster	Grey and white
Ruffed Grouse	Blue and green
Sea Gull	Light blue and scarlet
Seal	Red and black
Stag	Violet and black
Swallow	Dark blue
Wapiti	Black and violet
Whippoorwill	Yellow and brown
Wild Boar	Grey and pink
Wild Goose	Mauve and white
White-throated Sparrow	Green and brown
Wolf	Yellow and black
Woodpecker	Grey and violet
Wood-pigeon	Blue and grey

CHAPTER III

THE HONOUR OF A SCOUT

"I trust you to on your honour to keep this promise." In these terms every Tenderfoot is received by this Scoutmaster into the great Brotherhood of Scouts.

A Scout is always on his honour — not only when he is in uniform and taking part in the patrol activities, but equally so at home, at school, at work or play. For Scouting aims to produce a type of personal character so high that every action of one's life will be controlled by the spirit of fair play. No matter how many badges he may wear a Scout must be doing his very best to live up to the Promise and Law, or he is no true Scout. The Scout Promise and Law have been described as the moral groundwork of the whole Scout Movement. They are also the moral groundwork for the training of individual Scouts.

Notice the wording of the Law. It tells what a Scout is. He is described as honourable, loyal, useful, friendly, courteous, kind to animals, obedient, cheery, thrifty and clean. Unless he is really trying to live up to these requirements he is not playing the game; his honour is not to be trusted. Notice also this point that unlike the ordinary laws of the land this Law of the Scouts is not made up of things forbidden; it is instead a trumpet call to high endeavour. Let not this feature, therefore, of Scouting be overlooked, for Scout training which does not take proper account of the character forming side of the work overlooks the central aim of the Movement.

The knightly order of ancient chivalry were sworn to uphold their honour at all costs and it is chiefly from rules of knighthood that the laws of the Boy Scouts have been derived. In medieval times there were many tyrants — not, indeed, without their imitators in these days — who believed that might makes right, "that they should take who have the power and they should keep who can." Knighthood, however, opposed itself to this selfish doctrine and taught that it was the duty of the strong to defend the poor and those who could not defend themselves. When the country was at peace the knight used to ride out daily as a "knight errant," looking for the chance of doing a good turn to any in need of help. His desire was "to live pure, right wrong, speak true, follow the King." The knights of old were the patrol leaders of their day and their men at arms the Scouts. Like the Scouts, they were pledged to do a good turn to somebody every day. Their patron saint was St. George and their battle cry "For Saint George and Merrie England."

Chivalry



Ancient chivalry.

The term chivalry was first used to signify that gallantry in battle and high sense of honour in daily life that was expected of knights. In the training of a Scout it is the term used to include all of the precepts of the Scout Law. The boy who keeps the Law is chivalrous, or, to put in another way, chivalry is the Scout Law put into practice. Early chivalry came to an end with the feudal system, but the flame which it kindled to helpfulness to others has never been extinguished. There are, indeed, many pages in the long record of human progress glowing with the deeds of exalted self-sacrifice and service. Many pages are filled besides with records of the lesser events of history — of individual endeavour, or the sacrifices made by parents for their children and of one generation of our race for another.

Canadians of this generation, and of those yet to come, should never

forget the pioneers, both of French and British origin, who opened this great Dominion to settlement. Remote from friends and family connections, besieged by the rigours of winter, confronted at times by savage native tribes, facing the dangers of unknown forests, lakes and streams, the early settlers endured and finally their toil and pluck overcame countless difficulties that their children's children might possess this glorious heritage which is ours to-day. There is something of the sublime too in the dauntless faith with which the pioneer missionaries, many of them men of high education and refinement, made their way into hostile Indian encampments and willingly gave up even their lives in order that they might carry the message of Christianity to the savages.

The Challenge of the Present



Times change and the conditions of life which confronted the Knights of the Round Table the Crusaders, and the pioneers of settlement and religion in North America, no longer exist. Yet is there continuing need for the spirit of chivalry in our homes, on the street, in our games and sports, in our public life and in business and commercial affairs; and it is one of the aims of the Boy Scout Movement to keep alive amongst us the rules of fair play which have done so much for the moral tone of our race.

The Scout Promise

The following is the promise to which every Scout pledges his best fulfillment: —

*On my honour I promise that I will do my best —
To do my duty to God and the King,
To help other people at all times,
To obey the Scout Law.*

Duty to God, it will be observed, stands in the very forefront of the promise. No man is much good unless he believes in God and tries to put his belief into practice. The knight of old was at once the servant of God and the King. Before receiving knighthood his custom was to spend the whole of the preceding night on his knees in prayer that God might make him worthy of his high estate. In like spirit Scouts should seek God's help that they may be enabled to serve Him worthily under all the changing circumstances of life.



The standard set by the Scout promise is not one which is impossible of fulfillment. All it asks, after all, is that a fellow should *do his best* to qualify by practice for that highest type of true manhood which is known among Britishers as a gentleman.

If you are going to keep any law you must first find out what it means. A good Scout knows the laws by having practiced them and Boy Scouts will find this the best way of learning; in fact it is the only way of obtaining their full significance and satisfaction. You can't either learn or continue to be a Scout without practice.

Honour



"Women and Children First!"

What, after all, is our honour? In the investiture ceremony this question is asked of every boy before his admission to membership; to which the Tenderfoot replies: "It means that I can be trusted to be truthful and honest" — or words to that effect.

There are, unfortunately, very many people who think of honour in quite a different sense. There is a counterfeit king of honour which is built on reputation, that is to say, on what others think us to be. Genuine honour rests, however, on sound character, on doing the right thing under all circumstances not only when there are others looking on to applaud or blame, but when God alone knows and sees. The true Scout is of this latter type.

A man who is honourable is always to be trusted; he will never do a dishonourable action, such as telling an untruth or deceiving his superiors or employers, and always commands the respect of his fellows. His honour guides him in everything that he does.

A captain sticks to the ship till the last, in every wreck that was ever heard of. She is only a lump of iron and wood; his life is as valuable as that of any of the women and children on board, but he makes everybody get away safely before he attempts to save his own life. Why? Because the ship is in his charge, and he has been taught that it is his duty to stick to it, and he considers it would be dishonourable in him to do otherwise; so he puts honour before safety.

A notable example of this same spirit was manifested by a party of twenty British Scouts serving as signallers and messengers on board the hospital ship "Brittanic," sunk in the Aegean during the Great War. These lads declined to leave the sinking ship with the women and children. One boy was on the bridge, at what he understood to be his post of duty, and another in the wheel-house. Orders were given to remove them but still one of them persisted that it was his duty to remain and in the end he had to swim. Patrol Leader Ireland, one of this party of Scouts, was awarded the Cornwell Badge for his bravery. So should every Scout value his honour above all else.

"Women and children first" is the command given when those on board ship are forced through disaster to take to the boats and there is nothing finer in all the annals of chivalry than the heroic self-sacrifice shown by men for the safety of women and children in peril at sea.

Loyalty

Loyalty was, above all, one of the distinguishing points about the knights. They were devotedly loyal to their King and to their country, and always ready to die in their defence. In the same way a follower of the knights should be loyal not only to the King, but also to every one who is above him, whether his parents, his officers, or employers, and he should stick to them through thick and thin as part of his duty. If he does not intend to be loyal, he will, if he has any honour and manliness in him, resign his place.

A true Scout is loyal to his friends and should stand by them in evil times as well as in good times.

Loyalty to duty of the highest order was shown by Jack Cornwell, the Boy Scout hero, who met his death at the post of duty in the great naval battle between the British and German forces off the Jutland coast, known as the Battle of Horn's Reef, on June 1, 1916.

Admiral Sir David Beatty says of him in his despatch on the above battle: "Boy (1st class) John Travers Cornwell, of the Chester, was mortally wounded early in the action, He, nevertheless, remained standing alone at a most exposed part, quietly awaiting orders till the end of the action, with the gun's crew dead and wounded all around him. His age was under 16½ years. I regret that he has since died, but I recommend his case for special recognition in justice to his memory and as an acknowledgment of the high example set by him."

The Captain of the "Chester" in writing to Cornwell's mother, says of him: "His devotion to duty was an example for all of us. The wounds which resulted in his death within a short time were received in the first few minutes of action. He remained steadily at his most exposed post at the gun, waiting for his orders. His gun would not bear on the enemy. All but two of the crew of ten were killed or wounded, and he was the only one who was in such an exposed position. But he felt he might be needed — and indeed he might have been. So he stayed there, standing and waiting, under heavy fire, with just his own brave heart and God's help to support him."

The Victoria Cross, the highest award for bravery, was presented by the King to Scout Cornwell's mother in recognition of her son's heroism. His fine example has also been commemorated in the Scout Movement through the institution of a special award known as the Cornwell Scout Badge.

Jack Cornwell was a member of the St. Mary's Mission (Manor Park) Troop.

Service

The world has no use for people who live only for themselves. There is nothing more unlovable than selfishness. The heroes of every nation from ancient times to our own day have been those who have sacrificed themselves for others. The highest of all forms of happiness is found in helpfulness to others and Scouts who are living up to the third Scout law know that this is true.



A Scout's duty is to be useful and help others.

But to be able to "help others at all times" one must "Be Prepared." You could not save your best chum from drowning unless you had learned how to swim and how to support another person in the water. Being "Prepared" means that you are to be always in a state of readiness both in mind and body to do your duty — readiness in mind by having the willingness to do your part and by having thought out beforehand the accidents or other emergencies that may arise so that you may know the right thing to do; readiness in body by making yourself strong and alert and able to act whenever an emergency occurs. Scouting not only urges its members to be prepared but it teaches them how.

Every Scout "must try his best to do at least one good turn to somebody every day." "It does not matter," as Roland Phillips has written in his admirable volume of "Letters to a Patrol Leader on the Scout Law," whether the Good Turn is a big one or a small one, whether it takes a long time or whether it takes a short time, whether it is difficult or whether it is easy. The only thing that matters is that the Scout is moved by a spirit of sacrifice and of service; and that he goes about the world more gladly because he knows that a Scout's duty is to be useful and to help others."

In addition to individual good turns, Canadian Scouts have found many opportunities for good turn service to their communities, and to their country. An annual food turn that has grown to national proportions is the Scout Christmas Toy Repair Shop. Each year Scouts working in a chain of these shops stretching from coast to coast, collect, repair and distribute toys to many thousands of poor children, and also to the children of New Canadian families spending their first Christmas on Canadian farms. Reports from each summer's Scout camps tell of good turns done for camp neighbours, — repairing broken fences, helping with crops, finding lost cattle, cutting weeds for farmers; tidying up country church yards, helping in various ways at country church lawn socials, etc. On Victoria Day, Dominion Day and other public holidays Scouts are frequently called upon to assist by lining the streets, helping direct traffic, acting as ushers, maintaining a first aid service, etc. At some of our large annual fall fairs the finding and care of lost children is left entirely to the Scouts, they operate first aid and rest tents, run information booths, act as messengers for fair officials, usher at the grand-stands and serve in various other ways.

The week's celebration of the Diamond Jubilee of Confederation in 1927 brought many opportunities for service that were taken advantage of by Scouts in every part of the Dominion. Perhaps the outstanding opportunity was the locating and decorating, at the request of the Government, of the graves of the Fathers of Confederation. This proved more of a task than at first appeared since a number of the graves had not previously been marked, and there was little or no information regarding the location of several of them. One grave in fact was "located" in four different localities; it was finally identified beyond question. Journeys to distant points were made by several Scout troops, notably the 1st Moncton Troop to Dorchester, N.B., to decorate the grave of the Hon. Edward Barron Chandler, and a party of Anglo-Canadian Scouts of Quebec City and French-Canadian Scouts of Charny, Que., who travelled a hundred miles by bus to decorate the graves of the Hon. Sir Etienne Tache at St. Thomas de Montmagny and the Hon. Jean Charles Chapais at St. Denis de Kamouraska.

In recognition of this special service two statues of Boy Scouts were erected above a window near the entrance to a fine government office building, Confederation Block, near the Parliament Buildings in Ottawa.

Friendliness



A Scout is a friend to All.

The honours of ancient knighthood belonged alone to persons of noble birth. Membership in the great brotherhood of Scouts is open, however, to boys of all classes and the Chief Scout's desire is that Scouts everywhere shall earn the name which Kim gained for himself of "Little Friend of all the World." Making friends, like everything else in life that is worth while, involves effort. Some fellows are slow in making friends by reason of an inborn diffidence or sensitiveness which they should, however, strive to overcome. Others are naturally so friendly that popularity comes to them without the seeking. The

fourth Scout Law is intended to be an active one, and Scouts are expected to be ever on the lookout for opportunities of putting it into practice.

Courtesy

It is significant that Scouting was carried from England to the United States through a courtesy rendered to an American visitor in true Scout fashion by a London Boy Scout.



Not only is courtesy a good habit to form for the pleasure it gives to its possessor, but courtesy also makes friends and helps greatly in one's success in life.

The knights of old were particularly courteous to women. Sir Nigel Loring in "The White Company" is a type of a chivalrous knight of the old times. Although very small, and half blind by reason of some lime which an enemy had thrown in his eyes early in his career, he was an exceedingly brave man, and at the same time very humble, and very helpful to others. But, above all things, he revered women. He had a big, plain lady as his wife, but he always upheld her beauty and virtue, and was ready to fight anybody who

disputed him. Then with poor women, old or young, he was always courteous and helpful. And that is how a Scout should act.

King Arthur, who made the rules of chivalry, was himself chivalrous to women of whatever class. One day a girl rushed into his hall crying for help. Her hair was streaming; she was smeared with mud, and her clothing was in rags. She had been ill-treated by a band of robbers. When he heard her tale, King Arthur sprang on to his horse and rode off to chastise the robbers.

When walking with a lady or a child on the street, a Scout should always walk on the side neared the traffic, to protect them against accident or mud-splashes, etc. In meeting a woman or child a Scout should, as a matter of course, always make way for them, even if he has to step off the pavement into the mud. So also, when riding in a crowded car, the Scout will at once give his seat up to a woman and stand himself. As a Scout you should set an example in this by being the first in the car to do it. And in doing so, do it cheerfully, with a smile, so that she may not think you are annoyed at having to stand. If you are sitting down and a lady comes into the room, stand up, and be on the lookout to see if you can help her in any way.

When in the street always be on the lookout to help women and children — and don't accept any reward. Of course, in accidents men and boys will always see that the women and children are safely out of danger before they think of themselves.

A Friend to Animals



In order to live up to the requirements of the Sixth Scout Law you must first know something about animal life and habits. We cannot be friends with people whom we do not know, and this is true as well of our relations with the domestic animals and the wild life all about us. The more we understand about animals the fonder we become of them. Much of the cruelty practiced by boys towards dumb creatures is the result of thoughtlessness and ignorance.

It is wonderful the capacity that many of the member of the brute creation have for friendship and the instinct they have for distinguishing between friendly and unfriendly intent. Some of the finest qualities of human nature are very highly developed

among dogs. A man's friends may turn against him, but never his faithful dog. Scouts are expected to set a high standard of kindness to all dumb animals and, of course, it goes without saying, to kill only when necessity compels.

Obedience



A Scout obeys orders.

Discipline is as important as bravery for Scouts and soldiers. *A Scout obeys the Order of his Parents, Patrol Leader or Scoutmaster without question, and the Chief Scout has added that, even if a Scout gets an order he does not like, he must do as soldiers and sailors do, he must carry it out all the same because it is his duty; and after he has done it he can come and state his reasons against it. But he must carry out the order at once. That is discipline.*

Obedience to our parents is something that most of us have been taught from our babyhood and need not be dwelt on here. Obedience to our parents is the beginning of all forms of respect to lawful authority. But obedience is a lesson some people never learn and thereby bring much unhappiness on themselves and others. Whether it is in work or play, obedience to orders is vital to success. No one is fit to command who has not first learned to obey. Everyone, of course, finds it easier to obey the orders of a beloved captain. Officers who themselves give an example of instant obedience to duty have little trouble, as a rule, in having their own orders carried out.

The highest form of discipline is self-discipline and this is something all Scouts should endeavour to attain. The self-disciplined man is described by Browning as:

*“One who has never turned his back, but marched breast forward;
Never doubted clouds would break;
Never dreamed, though right were worsted, wrong would triumph;
Held, we fall to rise, are baffled to fight better,
Sleep — to wake.”*

Good Temper and Cheeriness



A Scout smiles and whistles.

Benjamin Franklin said: “Money never yet made a man happy and there is nothing in its nature to produce happiness.” The truth is that happiness is a state of mind rather than a state of one's pocket book. Those only are truly happy whose minds are fixed on something higher than the satisfying of their own selfish desires.

The knights laid great stress on being never out of temper. They thought it bad form to lose their temper and to show anger. If you do your work cheerfully, your work becomes much more of a pleasure to you, and also if you are cheerful it makes other people cheerful as well, which is part of your duty as a Scout. Sir James Barrie writes: “Those who bring sunshine to the lives of others, cannot keep happiness from themselves.

If you are in the habit of taking things cheerfully you will very seldom find yourself in serious trouble, because if a difficulty or annoyance or

danger seems very great, you will, if you are wise, force yourself to laugh at it, although it may be very difficult to do so at first. Still, the moment you do laugh, some of the difficulty seems to disappear at once, and you can tackle it quite easily.

Thrift

In order to get money, you must expect to work. A well known English actor used to say in one of his plays, "I don't know what is wrong with me. I eat well, I drink well, and I sleep well, but somehow whenever anybody mentions the word 'work' to me, I get a cold shudder all over me." Any number of poor boys have become rich men. But in nearly every case it was because they meant to do so from the first. They worked for it, and put every penny they could spare into the bank to begin with. So each one of you has the chance, if you like to take it.



The knights of old were ordered by their rules to be thrifty, that is to save money as much as possible; not to expend large sums on their own enjoyment, but to save it in order that they might keep themselves, and not be a burden to others, and also in order that they might have more to give away in charity. If they had no money of their own, they were not allowed to beg for it; they had to work and make it in one way or another.

Thus, money-making goes with manliness, hard work and sobriety.

Purity

A Scout is Clean in Thought, Word and Deed.

The Tenth Scout Law is among the most important of them all, yet the hardest to keep and in most cases it is only by fighting temptation manfully, whenever it comes, that you will succeed. The fellow whose mind gives lodgement only to clean thoughts is not likely to fall into offences of word and deed, for it is the mind that controls both what we say and do. With many boys, however, the whole period of twelve to twenty is a stormy one.

Of course, it is much easier for fellows to keep this law who travel with a clean crowd. It is at this stage in boy life that Scouting interests prove most helpful with their appeal to the manly, active side of every fellow's nature. No Scout can expect to live up to the Tenth Law without having at times to fight hard and to keep on fighting, even if sometimes temptation for the moment seems to be getting the better of him. When your own power of resistance is unequal to the occasion do not fail to seek God's help and you will find that He will never fail you in the hour of need.

CHAPTER IV

WOODCRAFT

LIFE IN THE OPEN

In its broadest sense the term woodcraft has been applied to all life in the open. Naturally the woodcraft of Eastern Canada, a wooded country, differs in many respects from that of the Great Plains, whilst very different again are the out-of-door conditions of life that exist in the far north and in the mountainous regions of British Columbia.

Canadian woodcraft, it will thus be seen, is a very broad subject; much broader, indeed, than one could attempt to cover fully in a single chapter of the present Handbook. The most we can hope to be able to accomplish is to interest our members in studying this subject for themselves and perhaps to offer a few suggestions, which may assist them in doing so.

The truly wonderful system of waterways stretching from the Atlantic coast and Hudson Bay to the foothills of the Rocky Mountains and northward to the Arctic coast, furnished the original routes of summer travel through this vast territory. It was, too, by following the river courses that the early explorers first threaded their way through the mountain fastness of British Columbia to the far Pacific coast a little over a century ago.

The birch-bark canoe has disappeared from the main waterways with the development of modern methods of water transport but is still used on many of the northern lakes and streams, being carried on the travellers' heads and shoulders, when necessity compels, over portages of several miles distance.

Where water transport was impossible, much of the travel in early days was necessarily done on foot and many of our cross-country roads follow the routes of early trails. One of these extends from Winnipeg overland about one thousand miles distance to Edmonton, Portage Avenue, Winnipeg, being part of this early thoroughfare.

With the introduction of the horse into North America by the Spaniards, the Indian tribes of the Great Plains quickly became expert horsemen and horsemanship has ever since been, and still is, a notable feature of the life in these parts.

For winter travel the native tribes of the north and west depended on dog teams and in the far north and north-west do so still. Under ordinary conditions of travel a dog team of four can make thirty miles a day with a load of three hundred pounds weight.



Dog team.

Indians and white men alike in the remote northwest travel, however, as light as possible, and in many instances count even tents an unnecessary burden on mid-winter expeditions in which temperatures are often encountered of thirty, forty and fifty below zero. The snowfall is comparatively light in the north country east of the Rockies — not more than two or three feet — and all that travellers in the native style do at nightfall is to pick on as sheltered a spot as they can find, dig down to the ground with the aid of the snowshoes and build themselves a bed of

boughs to lie on, sheltered from the wind by a couple of young spruce trees. The latter are laid at a convenient angle to one another. A fire is built across the open end of this simple shelter and kept going throughout the night. The dogs share the protection of the wind break.

On the western slopes of the Rockies in Northern British Columbia and the Yukon, mid-winter life in the open is much the same, excepting that the heavy snowfall makes it impossible for travellers to do without tents. These were the rigorous conditions which faced eighty thousand gold seekers — mostly inexperienced city men — who tried to pack their way over the Yukon trail in the first great rush to the Klondike in the winter of 1897-98. No wonder that more than half never got through.

The Royal Canadian Mounted Police

Some of the best scouts in the world are found in the ranks of the Royal Canadian Mounted Police. These splendid fellows have to be partly soldier and partly policeman and to serve at times as judge and jury besides. Sent out to distant frontier posts, the mounted policeman has to be able to look after himself either in the Arctic winter or in the blazing summer. He has to be a good horseman, and at the same time able to manage a canoe, or a dog-sleigh. Moreover, as he has to tackle rough customers in mining camps, to keep order among Indians, or to arrest horse thieves and other bad characters, he has to be plucky, strong and determined — equal in fact to three or four ordinary men — and intent on doing his duty, however difficult or dangerous, simply because it is his duty. But the Mounted Police have, in so very many cases, proved this, that every criminal knows it is useless to resist or to try to escape when the constable appears on the scene; he feels he is a “gone coon.”

The work of the Mounted Police has taken them far northward of the Arctic circle for the maintenance of law and order among the Eskimo natives and the whalers visiting the Arctic coast, and the hardships of travel in these parts, especially during the winter, can better be imagined than described.

In the winter of 1910 a patrol of three policemen under command of Inspector F.J. Fitzgerald perished of cold and hunger in an attempt to make their way by dog team in midwinter from Fort Macpherson, at the mouth of the Mackenzie River, to Dawson City. The patrol lost their way through depending on a guide who did not know the route and were forced to turn back towards Fort Macpherson. Misfortune seemed to dog their way. They were hindered by open water, by fierce winds and blinding snows and by weather 60° below zero. The trail was heavy and they repeatedly were wet to the skin by going through the ice. After their small stock of provisions was exhausted they began killing the dogs to feed the other dogs, but found that the canines would not eat the meat. The remainder of the little stock of dried fish was accordingly fed to the animals whilst Inspector Fitzgerald and his companions travelled about two hundred miles distance with nothing to subsist on but dog meat and tea. Their remains were found by a search party within thirty-five miles of Macpherson. The indomitable leader had kept up his diary to the very last and written his will with a bit of charred wood from the camp fire in terms following:

“All money in despatch bag and bank, clothing, etc., I leave to my dearly beloved mother, Mrs. John Fitzgerald, Halifax. God bless all.”

F.J. Fitzgerald,
R.C.M.P

So died a most courageous and devoted member of this splendid frontier force.

OBSERVATION

One of the most important things that a scout has to learn, whether he is a war scout, or a hunter or peace scout, is *to let nothing escape his attention*. He must notice small points and signs, and then make out the meaning of them; but it takes a good deal of practice before a tenderfoot can get into the habit of really noting everything and letting nothing escape his eye. It can be learned, however, just as well in a town as in the country, and good practice can be gained by city boys through observing closely all points of interest on the streets, the numbers of street cars and other conveyances.

A Scout must not only look to his front, but also to either side and behind him. He must have “eyes at the back of his head,” as the saying is.

And in the same way he should notice any strange sound or any peculiar smell and think for himself what it may mean.

“SIGN” is the word used by Scouts to mean any little details, such as footprints, broken twigs, trampled grass, scraps of food, a drop of blood, a hair, and so on; anything that may help as clues in getting the information they are in search of.

If you go out with a really trained Scout you will see that his eyes are constantly moving, looking in every direction near and far, noticing everything that is going on, just from habit, not because he wants to show off how much he notices.

Details of Places

In the streets of a strange town a Scout will notice his way by the principal buildings and side streets, and in any case, he will notice what shops he passes and what is in their windows.

Every Scout should know, as a matter of course, the nearest doctor’s residence and drug store (in case of accidents), the nearest police station, hospital, fire alarm, telephone, ambulance station, etc.

Getting Lost

It often happens that when you are tramping along alone through the bush, or even in town, you become careless in noticing what direction you are following; that is, you frequently change it to get round a fallen tree, some rock, or other obstacle, and having passed it, you do not take up exactly the correct direction again. A man’s inclination somehow is to keep edging to the right, and the consequence is that when you think you are going straight, you are really not doing so at all. Unless you watch the sun, or your compass, or your landmarks, you are very apt to find yourself going round in a big circle.

In such case a “tenderfoot”, when he suddenly finds himself out in his bearings, lost in the hills or forest, at once loses his head and gets excited. He probably begins to run, when the right thing to do is to force himself to keep cool and give himself something useful to do — that is, to track his own trail back again; or if he fails in this to start getting firewood for making signal fires to direct those who are looking for him.

Every old Scout on first turning out in the morning notices which way the wind is blowing. When you start out for a walk or on patrol, you should notice which direction, by the compass, you start in, and also notice which direction the wind is blowing, as these may be a great help to you in keeping your direction, especially if you have not got a compass, or if the sun is not shining. Then you should notice all landmarks for finding your way: that is, in the country notice any hills or prominent towers, steeples,

curious rocks, trees, gates, mounds, bridges, and so on; any points, in fact, by which you could find your way back again, or by which you could instruct another to go the same line which you have gone. If you notice your landmarks going out you can then find your way by them coming back. But you should take care occasionally to look back at them after passing them, so that you get to know their appearance for your return journey. The same holds good when you arrive in a new town by train. The moment you step out from the station notice where the sun is, or which way the smoke is blowing. Also notice any landmarks, such as prominent buildings, churches, factory chimneys, names of streets and shops, etc., so that when you have gone down numerous streets you can turn round and find your way back again to the station without any difficulty. It is wonderfully easy when you have practised it a little; yet many people get lost when they have turned a few corners in a town which they do not know.

The way to find which way the wind is blowing, if there is only very light air, is to throw up little bits of dry grass, or to hold up a handful of light dust and let it fall, or to moisten your thumb and let the wind blow on it, and the cold side of it will then tell you which way the wind is blowing. When you are acting as a Scout to find the way for a party you should move ahead of them and fix your attention on what you are doing, because you have to go by the very smallest signs, and if you get talking and thinking about other things you are very apt to miss them. Old Scouts are generally very silent people, from having got into this habit of fixing their attention on the work at hand.

Night Scouting

Scouts must be able to find their way equally well by night or by day. In fact military scouts in the army work mostly by night, in order to keep hidden, and lie up during the day. Unless they practise it frequently, fellows are very apt though to lose themselves by night, distances seem greater, and landmarks are hard to see. Also you are apt to make more noise than by day, in walking along, through treading accidentally on dry sticks, kicking stones, etc.

If you are watching for an enemy at night, you have to trust much more to your ears than to your eyes. You have to rely also on your nose, for a Scout who is well-practised at smelling out things, and who has not damaged his sense of smell by smoking, can often smell an enemy a good distance away. A Scout has to be able to notice small details just as much at night as by day, and this he has to do chiefly by listening but occasionally by feeling or smelling.

In the stillness of the night, sounds carry farther than by day. If you put your ear to the ground or place it against a stick, or especially against a drum, which is touching the ground, you will hear the shake of horses' hoofs or the thud of a man's footfall a long way off. Another way is to open a knife with a blade at each end, stick one blade into the ground and hold the other between your teeth and you will hear all the better. The human voice, even though talking low, carries a great distance, and is not likely to be mistaken for any other sound.

When patrolling at night, Scouts keep closer together than by day, and in very dark places, such as woods, etc., they keep touch with one another by each catching hold of the end of the next Scout's staff. When working singly the Scout's staff is most useful for feeling the way in the dark, and pushing aside dry branches, etc. Scouts working apart from each other in the dark keep up communication by occasionally giving the call of their patrol-animal. An enemy would thus not be made suspicious.

Scouts should be able to guide themselves by the stars at night.

Deduction

When a Scout has learned to notice “signs,” he must then learn to “put this and that together,” and so read a *meaning* from what he has seen. This is called “deduction.” Here is an example of what is meant which was given in the “Forest and Stream.”

It shows how the young Scout can read the meaning from “signs” when he has been trained to it.

A cavalry soldier had got lost and some of his comrades were hunting all over the country for him, when they came across a native boy, and asked him if he had seen the lost man. He immediately said: “Do you mean a very tall soldier, riding a roan horse that was slightly lame?”

They said, “Yes; that was the man. Where did you see him?” The boy replied, “I have not seen him, but I know where he has gone.”

Thereupon they arrested him, thinking that probably the man had been murdered and made away with, and that the boy had heard about it. Eventually he explained that he had seen tracks of the man which he could point out to them.

Finally he brought them to a place where the signs showed that the man had made a halt. The horse had rubbed itself against a tree, and had left some hairs sticking to the bark, which showed that it was a roan horse; its hoof marks showed that it was lame; that is one foot was not so deeply indented on the ground and did not take so long a pace as the other feet. That the rider was a soldier was shown by the imprint of his boot, which was an army boot. Then they asked the boy, “How could you tell that he was a tall man?” and the boy pointed out to where the soldier had broken a branch from the tree, which would have been out of reach of a man of ordinary height.

Deduction is exactly like reading a book. A boy who has never been taught to read, and who sees you reading from a book would ask, “How do you do it?” and you would point out to him that a number of small signs on a page are letters; these letters when grouped form words; and words form sentences; and sentences give information. Similarly, a trained Scout will see little signs and tracks, put them together in his mind, and quickly read a meaning from them such as an untrained man could never arrive at. From frequent practice he gets, moreover, to read the meaning at a glance, just as you do a book, without the delay of spelling out each word, letter by letter.

Instruction in the art of observation and deduction is difficult to lay down in black and white. It must be taught by practice. One can only give a few instances and hints; the rest depends upon your own powers of imagination and local circumstances.

The importance, however, of the power of observation and deduction to the young citizen is great. Boys are proverbially quick in observation, but it dies out as they grow older, largely because first experiences catch their attention, which they fail to do on repetition.

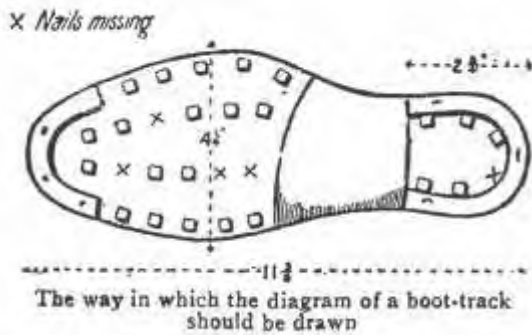
Observation is, in fact, a habit to which a boy has to be trained. Deduction is the art of subsequently reasoning out and extracting the meaning from the points observed.

When once observation and deduction have been made habitual in the boy, a great step has been gained in the development of “character.”

TRACKING

Tracking, or following up tracks, is called by different names in different countries. Thus, in South Africa, you would talk only of “spooring,” that is, following up the “spoor”; in India, it would be following the “pugs,” or “pugging”; in America it is often referred to as “trailing.” It is one of the principal ways by which Scouts gain information, and hunters find their game. To become a good tracker you must begin young, and practise it at all times when you are out walking, whether in town or country. If at first you constantly remind yourself to do it, you will soon find that you do it as a habit without having to remind yourself. And it is a very useful habit, and makes the dullest walk interesting.

Hunters, when they are looking about in a country to find game, first look for any tracks, old or new, to see if there are any animals in the country; then they study the newer marks to find out where the animals are hiding themselves, and, after they have found a fresh track, they follow it up till they find the animal and kill it. Afterwards they often have to retrace their own tracks to find their way back to camp. War scouts do much the same as regards their enemies.



First of all you must be able to distinguish one man’s footmark from that of another, by its size, shape and nails, etc. Similarly, you must be able to distinguish the prints of horses and other animals. From a man’s track, that is from the size of his foot and the length of his stride, you can tell, to a certain extent, his height. In taking notes of a track you should pick out a well-marked print, very carefully measure its length, length of heel, with widest point of tread, width at waist, width at heel, number of rows of nails, and number of nails in each row, heel and toe-plates or nails, shape of nailheads, etc.

It is best to make a diagram of the footprint in the manner shown in the illustration herewith. You should also measure very carefully the length of the man’s stride from the toe of one foot to the heel of the other.

A Scout must learn to recognize at a glance at what pace the maker of the tracks was going, and so on. A man walking puts the whole flat of his foot on the ground, each foot a little under a yard from the other. In running, the toes are more deeply dug into the ground, a little dirt is kicked up, and the feet are more than a yard apart. Sometimes men walk backwards in order to deceive anyone who may be tracking, but a good Scout can generally tell this at once by the stride being shorter, the toes more turned in, and the heels being lightly impressed.

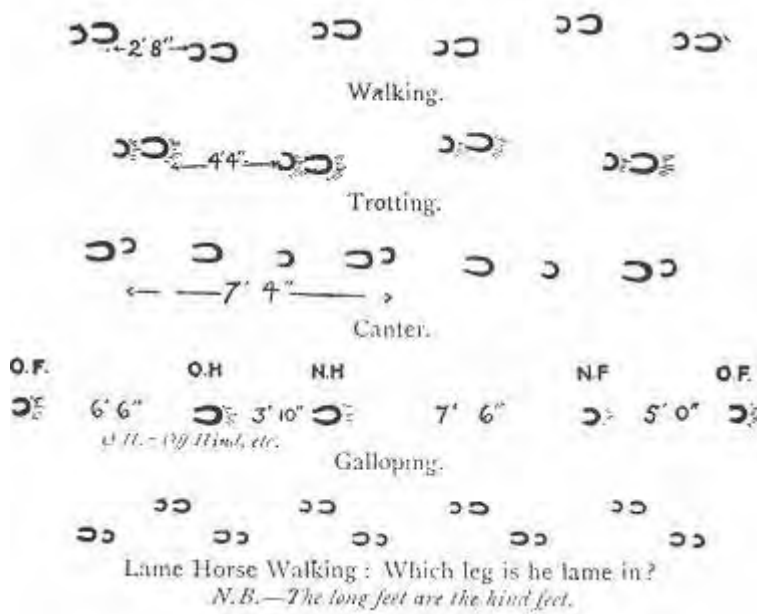


With animals, if they are moving fast, the toes are more deeply dug into the ground, and they kick up the dirt. Their paces also are longer than when going slowly.

You ought to be able to tell the pace at which a horse has been going directly you see the tracks. At a walk the horse makes two pair of hoof prints — the near (left) hind foot close in front of the near fore foot mark, and the off (right) fore foot similarly just behind the print of the off hind foot. At a trot the track is

similar, but the stride is longer. The hind feet are generally longer and narrower in shape than the fore feet.

Horse's Tracks



It was a trick with the highwaymen of old, and with horse stealers more recently, to put their horses' shoes on wrong way round in order to deceive trackers who might try to follow them up; but a good tracker would not be taken in. Similarly, thieves often walk backwards for the same reason; but a clever tracker will very soon recognize this deception.

Wheel tracks should be studied till you can tell the difference between the track of a gun, a carriage, a farm wagon, a motor-car, or a bicycle, and the direction they were going.

Age of Tracks

In addition to learning to recognize the pace of tracks, you must get to know how old they are. This is a most important point, and requires a great deal of practice and experience before you can judge it really well.

Much depends on the state of the ground and weather, and its effects on the trail. If you follow one track, say on a dry, windy day, over varying ground, you will find that when it is on light, sandy soil, it will look old in a very short time, because any damp earth that it may kick up from under the surface will dry very rapidly to the same colour as the surface dust, and the sharp edges of the footmarks will soon be rounded off by the breeze playing over the dry dust in which they are formed. When it gets into damp ground, the same track will look much fresher, because the sun will have only partially dried up the upturned soil, and the wind will not, therefore, have bevelled off the sharp edges of the impression. If it gets into damp clay, under the shade of trees, etc., where the sun does not get at it, a track, which may have looked a day old in the sand, will here look quite fresh.

Useful clues to the age of tracks will often be found through drops of rain having fallen on them since they were made (if you know at what time the rain fell), through dust or grass seeds having blown into them (if you noticed at what time the wind was blowing), through the crossing of other tracks over the original ones, or through the grass having been trodden down, and the extent to which it has since dried or withered. If following a horse, the length of time since it passed can also be judged by the freshness, or otherwise, of the droppings, due allowance being made for the effect of the sun, rain, or birds, etc., upon them.

Having learned to distinguish the pace and age of a track you must learn next to follow it over all kinds of ground. This is an accomplishment that you can practise all your life, and you will still find yourself learning at the end of it. You will find yourself continually improving.

Then there is a great deal to learn from the ashes of fires — whether they are still warm or cold, scraps showing what kind of food the people were eating, and whether food was plentiful or scarce.

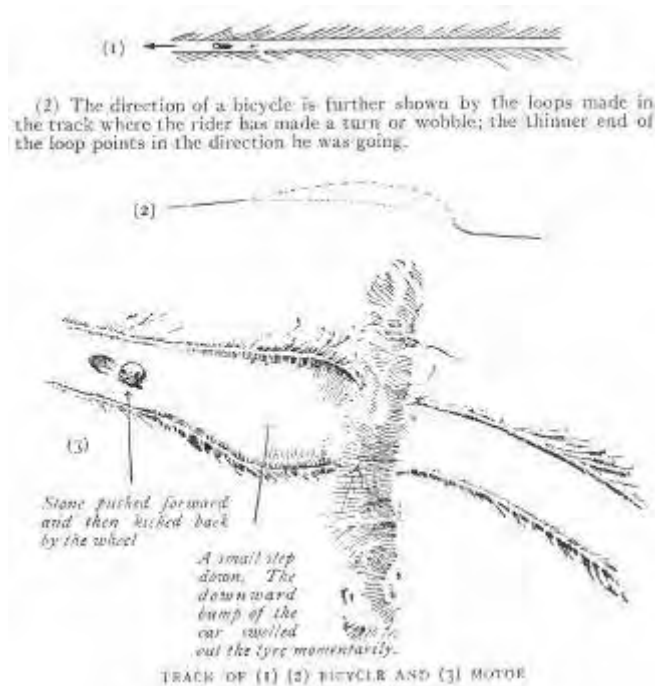
You must not only keep a sharp look out for Scout signs made by your own Scouts, but also for those made by hostile Scouts. Tramps also have their private signs.

When getting on to a very fresh track made by a man or beast, an old scout will generally avoid following it closely, because the hunted creature will frequently look back to see if it is being followed. The tracker, therefore, makes a circle and comes back to where he would expect to find the track again. If he finds it, he makes another circle further ahead till he finds no track. Then he knows he is ahead of his game, so he gradually circles nearer and nearer till he finds it, taking care, of course, not to get to windward of the animal when within scenting distance.

In tracking, where the trail is difficult to see, such as on hard ground, or in grass, not the direction of the last foot print that you can see, then look on in the same direction, but well ahead of you, say twenty or thirty yards, and in the grass you will generally see the blades bent or trodden. On hard ground there will possibly be stones displaced or scratched, and so on; small signs which, seen in a line one behind the other give a kind of track that otherwise would not be noticed. The great thing is to look for a difficult track *against* the sun, so that the slightest dent in the ground throws a shadow.

If you lose sight of the track you must make a “cast” to find it again. To do this put your handkerchief, staff, or other mark at the last footmark that you notice, then work around it in a wide circle, say, thirty, fifty or a hundred yards away from it as a centre, choosing the most favourable ground — soft ground if possible — to find signs of the outward track. If you are with a patrol, it is generally best if for the patrol to halt while one or perhaps two Scouts make the cast. If everybody starts trying to find the trail, they soon defeat their object by treading it out or confusing it with their own footmarks. Too many cooks, as the saying is, are apt to spoil the broth.

Tracking Practice



For practice in tracking, the Scoutmaster should make his Scouts prepare a well-rolled or flattened piece of ground, about ten or fifteen yards square, and make one boy walk across it, then run, and then bicycle across it. Part of the ground should be wet as if by rain, the other part dry.

He can then explain the difference in the tracks, so that Scouts can tell at once from any track they may see afterwards whether a person was walking or running.

If possible, a day later, make fresh tracks alongside the old ones and have the Scouts notice the difference in appearance, so as to learn to judge the age of tracks. Then make tracks of various kinds overrunning each other, such as a cyclist meeting a boy on foot, each going over the other's tracks, and let the Scouts read the meaning.

Send out a boy with "tracking irons" on and let the patrol track him and notice when any other tracks override his, showing what people or animals have passed since.

Tracking irons can be strapped on to the soles of a Scout's boots like a pair of skates. Instead of tracking irons you can easily use a few extra nails screwed into the sole or heel of your boots or into the butt of your staff in such a pattern as to make an unmistakable track.

Winter Tracking

For young Canadians the ideal time to become acquainted with the ABC of tracking is when the ground is covered with snow. One's first winter visit to familiar summer haunts is often a great surprise.

Snow is a great tell-tale of all that goes on in the woods, and it is astonishing to find how many more wild creatures there are about than you would have thought was possible. The truth is, of course, that in settled districts experience has taught the animals that the only safe time for them to leave their cover is at night.

The very first snowfall offers as good a chance as any to the young Scout to learn what wild creature there are around, and as his experience grows, he will presently be able, not only to distinguish the different kinds of animals from one another by their trails, but in them he will be able to read the creature's very emotions as it moved along.

"Let us go forth into the woods," writes Mr. Ernest Thompson Seton, "where there is good tracking snow and learn a few letters of the wood alphabet. Two at least are sure to be seen — the tracks of the blarina, or short-tailed shrew, and of the deer mouse.



"In Fig. 3 is the track of the meadow mouse. This is not unlike that of the blarina, because it walks, being a ground animal, while the deer mouse more often bounds. The delicate lace tracteries of the masked shrew, shown in Fig. 4, are almost invisible unless the sun be low; they are difficult to draw, and impossible to photograph or cast satisfactorily but the sketch gives enough to recognize them by.

"The meadow mouse belongs to the rank grass in the lowland near the brook and passing it towards the open, running water we may see the curious track of the muskrat; its five-toed hind foot, its four-toed front foot, and its long keeled tail are plainly on record. When he goes slowly the tail mark is nearly straight; when he goes fast it is wavy in proportion to his pace.



“The muskrat is a valiant beast; he never dies without fighting to the last, but he is in dread of another brookland creature — the mink. Individual tracks of this animal are shown on page 96. Here he was bounding; the forefeet are together, the hind feet ahead, and tail mark shows, and but four toes in each track, though the creature has five on each foot. He is a dreaded enemy of poor Molly Cotton-tail, and more than once I have seen the records of his relentless pursuit.”

Stories of the Trail

The following stories of the trail are told by Ernest Thompson Seton and pictured by him in the sketches appearing on page 96. Sketch No. 1 is described in these words: —

“It was in the winter of 1900. I was standing with my brother, a business man, on Goat Island, Niagara, when he remarked, ‘How is it? You and I have been in the same parts of America for twenty years, yet I never see any of the curious sides of animal life that you are continually coming across.’ ‘Largely because you do not study tracks,’ was the reply. ‘Look at your feet now. There is a whole history to be read.’ ‘I see some marks,’ he replied, ‘that might have been made by some animal.’ ‘That is the track of a cottontail,’ was the answer. ‘Now, let us read the chapter of his life. See, he went in a general straight course as though making for some well-known haunt, his easy pace, with eight or ten inches between each set of tracks, shows unalarm. But see here, joining on, is something else.’ ‘So there is another cottontail.’ ‘Not at all, this track is smaller, the forefeet are more or less paired, showing that the creature can climb a tree; these is a suggestion of toe pads and there is a mark telling evidently of a

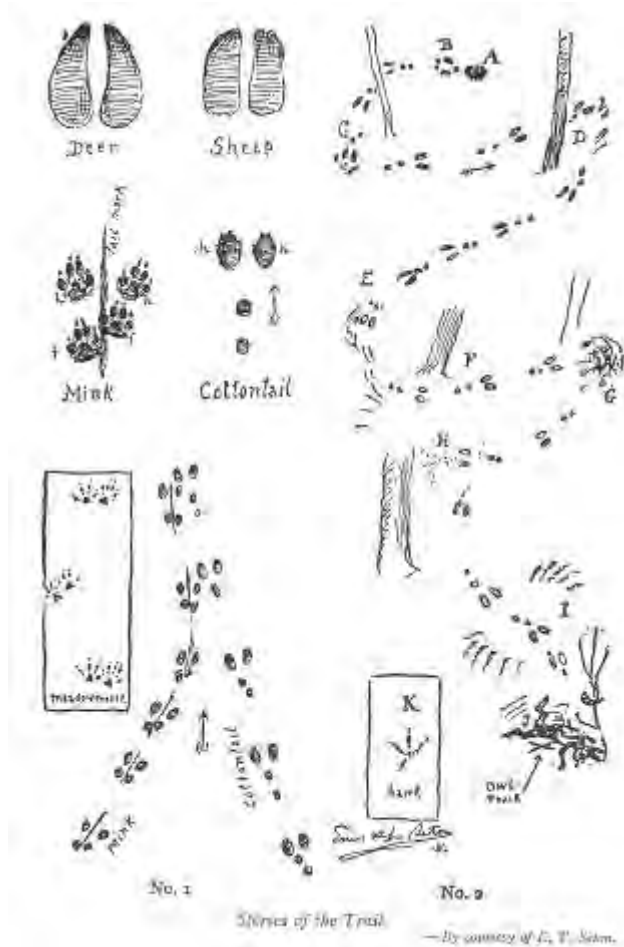
long tail; these things combined with the size and place identify it clearly. This is a trail of a mink. See! He has also found the rabbit track, and finding it fresh, he followed it. His bounds are lengthened now, but the rabbit’s are not, showing that the latter was unconscious of the pursuit.’

“After one hundred yards the double trail led us to a great pile of wood, and into this both went. Having followed his game into dense cover, the trailer’s first business was to make sure that it did not go out the other side. We went carefully around the pile; there were no tracks leading out. ‘Now,’ I said, ‘if you will take the trouble to move that woodpile you will find in it the remains of the rabbit half devoured and the mink himself. At this moment he is no doubt curled up asleep.’

“As the pile was large and the conclusion more or less self-evident, my brother was content to accept my reading of the episode.”

Sketch No. 2 was made by Mr. Seton, near Toronto. It is really a condensation of the facts, as the trail is shortened where uninteresting.

“At A, I found a round place about 5 x 8 inches where a cottontail had crouched during



the light snowfall. At B, he had leaped out and sat looking around; the small prints in front were made by his forefeet, the two long ones by his hind feet, and farther back a little dimple made by the tail, showing that he was sitting on it. Something alarmed him, causing him to dart out at full speed towards C and D, and now a remarkable change is to be seen; the marks made by the front feet are behind the large marks made by the hind feet, because the rabbit overreaches each time. The hind feet track ahead of the front feet; the faster he goes, the farther ahead those hind feet get; and what would happen if he multiplied his speed by ten, I really cannot imagine. This overreach of the hind feet takes place in most bounding animals.

“Now the cottontail began a series of the most extraordinary leaps and dodgings (D,E,F) as though trying to escape from some enemy. But what enemy? There were no other tracks. I began to think that the rabbit was crazy — was flying from an imaginary foe — that possibly I was on the trail of a March hare. But at G I found for the first time some spots of blood. This told me that the rabbit was in real danger but gave no clue to its source. I wondered if a weasel were clinging to its neck. A few yards farther, at H, I found more blood. Twenty yards more, at I, for the first time on each side of the rabbit trail, were the obvious marks of a pair of broad, strong wings. Oho! Now I knew the mystery of the cottontail running from a foe that left no track. He was pursued by an eagle, a hawk, or an owl. A few yards farther and I found the remains (J) of the cottontail partly devoured. This put the eagle out of the question; an eagle would have carried the rabbit off bodily.

“A hawk or an owl then was the assassin. I looked for something to decide which, and close by the remains found the peculiar two-paired track of an owl. A hawk’s track would have been as in K, while the owl nearly always sets its feet in the ground with two toes forward and two toes back. But which owl? There were at least three in the valley that might be blamed. I looked for more proof and got it on the near-by sapling — one small feather, downy, as are all owl feathers, and bearing three broad bars, telling me plainly that a barred owl had been there lately, and that, therefore, he was almost certainly the slayer of the cottontail. As I busied myself making notes, what should come flying up the valley but the owl himself — back to the very place of the crime, intent on completing his meal no doubt. He alighted on a branch ten feet above my head and just over the rabbit remains and sat there muttering in his throat.

“The proof in this case was purely circumstantial, but I think that we can come easily to only one conclusion; that the evidence of the track in the snow was complete and convincing.”

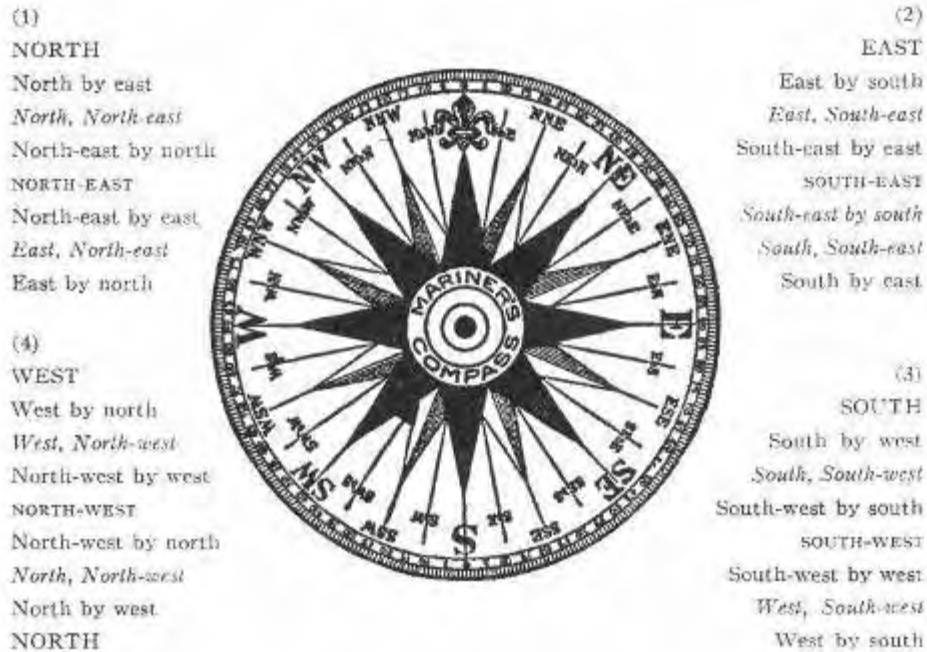


The Points of the Compass

The Scout wants to know the points of the compass because he needs to know them when hiking; because he has to use them when map-making; because he has to refer to them when passing his Pathfinder tests, and because they form the basis for much of the Seascouting work which he may want to take up later.

The points of the compass should not be learned by mere memorizing. The compass, on the other hand, should be learned by beginning with the four cardinal points — North, South, East and West, and progressing through the smaller divisions.

Boxing the compass consists in enumerating the points, beginning with north and working around the circle as follows:



Not only should Scouts know the points of the compass but they should understand its use. It requires practice to be able to follow a given direction by the use of a compass and it is better to try this out first on familiar ground. Some people have such a highly developed natural sense of direction as to be able to find their way anywhere, whilst others are lost after turning a few unfamiliar corners. Among the Indians a man who was good at finding his way in strange country was termed a “pathfinder,” which was with them a name of great honour. Sometimes these “pathfinders” led parties on the warpath for hundreds of miles over ground they had never traversed before.

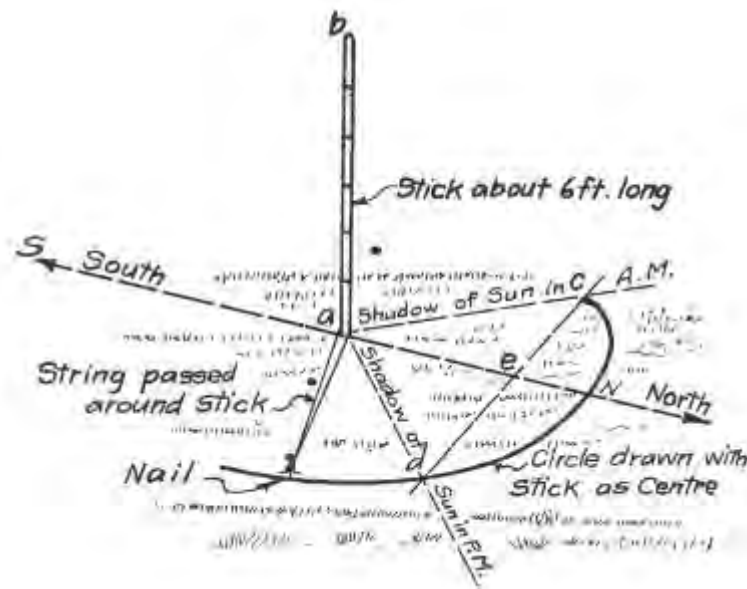
Finding the North by Shadows

Another way of finding the North is by means of the shadow of a pole.

This is a very slow method but a very good one. Let us suppose that your Scout troop is in camp, and that you have been asked to locate the True North. Proceed as follows:

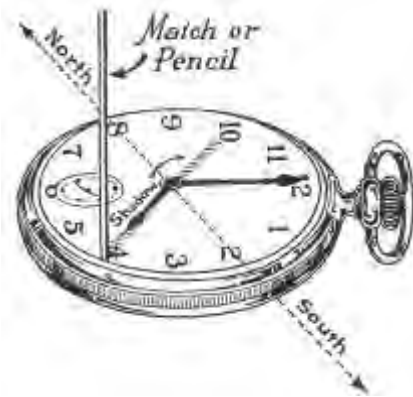
On a level piece of ground stand a 6 or 8 foot pole (a b) in an upright position. At about ten or half past ten in the morning tie a piece of string loosely around the bottom of the pole (a) and hold the other end of the string at the end of the pole’s shadow (c). Now, imagining that the bottom of the pole is the centre of a circle and the shadow (a c) the radius, on the ground draw a half-circle. (If you cannot scratch the ground to show the circle, indicate it by bits of sticks or small stones.) In a few minutes you will notice that the shadow has left the circle and is getting shorter. You, of course, know that the shadow of the stick will be shorter at noon than at any other time, and that it then begins to lengthen again. Watch it until it stretches out and once more strikes the circle at d. Mark the point right away, and draw a line

from d to c. Now find the middle of the line d c, that is the point e, and draw a line from e to the base of the pole (a). The line a e will be the North South line. The North end is always on the same side of the pole as the circle.



The Watch Compass

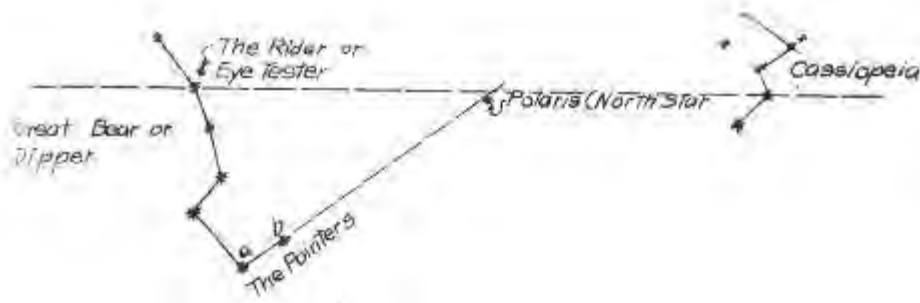
Your watch also can tell you the North. Place it flat on your hand and stand a lead pencil or small stick over the end of the hour hand. Turn the watch until the shadow of the pencil falls along the hour hand. Now a line drawn half way between the end of the hour hand and 12 o'clock runs North and South; and between 6 a.m. and 6 p.m. the North will lie on the side of the watch on which the hour hand is farthest from 12 o'clock.



Now you will want to know what to do in case the sun is not shining. On almost any cloudy day you will be able to use the watch method if you will take a piece of white paper and place it over the face of the watch, and hold the pencil at the end of the hour hand, close to but not touching the paper. Under the point of the pencil you will notice a very small shadow. One side of the shadow will have a sharp or well defined edge, and the opposite side will be rough and indistinct. The sharp edge is the side from which the light of the sun is trying to come; therefore, turn the hour hand in that direction, or until you think the little shadow, if produced backward, would pass through the centre of the watch. Sometimes the day will be so dark that it will be difficult even to see the shadow under the point of the pencil. In that case use a stick about an inch square and not sharpened. Practice will show you that no matter how dark the day you can always get a shadow and that the shadow will have a sharp edge and a rough edge. The sharp edge is the side toward the sun.

Finding the Way by the Stars

If you have not a compass the sun will tell you by day where the North is and the moon and the stars by night. The most useful star group in the heavens for Scouts to know is the Great Dipper, because by its help we may always discover the great sign post of nature in the sky, Polaris, the North Star, around which all the other stars rotate. The two "pointers" at the end of the Great Dipper are so named because they always point the way to the North Star. If, however, you were out walking and wanted to know where the North Star was and could not see the North Star, it would be sufficiently accurate if you could find the Dipper and the Pointers and make a guess at about where the North Star would be, and use that as your guide.



The Weather*

**The following note on weather forecasts and clouds, as well as the illustrations accompanying the latter, have been kindly contributed by Sir Frederick Stupart, Director of the Meteorological Service of Canada.*

Woodcraft Scouts should understand some of the causes of weather changes. Science and experience have proven that the surest way of foretelling the weather for any given locality is by means of weather maps, showing the weather conditions existing elsewhere, over large areas. This is the method employed by the Meteorological Service of Canada in connection with their official forecasts. Scouts will, therefore, be well advised to obtain the official forecasts, when they are available, rather than to trust too much to their own judgement of weather signs.

The great advantage of the weather map over all other methods lies in the fact that where the local observer has for his horizon the horizon of the place, the weather map has for its horizon the confines of the continent and the forecasts based thereon are made by an experienced man.

The atmosphere is not spread evenly over the earth's surface, the difference of temperature between the equator and the poles, together with the turning of the earth on its axis leading to a distribution which causes a surface drift from northeast to southwest in the lower latitudes, and a general west to east drift in the middle latitudes within which latitudes most of Canada lies.

It is within this west to east drift that storms move and by storms we mean not only the great disturbances which cause gales with snow or rain, but also the more moderate disturbances which give the ordinary rains of spring and summer.

These storms may be thought of as vast eddies moving within the general easterly drift of the atmosphere.

As storms move westward towards eastward, the first indications of a change in the weather must be looked for in the west or southwest.

If a Scout has a barometer he will find that it is usually rising or high with westerly winds during fine weather, and that a falling barometer with southerly or easterly winds is usually followed within a short period by unsettled conditions.

Storm Signs

The clouds should be carefully watched as the approach of a storm is generally heralded by the appearance of cirrus clouds — high, whitish, wispy clouds, which may, indeed, precede the fall in barometer, or a change of wind.

Scattered isolated clouds are, as a whole, characteristic of fine weather; but when the sky becomes hazy and then thickens when the clouds arrange themselves in long parallel rows giving the appearance of waves and finally become sheets of cloud, wet and perhaps stormy weather is indicated, and before long the sky is covered with the general rain cloud.

In autumn and winter a falling barometer and an easterly wind with a tendency to shift to the northeast indicates that a storm is approaching from the southwest and will probably pass to the south of the observer and that the rain or snow will be heavy and of considerable duration.

Should the barometer fall with an east wind shifting to a south and southwest wind, the centre of the storm is passing to the northward, and the rainfall is likely to be more spasmodic, followed in summer by cool northwest winds and in winter by a northwesterly gale and much colder weather.



The summer thunderstorm which is at times accompanied by a violent squall occurs within the boundaries of an eastward moving disturbance of wide area. The usual conditions are a rather low barometer, falling slowly with the wind anywhere between east and south, and the weather decidedly warm. These storms may occur at any hour of the day or night, but the afternoon has perhaps the highest percentage.

Thunderstorms do sometimes occur when the barometer is high and steady and the weather is rather fine, but this is not usual and these storms are seldom accompanied by severe squalls.

Among the many signs which are usually associated with the approach of rain is the ring or circle around the sun or moon. Experience has shown that some of the most brilliant rings occur, however, when rain is passing to the south: hence, the ring around either the sun or moon should not be taken as a sure sign of rain, especially when the wind is northeasterly.

Clouds

The lowest clouds are the low-lying stratus clouds or fogs formed by the cooling or air moisture contact with the earth or with water. These are sometimes seen lying over lakes and streams, especially in the late summer. Although often seen during the day, the stratus is called the "cloud of night," as commonly it forms about sunset, grows denser during the night and is dissipated by the morning sun. The term stratus is broadly applied to continuous clouds at any height, arranged in horizontal layers or sheets. The low-lying stratus clouds in reality are nothing more than high fogs. Those of somewhat higher altitude are spoken of as strato-cumulus. From about 6,000 to 18,000 feet altitude they are described as alto-stratus and at very high altitude, up to 27,000 feet, as cirro-stratus.

Cumulus clouds are formed in balls or rounded masses through the rapid ascension and cooling of warm, moist air. These are sometimes called the clouds of the day because the conditions necessary for their formation are more commonly present in the daytime. For the same reason they may also be called the clouds of summer. When spread

out in a layer or layers, forming an almost continuous mass, they are referred to as cumulo-stratus. Above the cumulus are the alto-cumulus clouds, extending to an altitude of about 12,000 feet. Like the alto-stratus the alto-cumulus clouds are composed of water particles, probably often below the freezing point.

Cirrus clouds are the highest of all, sometimes attaining an altitude of ten miles. They are usually made up of fine, white, thread-like or banded forms, sometimes having the appearance of hair or feathers, and are probably composed of minute particles of snow crystals sustained on rising or moving air currents. The movements of the cirrus clouds often differ in direction from the surface winds and are indicative of coming changes in weather. In their more massed forms they are spoken of as cirro-stratus and it is when this cloud is present that halos are often seen.

The nimbus is any cloud, or system of clouds, from which rain is falling. The term cumulo-nimbus is applied to the thunderstorm cloud.

MAKING FIRE WITHOUT MATCHES

Scouts going camping or off on a hike or canoe trip through sparsely settled country should carry at least some of their matches in a waterproof match-box, to ensure keeping them dry. At the same time it is worth while knowing how to make fire, if need be, without matches. There have been cases of lives lost in the woods, in winter, through inability to make fire without matches.



Matches are, after all, an invention of the last century and many Canadian grandparents can remember when they came into general use. Prior to their invention a common method of making fire was by striking sparks from a flint into a box of dry tinder. The sparks were produced by means of glancing blows from a piece of steel on the hard surface of the flint. The North American Indians, who had no steel, used iron pyrites instead, to strike their sparks, as did also the ancients.

The Indians had other primitive methods of producing fire by friction, among which may be mentioned the following: —

The fire-drill, consisting of a simple spindle twirled between the hands. The pump-drill, in which the spindle was given momentum by means of a spindle-whorl of wood. The bow-drill, in which the spindle was operated by a bow, the string of which was twisted once around the spindle. The fire-plow, in which the end of a stick was rubbed vigorously back and forth in a groove. The fire-saw, in which one stick was rubbed across another.

The Fire-Bow Method

The fire-bow method, which is still used by many of the Eskimo and some of the northern Indian tribes, is a dependable way of securing fire, with suitable materials.

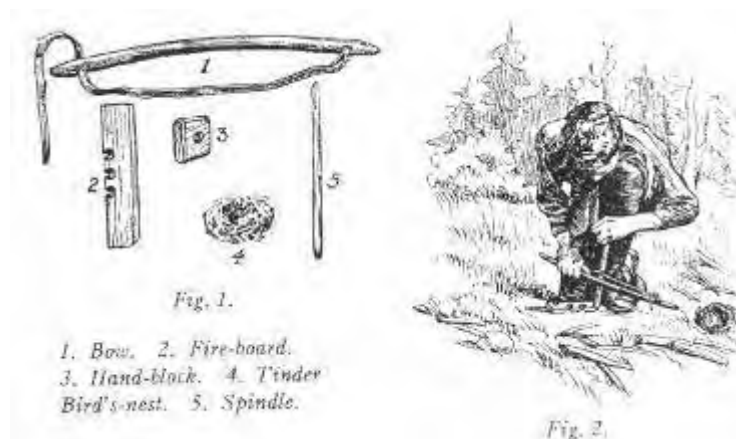


Fig. 1 shows the various parts of a fire set. The bow may be made of any stout wood, from 20 to 30 inches in length. The longer bow will give a longer spin of the drill to each stroke, and perhaps greater speed. The shorter bow is easier to control, and is more convenient for carrying. The thong should be of strong, pliable leather or rawhide, $\frac{1}{4}$ or $\frac{3}{8}$ inch wide, and some eight inches longer than the bow. The hand-block, made of any fairly hard wood, should be of a size

to be grasped firmly in the palm and at the same time prevent any part of the hand touching the drill. A metal, stone or bone socket may be fitted into the hand-block, or the hole may be kept greased, to reduce friction at the top of the drill.

A convenient fire-board is 4 x 12 x $\frac{3}{4}$ inches. It may be white pine, cedar, basswood, elm or black ash. Other woods will make fire, but the above named are dependable, and the most easily obtained. The wood should be well-seasoned and dry. To complete the fire-board cut in the side a smooth V-shaped notch about half an inch wide and half an inch deep, and the same width at the top and bottom. At the tip of the notch cut a shallow cup, or fire-pit, of a size to take neatly the rounded end of the drill; the outer edge of the cup being a quarter inch from the edge of the fire-board.

The drill may be rounded or octagonal in shape, three-quarter inches in diameter, and preferably 8 to 10 inches in length. The shape of the lower or friction end is important. It should not be pointed, but rounded, like the half of a marble; the purpose being to secure as much grinding surface as possible. The shape of the other end is not important, except that it must fit neatly but easily into the hole in the hand-block. There is a difference in opinion as to whether the spindle and fire-board should be of the same wood. Good success has been had with various combinations, such as basswood on cedar, white pine on elm, etc.

The tinder bird's-nest may be made of fine dry shaving, dry grass, moss or leaves, rubbed up fine in the hand. The best tinder, however, is cedar bark fibre, or fibre made by shredding soft pine or cedar between stones. The latter was the Indians' preference. Of course tinder may be moistened with kerosene or gasoline; but no true Scout would do anything so unwoodsmanlike.

Various knots may be used for securing the thong to the bow — one end fixed, the other adjustable, so that the thong may be tightened when necessary. An effective way to secure the thong is to cut a small eye-slit near each end of the thong, then make a running noose. At the fixed end take a turn of the noose around the bow, then pull and tighten. Pass the second noose over the other end of the bow, take a turn of the thong around the spindle, then tighten the thong by pushing the noose back toward the end of the bow until the turn around the spindle is sufficiently snug to grip it. At the back of the bow under and above the adjustable noose cut a succession of shallow notches. Should the thong stretch it will then only be necessary to remove the spindle and move the noose slightly toward the end of the bow.

Using the Fire-Bow

First shape a small quantity of tinder into a loose made bird's-nest. Under the edge of the notch of the fire-board place a thin flat chip, or "fire-pan", to catch the dust coal. The coal can be picked up from the ground with a knife blade, but a "fire-pan" is safer.

Twist the bow thong once around the middle of the spindle, so that the spindle is on the outside of the thong — not inside, rubbing against the bow.

Kneel on the right knee and place the left foot firmly on the fire-board (see Fig. 2). It is very important that the fire-board is held immovable. Hold the hand-block so that the drill is perpendicular, and adjust yourself so that your left wrist is pressed firmly against or below your knee. Hold the bow precisely at right angles to the drill (to prevent the thong travelling up or down the spindle). Now apply a moderate pressure to the hand-block, gradually increasing if it seems necessary; and with a rapid even motion drive the bow backwards and forwards.

Continue until the notch is well filled with black wood powder, and the powder is smoking freely.

Being very careful not to move the fire-board (which might result in breaking up the little dust-ember), lay aside the bow and drill. Place your right hand on the fire-board, to steady it while you remove your left foot. Carefully hold the fire-board with the left hand, and with the finger tips of the right hand give the board a light tap (to break the coal from the side of the notch). Tip up, and remove the fire-board. Carefully pick up the fire-pan, or chip, and drop the lump of smouldering dust into the centre of the bird's-nest. Pick up the nest, close your hand about it loosely, stand up and swing the nest in the air. You will feel the heat almost immediately. As soon as the nest is uncomfortably hot, place it on the ground, blow it into flame — and build up your fire.

The fire may be brought by placing tinder over the coal on the ground, and blowing directly upon it, but the hand-coaxing method generally is surer, and the flame, when it comes, is much stronger.

If smoke does not show within a minute, examine the end of your spindle. Probably it is "polishing," or has developed a "lead-pencil" point. With your knife scrape off the polish or pare down the point. If the spindle again fails (where the wood is known to be suitable), drop a little dry dust into the hole.

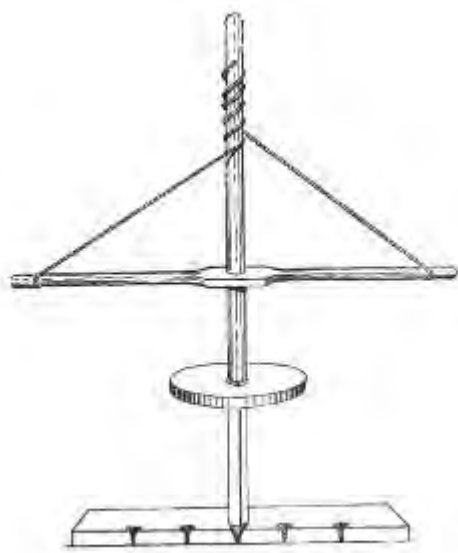
All woods will not make fire, some grind up too easily, developing little heat; others are too hard; woods containing resin will "polish" as soon as heat has developed. It is a theory that in every section of country a native wood may be found that will make friction fire. Testing of this theory and the trying of

various combinations of wood for spindle and fire-board offer a field of interesting experimenting for Scouts.

Your first attempts to make fire may fail. Keep at it, each time giving careful attention to every step and detail. When you have caught the “knack”, practice until you can get your flame within a minute. The next step is to leave matches behind, stick the rawhide thong in your pocket, go out into the woods and find the necessary material and make your fire set on the spot. An Ontario Scoutmaster habitually does this during hikes. From a single dead, dry branch of a cedar tree he will make everything, including the tinder. He has made fire in the rain.

A ready-made set — the Tecumseh Fire-Bow set, complete with khaki carrying case, except for the bow — will be found listed in the Dominion Headquarters Stores Department catalogue.

Other Methods of Fire Making



Pump-drill set up ready for operation.

The pump-drill was commonly employed by the Indians in the production of “new fire” at the New Year Festival, also in the Sun Ceremony. This implement consists of a spindle with a disc of wood; a cross-piece, to the ends of which a slack cord is attached, the centre of the cord being fastened to the top of the spindle, and lastly, a hearth of dry wood for drilling upon. The drill is operated by giving the cord a few twists around the spindle, then alternately pressing downward and relaxing the pressure, which causes the spindle to revolve rapidly in a small depression at one side of the hearth. A narrow groove at one side of this allows the united dust to fall upon some tinder placed below. A socket is sometimes applied to the top of the spindle to increase the pressure.

A fire-plow was in use among the Onondaga Indians, though only rarely employed.

To make fire by the fire-saw method, a fallen ironwood tree is found and a dry spot in it is selected. A stick of the same wood is rubbed back and forth across the log by two persons.

When the sun is bright it is sometimes possible to light a fire by using the glass of a watch, lens of a camera or field glass. Burning glasses were formerly common articles of trade with the Indians for beaver and other furs.

WILD VEGETABLES

Not less than the enjoyment added to camp life by good fishing is the healthfulness and relish derived from gathering and use of wild fruits and vegetables. The North American Indians seem to have had little taste for agriculture; yet apart from their use of game, fish, nuts and berries, they made use of many different roots and vegetables which Scouts will find still growing wild in different parts of the Dominion.

Indian corn, or maize, was one of the staple foods of all the native tribes both of Canada and the United States, along with beans and squash. Among the Iroquois these were known as “the three sisters.” For sweetening they used boiled maple sap and the saps also of the birch and poplar. Wild honey, no doubt, provided an occasional treat.

The root of the yellow pond lily was dried and made into a sort of flour for bread and soups. More appetizing than this, however, is the root of the Indian cucumber, or black snake-root. This is found nearly everywhere and can be eaten raw with a little salt or vinegar in the same way as garden cucumber, which it very much resembles in flavour. Crinkle-root, or pepper-root, is quite common and can be eaten in the same way.

Indian Potatoes

Jerusalem artichokes, or Indian potatoes, are sometimes to be found also, and are very tasty boiled or fried. This plant belongs to the sunflower family, and is often met with around Indian settlements or encampments. In western and southwestern Ontario another sort of Indian potato (*apios tuberosa*) is often met with in damp or shady situations. This is coarse vine with a leaf somewhat like that of the ash, having three to nine leaflets and a purplish flower like that of the bean, to which family it belongs. The tubers, which grow quite large, taste like the sweet potato when cooked.

The tubers of Spring Beauty (*claytonia virginica*) also are an Indian food and are used by the Indians of Ontario; while its western relative is quite largely eaten by various British Columbia tribes. Other delicious vegetables found growing wild in various parts of the country are the leek, which is eaten raw like green onions, also the wild garlic. Both of these are close relatives of the garden onion and may also be cooked like greens.

Perhaps the most widely used wild vegetable of the western plains is that which is variously known in these days as Indian bread-root, the Cree or prairie potato, and the prairie turnip, a member of the pea family, which was formerly a staple food of all the prairie tribes. This plant still grows in abundance throughout the Prairie Provinces and when cooked makes excellent eating.

Among the native vegetables of British Columbia the large lily bulb, known as *lilium columbianum*, is a prime favourite. These are often found weighing as much as a pound. Sunflower root is another favourite dish. Another kind of lily bulb, known as camass, is eaten by the Northwestern Indians. Wild onions and carrots and the roots of the white clover are also highly esteemed among these tribes. The roots of the flowering raspberry were formerly picked by the British Columbia tribes when the plants had reached about six inches in height, and were tied in bunches and boiled much in the same way as we treat asparagus, being afterwards served with a butter made from the fat of the salmon.

Wild Greens

Among the plants which can be safely recommended for greens, and are cooked in the same way as spinach, are: the common milkweed, also its flower clusters when they first appear; the waste leaf, wood betony, marsh marigold, pigweed, lamb's quarters, field mustard, purslane, dandelion and the fiddle heads or young shoots of several ferns, such as the sensitive fern and the bracken. The latter are particularly fine. All the plants mentioned should be taken when quite young and tender. Milkweed and bracken are classed as poisonous when they have grown older. Marsh marigold is poisonous also when it comes into bloom. Water cress may be eaten raw with salt. Scouts should, however, avoid picking it in any other than clean water. As relishes, one may also use wild peppermint with meat. The wild oxalis (or shamrock) and the sheep sorrel are eaten by Indians and others for their sour flavour.

Wild Rice

The Indians were fond of wild rice, which grows abundantly in shallow water in many parts of Canada, and can still be gathered in large quantities in the early fall. Wild rice is not particularly attractive in appearance, but is most appetizing when cooked, either alone or added to soup.

Wild Mushrooms

There are a number of species of edible mushrooms in the Canadian woods, but expert guidance is needed to distinguish them from poisonous varieties, and cases of poisoning among persons who think they know the safe kinds but don't are unfortunately all too common. Scouts are accordingly warned that the greatest possible care should be taken in the use of mushrooms as foods.

The black lichen known as "rock tripe," which is very common in the northern woods, though not palatable will help to sustain life.

Edible Barks

It may be interesting to note that many Indian tribes eat, or used to eat, the inner bark of certain trees, such as the slippery elm. Some of the more northern tribes still consider it quite a treat to strip the bark off young birches and poplars and scrape up with a knife and eat the sweet sap and soft woody material found on the surface of the tree beneath the bark. The British Columbian Indians do the same with the black or bull pine.

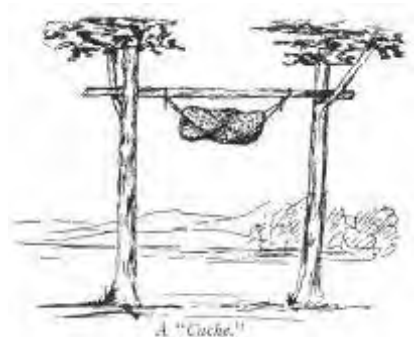
Many other things used by the Indians are rather too strong or medicinal in the effect for general use. An informant well acquainted with Indian foods has, however, informed us that those above mentioned may be eaten with entire safety.

Pictures of a number of the above mentioned edible plants will be found the section of Chapter V of the present Handbook dealing with Canadian wild flowers and plants.

Edible Meats

For their meat supply the native tribes depended in the main on venison (excepting the plains tribes, who used the buffalo) but occasionally used also the flesh of many other wild animals, including the porcupine, raccoon, beaver, skunk, groundhog, muskrat, rabbits, hares, squirrels and mice, some of which are still esteemed as a treat by Canadian woodsmen. In certain provinces the porcupine, indeed, is protected by law on account of its being the only animal in the Canadian woods that a man, in case of necessity, can kill with a club.

Cache



Native hunting parties were often compelled to hide their reserve stocks of food in what is known as a "cache" and this like many other of the red man's customs, has been copied by the white hunters and woodsmen. "Caches" are of many different kinds and considerable ingenuity has to be employed in some cases to keep the food from being discovered and eaten by wild animals. The wolverine, in particular, is gifted with almost fiendish powers of destruction when it gets into a "cache" and is hated among woodsmen on this account. Often the "cache" of provisions is made in the ground by digging a

hold for the purpose and wrapping what is to be stored in bark or rawhide. The mouth of the "cache" is then covered over with rocks, brush, earth or leaves, according to circumstances. Sometimes a fire is built on the spot to hide the disturbance of the surface. In other cases the "cache" is placed in trees. To make one of these "caches," peel a pole strong enough to carry the weight, and place the ends in the forks of two trees about fifteen feet apart. The trees should not be large enough for an animal to climb, nor yet so small as to be easily shaken. The parcel should then be wrapped in canvas or oilskin and suspended high enough above the ground so that it cannot be reached. A small island in a river or lake is a good place for a "cache" as there are not likely to be any animals to molest it.

NATIVE COOKING METHODS

When the white man set foot in Canada the Indians had no iron or other metal cooking vessels; yet they had their own methods of boiling, baking and roasting, some of which can easily be tried out with interest in the Scout camp.

Bark, wood, skin, earthenware and stone were all used by the red man in making pots or vessels for various forms of cooking. Of these, the earthenware and the stone pot seem to have been the best, as they could be placed directly over the fire like metal pots. The Iroquois used bark pots also for placing over the fire in this way, the liquid inside preventing the vessel from burning. Some care, however, is necessary to prevent the bark from burning at the edges. Many of the Eskimos still do their cooking in pots made from single blocks of soapstone. These are, however, weighty and difficult of manufacture.

A common method of cooking used by the Canadian Indians was that of stone boiling. For this purpose, large pebbles were heated in the fire and then dropped into the pot with wooden tongs. The stones were taken out from time to time and re-heated, this process being kept up until the pot was boiled and the food sufficiently cooked. Other tribes cooked starchy roots and tasty leaves in the same way with their meat. Wild rice and Indian corn were also served in the boiled form.

Doubtless, the aborigines toasted cobs of corn at the camp fire, as is often done in camp nowadays. Jolly good eating it makes too when there is salt and pepper and plenty of melted butter handy.

Curiously, although there were various deposits of salt in the country, the natives never used this article of diet. The Eskimos, indeed, still fight shy of salt and explorers have found that uninvited native guests in the far north are easily driven away by salting all the food.

Meat can be readily cooked either by toasting it on a pointed stick in the case of small pieces, or in the case of larger cuts by broiling or roasting before the fire. For fuller reference to various forms of camp cooking see page 198.

The native tribes of British Columbia sometimes cooked their vegetables by a steaming process in an underground oven. This method is one which Scouts too may be interested in trying. A hole was first dug in the ground and partly filled with heated stones. Over these was laid a layer of grass or aromatic leaves on which the vegetables were placed for cooking, and covered in turn with more grass or leaves. The rest of the pit was then filled in with earth, a small opening being left, however, in the centre. Water was thereupon poured into the opening, which was converted into steam by the heat of the stones, the oven being opened when it had cooled off.

Fish and game may be cooked in this way.

AXEMANSHIP

The backwoodsman depends almost as much on his axe as he does on his rifle. With little else in addition to these two implements our forefathers attacked the forests of our country and subdued them for civilization. We Scouts will do well to imitate these early pioneers by becoming familiar with the use of the axe, at least to the extent of knowing how to use it for chopping down small trees and branches.

The way to cut down a tree is first to chop out a notch near the bottom on the side to which you want the tree to fall, then go around to the other side and chop on the opposite side of the trunk a few inches above the first one until the tree topples over. If there is nothing in the way, have it fall on the side to which it is naturally inclined. Do not try to fell a tree against the wind if it is blowing very strongly. Be sure to clear away all underbrush within reach of your axe before starting to fell a tree. Never stand behind a tree when it is falling as it is liable to kick back. Neglect of any of these points may result in a very serious injury.

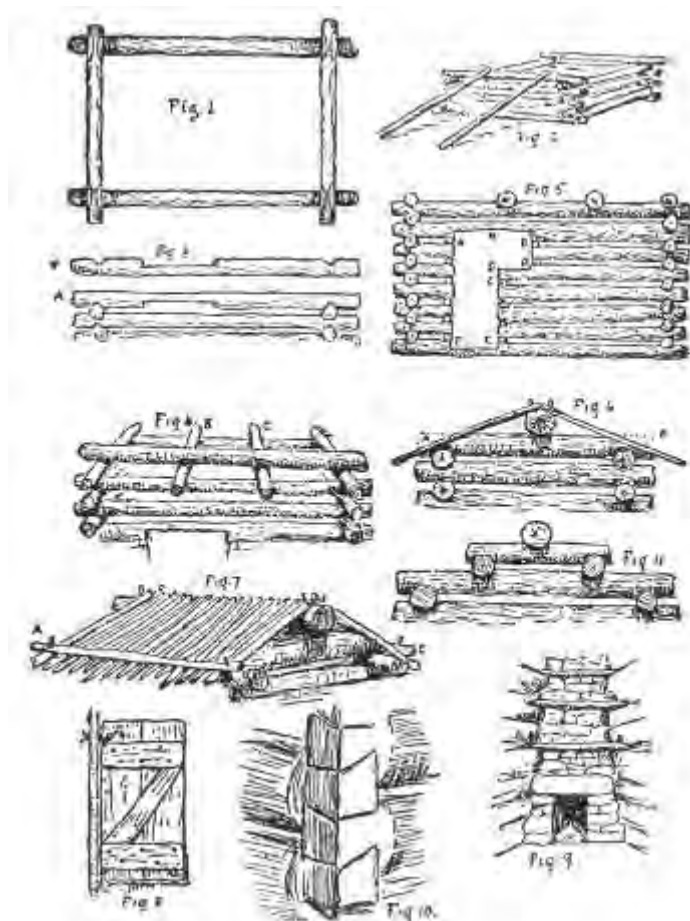
It is a matter of practice to become a good axeman and you have to be very careful at first lest you miss the tree and injure your leg or foot. Practise until you can hit the same spot again and again. Beginners usually over-exert themselves and are soon short of wind. A good chopper chops slowly but regularly and puts very little more effort into striking than he does into lifting his axe. It is better to begin on comparatively small trees until you have got the knack. If you are cutting small trees to drag into camp, fell them in the opposite direction from camp so that they can be dragged out by the butts, and the branches will not catch into brush and other obstacles along the way.

A very common accident in the woods is a broken axe handle and until a new one is made and fitted, the woodsman or camper is apt to find himself more or less seriously handicapped. Sometimes it is difficult to remove the stub of the old handle and it may even become necessary to burn it out. To do this without drawing the temper of the steel, the blade of the axe should first be driven into the ground up to the eye, care being taken that the earth is free from stones or small pebbles. A fire may then be built all around the axe-head and kept going until the obstruction is burned away. In making a new handle it is not necessary to have a crooked one like those sold in the stores as a straight one will do just as well. In fact, thousands of expert woodsmen prefer a straight handle. Hardwood is always used in making axe-handles, hickory being the most common. A good way of driving the sap out of green wood and hardening the fibre is by roasting it in hot ashes or over the camp fire. When the wood is cooled off it gets very stiff as if it had been seasoned in the regular way. Always be sure that the head of the axe is firmly attached to the handle, and wedged to prevent it becoming loose.

A woodsman's or camper's axe to be of use, must be sharp. If possible it should be sharpened on a grindstone. In doing so remember, however, to use plenty of water so as not to overheat the steel and thus draw out the temper. The average "grinder" in the city will do it quickly on an emery wheel but will ruin the edge. After grinding, whet off the wire edge with a stone. A file and whetstone should be carried for touching up the edge of the axe when it is not possible to get the use of a grindstone. A leather sheath should be used to cover the axe-head when being carried. When not in use stick the axe in the top of a stump, in a log, or in the ground. Do not leave it lying around or someone may stub his foot against the edge and get a bad cut.

Always get permission before attempting any tree felling, because only in the more remote parts of Canada will it be possible to cut timber without trespassing on private property.

BUILDING A LOG CABIN*



*By kind permission of Mr. E. T. Seton.

There are as many different kinds of log cabins as of any other architecture. It is best to begin with the simplest. The tools needed are a sharp axe, a crosscut saw, an inch auger, and a spade. It is possible to get along with nothing but an axe (many settlers had no other tool), but the spade, saw, and auger save much work.

For the site select a high, dry place, in or near the woods, and close to the drinking-water. It should be a sunny place, and with a view, preferably one facing south or east. Clear off and level the ground. Then bring your logs. These are more picturesque with the bark left on, but last longer peeled. Eight feet by twelve feet outside makes a good cabin for three or four boys.

Cut and carry about twelve logs, each ten feet long; and twelve more, each fourteen feet long. The logs should be at least six inches through. Soft wood is preferable, as it is easier to handle; the four ground logs or sills, at least, should be of cedar, chestnut, or other wood that does not rot. Lay two of the fourteen-foot logs on the ground, at the places for the long sides, and seven feet apart. The across them, at

the end, lay two short ones, eleven feet apart. This leaves about a foot projecting from each log. Roll the last two into their resting places, and flatten them till they set firmly. It is of prime importance that each log rest immovably on the one below. Now cut the upper part of each end log, to an edge over each corner (Fig. 1).

Next put on two long logs, roll them onto the middle, taking care to change off, so that the big end at a given corner may be followed next time by the small end and insure the corner rising evenly. Roll one of these large logs close to where it is to be placed, then cut on its upper surface at each end a notch corresponding with the ridge on the log it is to ride on. When ready, half a roll drops it into place. The logs should be one to three inches above the one under it, and should not touch except at the ends. Repeat the process now with the other sides, then the two ends, etc., *always keeping the line of the corner plumb*. As the walls rise, it will be found necessary to *skid* the larger logs; that is roll them up on two long logs, or skids, leaning against the wall (Fig. 2).

When the logs are in place to the height of four and a half feet from the ground, it is time to decide where the door and window are to be; and at that place, while the next long log is lying on top, bottom up, cut out a piece four feet long and four inches deep. Roll this log into place (Fig. 3.). One more log above this, or certainly two, will make your shanty high enough for boys. Put on final end logs, then two others across the shanty (Fig. 4). Roll up the biggest, strongest log of all for the ridge (sometimes two are used side by side); it should lie along the middle of the four cross-pieces shown in Fig. 4.

The two cross-logs, *B* and *C*, and the ridge log should be very strong, as the roof is heavy.

Now we are ready to cut the doorway and window.

First, drive in blocks of wood between each of the logs, all the way down from *A* to the ground, and from *B* down to *D*, and *C* to *E* (Fig. 5). Saw down now from *A* half way through the ground log *F*. Then from *B* down to half-way through the log *D*; now continue from *G*, cutting down to half through the ground log. Use the axe to split out the upper half of the ground log between the saw-cuts and also the upper half of the log *D*.

Hew a flat piece of soft wood, five or six inches wide, about two inches thick, and as long as the height of the doorway. Set it up against the ends of the logs *A* to *F*. Bore an auger hole through it into the end of each log (these holes must not be in line lest they split the jamb), including the top and bottom ones, and drive into each a pin of oak. This holds all safely. Do the same on the other side, *H* to *E*, and put a small one down *B*, *D*, which is the side of the window.

Now we are ready to finish the roof. Use the axe to level off the corners of the four cross-logs, *A* and *B* (Fig. 6). Then get a lot of strong poles, about five feet long, and lay them close together along the two sides of the roof till it is covered with poles; putting a very heavy one, or small log, on the outer edge of each, and fastening it down with a pin into the ridge log. Cut two long poles and lay one on each of the lower ends of the roof poles, as at *A*, *B*, and *C* (Fig. 7), pinning them to the side logs.

Cover this foot with a foot of hay or straw or grass, and cover that again with about four inches of stiff clay. Pack this down. It will soon squeeze all that foot of stray down a little more than one inch, and will make a warm and water-tight roof. As the clay is very heavy, it is wise, before going inside, to test the roof by jumping on it. If it gives too much, it might be well to add a centre prop.

Now for the door: hew out planks; two should be enough. Fasten these together with two cross-pieces and one angle-piece, using oak pegs instead of nails, if you wish to be truly primitive. For these the holes should be bored part way with a gimlet, and a peg used larger than the hole. The lower end of the back plank is left projecting in a point (Fig. 8). This point fits into a hole pecked with a point or bored with an auger into the door-sill.



The "Royal Shanty," Ottawa.

Bore another hole near the top of the door (*A*), and a corresponding one through the door-jamb between two logs. Set the door in place. A strip of rawhide leather, a limber willow branch, or a strip of hickory put through the auger hole of the door and wedged into the hole in the jamb, makes a truly wild-wood hinge. A peg in the front jamb prevents the door going too far out, and a string and peg inside answer for a latch.

The window opening may be closed with a glass sash, with a piece of muslin, or with the rawhide of an animal, scraped clear of hair and stretched on a frame.

It now remains to chink and plaster the place.

Chinking is best done from the inside. Long, triangular strips and blocks of wood are driven in between the logs and fastened there with oak pins driven into the lower log till nothing but small crannies

remain. Some cabins are finished with moss plugged into the crannies, but mud worked into plaster does better.

It should be put on the outside first, and afterward finished from the inside. It is best done really with two plasterers working together, one inside and one out.

This completes the shanty, but a bunk and fireplace are usually added.

The fireplace may be in one corner, or in the middle of the end. It is easiest to make the former.

Across the corner, peg three angle braces, each about three feet long. These are to prevent the chimney falling forward.

Now begin to build with stone, using mud as mortar, a fireplace of this shape (Fig. 9). Make the opening about eighteen inches across; carry it up two feet high, drawing it in a little, then lay a long stone across the front, after which build up the flue behind the corner braces right up to the roof. The top corner-piece carries the rafter that may be cut off to let the flue out. Build the chimney up outside as high as the highest part of the ridge.

But the ideal fireplace is made with the chimney on the *outside* of the cabin, at the middle of the end farthest from the door. For this you must cut a hole in the end log, like a big, low window, pegging a jamb on the ends as before.

With stones and mud you can now build a fireplace inside the shanty, with the big chimney carried up outside, always taking care that there are several inches of mud and stone between the fire and any logs.

In the country where stone cannot be found, the fireplace is often built of mud, sustained by an outside cribbing of logs.

If the flue is of a fair size, that is, say one-quarter the size of the fireplace opening, it will be sure to draw.



Interior view of Royal Shanty, Ottawa.

The bunk should be made before the chinks are plastered, as the hammering is apt to loosen the mud.

Cut eight or ten poles a foot longer than you need the bunk; cut the end of each into a flat board and drive these between the long logs at the right height and place for the bunk, supporting the other end on a cross-piece from a post to the wall. Put a very big pole on the outer side, and all is ready for the bed; most woodsmen make this of small fir boughs.

There are two other well-known ways of cornering logs — one is simply flattening the logs where they touch. This, as well as the first one, is known in the backwoods of Canada as *hog-pen finish*. The really skilful woodsmen of the North always *dovetail* the

corners and saw them flush (Fig. 10).

Sometimes it is desirable to make a higher gable than that which one ridge log can make. Then it is made as in Fig. 11.

This is as much slope as a clay roof should have; with any more, the clay would wash off.

This is one of the simplest ways to build a log cabin, but it illustrates all the main principles of log building. Shingle roofs and gables, broad piazzas outside, and modern fitting inside are often added nowadays in summer camps, but it must be clear that the more towny you make the cabin, the less woody it is, and less likely to be the complete rest and change that is desired.

Scouts may be interested in the "Royal Shanty" (page 111), which was erected on the occasion of the visit of King George V to Ottawa in 1901. The roof of this shanty is made of split logs, hollowed out in the form of "scoops." Most shanties in the Canadian woods were roofed in this way. The interior illustration shows the fireplace in the centre of the shanty, the smoke escaping through a chimney built of wooden crib-work. The cooking pots are typical of those formerly employed in Canadian lumber camps.

A Sod Hut

Scouts who attempt the construction of a sod hut will find the work interesting and not too difficult. The finished hut may be used as a troop rendezvous. The walls should be about sixteen inches thick, made up of strips of sod with the joints overlapping, like brick. The ridge pole should be ten or twelve inches in diameter, and should rest on two heavy upright posts with forked tops. The rafters require to be strong, as the roof when finished will be quite heavy. Over the rafters a covering should be laid of brush, then a layer of grass, and on top a layer of sods to form the roof. If the brush for the roof be cut when green the leaves will not drop off, and if brush from poplar, willow, cedar or other evergreen be used, it will keep the inside fragrant. The floor should be about a foot below the level of the ground and be covered with clean sand. A rough door and windows should be placed in the wall. When furnished with a stove, benches, table, pictures, flags, and so on, a hut of this order makes very comfortable and cozy quarters.

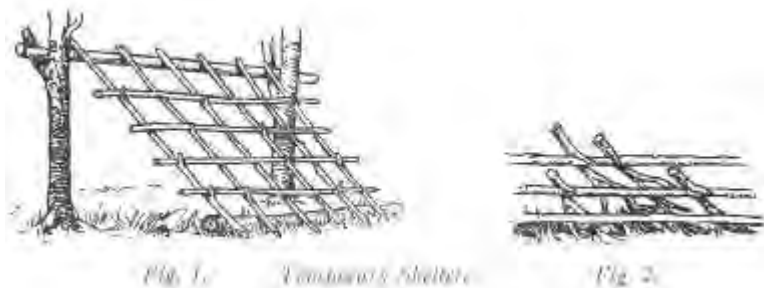
A Straw Hut

A very satisfactory hut may be constructed of straw by using chicken wire netting as forms for the walls. These forms should be about ten or twelve inches apart and strengthened by stakes driven into the ground at intervals of three or four feet and extending to the top of the walls to assist in supporting the roof. The walls should then be packed tightly with straw, leaving openings for a door and window. The roof should be thatched with straw on a framework of poles and it will be an improvement if the framework is covered with a layer of the wire netting. Stakes of sufficient length should be placed at each of the four corners as supports for the roof.

Temporary Shelters

There are many things to consider in the choice of a light tent for overnight camping, which you may have to carry around with you through the day. Obviously, what is suitable for the standing camp of several weeks' duration is far from ideal for use on the shifting camp or hike. The Dominion of Canada too is a country of such extent that what will do well for one part may not suit in another.

In wooded districts Scouts may build serviceable overnight or week-end shelters for themselves of boughs, either in the form of huts or lean-tos.



One form of lean-to may be constructed as follows: Select a couple of trees about eight or ten feet apart with branches six or eight feet above the ground. Place a supporting pole in the crotches or lash it to the trees. Then build a framework with one end resting on the ground, as shown in the accompanying illustration (Fig. 1). Beginning at the bottom, cover the framework with boughs two to three feet long, attached as shown in Fig. 2, and so arranged that they overlap well in order to shed the dew and rain. Grass or rushes may be used instead of boughs. They should be tied in bundles, and lashed to the upper side of the framework. A clay roof may be substituted by making the framework very strong by placing poles very close to each other, cover them with grass, and then cover with about four inches of clay, pressed down tightly and smoothed. The ends may be constructed in the same manner as the roof. If the location is to be used for any length of time, two lean-tos may be built so as to face each other a short distance apart. A small fire can then be built between, giving warmth and light, thus adding to the comfort of the camp.



Another style of shelter of somewhat the same construction is shown in Fig. 3.

Still another form of shelter may be constructed in the form of an Indian tepee consisting of a number of poles placed in a circle, lashed together at the top, and the whole thatched on the outside with brush or grass.

Sometimes it may be more convenient to construct a shelter in lean-to form against a large rock or earthen bank, roofed over with brush, grass, clay or sod. Or, a one night shelter may be provided by felling a fir tree and trimming the branches in the manner shown in the accompanying illustration (Fig. 4).

The floor of many of these temporary shelters should be covered with leaves, small brush or bark so that the damp fresh earth will not have an unhealthy effect on the occupants.

Snow Houses

On the Arctic coast of Canada some of the Eskimo tribes still live in snow houses, whilst others on their hunting trips have recourse to this form of shelter. In northern Labrador white men travelling on midwinter trips take along native guides to build snow house shelters for protection against the storms that might otherwise overwhelm them. Very few people in the settled part of Canada have ever seen one of these igloos, as they are called, and in southern Labrador this ancient art has so nearly died out that the missionaries hold snow-building contests among the



natives to keep it alive. Boy Scouts will, however, be interested in the manner of constructing snow houses in accordance with the Eskimo style and on a midwinter week-end outing may enjoy trying out this novel form of construction.

For building purposes the Eskimos prefer "living snow," that is snow which will adhere when the blocks are placed together. Such snow is found in a newly made drift that has begun to harden. Across the surface of the snowdrift the native cuts an oblong trench the length of which equals the diameter of the house. It will average five feet in length, two or three feet in width and twenty inches in depth. From the face of this trench he then cuts domino-shaped blocks of snow, about thirty inches long, twenty inches wide, and from four to six inches thick. These are then placed on edge and end to end in a circle enclosing the desired ground area. They are trimmed in semi-circular shape with the inner edge slightly concave so that when set up they lean inward. The Eskimo snow-knife is flat and double edged in form.

The first line of blocks form the first tier of the snow-house, and material for the rest of the house is found within the ever lessening circle, so that the builder works within his ascending abode, cutting out his material as he builds. One man only is required for the operation in Labrador, but where two Eskimos work together one is engaged in stamping the snow around the tiers, and filling the cracks between the blocks with soft snow. Sometimes one man cuts the blocks and the other builds, as in Baffin Island, but one man is able to construct a house alone.

When the first round of blocks has been laid, a cut is made diagonally in the tier, and the next round started in a spiral which winds in a decreasing curve to the top. The weight of the ascending blocks wedges those behind tightly together, so that the house really becomes more solid as each block is placed.

The Eskimos always build "as the sun goes." *i.e.*, from east to west, smacking each block tightly into place with a vigorous thrust of the arm. When the top is reached the irregular opening left is closed with the keystone block which is cut out to fit it exactly. The keystone is lifted through the top from the inside and by reason of the outer edges being wider than the inner it fits snugly into place. A smaller lean-to, adjoining the house at the door, is built for the dogs.

Eskimo families living in the grander style join two or three snow houses together by tunnels, so that one serves as a living room, another, spread with polar bear skins, as a bed room, and a third as a store house.

Old missionary accounts speak of snow houses sixteen feet high, and seventy feet across, in which the Labrador Eskimos in their heathen days celebrated their winter festivals. Scouts trying out this form of midwinter construction will, however, be wise in limiting their initial efforts to houses of not more than ten feet diameter and six feet in height.

A block of clear ice in the side of the "igloo" will serve as a window and the interior may be heated, if so desired. In some of these Eskimo dwellings the temperature ranges from twenty below zero at the ground level to above freezing point near the roof. The explorer, Stefansson, used, however, a sheet-iron stove in the houses that he built on the Arctic coast, with which he was able to maintain a temperature of moderate comfort for a night or two. A wood fire in a snow house will, however, melt away the wall near the stove in a short time, and as soon as a little hole is made the hot air rushing out quickly enlarges the aperture. "I longed," Stefansson writes, "for a dressing gown and slippers, but one cannot burden his sled with such luxuries."

Sometimes the entrance into the house is made through a tunnel; in other cases a block of snow is leaned against the doorway to keep out the wind.

METHODS OF TRAPPING*

**This and following Indian woodcraft material was contributed by the late F.W. Waugh, Victoria Memorial Museum, Ottawa.*

There is something which is always fascinating in pitting one's wits against those of the wily creatures of the forest. The Boy Scout training properly teaches the conservation of our wild life from wanton destruction and that only those animals should be taken which are either injurious or necessary for food. Where traps are set they should be visited often enough to prevent unnecessary suffering by any creatures caught therein. With this in mind, an acquaintance with various methods of trapping adds greatly to one's resourcefulness on the trail and in camp. A further caution which should always be observed is to read the game laws of one's own province carefully so as to learn which animals may lawfully be taken and at what seasons.



Rabbit snares.

Our North American Indians are past-masters in this art and succeed quite frequently without other materials than bark and wood in trapping the very wariest animals. Indian trappers declare the fox to be the most difficult animal to catch. The steel trap is frequently used for

taking them, but has to be carefully deodorized and the bait must often be exposed for some time before the trap is finally placed. It will be better, therefore, to make a beginning on something less difficult of capture.

One of the easiest animals to take is the hare, which is snared in its winter paths, or pads, in the snow. The snare is merely a running loop of fine brass or copper wire, the loop being made just large enough for the animal's head to go through. It is then attached at one end to a sapling and suspended a couple of inches above the surface of the snow and directly in the hare's pad. The snare usually requires to be steadied by means of a twig placed on one or both sides and stuck in the snow. A sapling is sometimes bent over and a string with a small peg attached to it tied to the end, the peg being placed through a projecting root or else a hooked peg driven in the ground. The peg is so arranged that when the hare is caught in the snare, which is also attached to the bent-over sapling, its struggles loosen the peg and it will be suspended in mid-air where it cannot escape and where prowling animals are not so likely to get at it. Two common forms of rabbit snares are shown in the illustration herewith.

Deadfall

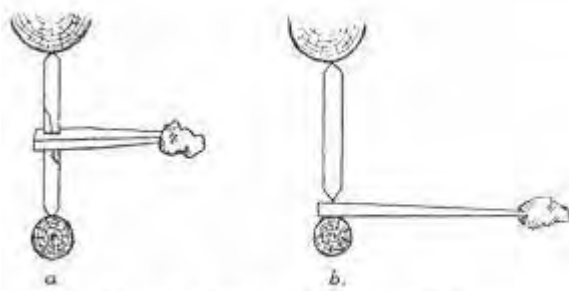
Another common Indian trap is the deadfall, either baited or unbaited. In the former case a house of stakes, roofed over with brush, is built for the bait. The unbaited deadfall, which trips with a mall stick placed crosswise, on which the animal steps, is set in runways or paths made by the animal it is desired to take. In either



Indian deadfall.

kind of deadfall the essential feature is a heavy log placed between two pairs of guiding stakes (see illustration), and usually weighted with other logs laid with their ends upon it. In the unbaited deadfall, shown herewith, the stick running across horizontally near the bottom, when stepped upon, releases the end of the vertical stick over which the opposite end of which is placed the loop of bark or cord which

holds up the weighted log. This allows the latter to drop upon the animal as it attempts to go through. The lower horizontal stick is not tied, but is held in place by the outward pressure exerted upon it by the end of the vertical stick.



Methods of setting Indian deadfalls.

A couple of methods of supporting the weighted log in a baited deadfall are illustrated herewith. The first, marked (a), is an upright stick in two pieces, which are held together by a notched stick holding the bait. When the latter is touched the stick holding it slips off the upright and allows it to collapse. The second, marked (b), consists of an upright sharpened at each end to a sort of wedge-like point, which makes it slip very easily when the bait-stick is touched.

The deadfall is most frequently used for such animals as the bear, lynx, fisher, wolverine, marten, mink, muskrat and skunk. The larger the animal, the larger the logs which are used in constructing the deadfall. Brush is piled at the sides to prevent the animal from going round the trap.

The question of bait for baited traps is an important one. A rabbit or hare is attracted by almost any kind of vegetables; a muskrat to the same, or by an apple. A skunk is partial to a fowl's head, a bird, or a piece of meat; a mink or marten to fish, birds or mice. Deadfalls for bear are baited with meat of some kind, also fish or honey; or the body of a partridge or hare.

BIRCH-BARK AND ITS USES

Few materials found in the woods and utilized by the Indians are capable of more numerous uses than birch-bark. This is very widely found throughout North America, northward to the Arctic and southward to Pennsylvania and Iowa, though not equally so in all localities. The Iroquois or Six Nations, some of whom still live in New York State and Southern Ontario found elm bark much more abundant and bane canoes and household utensils of the latter, but were delighted to trade corn and other products for the light and beautiful birch-bark canoes made by the Algonquin tribes farther north.

The white bark of the white or canoe birch is removed from the tree most easily in the latter part of June or in July, having a tendency to stick at other times. The tree is girdled in two places, a vertical cut being made between the two circular cuts, and the bark pried off carefully. The Indians sometimes succeeded in getting a sheet fifteen or sixteen feet long, thus forming a bottom for the canoe in one piece. Generally, however, two pieces have to be taken. The canoes are sewn with spruce root, which is pulled up in long pieces in the woods, split into slender strips, soaked to make them flexible, and used for sewing by punching holes in the bark with an awl.

The last step in canoe-making is to cover the seams carefully with spruce gum which has been thickened by boiling, and sometimes blackened by adding powdered charcoal.

The sewing and gumming are here mentioned since exactly the same materials are used in the making of birch-bark boxes and trays. If the latter are not intended to hold liquids, the gumming may, however, be left out. The tops of the best made baskets are strengthened by sewing around them hoops made of the slender branches of various shrubs.

Birch-Bark Drinking Cup

One of the easiest birch-bark articles to make is a drinking cup. This requires a circular piece of bark, which should not be too thick and which is cut from the centre to the outer edge.

The edges of the straight cut are then folded over the other and pinned in place with a thorn or wooden pin.

Birch-Bark Dishes



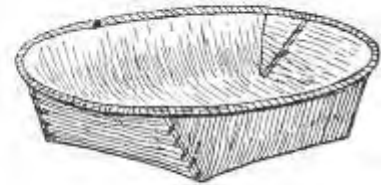
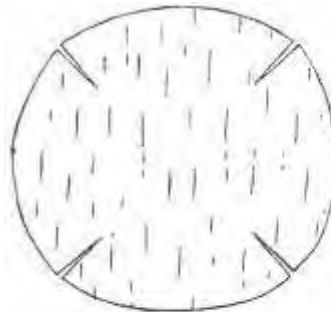
a *b*
Water-tight dishes of birch-bark.

A dish for eating or holding any kind of food, one which is perfectly water-tight, can be readily made from a fairly thick sheet of rectangular form. A good size would be eighteen inches by twelve inches.

In making this dish you take hold of the two corners at one end. These are creased inward and crossed at the upper ends (see illustration showing inside of dish). This leaves, as will be seen from the accompanying illustration, a broad flat fold on the outside. This broad fold and the tips of the inside crossed folds are all pierced with a single hole through which a piece of basswood bark or cord is passed and tied. The dish is, therefore, made without really cutting the bark at all, but only folding the ends and tying them. Scouts desirous of making this and other forms of birch-bark vessels will find it helpful to make them first in paper.

By changing the dimensions of the sheet of birch-bark dishes may be made of different shapes.

A very neat little tray or dish can be made by cutting a piece of birch-bark circularly and making a straight cut towards the centre on four places. The cuts should not be more than a couple of inches deep, as shown in the accompanying drawing. The edges of these are folded over, like those of the drinking cup and the outer edge in each case sewn down with bark or cord. The top is then bound with a couple of thin hoops made from split branches and sewn over and over, as shown in the illustration. A slender stick is sewn under the stitches, both inside and out at the corners to prevent their pulling through. A very good bark for sewing, if spruce root cannot be easily got, is the inner bark of young basswoods.



a *b*
Birch-bark dish or tray.

Besides the many kinds of birch-bark boxes and baskets made by the Indians we must not forget the use made of birch-bark for covering wigwams. The word wigwam itself, in fact, means a birch-bark house. This sort of shelter was, and is still used by a number of our northern Algonquin bands. The framework of the conical wigwam is merely a stack of slender poles evenly spaced, and with a slightly wider space fore the doorway. Sheets of birch-bark are fitted around this framework and are held in place by other poles laid against the outside. The floor is covered with spruce branches, completing a very

comfortable summer residence. In some localities the Indians used to sell birch-bark sheets to the whites for shingles.

Uses for birch-bark which will be appreciated by campers are for kindling a quick fire and for torches. The latter are used by a number of Indian tribes and are usually made by simply rolling up a piece of the bark. Papoose cradle-boards for babies are made of it by some tribes. Others have employed it even for smoking tubes or pipes.

Before leaving bark basketry, it should be noted that other kinds of bark, besides that of the birch, may also be employed. The bark of young pine is often used for rough trays or baskets; also basswood and buttonwood bark. The best bark after that of the birch is no doubt that of the elm. This is cut from the tree in the usual way, shaved a little on the outside to smooth away the roughness, soaked in water to soften it, then bent into shape and sewn, usually with a hoop around the top to hold it in shape. Well-made dishes of this kind are very handsome as well as substantial.

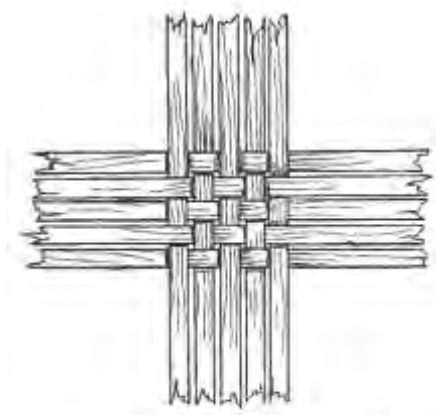
A caution to be rigidly observed by all Scouts is not to mutilate trees unnecessarily in removing the bark; *also not to destroy the beauty of our woods in the neighbourhood of towns and cities, or to take bark from any tree without permission.*

INDIAN BASKETRY

The adaptability of the Indian to his forest surroundings and his method of utilizing the materials found there is very well illustrated by his basketry. He did not always utilize all the materials capable of being used, since he had his own traditional ideas on the subject, but he did make use of those materials which best suited his purpose and which were most convenient as well as most useful.

Among our eastern woodland Indians the splint basket is probably the most familiar. The kinds made for sale are generally modelled after European baskets, but the Indians had quite a number of shapes of their own, including the pack basket (carried on the back with a tump line), the basket for washing the hulls off corn after it has been boiled with wood ashes, the basket-sieve for cornmeal, the flat evaporating basket for drying green corn and berries, and the small berry-picking baskets which are carried at the belt.

The best material for making splint baskets is black ash, although shagbark hickory, soft or red maple, birch and red oak are all used when ash is not to be found. A fairly good substitute for splints is the bast or inner bark of young basswood, cut into flat, even strips. The splints for basket-making are split with a knife into the proper thickness and width, smoothed by drawing them under a knife blade and soaked to make them flexible. A number are then cut into the length required for the bottom and two side of a basket, with a couple of inches added for turning over at the top.



Method of weaving splint basket.

Weaving Splint Baskets

The first step in weaving a basket of simple criss-cross, or checker weave, is to lay the splints on a table or other flat surface and weave a square or oblong of the size required for the bottom of the basket, leaving enough of the splints projecting from each side to turn up for the sides. The latter are given a bend at right angles to the bottom and the weaving continued. When the sides have been made the right height, the ends are turned over and tucked under one of the horizontal pieces on the inside. A couple of slender hoops to fit the top of the basket are then bound around

the top inside and out, the binding being done with a slender piece of splint (well soaked), which is bound round and round the hoops, so as to catch the last horizontal splint at the edge of the basket. Last of all, a handle is whittled out, bent by soaking, the ends sharpened a little and had with a projecting ledge or notch so that they will not pull out after they have been inserted between the hoops at the top. Examining a ready-made Indian basket will make the directions clearer.

The splints for basket-making are obtained by felling a young tree of one of the species mentioned, about six to eight inches in diameter, cutting it to a suitable length, and loosening the annual layers or flakes of wood by pounding carefully and thoroughly up and down its length with the back of an axe. The layers will then strip off easily by starting them at one end with a knife.



Splint basket.

Cedar inner bark is another fairly good basketry material. This is employed quite frequently by the Indians of British Columbia, who also make beautiful baskets from spruce root. The strands of spruce root are made as described for canoe and birch-bark basket-making. The rougher portions are used to make coils which form the foundation or framework of the basket, while the smooth strips are used, like raffia fibre, in binding or sewing the coils together, the smooth surface of the sewing or binding strip being kept outward. The method is exactly the same as in raffia work. An awl is used to make a hole for sewing or binding material. Pack baskets, berry-picking baskets and storage baskets are all made in this way, the result being a very beautiful and durable article.

INDIAN BOWS AND ARCHERY



Iroquois bow.

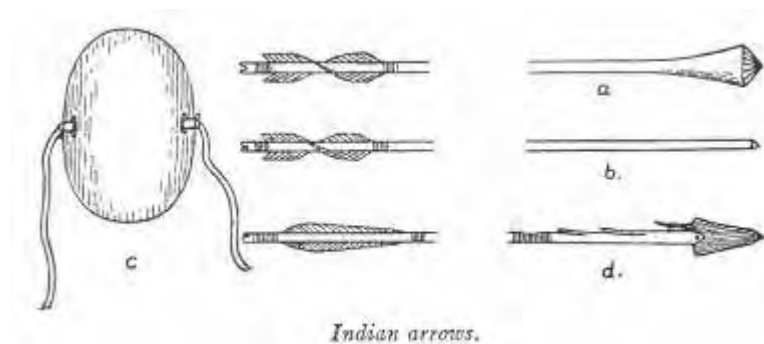
No Scout's training is complete unless he knows something about bows and arrows, how to make them and their use.

A number of our native tribes made excellent bows and arrows, although the more isolated bands of Eskimo are the only ones who have recently used the bow and arrow to any extent. A

number of our eastern tribes, however, still use the weapon for small game. The Iroquois bow, as found at present, is a simple slat of some springy wood, such as hickory or ash. This is usually about five or six feet long, and an inch or an inch and a quarter wide, and oblong in section (that is looking at one end); the thickness varying from $\frac{5}{8}$ to $\frac{3}{4}$ of an inch in the middle and becoming slightly thinner and narrower towards the ends. The curve is generally simple, though the ends are sometimes slightly recurved or bent back.

The Northern Ojibwa, or Saulteaux Indians, of the Lake Nipigon region, made very good bows and arrows of dry cedar of the form shown in the illustration herewith, which they used for shooting small game. These are easily made and prove very serviceable for amateur workmanship. The bow is made of sound, straight-grained white cedar, dressed down by means of a draw-knife or a sharp jack knife to a width of about $1\frac{3}{4}$ inches at the middle, tapering gradually to about $1\frac{1}{8}$ inches at each end and with a thickness of about $\frac{3}{4}$ of an inch. These Ojibwa bows are usually from five to six feet long, but Scouts may make them if they fancy up to seven feet. Notches are cut at each end to hold the bowstring, which

in former times was made of groundhog skin or twisted bark of young hickory. Strong, medium-sized twine, however, answers well. The notches over which it is tied should be rounded a little so as to keep the string from cutting. The string is tightly fastened to the bow at one end. A noose is made on the other and large enough to slip over the notch and the bow is strung by bending it outward with the knee. The Ojibwa type of bow will easily take an arrow a yard long, which may be feathered or not as desired. For small game, however, the arrows are blunt and unfeathered.



The Iroquois arrows vary in length from about 27 to 36 inches, are made of maple, ash or other light hardwoods, and are often left unfeathered and made with large blunt heads for small game. The feathering of the Iroquois arrow, like that of most Indian arrows, consists of two strips made by splitting a feather, trimming it to about ½ inch wide and 4 or 5 inches long, with ½ inch or so of the

quill left at each end for tying. The upper ends of the strips of feather are tied near the nock on opposite ends. This twist in the feathering gives the arrow a rotary motion like that of a rifle bullet, which is said to improve the aim. The bow is drawn by grasping the notch with the thumb and first finger, which are also assisted in drawing the string by the second and third fingers. This is called the secondary arrow release.

The Iroquois' quiver is simply a long and narrow bag of groundhog or other skin, with fringes at the top and bottom, and is carried on the back attached to a bandolier going over one shoulder and under the opposite arm. This throws the ends of the arrows where they can be easily grasped by reaching backward over the shoulder.

The Indians, in former times, were extremely expert archers and, it is said, could drive an arrow through the body of a buffalo or deer. Many Indian boys and young men are still quite skilful and can hit a coin placed in a split stick at a considerable distance.

Here then is a thoroughly enjoyable outdoor interest for Canadian Scouts, — one that combines the skill of a craftsman and of a good shot. The materials for bow and arrow making are everywhere within reach. Those desiring a professionally manufactured bow will find genuine English long-bows listed in the Dominion Headquarters Stores Department catalogue.

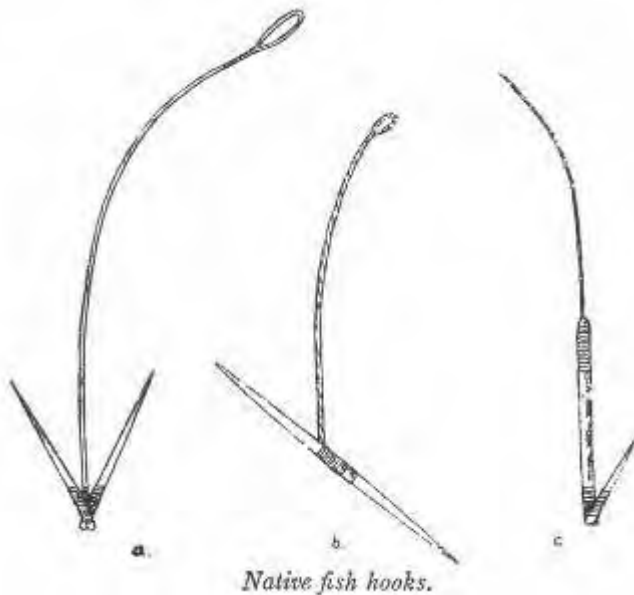
Native Fishing Methods*

**Contributed by Mr. F.W. Waugh, Victoria Memorial Museum, Ottawa.*

Apart from the usual fishing methods, Scouts with a taste for handicrafts may find it of interest to try out one or two of the native methods. Circumstances may also arise in which these may come in handy, when not of the ordinary appliances (hooks, etc.) are at hand.

Many Canadian Indian tribes still use one or more of the hooks shown in the illustrations herewith, of which (a) and (b) are known as "gorges."

(a) Consists of two small pieces of sharpened bone lashed together with gut or sinew, to which a leader of the same material is attached. The leader in one of these, from Vancouver Island consisted of whalebone.



Native fish hooks.

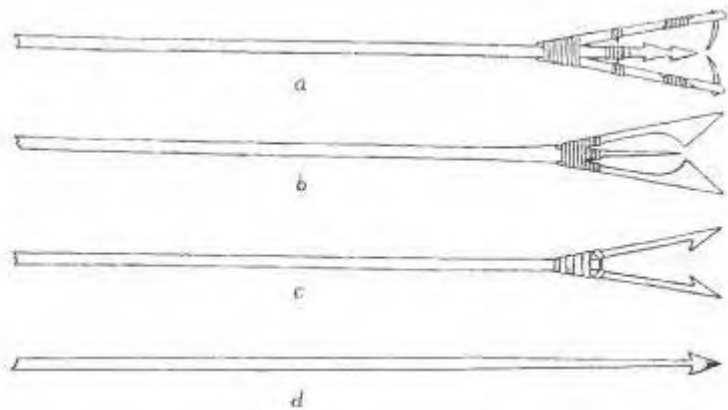
(b) Is a pieces of bone, a couple of inches long or less, sharpened at each end and suspended a little to one side of the middle.

(c) Is made of a small piece of tough wood and a piece of sharpened bone with its larger end placed in a little groove, or mortise, and lashed into place with bark or sinew. All are baited for use.

Spearing fish is extremely interesting but requires considerable skills and experience of the refraction of light in water. It is always necessary, in fact, to strike lower than where the fish actually appears to be, unless it is very close to the surface.

The spears, shown herewith, are all Indian devices and can be easily made in camp, or in the workshop.

(a) Is a form used by the Copper Eskimos, who live along Coronation Gulf. The side pieces are of bone and are spliced; but single strips of hardwood would answer for these just as well. The barbs may be made of sharpened nails (in the Eskimo specimens they are of copper). The central spike in the case of the native implement is of bone, but a sharpened iron spike will answer nicely.



(b) Is a Micmac Indian form and shows that the side pieces (which are of maple) need not be barbed.

(c) Is an Iroquois fish-spear. This has no central spike and is made by simply cutting a slender tree or sapling, splitting one end for about a foot, then tying it with bark to prevent further splitting, and spreading the split ends apart with a small wooden wedge, which is tied in place. Bind well with bark or cords about the edge and sharpen and barb the forked ends. The tips are usually hardened by burning them slightly.

(d) Is a spear with a single barb, or tang, made by the Iroquois. This is burned slightly at the tip. The handles may be made from twelve to thirteen or fourteen feet long. The spear heads, as shown, may also be made at home with handles some three or four feet in length. The latter should be whittled so as to taper off obliquely and may be spliced or tied to longer handles when the fishing place is reached.

Spring and fall are the spawning periods, at which time no fish spearing should be attempted. It will be as well also for Scouts to consult the game and fish laws of their respective provinces to be sure of the exact season and methods allowed in taking fish.

NATIVE TYING MATERIALS

Many of the native grasses, barks and other fibres found in different parts of Canada make serviceable tying materials and some knowledge of this subject is an almost indispensable part of woodcraft.

The inner bark or bast of the basswood is so strong and flexible that several of the Indian tribes use it for weaving bags. The bark is first detached from the young trees in long strips, the bast being then separated from the more brittle outer bark. For bag-making the Indians boil the bast with wood ashes until it can be rubbed or shredded into threads.

Other useful tying materials are the bark of young hickories, which the Indians formerly used in a twisted form for bow strings, the bark of the willows (*salix humilis*), the inner bark of the slippery elm and the inner bark of the leatherwood, or moosewood as it is also called. Farmers sometimes use this last mentioned fibre for tying grain bags. The Indians use it for bow strings. Some very good fibres are obtained from the outer portion of the stems of the swamp milkweed, also from various species of dogbane and from the hemp nettle. These are particularly of service in the fall or later summer when the stems are mature. The Iroquois Indians use the fibre of the swamp milkweed for pulling teeth and have the curious belief that by so doing they prevent the decay of those remaining.

The long slender roots of the spruce are used by many Indian tribes for sewing canoes and in the making of birch-bark utensils of various kinds. For these purposes the roots are split in such a way that each strip retains part of the smooth, rounded outer surface, the heart or inner portion being discarded. The strips are soaked and kept moist during sewing. Withes of various shrubs, including willows and alder, are also used for tying purposes.

TOTEM POLES



Pacific Coast Indian
totem poles.

Scout patrols may find it of interest to carve their patrol bird or animal on totem poles to be displayed in front of the patrol quarters, whether indoors or in camp. If it is so desired, the pole may further be carved and coloured in such a way as to illustrate any of the outstanding events in the patrol's history. There is plenty of scope here for originality of design and skill in execution. The illustrations herewith are of totem poles erected by the Indians of the northern British Columbia coast. Some of the "medicine men" of the eastern tribes, including the Iroquois, set up small poles adorned with images of their familiar spirits, but this particular feature of Indian art found its highest development among the Slaish, Haida, Nootka, Tsimshian, Tlinget and Kwatiutl tribes on Vancouver Island, and northward to Alaska. Some of those erected in front of the native lodges are over fifty feet in height, with a round hole at the base serving as a doorway into the house. Inside house poles were erected by members of the Haida tribe, but only by the wealthy. These stood in the middle of the house directly behind the fire, and marked the seat of honour. Totem poles of many different forms were erected as grave posts among some of the Pacific coast tribes.

The Indian totem poles were erected during the great feasts, commonly known as "potlatches," when the Indians gave away an immense amount of property and consumed great quantities of food.

The poles were carved out of the trunks of trees that were cut down by native implements, rolled into the water and towed to the village amid songs and dancing. One or more regular carvers were employed to put on the designs, and these were paid handsomely for their work.

The Indian totem poles were made of cedar, and there is no wood in Canada better suited for like use among the Scouts. Scout totem poles will necessarily conform in size to whatever use is intended to be made of them. If single posts cannot be obtained of sufficient size, two or three pieces may be glued together for the purpose. Before the carving is done, the designs should, of course, be drawn on paper and the membership of the troop drawn on for suggestions.

CHAPTER V

NATURE

“And Nature, the old nurse took
The child upon her knee,
Saying: ‘Here is a story book
Thy Father has written for thee.’

“‘Come wander with me’, she said,
‘Into regions yet untrod,
And read what is still unread
In the manuscript of God.’” — LONGFELLOW.

GEOLOGY

Fossil Remains*

**Contributed by Mr. Stuart Schofield, M.A., B.Sc., Ph.D., with permission of the Geological Survey of Canada.*

In Canada, as in other parts of the world, are found the fossil remains of many forms of animal and plant life. In a great many cases there are no living representatives of these prehistoric forms: for example, toothed birds, flying reptiles, sea lizards, the latter sometimes twenty-four feet in length, and land reptiles, which in America reached a length of nearly one hundred feet and a height of thirty feet. The last named reptiles, called dinosaurs, are of special interest to Canadians as many specimens have been dug up on the “bad lands” of Alberta along the Red Deer Valley, and are on exhibit in the Victoria Museum, Ottawa. These slow-moving, fantastic creatures in many cases were protected from their enemies by the presence of horny plates forming a kind of armour. In fact, they might be compared to the “tanks” employed in military operations, only the armoured creatures were harmless. They lived around the swampy shores of seas and lakes, feeding upon the soft vegetation which grew there in abundance. Scientists have reconstructed these huge animals from their skeletons.

Rocks and Minerals

The city of Vancouver is built on an old delta of the Fraser River and was once covered by the sea. The cities of Calgary and Regina stand on shales and sandstones which were long ago deposited in the bed of a great ocean, which in past ages stretched from the Arctic to the Gulf of Mexico. The city of Winnipeg is situated on the bottom of an immense inland lake that once covered a large part of the present province of Manitoba. Mount Royal, overlooking the city of Montreal, was probably in past ages an active volcano, belching forth molten lava and ashes, of which traces are still found in the surrounding country. Looking to the south-east from Mount Royal one can see the pipes of a number of extinct volcanoes stretching across the international boundary into the neighbouring state of Vermont.

Gazing northward from Parliament Hill, Ottawa, one’s eye rests on the rolling Laurentian Hills, made up of some of the most ancient rocks of the earth’s crust, which may be, geologists tell us, as much as fifty millions of years in age.

The northern part of Canada, within the Arctic circle, now barren, once was covered with vast forests whose remains are found in deposits of coal that have been uncovered in the far north. It is, of course, only a question of time until these remote parts of our country will be connected by railway with the rest of the Dominion.

Canadian Volcanoes



Mount Garibaldi, an extinct volcano, near Vancouver, B.C.

There are no active volcanoes in Canada in these days, although our north-western coast has been in the past the scene of considerable volcanic activity and there are still active volcanoes in Alaska. The most recent volcanic action in Canada apparently occurred on Mount Garibaldi, about thirty miles north of Vancouver, shown in the accompanying illustration. The crater of Mount Garibaldi is at present filled with glacial ice.

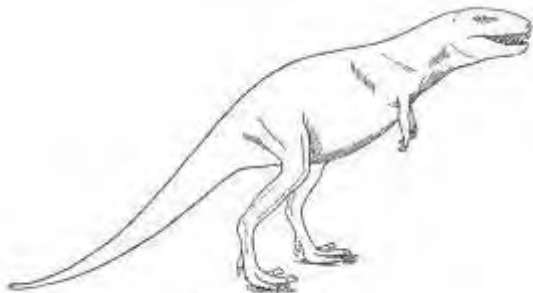
Sedimentary Rocks

The little running streams and the mighty rivers that give us so much pleasure in our holidays are really the agents that bring about the great changes in the earth's crust. The streams carry mud and sand (sediment) down to the ocean and in their passage eat out the valleys through which they run. The sand and mud are dropped on the floor of the ocean and in some cases form deltas like the Mississippi delta and the delta at the mouth of Kootenay River, where it enters Kootenay Lake in British Columbia.

Many animals seek their food around the mouths of river. Fish, clams, oysters, crabs, lobsters, and also land animals which feed on shell fish, are often buried in the mud and thus are preserved as fossils. The sand, mud and gravel, as they settle in the ocean, form layers and the weight of subsequent layers gradually compresses the mud and gravel with their animal remains into rock which will show a layered or bedded structure. Hence we have bedded or sedimentary rocks. The mud forms shale, the sand forms sandstone, and the gravel forms conglomerates. Limestone is formed of the ground up shells of clams, oysters and other shell fish. So that wherever you find any of these rocks you may be reasonably sure the area in which you are was at one time under water.



One of the "Flower Pots" on Georgian Bay, illustrating the erosion of sedimentary rock.



Carnivorous Dinosaur

The boulders, loose gravel and field stones which are encountered in all parts of Canada have in most cases been carried down from the far north and dropped by the great ice sheets which once overspread the entire Dominion.

Mountain Chains

The streams resemble great tentacles of the ocean which continually rasp the land and carry the loosened material to the floor of the ocean. Hence continents are being carried gradually into the sea. Perhaps the streams would accomplish this if it were not that the accumulation of great thicknesses of sand, mud and gravel, along the coast lines weaken the crust at these points. The earth's crust has a tendency to shrink on its molten interior like the skin on a drying apple. Naturally, wrinkles or folds on the earth's surface occur along its weakest lines, the areas in which beds of sand, mud and gravel have been deposited along the coasts. The folds slowly appear on the sea-floor and thus it is that mountain chains like our Canadian Rockies and the Coast Ranges in British Columbia have been formed. Sometimes the floor of the ocean rises with them, thus forming plateaus like the Great Plains of western Canada and the United States. So it comes about that the great mountains and the great plateaus of the earth's surface are composed of hardened sediments such as limestone, sandstone, shale and conglomerate. In the case of our own prairie provinces the surface is happily overlaid with a thick deposit of fertile soil, containing decaying plant life.

Igneous Rocks

Through the cracking of the earth's crust in the vicinity of mountain chains, rocks from the earth's interior reach the surface at many points and volcanoes may arise. The liquid rock is called lava and when it has solidified is known as volcanic rock. Even when solid, volcanic rocks show their origin in their frozen fluid form and rough porous surface resembling the hardened slags found around blast furnaces.

Sometimes, however, the molten rock does not reach the surface but cools and solidifies deep within the heart of the mountain chain and is exposed only by wear and tear of the frosts, rain and rivers. These volcanic rocks form the massive rocks of the earth's crust and are not bedded. If light-coloured they are called granites, if dark-coloured, gabbros, or diabases. If we look closely at them we see that they are made up of little sparkling crystals. They form the cores of the great mountain chains, like the Coast Mountains in British Columbia, and are only exposed by streams, frost and ice tearing off the sedimentary rock roof that covered them. Volcanic rocks in cooling give off liquids and vapours which contain minerals, useful to man, such as the ores of iron, lead, gold, silver and copper. The mineral-bearing liquids rise in the fissures and cracks of the overlying crust, cool and solidify into ore deposits in the form of veins.

Canada's Mineral Resources

The President of the Canadian Mining Institute is authority for the following outstanding statements concerning Canada's mineral resources: —

“Our coal resources are among the greatest in the world. Our asbestos deposits in the Eastern Townships of the Province of Quebec supply most of the asbestos of commerce. The greatest nickel deposits in the world are located at Sudbury. Ontario has the largest body of high grade talc on the continent at Madoc; the largest body of high-grade feldspar on the continent in the Richardson mine near Verona; the greatest mica mine on the continent at Sydenham and the greatest graphite mine at Calabogie. During 1916 also a molybdenite property was discovered within twenty-five miles of Ottawa that bids fair to outstrip all rivals. The tar and sand deposits of Northern Alberta are the more extensive in the world. We also have one of the richest silver camps in the world at Cobalt, and one of the most promising of the younger gold camps on the continent at Porcupine. Our smelters at Deloro and Thorold also produce more refined cobalt than all other refineries in the world put together. These are just a few of the lines in which we lead, but the remainder of our production is by no means insignificant.”

CANADIAN TREES*

**Contributed by Mr. R.H. Campbell, Director of Forestry, Ottawa.*

The largest trees in North America are the "Big Trees" of California. The highest, now fallen, was over 400 feet in height. Another tree had a diameter of twenty-five feet at a height of six feet, and after it was felled thirty-two persons danced on the stump while seventeen others stood on it at the same time. The Douglas fir and cedar in British Columbia also grow to an enormous size, reaching twelve to thirteen feet in diameter and a height of 250 feet. Some of these trees are about four thousand years old. One-half of the life of such a tree was lived before Christ was born. It was a strong young tree when Abraham went to seek a new country, was bearing seed when Sodom and Gomorrah were destroyed, and was nearly one thousand years old when David killed Goliath.

The forests have been so much a part of the life of Canada that every Scout should learn as much as possible about them. While the early settlers had to clear the trees in order to prepare the land for agriculture, still they made use of the woods in many ways and nothing is more interesting than to read of the various ingenious devices to meet the pioneer conditions which were framed by them from their knowledge of the trees and their qualities.

Trees may be recognized by their general form or by their buds, leaves, bark, flowers, fruit or other special features. It is interesting to practise identifying different species from a distance. It will soon be noticed that the form of the same species will vary considerably according to whether it has grown up in a close forest or in the open. Form and appearance are also affected by variations in soil and moisture, and by climatic conditions. Nearer the northern limit of their range or at higher elevations trees frequently dwarf to mere shrubs.

Trees are divided into two large groups according to the character of the leaves. One group, of which the maple is a sample, has broad leaves which last only for the summer and fall in the autumn. These are often called deciduous-leaved trees. Most of this group are included in what are called hardwoods. The other group, of which the pine is a sample, have thin, needle-like leaves and have their seeds, usually two under each scale of the cone. They are generally called cone-bearing or coniferous trees, or may be called needle-leaved trees. As a rule they do not drop their leaves for the winter. Most of the softwoods belong to this group.

Forest Fires

Many square miles are destroyed every year by fire. Some of the past fires have been very destructive.

The historic fire in Miramichi, New Brunswick, in 1825, burned over 2,500,000 acres and caused the loss of 160 lives. The Fernie fire in British Columbia in 1909 burned the town, a large area of forest, and caused the loss of 22 lives. The fires in northern Ontario in 1916 burned over many miles of territory, caused a loss of 224 lives and of property worth over \$2,000,000. Every year there are fires of serious proportions, and in the majority the result is carelessness. Boy Scouts have come to be regarded generally as the guardians of the forests and are of course expected to set an example of care in completely putting out their fires when camping or hiking. They do not hesitate to warn others who may be careless, and are always ready to assist in fighting a forest fire.

A number of medal awards have been made to Scouts who rendered valuable service in such fire fighting.

Here are some forest fire prevention hints: —

When in the woods locate your fire, if possible, on rock, sand or gravel. If on grass, turn over and lay aside the sod, where the fire will not kill the roots (returning the sod later).

Scrape ground clear of leaves, needles, etc., for a radius of three feet.

Always near water if possible.

Always in such a location as to wind that sparks will not be blown in a dangerous direction, particularly toward dry slashings, dry grass, etc.

If canoeing, land and make fires on the windward shore, so that sparks may be blown out over the water.

In strong winds, make a narrow trench fire, across the wind, so that the fire is entirely below the surface.

If any of your hiking or camping party smoke, warn against smoking when hiking through the woods and when making the portages.

Those who must smoke should smoke only in camp.

When on the hike put out all fires three times before leaving.

When in permanent camp clear up all slashing in the camp area and use for cooking or the council fire. For the latter never stack up a great bonfire that will flare high and scatter sparks. You cannot sit comfortably around such a fire in any case.

Finally — ALWAYS MAKE THE SMALLEST FIRE POSSIBLE for the purpose. Take pride in cooking over a “mere handful of sticks,” like the Indians.

Spread Fire-Prevention Ideas

During the camping and hiking season take every opportunity of spreading fire-prevention ideas.

Discuss the matter courteously; do not condemn or find fault. For instance, you meet a party of motor campers, fishermen or hunters: “How do you do. Nice day isn’t it? Have you heard of any forest fires in this section?”

Or on meeting a teamster, farmer or new settler: “Have there been any forest fires in this section this year?...How did they start?...Too bad, isn’t it? We’ll soon have no trees left, and no birds to keep down the insect pests.”

HARDWOODS

The Maples



The maple leaf is the symbol of Canada and the tree is well known. There are nine species of maple in Canada but they can all be distinguished from other species of trees by the shape of the leaf which has three to five pointed lobes. In Ontario and eastward the three chief species are hard or sugar maple (*Acer saccharinum*), the soft red maple (*A. rubrum*) and the silver or white maple (*A. dasycarpum*). The leaf of the hard maple has five lobes and the

edge of the leaf is entire, that is, not broken up into fine teeth.



Sugar Maple.

In the leaf of the red maple the two lower lobes nearest the stem are small and the edge of the leaf is serrated or cut into small teeth like those of a saw. The leaf of the silver maple is much like that of the red maple but the notches between the lobes are narrower and come to a sharp point. In the Prairie Provinces the only maple growing naturally is the Manitoba of ash-leaved maple (*A. negundo*.) Some of the leaflets are shaped like those of the maple and some resemble those of the ash, and the leaf is compound, as explained under walnut. In British Columbia



Manitoba Maple.

there are the large-leaved maple (*A. macrophyllum*) with leaves somewhat like those of the hard maple but much larger, and the vine maple (*A. circinatum*), a small tree growing under the shelter of others and with leaves somewhat circular, and having seven to nine sharp-pointed, sharp-toothed lobes. Maple wood is used for flooring and furniture. The wood with the peculiar figures called "bird's eye" is particularly handsome. Maple sugar, made from the sap of the hard maple or sugar maple, is known to most boys.

The Oaks

There are twelve species of oaks in Canada but most of them are confined to the peninsula forming the southwestern part of Ontario. The oaks are distinguished by their leaves, longer than broad, divided into several lobes, and by the acorns borne in cups. The oaks are divided into two main groups; the white oaks, with rounded lobes on the leaves and sweet acorns; and the black oaks (which include the red oaks) with the lobes of the leaves pointed and bristle-tipped and bearing bitter acorns.



White Oak.

The typical white oak (*Quercus alba*), which grows in southern Ontario and Quebec, has leaves from five to nine inches long and three to four inches wide. The lobes are rounded or blunt and the notches are fairly deep, most of them one-half inch and over. The most widely distributed of the white oaks, or any of the oaks, is the bur, or mossy cup oak (*Q. macrocarpa*) which is found from Nova Scotia to Manitoba and considerably farther north than other oaks. The leaves vary greatly in size and outline but their characteristics are well marked. The long deep notches in the leaf on each side of the main rib, which almost meet and cut the leaf in two, are a good distinguishing feature. The acorns are large and the scales on the edge of the cup are elongated and form a distinct fringe. The Garry oak (*Q. Garryana*) is found only in British Columbia and is the only oak there. Its leaves are like those of the white oak. The chestnut oak (*Q. prinus*) is found only in the extreme southwestern part of Ontario. The leaves resemble those of the chestnut tree but the points on the margin are more rounded and the outline of the leaf wavy rather than toothed.



Bur Oak.



Red Oak.

Of the black oaks the red oak (*Q. rubra*) is most widely distributed. It is found from Nova Scotia to the east shore of Lake Superior, and as far north as the heights of land between the Great Lakes and James Bay in Ontario. The leaves have from nine to thirteen lobes, more than most oaks, and taper to a sharp point. The bark is generally smooth. The scarlet oak (*Q. coccinea*), black oak (*Q. velutina*), and pin oak (*Q. palustris*) occur in southwestern Ontario. The lobes of the leaves are bristle-pointed and the bark rougher than that of the red oak. The white oak is the most valuable species and the wood is used for making furniture, for flooring, and for barrels and casks to hold liquor. It is now so scarce that most of the oak used in manufactures is imported.

The Walnuts



Black Walnut.

There are only two species of walnut in Canada, the black walnut (*Juglans nigra*), and the white walnut or butternut (*J. cinerea*). The leaves of the walnut are compound, that is, there are a number of leaflets on each stem. Watch how the leaves drop from the tree. A leaf includes the stem and the leaflets from the point where it separates from the tree in the fall of the year. The nut is enclosed in a round green covering about the size of a small apple. The black walnut is one of the most valuable trees we have, but unfortunately it is one of the scarcest. It grows naturally only in southwestern Ontario and is found now scattered on farms. The wood is hard, dark in colour, and is used for making furniture, cases for organs and pianos, and gun-stocks. The

white walnut, or butternut, may be distinguished from the black walnut by the twigs which are downy and clammy. The nut is longer than broad. The butternut is found from New Brunswick and along the St. Lawrence valley to Georgian Bay in Ontario. The wood is soft and light in colour as compared with the black walnut and is used for planking for boats and for interior finish.



Butternut.

The Hickories



Bitternut Hickory.

There are six species of hickory in Canada but none of them are found west of Ontario. They are related to the walnuts and like them have compound leaves, though smaller, and smaller nuts. The bitternut hickory (*Carya cordiformis*) is one of the most generally distributed. Its bark is grey and rough, recent shoots are an orange-green colour and dotted, and the nut is bitter. Its winter buds are sulphur yellow in colour. The shagbark hickory (*C. ovata*) is named and distinguished by its bark flaking or shagging loose in plates which are free at both ends, and by its sweet nuts. The wood is among the toughest, strongest and hardest in Canada, and is used chiefly for vehicles, tool handles, agricultural implements, machinery parts, and sporting goods.

The Ashes

There are four species of ash in Canada. The leaves of the ash are compound and each pair is placed immediately opposite to one another on the branches, unlike those of the walnut or hickory, and its fruit is a winged seed. The white ash (*Fraxinus americana*) is the most valuable and is found growing from Nova Scotia to southwestern Ontario. The twigs are coarse and shiny, and the leaflets have stems. The red ash (*F. pennsylvanica*) is a smaller tree and has downy twigs. The black ash (*F. nigra*) has all but the terminal leaflet stemless. The green ash (*F. pennsylvanica* var. *lanceolata*), a



White Ash.

Black Ash.

Green Ash.

variety of the red ash, is found from western Quebec to Alberta. It differs from the red ash mainly in the smoothness of its branches, leaves and stems. The blue ash (*F. quadrangulata*) is confined to southwestern Ontario in the counties bordering on Lakes Erie and St. Clair, but is not very common even there. It can be distinguished from the other ashes by its rather heavy cross-section. The wood of the ashes is noted for its toughness and elasticity. The more valuable species, particularly the white ash, are used for vehicle stock, tool handles, and interior finish. The mountain ash is not a true ash and is distinguished by its numerous small toothed leaflets and its red berries.

The Elms



There are three species of elm native to Canada. The leaves are not compound and the veins run off from the mid-rib to the outer edge like the barbs of a feather, or, to employ the usual terms, the leaves are simple and pinnate. The white elm (*Ulmus americana*) is the common one, with a great spreading top seen standing so grandly in meadows. The twigs are smooth. The rock elm (*U. racemosa*) has corky ridges on the twigs which easily distinguish it. The red or slippery elm (*U. fulva*) has stouter twigs than the white elm and they and the inner bark are mucilaginous. The buds have a covering of reddish-brown hair. The rock and red elms are found only in the southern parts of Quebec and Ontario but the white elm goes as far west as the province of Saskatchewan. Elm is used for making furniture, but principally for barrels, boxes and fruit packages.

The Birches



The birch-bark canoe of the Indian has made the birch well known in Canadian song and story. There are nine species of birches in Canada. The bark of all birches, which is smooth and either brown or white in colour, is marked with long horizontal slits or lenticels and on young trees of most species can be separated into papery layers. The seeds are produced in small scaly cones. The leaves are simple and pinnate. There are two white birches, so called from the colour of their bark. One is the well known paper or canoe birch (*B. alba* var. *papyrifera*). The other, a smaller (*B. populifolia*) is found in the Maritime Provinces and westward to eastern Ontario. The leaves are triangular in outline with a long tapering point. The yellow birch, (*B. intea*) is found from the Atlantic to Lake of the Woods and is the largest birch in Canada. Its name comes from its yellowish straw-coloured bark. Cherry or sweet birch, (*B. lenta*) which comes into Canada only at a few places in southern Ontario and Quebec, has darker bark which is sweet and aromatic. Western Birch (*B. occidentalis*) which is a large tree and has brown bark, is found in southwestern British Columbia. Two smaller birches, the Alaska (*B. alaskana*) and mountain birches (*B. fontinalis*) are found from Saskatchewan westward. The wood of the larger birches is used for making furniture, interior finish and veneers, and of the white birch for spools, bobbins, clothes pins, and small woodenware generally.



The Cherries

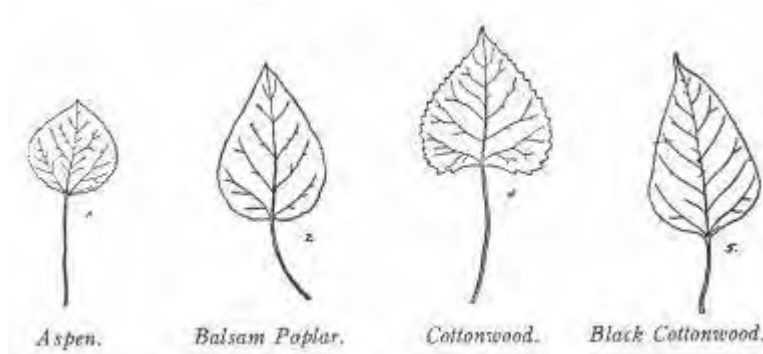


There are three species of cherry trees in Eastern Canada, the black, red and choke cherries. The black cherry (*Prunus serotina*) is the largest tree with long, narrow leaves, having fine teeth and dark fruit. The red cherry (*P. pennsylvanica*) is a smaller tree, and has red fruit and lighter bark. The choke cherry (*P. virginiana*) has dark bark and rather broad and blunt leaves. It does not grow as tall as the others. The fruit is dark-coloured with peculiar astringent properties which cause the "choking" sensation after eating it. A western choke cherry (*P. demissa*) is found on the coast of British



Columbia and on Vancouver Island. There is another cherry in British Columbia, the bitter cherry (*P. emarginata*) which has dark, bitter fruit. The twigs are bright red as contrasted with the light brown of the choke cherry.

The Poplars



The poplar is distributed all over Canada and there are seven species that are native. The aspen poplar (*Populus tremuloides*), distinguished by its almost circular, fine-toothed leaves, which on account of the flattening of the stems laterally, tremble in the slightest breeze, is the most widely distributed. The large toothed aspen (*P. grandidentata*), with larger leaves more coarsely toothed, is

not found west of Ontario. The balsam poplar (*P. balsamifera*), with larger, pointed leaves and buds, covered with a sticky gum, is almost as widely distributed as the aspen poplar. The cottonwood (*P. deltoides*), having broad leaves with square base, triangular in outline and coarsely toothed, is found scattered in river bottoms, in the southern part of both Eastern and Western Canada. There are two poplars (*P. acuminata* and *P. augustifolia*), with long narrow leaves in southern Alberta and Saskatchewan. The black cottonwood (*P. trichocarpa*) on the coast of British Columbia has leaves like the balsam poplar. The wood of the poplar is not very valuable and is used for fuel, for making excelsior and pulp, and, where better woods are not available, for lumber for various purposes. The Lombardy poplar, which grows a tall, narrow tree, and the silver poplar with leaves shaped like those of the maple, green and shiny on top and white and woolly beneath, have been introduced from foreign countries.

The Beech

Only one species of beech (*Fagus grandifolia*) is found in Canada and it grows from Nova Scotia to Lake Superior. The beech is readily recognized by its three-angled nuts, in a spiny covering, its smooth, grey bark, and long, pointed, lance-shaped buds. The leaves are simple, pinnate and coarsely toothed. The wood is used for flooring, furniture and a variety of smaller articles.



The Chestnut



The chestnut (*Castanea dentata*) grows in the southern part of Ontario, and is now very scarce. A disease which came over from Europe, the chestnut tree blight, is fast destroying what is left. The leaves are simple, six to eight inches long, and the margin is coarsely toothed with curved teeth, like those of a circular saw. The nuts are enclosed in large burs. The wood is mainly used for veneer cores and pianos and doors. The horse chestnut is a different species and is not native to Canada.

The Basswood



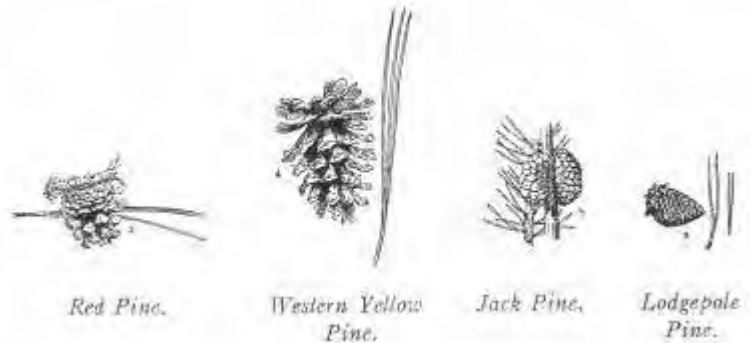
The basswood (*Tilia americana*) is found from the Atlantic westward to southern Manitoba. It is easily distinguished in the summer by its large heart-shaped leaves, yellow flowers and round, hard fruit, about the size of peas. The dark, red, sometimes green, smooth, lop-sided, or "hump-backed" buds are one of the tree's best distinguishing features in the winter. The wood is light, of fine texture, and is used in cooperage, box making, and for panelling in carriages.

THE CONIFERS, OR NEEDLE-LEAVED TREES

The Pines



There are nine species of pine in Canada, three in the east, five in the west, and one crossing the whole northern part of Canada to British Columbia. The pines are divided into two groups: soft or white pines with their leaves in bundles of five, and their cones hanging downward and with thin scales; and hard pines, with their leaves in bundles of two or three and their cone scales thick and woody. The white pine of the eastern provinces (*Pinus Strobus*) is the most important and was for many years the chief lumber used in the construction of houses. The bark is dark and rough, and the wood almost white. It is the only pine with five needles in a bundle native to Eastern Canada. The western white pine (*P. monticola*) is a different species confined to British Columbia and has larger cones, though otherwise it resembles the eastern species. The red pine of Eastern Canada (*P. resinosa*) has long leaves, two in a bundle, reddish bark and wood, and is not found west of southeastern Manitoba. The western yellow pine (*P. ponderosa*) is found only in British Columbia, and has long leaves in clusters of threes, or occasionally twos, and reddish bark. Jack pine (*P. Banksiana*) grows all across Canada into Alberta where it is finally replaced by lodgepole pine (*P. Murrayana*) which is found throughout British Columbia. Both have their short leaves in bundles of twos and the cones are small and curved. The foliage of the lodgepole pine is darker and the leaves not scattered along the twigs so much as in the eastern jack pine. There is more jack pine used for railway ties in Canada than any other species of tree.



The Spruces



There is more spruce lumber cut in Canada than of any other species and it has also the first place in the making of pulp and paper. There are five species of spruce in Canada. The leaves are short and generally arranged all round the twigs, at any rate they are not spread flat like the leaves of balsam, fir and hemlock. The white spruce (*Picea canadensis*) extends from the Atlantic coast to the Yukon but does not reach the Pacific coast. The leaves are sharp-pointed and have a peculiar skink-like odour when crushed. The cones are from one and a half to two inches long. The Engelmann spruce (*P. Engelmanni*), very similar to the white spruce, is found in Alberta, British Columbia and the Yukon. The



black spruce (*P. mariana*) grows from the Atlantic to the Yukon and is characteristic of low, wet places.



The leaves are short, and the red twigs are slightly coated with a rusty-coloured hair. Red spruce (*P. rubra*) does not occur west of the eastern part of Quebec. Sitka spruce (*P. sitchensis*), found only in British Columbia, is the large spruce of the coast district. The leaves are stiff, thick and sharp-pointed so that they feel as if piercing the hand when a twig is grasped tightly.

Firs

There are five species of trees called firs in Canada, but one of these, the Douglas fir of British Columbia, is not a true fir.



The other four species are designated balsam fir. The leaves are flat and blunt pointed, and are two-ranked, that is, they spread out from opposite side of the twigs. The cones stand erect and the scales of the cones are shed at the same time as the seed, leaving the stem standing bare. The bark is smooth but with the characteristic blisters filled with balsam. The eastern balsam fir (*Abies balsamea*) is found from the Atlantic to the Yukon. There are two balsam firs in British Columbia growing generally at low levels — the lowland fir (*A. grandis*), with yellowish-greenish cones, and the amabilis fir (*A. amabilis*), with purple



cones. The Alpine fir (*A. lasiocarpa*) is found at higher elevations and has purple cones. Balsam fir timber is used as lumber and pulpwood.



The Douglas fir (*Pseudotsuga mucronata*), found only in British Columbia and Alberta, resembles the balsam fir in the earlier years of its growth, but later the bark becomes very thick and deep furrowed. The cones hang down instead of standing erect as in the balsam fir and have conspicuous three-pointed bracts attached to the back of the cone scales. The trees grow to enormous size and the timber is one of the most valuable in Canada. It is used for heavy framework, for buildings and cars, for bridges, docks, interior finish, paving blocks, wooden pipe, railway ties and many other purposes.



Hemlocks



The hemlocks have two-ranked flat leaves like the balsam firs but the leaves are generally smaller and have a distinct small stem. The top of the tree is whiplike and bends over slightly. The bark is rough. The cones are very small and hang downward. The eastern hemlock (*Tsuga canadensis*) is found from Nova Scotia to the western part of Ontario. There are two hemlocks in British Columbia, the western hemlock (*T. heterophylla*), and the mountain hemlock (*T. Mertensiana*). The wood of the eastern hemlock is poor but is used for lumber and ties. Western hemlock is much better in quality. Tannin, used in tanning leather, is obtained from the bark of the hemlock and many trees have been cut down simply for this purpose.

The Larches



The larches are the only species of coniferous trees in Canada which shed all their leaves in the fall. The soft leaves are borne in clusters of about twelve to forty at the end of short knobs standing out from the twigs. The eastern larch, tamarack, or hackmatack (*Larix laricina*), is found from Labrador to the Rocky Mountains. The western larch (*L. occidentalis*) is found in southern British Columbia and Alberta and the Alpine larch (*L. Lyallii*) in the same districts but high up in the mountains. The wood is hard and durable and is used for structural timbers and railway ties.



The Cedars



There are two species of cedar in Canada, one growing from the Atlantic to Manitoba (*Thuja occidentalis*), and the other confined to British Columbia (*T. plicata*). The bark is thin and shreds in strips and the foliage consists of tiny, over-lapping, scale-like evergreen leaves. The cones are very small. Cedar wood is light and durable and is used for shingles, poles, posts, railway ties, and in buildings. The yellow cedar of the coast of British Columbia (*Chamaecyparis nootkatensis*) belongs to a different genus and is frequently called cypress. The cones are not so narrow and elongated as those of the cedars previously described, and the wood is harder and heavier and has not the same characteristic odour.

CANADIAN SHRUBS

The only distinction between trees and shrubs is their size and the two classes pass into one another in such a way that it is frequently difficult to tell in which class to place any particular species. Species which are trees in one locality may reach only the size of shrubs in a more unfavourable location or under different climatic conditions. In general a shrub is a woody plant which does not grow higher than about twenty feet. It is impossible to describe all the Canadian shrubs in the space available but some of the most widely distributed will be mentioned.

Willow

The willows (*Salix*) are distinguished by their bitter bark, their winter buds having only one scale, and their catkins. They are found all over Canada, especially in low wet places. The different species of willow are difficult to determine as they run into one another so much.

Rose



The wild rose, with its pink or red single flowers, reddish fruit known as rose hips, its prickly stem, and its compound leaves divided into small leaflets, is also to be found almost everywhere in Canada, growing generally in dry open places. *Rosa blanda* is the most common species.

Hawthorn



The hawthorn (*Crataegus*) is distributed throughout Canada and its small, white clustered flowers make a beautiful show in the spring. The zig-zag form of the twigs, the thorns on the branches and the red haws, or fruit, are the distinguishing features.

Arrow Wood

The most widely known and distributed of this genus is the maple-leaved arrow wood (*Viburnum acerifolium*), or as it is otherwise called, high bush cranberry. It is found generally in the woods and is distinguished by its three-lobed leaves, shaped like those of a maple, its small white flowers in clusters and its sour red berries.



Service Berry

The service berry, or junberry (*Amelanchier*), is found in some form throughout Canada. The flowers are white, in clusters, and appear early in spring. The leaves are not large and are smooth, simple and toothed on the margin. The bark is grey or brown in colour and smooth, like that of the beech. The berries, which are ripe in June or July, are dark purple, sweet, and perfectly safe to eat. The western species is called saskatoon and the fruit is in general use for preserving.

The Elder



The elder (*Sambucus*) is a well known shrub with compound, opposite leaves and weak, pithy, large-jointed branches. The flowers are small, white, and borne in large clusters. In one species (*S. canadensis*) the clusters of flowers are flat, the berries purple and the pith of the stem is white. The other frequently occurring species (*S. racemosa*) has elongated clusters of flowers, the berries are red and the pith of the stem is brown. The latter is generally called the red-berried elder. Almost all parts of the elder are used in some form or another for medicinal purposes.

The Dogwood

The dogwoods (*Cornus*) are deceiving in one way as what appears to be the flower is in reality a cluster of minute flowers with large white outer leaves or bracts (generally four) surrounding them. The dwarf cornel, partridge berry or pigeon berry, the white flowers of which are seen all over the ground in the woods in spring and the red berries later, is perhaps the best known of the species although it is too small to be even a shrub. The red osier dogwood (*C. stolonifera*) which has red branches and white berries and grows into a shrub, is one of the most widely distributed, being found from the Atlantic to the Pacific. The leaves are simple, opposite and the margin is not toothed. Another familiar species (*C. Amomum*) with blue berries has the name of kinnikinnik, and the dried inner bark was used by the Indians for smoking. The two are difficult to distinguish and both are called kinnikinnik.



Kinnikinnik is a name also applied to bearberry in the East. In southern Ontario and in southern British Columbia, there are species with larger flowers known as the flowering dogwood.

Sumach



The staghorn sumach (*Rhus typhina*) is the best known of this genus and is found in Canada as far west as Lake Huron, generally distributed, but usually on poor soils. The leaves are composed of from eleven to thirty-one leaflets, the latter being long and narrow and toothed on the edges. The leaves become a brilliant scarlet in the autumn. The flowers are small, yellow in colour, and in long close clusters. The fruit is also in large close clusters of hard seed with a covering of short red hairs of distinctly acid taste. The twigs are covered with thick brown hair like the velvet of a stag's horns, hence the common name. A species with smooth twigs, known as the smooth sumach, (*R. glabra*) grows as far west as Saskatchewan. A poison sumach (*R. vernix*), found in low wet places in southern Ontario, has leaves without teeth and whitish fruit. The poison ivy (*R. toxicodendron*), with three broad leaflets on each leaf, and whitish fruit, which belongs to the same genus as the sumachs, is found all over Canada.

Witch Hazel

Witch hazel (*Hamamelis virginiana*) is one of the most peculiar shrubs in Canada, as its flowers appear late in the fall. The flower leaves are yellow, narrow and fairly long. The foliage leaves are large, simple and irregular in outline. The fruit is small, about the size of a large pea, and is brown and woody. Extract of witch hazel is used as a lotion. Some people use the twigs as a divining rod for locating water under ground and have great faith in their value for this purpose. Witch hazel is found in Canada eastward from Lake Huron.



Hazel



The hazel (*Corylus*) is widely distributed throughout Canada, being found from the Atlantic to the Pacific. It never grows to any great height but is chiefly distinguished by its round nuts covered by a green hairy sheath which extends beyond the nut, forming in one species a regular beak. The leaves are simple, three to six inches long, and somewhat rough.

Juniper

The common juniper (*Juniperus communis*) is found generally in clumps in pastures or open ground throughout Canada. Its branches grow from the centre of the clump and bend over toward the ground on the outside giving it a characteristic appearance. It is a conifer and has short, needle-like, evergreen leaves. The fruit is bluish-black and is much berry-like in appearance.



There are many shrubs, such as raspberry, blackberry, red and black currants, gooseberry, blueberry, buffalo berry, and others too numerous to mention, for which reference may be made to works on botany as space prevents them being described fully.

CANADIAN WILD FLOWERS*

**The following notes on Canadian wild flowers, as well as the drawings which accompany them, have been contributed by Miss Faith Fyles, B.A., Assistant Botanist, Central Experimental Farm, Ottawa.*

The native spring flowers are, as a rule, the best known by amateurs in Canada. After the long winter, even before the snow has all gone, there is the longing to get out to the woods and sunny slopes where the first hepaticas are lifting up their delicately coloured heads through the snow and dead leaves; where the bloodroot still protects its fragile flower-buds by the enfolding leaves; where the blue cohosh stands purple and gold with its leaves tightly curled in, hardly daring to spread its sepals; where the buds of the spring-beauties, yellow adder's tongue, trilliums and others may be gathered and brought home to open in a sunny window.

The first trip to the woods in the spring leads to a second and a third. On each excursion some fresh flowers are in bloom and others coming into bud. In this way the spring flowers become familiar gradually and pleasantly.

But when the summer burst upon us, as it often does in Canada, the great number of interesting objects in the plant kingdom is bewildering to the novice. Everywhere the green is dotted with colour. To learn the most conspicuous wild flowers in one's own neighbourhood is, however, a very good beginning of the study of botany and a very delightful summer's recreation.

Preparation of Herbarium

Collecting. — In studying the wild flowers you will naturally have a desire to make a collection or herbarium for your own use.

If possible, the specimens should be collected in the morning on a dry day, as the plants are then in better condition. Avoid all deformed, misshapen specimens and those that have been attacked by insects. A typical plant should be chosen, one that is neither too big nor too little. Where it is impossible to take the whole plant, roots, stem, leaves, flowers and fruit, portions should be cut showing as many of these as are obtainable at the time. When no fruits are present with the flowers, the plant should be marked for a later visit. It is interesting also to watch for the young plants, particularly for the first year growth of biennials and perennials. Thick stemmed plants and swollen roots may be cut in two before being pressed, saving both portions as you will want to show both the inner and outer sides.

Pressing and Drying. — It is best to take into the field with you no more than is necessary. All that is really needed is a pocket pad and pencil, a hand-press, and something with which to dig up the plants. A simple press may be made out of two pieces of strong cardboard, size 12 x 18 inches. What is known as wallboard is best. Put the two pieces together and with an auger bore two rows of holes three-quarters of an inch in diameter at an even distance from each other and the margin. Place between the two cardboards as many drying papers as you need for the day and strap all together with a good shawl-strap. This makes a light and convenient press which may be strapped as tightly as you please. The botanical felt drying papers are best but newspapers cut to the size are very good, with layers of white tissue paper next to the plants. Ordinary white blotting paper is excellent and may be used with care for almost as long a time as the felt paper. It is an advantage to have a sheet of white tissue paper above and below the specimens for two reasons, that you can see through the paper if any part is disarranged, and also the specimen may be lifted without disturbance when you change the drying papers. To save time the press should be filled, before you start, with alternate layers of tissue paper and drying paper, first one or two sheets of drying paper according to thickness, next two sheets of tissue paper, and so on.

It is safest to put your specimens in the press as you collect them. Spread out the leaves and flowers in as natural a position as possible, avoiding doubling and folding the leaves. Show the underside of one or two leaves and flowers if possible. On a sheet of your pocket pad write the name of the plant if you know it, if not a note as to colour and perfume will help, the day, month and year of collecting with the collector's name. These data are imperative if you wish your collection to be of use and value, and should be put with each specimen. When you have finished collecting and arranging, strap tightly and hang the press in the sun; the holes in the sides will let the moisture escape more readily. On coming home, the drying papers should be changed. At the same time you may rearrange any crumpled specimens. If you wish to use your press the next day, the specimens may be put on a wide flat board with another on top and weighted with about two dozen or more bricks. The drying papers should be changed once daily for the first week.

If you prefer, you may buy a very useful press in two pieces, each made of five narrow strips of light hardwood eighteen inches long crossed by six strips twelve inches long and riveted firmly together. There is also to be had a well made tin box called a vasculum with a small door and a shoulder strap. This is useful if you wish to bring back with you fresh specimens for further study.

Mounting. — Most, at least, of the specimens should be dry in two weeks' time. For mounting them you should secure a good quality of white drawing paper and have it cut to the regulation size, 11½ inches by 16½ inches. In mounting, *care and neatness are essential*. For small, delicate specimens you may use very narrow strips of gummed paper put in place with a pair of forceps. The ends of the strips may sometimes be hidden under some of the leaves. For heavier specimens it is best to cut small slits in the mounting paper, one at each side of the stem, and put the ends of narrow strips of a fairly heavy paper through to be gummed down securely on the wrong side. If you have several strips to be put on one specimen, they may all be put through at once, the sheet and specimen turned over carefully and then the strips all gummed down at once. Ways and means will come to you with practice. The main object is to have your specimen as neat and firmly mounted as possible without attracting undue attention to the strips of paper.

After mounting, the specimens should be neatly labelled, on a separate small label, with the scientific name of the plant, *i.e.*, the generic and specific name; the habitat, the locality, the date and the collector's name. The different species of the same genus should then be put in a genus cover, that is a folder of heavy manilla paper, 12 x 18 inches, with the name of the genus in the lower left hand corner, that will be the next the folded edge. The herbarium labels should be placed on the lower *right* hand corner of the sheets. A cupboard with shallow shelves and doors make a convenient place for your collection.

SPRING FLOWERS



1. Jack in the Pulpit or Indian Turnip; a perennial plant, one to three feet high, growing from a corm or solid bulb. The leaves comprise three leaflets, flowers very small and are formed around the base of the spadix, or "Jack", protected by a green and purple striped spathe, which forms the "pulpit". Found in rich woods from Nova Scotia to Ontario, between April and June.

2. Water Arum, like the "Jack" and the two following plants, belongs to the arum family and has its small flowers arranged on a spadix, shielded by a spathe, the spadix being yellow and the spathe white. The leaves are heart-shaped and the berries red. It grows in bogs from Nova Scotia to Hudson Bay and is in bloom in May and June.

3. Skunk Cabbage, sends up its spathe before the leaves. The spathe is purple and greenish yellow mottled, incurved in form, and hides the short spadix. It grows in bogs and wet soils from Nova Scotia to Ontario, March and April.

4. Western Skunk Cabbage, has a spathe of lemon yellow colour, flowers crowded on the spadix and leaves one to four feet long. It grows in marshes and wet soil in British Columbia, April and May.

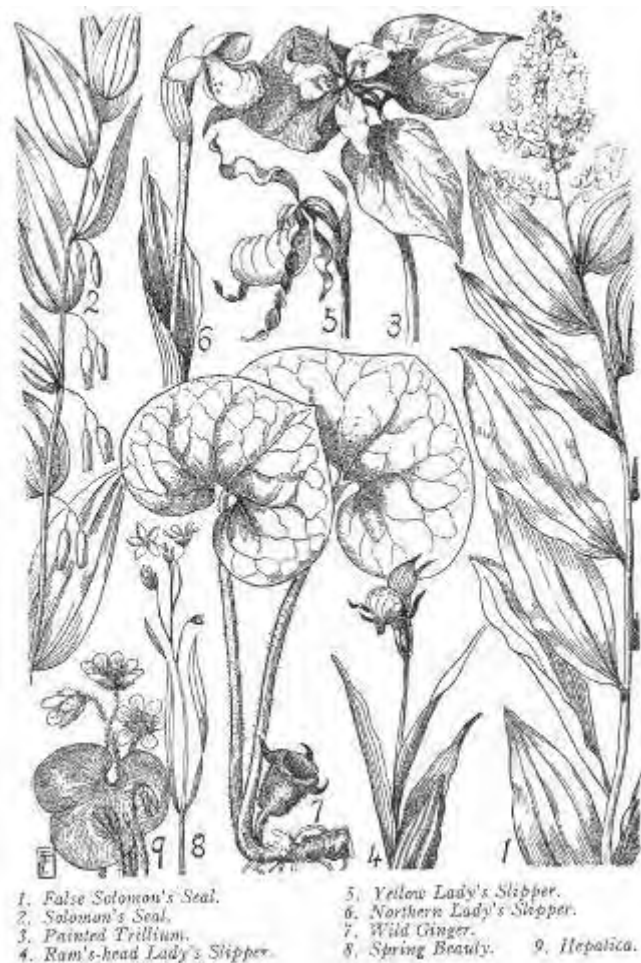
5. Fritillary or Mission Bell, a western species of the lily family, sends up a slender stem, four to eight inches high, from a small bulb. The leaves are two in number and narrow. The flower is solitary, nodding, and of a yellow colour. It grows on the plains in Alberta and British Columbia and blooms in May.

6. Western Yellow Adder's Tongue, a western species of the lily family. Leaves are two in number, not mottled. The bright yellow flowers are from two to four in number, but sometimes solitary. Found in the spring in British Columbia.

7. Clintonia, or Queen Cup, a species of the lily family found in woods from Newfoundland to the Rockies and northward. Bears a white flower and has blue berries. Leaves two in number and glossy.

8. Star-flowered Smilacina, a species of the lily family which bears from six to twenty small white flowers at the end of a leafy stalk. Leaves slightly clasping and berries green with dark red stripes. May and June from Newfoundland to British Columbia.

SPRING FLOWERS



1. False Solomon's Seal, a perennial species of the lily family which grows from a fleshy underground rootstock. The leaves are numerous, oblong and pointed, the flowers are white. Found in moist woods and thickets from Nova Scotia to British Columbia, May and June.

2. Solomon's Seal, a perennial species of the lily family with simple stems from a creeping, knotted rootstock. Leaves oblong, pointed, nearly sessile, and hairy beneath. Flowers usually two on a stalk, greenish white, narrowly bell-shaped and nodding. Woods and thickets from New Brunswick to Ontario, April to July.

3. Painted Trillium, a species of the lily family which throws up a single stalk bearing three leaves, ovate and taper-pointed, arranged in a circle near the top. Flowers white, painted with rose towards the centre, petals wavy margined. May and June from Prince Edward Island and Nova Scotia to Ontario. (Scouts should see how many other kinds of trillium they can find.)

4. Ram's Head Lady's Slipper, one of about fifty species of the orchid family found in Canada. Stem slender and hairy and grows to height of one to two feet; leaves three to four and nearly smooth. Bears but a single flower, sepals and petals madder-purple, lip whitish veined with crimson. Quebec to Manitoba, May and June. (If you should find a group of these lovely little orchids do not disturb the

roots, and only take one flower for a specimen. They are quite rare.)

5. Yellow Lady's Slipper, also of the orchid family, larger than the preceding. Sepals and petals greenish, painted with madder, the lip bright yellow. This species is sweet scented. Nova Scotia to Ontario, May and July.

6. Northern Lady's Slipper, another species of orchid, sepals and petals greenish white and the lip white, striped and spotted with bright madder. Found in damp, shady places in Ontario to Alberta and British Columbia, in bloom in different parts between May and July.

7. Wild Ginger, Birthwort family, a stemless perennial growing from a creeping rootstock; possesses leaves, the odour of ginger. Two heart-shaped, soft and hairy leaves with single reddish, bell-shaped flower between the two leaf-stalks. Rich woods, New Brunswick to Manitoba, April to May.

8. Spring Beauty, called by the Indians "Miskodeed," purslane family. Slender and simple-stemmed perennial, bearing two long narrow leaves and a loose cluster of white or pale pink flowers, veined with deep rose. Moist open woods, Nova Scotia to Saskatchewan, March to May.

9. Hepatica, one of the earliest spring flowers. Leaves all grow from the base and are thick and evergreen, with three rounded lobes. Flowers white, pink, blue or purple. New leaves just unfolding covered with silky hairs. Nova Scotia, March to May.

SPRING FLOWERS



1. Pasque flower or Prairie Crocus. 5. Dutchman's Breeches.
 2. Marsh Marigold. 6. Trailing Arbutus.
 3. Wild Columbine. 7. Bearberry.
 4. Bloodroot. 8. Starflower.

1. Pasque Flower, Crocus-anemone, sometimes called prairie crocus, which is misleading as it is a species of the buttercup family. Covered with fine silky hairs, leaves finely divided into narrow lobes. Sepals large and showy, five to seven in number, and whitish to violet-blue in colour. On the prairies from Manitoba to British Columbia, March and April.

2. Marsh-marigold, Buttercup family, smooth perennial with hollow furrowed stems. Leaves round or kidney shaped, wavy toothed or nearly entire. Sepals bright yellow. Swamps and wet meadows from Newfoundland to Saskatchewan and blooms April to June. The marsh-marigold is often incorrectly referred to as a "cowslip."

3. Wild Columbine. Flowers scarlet, yellow inside and nodding. The spurs are nearly straight and the stamens and styles longer than the sepals. Found in the spring on rocks and in open woods from Nova Scotia to the North West.

4. Blood-root, Poppy family, thick rootstock filled with a red-orange poisonous juice. The leaves are palmately lobed and folded around the flower-bud to shield it from the spring winds. Flowers white, seed pod long and narrow, the seeds themselves being red-brown and glistening with a large crest. Rich woods, Nova Scotia to Manitoba, April and May.

5. Dutchman's breeches, a very delicate, stemless perennial, sending up from a cluster of small seed-like tubers, the finely cut leaves and slender stalk bearing four to ten oddly shaped white flowers tipped with pale yellow. Nova Scotia to Lake Huron, April and May.

6. Trailing Arbutus or Mayflower, low trailing, shrubby, rusty-hairy plant with evergreen leaves. The flowers are exceedingly sweet-scented and are white, cream or rose in colour, tubular and five-lobed. Sandy woods or rocky soil under pine trees from Newfoundland to Saskatchewan and blooms in April and May.

7. Bearberry, Heath family, is a trailing plant with thick evergreen leaves about an inch long and a third of an inch wide, on very short, hairy stalks. Flowers few in number, white and clustered. Dry, sandy or rocky soil Labrador to British Columbia; blooms in May.

8. Starflower, Primrose family, low perennial spreading by very slender rootstalks. Leaves appear in a circle at the top of the slender stem, and are long and narrow, tapering at each end, and somewhat unequal in size. Flowers are few in number, white and star-shaped. Found in the woods from Labrador to Manitoba, blooms in May and June.

SUMMER FLOWERS



1. Arrowhead. 2. Western Lily. 3. Wild Yellow Lily. 4. Camassia. 5. Indian Cucumber-root. 6. Blue Flag. 7. Showy Lady's Slipper. 8. Pogonia. 9. Goldthread.

1. Arrowhead, water-plantain family, marsh or water plant. Flowers bright white with yellow stamens, in clusters of three at intervals up the stalk. Leaves arrow shaped. Water or wet places, July and September.

2. Western Lily; tall slender perennial springing from a scaly bulb. Flowers rich yellow or orange, spotted with purple, nodding and having the six perianth leaves turned back. The leaves are mostly in whorls. Found in summer on alpine slopes and meadows of British Columbia. A very handsome wild flower, sometimes called the "wild tiger lily."

3. Wild Yellow Lily, beautiful nodding, yellow lily, often cultivated. Flowers narrowly bell-shaped with recurved spreading, perianth leaves, spotted with orange or brown. Meadows and bogs in Quebec and Ontario.

4. Edible Camassia, a perennial plant on a stem from one to two feet high which springs from a rather large coated bulb. Bulb is edible, but care should be taken to distinguish it from the poisonous bulbs of the "death camas." Flowers are rich, bright, purplish-blue, fading quickly. Grassy bluffs and meadows in British Columbia.

5. Indian Cucumber-root, a perennial herb with a simple, slender stem rising from a horizontal white tuber which tastes like cucumber. Leaves grow in a circle near the middle of the stalk, usually with three

smaller ones at the top surrounding a cluster of greenish-yellow flowers with recurved perianth leaves. June, New Brunswick to Ontario.

6. Blue Flag, Iris family. Sword-shaped leaves and large showy flowers, springing from a thick, creeping rootstock which is poisonous. Wet places from Newfoundland to Manitoba, June and July. (Scouts will find it interesting to discover, if they can, how the bees pollinate these flowers.)

7. Showy Lady's Slipper, one of the handsomest of our wild orchids. Usually a single flower, but sometimes two; white, the lip much inflated, and painted with rose. Swamps and wet, mossy woods from Newfoundland to Manitoba. June and July.

8. Pogonia, another beautiful orchid, one single blossom of this species having the perfume of a whole bunch of violets. Flowers pale pink to deep rose with a yellow crest on the lip. Newfoundland to Ontario, June and July.

9. Goldthread, low, smooth perennial, with long, thread-like, bright yellow, bitter rootstocks near the surface of the soil. Leaves shining and evergreen with three leaflets. One white flower. Mossy woods and swamps Labrador to Alaska, May to July.

SUMMER FLOWERS



1. Cow Lily or Yellow Water Lily, aquatic perennial with thick, creeping rootstock. Leaves oval or oblong with deep cleft at base. Flowers yellow, rather coarse. Still or stagnant waters, Nova Scotia to the Rocky Mountains.

2. White Water Lily, beautiful white, sweet-scented flowers, which open early in the morning and close in the evening. Leaves round, float on the water. Newfoundland to Manitoba, June to September. The seeds ripen under water.

3. Crinkle-root, also called pepper-root on account of its hot taste. Grows from a long, crisp, edible rootstock. Two leaves about the middle of the stalk, which ends in a short cluster of white or pale purplish flowers. Rick woods and thickets, Quebec and Ontario. April to June.

4. Pitcher-plant, a plant of peculiar interest to Scouts because of its habit of trapping flies and other insects which enter it to sip the water it contains. Leaves tubular, green, veined with crimson, and lined inside with coarse, but sharp pointed bristles pointing down. Single flowers a handsome crimson and green. Peat-bogs, from Labrador to the Canadian Rocky Mountains, in June.

5. Wood Nymph or White Mountain Aven, a beautiful little species of the rose family, growing close to the ground in sandy and rocky places. The flowers are white and about an inch across. The

leaves are thick, green, shining above and densely, white-hairy beneath. Labrador to the Rocky Mountains, June to August.

6. Drummond's Dryas, or Yellow Mountain Aven. Rose family. Yellow flowers, and black, hairy sepals. Found on gravel soil, Labrador to British Columbia, June to August.

7. Prairie Apple or Potato, species of the Pea family; formerly a food staple of the Indians. Large starchy root, stem covered with whitish hairs. Flowers bluish and crowded in a dense spike. May and June, in Manitoba, Saskatchewan and Alberta.

8. Canada Violet. Eight or twelve inches in height, flowers white tinged with pinkish violet on the back. New Brunswick to the Rocky Mountains, May to July.

9. Bunchberry, dogwood family, and herb with a woody base, springing from a nearly horizontal rootstock. Flowers small, of greenish colour, formed in a close head surrounded by from four to six white bracts resembling petals. Newfoundland to Alaska, May to July.

10. Twin-flower, a slender trailing little evergreen plant with threadlike, upright stalks bearing two flowers, bell-shaped, nodding, and pale pink to rose coloured. Mossy woods and cold bogs from Newfoundland to Alaska, June to August.

SUMMER FLOWERS



1. Calypso, species of orchid three to twelve inches high. Flowers pale or dark magenta, the lip yellow with madder stripes and spots. A single leaf grows from the base. Found in deep, mossy woods across the continent.

2. Sundew, species of sundew family, which lives on insects. The leaves are clothed with bristles, each exuding a drop of shining fluid which attracts insects, and fold over them. Flowers white and small. Peat bogs and moist, sandy soil from Labrador to Alaska, June to August.

3. Fireweed or Great Willow-herb, a showy species of evening primrose family, from two to eight feet in height. Flowers pale or dark magenta. Found in clearings and newly burned lands from Greenland to Alaska, July and August.

4. Pipsissewa or Prince's Pine. Leafy stem four to ten inches high, leaves long, wedge-shaped and saw-toothed. Two to eight flesh coloured flowers. Dry woods Nova Scotia to British Columbia, June to August.

5. Pyrola or Shin-leaf, a low perennial with running, underground shoots, bearing a cluster of evergreen leaves with a simple, slender stalk of nodding white flowers. Dry woods, Quebec to British Columbia, June and July.

6. Indian Pipe or Ghost-plant. Entirely white but turns black on drying. Dark and rich woods across the

continent, June to August.

7. Labrador Tea, low evergreen shrub, leaves thick, with rusty wool beneath, the margins entire and rolled under. White flowers borne in fragrant, roundish clusters. Bogs and damp thickets Labrador to British Columbia, June and July.

8. Sheep Laurel. Leaves leathery, bright green above and pale beneath. The crimson flowers are clustered, appearing later than the green shoots of the season. Hillsides, pastures and bogs from Newfoundland to Hudson Bay, June and July.

9. Closed Gentain, is a stout, smooth, perennial. Leaves ovate and narrowed or rounded at the base, flowers in stiff clusters of deep blue, rarely of white, with closed corolla. Moist soil from Quebec to Manitoba, August to October.

10. Butterfly-weed or Orange Milkweed. Orange flowers. Seeds flat with tufts of long, white, silky hairs. Ontario, June to August.

11. Bladderwort, and odd little plant, floating horizontally beneath the water, only half the stem with the orange-yellow flowers showing above the surface. The leaves are very finely dissected, bearing many bladders. These bladders have trap-doors which open inwards and trap very tiny, aquatic animals upon which the plant lives. Sluggish waters from Newfoundland to the Yukon, June to August.

12. Brown-eyed Susan. A species of the daisy family. Dry soil from Quebec to Manitoba, June to September.

AUTUMN FLOWERS

All the plants on this page belong to the thistle family or composite family. Although some bloom in the summer, all are to be found in flower in the autumn.



1. Boneset or Thoroughwort, a stout, hairy plant, two to five feet high. Flowers white and numerous in small heads crowded together. Wet places, Nova Scotia to Manitoba, July to September.

2. Gumweed, a coarse sticky plant with wedge-shaped to oblong leaves slightly saw-toothed, the flowers, yellow. Dry soil, Manitoba to British Columbia, and occasionally in Ontario, July to October.

3. Canada Goldenrod. A slender stem, smooth or hairy above, one to five feet high. Flower heads very small and arranged in a showy panicle. Atlantic to the Pacific, August to October.

4. New England Aster. Two to eight feet high and very leafy. Flower heads large and numerous, violet-purple with yellow centre. Quebec to Saskatchewan, August to October.

5. Purple Cone-flower, a handsome perennial, often cultivated. Flowers large with purple or paler rays and dark purplish centres. The leaves are three-nerved and entire. Found in dry soil in Saskatchewan from June to October.

6. Prairie Cone-flower. Green-green foliage, yellow drooping rays and greyish disc. Prairies Manitoba to British Columbia, June to September.

7. Sneezeweed. Numerous showy yellow flowers. Leaves are mostly toothed. River banks and wet ground Quebec to Manitoba, August to October.

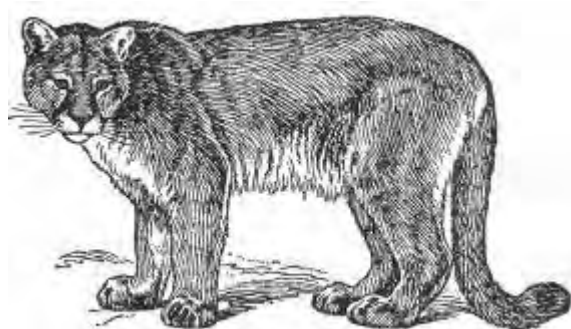
8. Gaillardia, is a very handsome flower and, like sneezeweed, often cultivated. The disc flowers are brownish-purple. The rays are yellow and three-cleft. Found on the prairies and occasionally eastward. June to October.

9. Yarrow. Common throughout eastern Canada, June to November.

WILD ANIMALS OF CANADA

Although their number in many cases is steadily decreasing there are still to be found in their natural state practically all of the wild animals which originally roamed the forests and plains of Canada. In order that they may not disappear entirely, wild life sanctuaries have been established in various parts of the Dominion, and in our National Park many of our most interesting animals may frequently be seen at close range, comparatively tame as a result of the protection given them.

The Puma, or Mountain Lion



Puma, Cougar, or Mountain Lion.

The largest member of the cat family native to Canada is the puma, panther or cougar, which in the West is generally known as the "mountain lion". This animal formerly inhabited both North and South America, from southern Quebec and British Columbia to Patagonia, and from the Atlantic to the Pacific coasts. Although it is no longer found in eastern Canada or in the eastern United States, it still ranges from British Columbia to Patagonia over a larger extent of territory than any other American wild animal. The puma is equally at home, as it would appear, in the severe winter climate of the snow-clad Rockies and Andes; in the arid, treeless parts of the southwestern United States and desolate plains of Patagonia, and in the steaming, tropical forests of Central and South America. Mountain lions vary from 150 to 200 pounds in weight and from seven to nine feet in length. Doubtless, the name lion has been given to them on account of their tawney colour rather than because of their courage. They are most destructive of deer, sheep, colts and cattle, and have been hunted as pests by Government hunters in the western States. Like the wolf, the puma is afraid of man, and authentic cases of its attacking human beings are exceedingly rare.

The Canada Lynx

There are two types of lynx in North America, the bay lynx, known as the bobcat or wildcat, of eastern North America, which is represented in Nova Scotia, Florida, and the West by allied varieties, ranging southward into Mexico, and the Canada lynx, a somewhat handsomer animal, which is, as its name indicates, the typical lynx of this country, although specimens are also found in the western mountains as far south as Colorado and the Sierra Nevada. The Canada lynx is pepper-and-salt-grey in colour, with long tufts of jet-black hair on the ear-tips, and possesses a cat-like head of exceptional beauty. Its fur is thick and warm, as it needs must be to protect it from the winter's cold, and when food perchance is scarce and it must search night after night for its prey. Lynx live on the smaller animals and birds, sometimes also killing mountain sheep and small deer, but, contrary to popular belief, do not attack people. Lynx-eyed is an expression signifying exceptional keenness of sight. The ancients believed these creatures could see through all substances.



Canada Lynx.

The Grey or Timber Wolf



Among the Indians the best scout in the band was often known as "Grey Wolf" or "Black Wolf," or perhaps "Lean Wolf", as a tribute to his mastery of the art of scoutcraft.

In the wilds all the wolves in a pack work together under the direction of their leader, yet each member of the party has his own part to play. That is how they grew to become classed among the cleverest hunters and the most cunning of all the wild animals. At one time the grey or timber wolf, ranged in great packs over the entire North American continent. Large numbers continue to exist in the northern forests, on the western plains, and in the foothills of the mountains, where they destroy every year very many big game such as moose and deer, and these grow

scarce, prey on the domestic animals.

Grey wolves seem to mate permanently and rear from eight to twelve cubs in a litter, both parents sharing the duty of protecting the young and providing for their living until they are taught to hunt and otherwise look out for themselves. The wolf is closely related to the dog, and cases are said to occur of wild dogs being adopted into the wolf pack.

The "barren lands," bordering on the Arctic coast of Alaska and Canada, and thence across the intervening islands to the north coast of Greenland, are the abode of the white wolf, known as the Arctic wolf, which feeds on caribou and musk-ox. The Arctic wolf has probably been developed under climatic conditions from the same original stock as the grey wolf. The prevailing colour of the latter is grey with more dusky patches on the shoulders, back and hips. They are about four feet nine inches in length and stand two feet two inches at the shoulders.

The Coyote

The coyote, a small species of wolf, is an animal of the prairie region and ranges from northern Alberta and British Columbia south to Central America. Outlawed by mankind, like their brethren the grey wolves, and hunted to earth by every conceivable method, their fleetness of foot and cunning have thus far enabled them to a large extent to baffle human pursuit, and their plaintive howl still sounds at night in many lonely parts. The coyote is less courageous than the grey wolf, and around settlement is particularly destructive of poultry and livestock. In the unsettled districts they live on rabbits, ground squirrels and mice. Young coyotes are easily tamed and some of the Indian tribes, indeed, are not unfriendly to them. The Indian dogs are probably of coyote origin. Their fur is yellowish-grey in colour, but of little value. Coyotes measure about four feet in length and twenty inches in height at the shoulders.



The Fox



The red fox has a reputation for cunning which is well deserved, for his success in eluding pursuit and providing for himself even in settled districts, is well nigh incredible. His diet includes mice, birds, reptiles, insects and fruits. But when the chance offers there is nothing Reynard likes better than a fat fowl from the farmer's hen roost.

The silver fox and black fox, now widely bred on fox farms for their valuable fur, originally were colour phases of the red fox, occasionally occurring in red litters. Another colour phase is the "cross fox," which has a black band across its shoulders and another along the back.

The Arctic, or white fox, is found on the Arctic coast and only as a straggler in the interior of Canada. Specimens are, however, occasionally taken in northern Manitoba, Saskatchewan and Alberta. This creature is noteworthy among its kind on account of its protective colouring, being snow-white in winter and bluish grey or salty in summer. The Arctic fox does not seem to be as keen-witted as his more southern cousins, but that may be due to his having fewer enemies and less competition to stir him in his race of life. A species of fox is found in Saskatchewan and Alberta, known as the "kit fox," or "swift", which is not much larger than a house cat. The fur of this animal is an attractive silver grey and buff yellow. It is strictly confined to the prairie regions and spends much of its time burrowing underground.

The Otter

This animal is taken in all parts of Canada. Although they are active enough on land to be able to keep well out of sight, they are only thoroughly when in the water, and there is no other land animal that can equal the otter as a swimmer and diver. The feet, indeed, are so placed that they can almost perform the function of fins. Its home is generally a burrow by the water's edge from which it readily slides into the water either in seeking safety from pursuit or to obtain its favourite fish food.



The Mink



The mink is a wonderfully expert hunter either by land or water and a creature of boundless resource in the face of danger. If water is near, he dives without a splash and swims away like a fish, rising to the surface only at intervals for an occasional peep until safety is assured. Or, if need be, he can climb a tree like a squirrel. Although short of leg he can run with incredible swiftness or slip into a tiny crevice for cover. But the mink is above all else as a fighter. In warm weather he lives in the swamps and feeds on frogs, lizards, worms, etc.

But for the most part he robs the nests or kills fish, rabbits, squirrels, meadow mice or birds, seemingly for very love of slaughter, and far beyond his requirements for food purposes. Minks are still found in many settled parts of the country. The fur is particularly esteemed for ladies' wear.

The Weasel

The weasel and the mink are closely related to one another, the mink being, however, larger and brown in colour throughout the year, whilst the weasel turns white in winter and yields the fur known as ermine. So destructive are they of birds and the smaller animal life that when game is abundant they content themselves with sucking their victims' blood or else leave their prey untouched. In summer they are inveterate robbers of birds' nests.

The Wolverine



Wolverine.

The wolverine, known in Europe as the "glutton," is the largest member of the weasel family and a creature of diabolical destructiveness and cunning. In form it is not unlike a small bear, with a handsome fur coat of chestnut colour and a dark saddle on the back. So much is it hated and feared by the natives for its thievery and wanton destruction that many of the Indians and Eskimos actually believe it to be possessed of a devil, and in some districts make offerings to propitiate its wicked spirit and to keep it from molesting their traps and caches of provisions. The wolverine is still quite common in northern Canada beyond the settled districts.

The Skunk

Still another member of the weasel family widely distributed throughout Canada is the skunk, whose presence in the neighbourhood is widely advertised by the suffocating smell this creature emits for its own protection whenever it is alarmed. Skunk fur is widely sold by the dealers under the name of Alaska sable, and gives excellent wear. Skunk farming has also been tried as a commercial venture. These animals are easily tamed. Their flesh is regarded as a delicacy by many woodsmen.



Common Skunk.

The Polar Bear



Polar Bear.

Bears of one species or another are found in nearly all parts of the world excepting South Africa and Australia. North America us, however, particularly favoured by nature in the number and variety of its bear species.

In the far north we have the polar bear, which lives on fish, seals and walrus, and inhabits the ice-fields and seashores along the whole northern edge of the continent, southward down to the centre of Hudson Bay. The polar bear is a handsomer and better proportioned animal than any of the

other members of the bear family. In winter the female retires to a sheltered spot on the ice or snow-covered coast, where her cubs are born and cared for.

The Grizzly Bear

The grizzly and big brown bear group has been separated into a large number of species. As a surviving remnant of one of the big game animals of the continent most famed in legendary lore and the historical accounts of the old scouts and explorers, the grizzly now deserves a certain measure of protection from extermination. The grizzly of the early Indian days probably deserved a certain measure of its reputation for ferocity but a century of contact with white men's firearms has taught the survivors prudence, and now the grizzly seldom, if ever, attacks man except in self-defense, or in alarm for its cubs. In a settled stock country it is out of place, but there are many rugged mountain districts in Canada where it may well be permitted to remain for the interest of coming generations.



The Black Bear

When the first settlers came to this continent black bears were exceedingly numerous, and, notwithstanding the persistent way in which they have been hunted, there are very few wooded districts of any large extent in which they are not still found. Black bear, although savage enough when attacked, or fighting for their cubs, will do all they can to keep out of a man's way, and should be classed as game and protected as such except during the specified open seasons. When hungry they will eat anything that lives or grows in the woods from berries and nuts (they are experts at tree climbing) to the flesh of smaller animals. Their favourite relish, though, is wild honey. Cinnamon bears and the white bears found in the interior of British Columbia are colour phases of the black bear group. Sometimes cinnamon cubs are born in the same litter with black ones.

The Chipmunk

Chipmunks are ground squirrels, whose homes are dug deep down in the earth beneath the grooves of hardwood. Here they spend the winter months, wrapped in slumber; here they bring forth their young and find safe shelter whenever danger threatens. From the surface the burrow descends straight downward for several feet, then along horizontally a few yards and slightly upward to the chamber, which is roughly a couple of feet long, a foot wide and a foot in height, carpeted with soft grass. Usually there is at least one other passageway to the surface. But how is all this excavating done and where is the material deposited, for you will look in vain for it around the entrance? It is carried away in the animal's cheek pouches to a safe distance where it will provide no clue to the whereabouts of the burrow. Chipmunks are found across Canada from coast to coast.

The Raccoon



Raccoons are distant cousins of the bears and in northern parts hibernate like the bears during the colder parts of the winter. They are most inquisitive by nature and are especially attracted by any bright or shining object. In fact trappers, well knowing this trait of “coon” character, often fasten a piece of tin to a trap so as to attract their attention. Although these animals are found in Canada they are for the most part of more southerly range and are most plentiful in the southern States, where “coon” hunts have long been a favourite pastime among the darkies.

The Squirrel

Of all the wild creatures we possess in Canada there are none more companionable than the grey squirrels and the chipmunks, and there is no boy who knows anything about these little fellows that wouldn't rather have one for a pet than kill it. With the least bit of encouragement the grey squirrels can be induced to establish themselves in our town or city parks, where their tricks provide a never-ending source of interest. A few nuts or a piece of cake will quickly win their confidence. Or, if you have no bait along, you can watch them laying by their stores for the winter or caring for their families in the branches up aloft. Black squirrels, too, are not uncommon in some parts of Canada. The black squirrel is, however, identical with the grey, excepting as to the colour of his furry coat. Flying squirrels are found across Canada from coast to coast. They are not about much, however, in the daytime, being creatures rather of the dusk and the night. Flying squirrels are not, or course, able to fly like birds for they have no wings but only folds of skin which extend sideways when they stretch their legs and launch out into space from a branch or tree-top. They are readily tamed and make most affectionate play-fellows.



But what about the cunning red squirrels, the impatient boy reader is asking. Well, truth to say, this particular member of the squirrel family stands convicted of so many grave offences that he has forfeited all right to our respect. In the summer he robs birds' nests. Yes, there isn't a doubt of it; so look out for your bird boxes if there are any of these ruffians about. So firmly lodged is the thieving instinct in their breasts that they will rob their own blood relations' store of winter provisions. And still, who is there who cannot help liking these lively little scamps, for they seem the very embodiment of lively fun, of saucy impudence and tireless industry.

The Spermophile



In the Prairie Provinces the spermophiles are most commonly called “gophers”, although “ground squirrel” is a more correct name. They dig deep burrows in the ground, and keep them open. Some of the species are very destructive to crops, digging up the fields, consuming the planted seed grain in the spring, and cutting down grain stalks later in the season. Some of them are found almost everywhere in the Prairie Provinces, and frequently three species are found in the same locality in the grain belt — Franklin's spermophile, or “grey gopher,” which resembles a small grey tree squirrel, but has a smaller tail;

Richardson's spermophile of "flickertail," a larger yellowish-clay coloured species; and the thirteen-lined spermophile or "striped gopher," which is readily known by its gaudy rows of stripes and dots.

Columbian Ground Squirrel

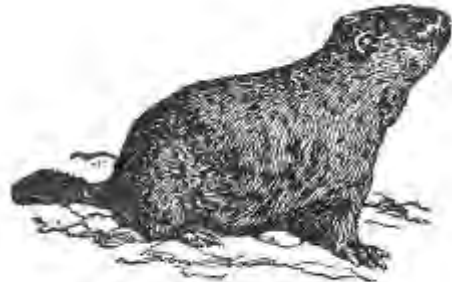
In British Columbia, the prairie ground squirrel is replaced by the Columbian ground squirrel, a dark-coloured species with reddish under parts. In some districts the ground squirrels do immense damage to grain crops, and farmers are obliged to make concerted efforts, at great expense, to keep them in check. The best natural checks are the large summer hawks of the prairie region — the rough-legged, Swainson's and the red-tailed hawks, which are commonly known as "gopher hawks." Most up-to-date farmers are beginning to appreciate the incalculable assistance rendered by these birds, and protect them zealously.

The Pocket Gopher

The true gophers, or pocket gophers, have a more glossy, mole-like appearance. They have large cheek-pouches opening outside of the mouth, and their fore feet have immense claws for digging. They are largely nocturnal and are seldom seen, although their presence is easily detected by the large mounds of granulated earth which are heaped up over the closed mouths of their subterranean burrows.

The Woodchuck

Woodchucks, also known as ground hogs, are among the most disliked of our wild creatures, on account of their destructiveness of crops, and their surly, cross-grained, lazy dispositions. If the European dormouse, as the story books indicate, the sleepest creatures in existence, the North American woodchuck at least beats it out in the duration of his winter nap for apparently he enjoys seven months unbroken rest. The woodchucks of eastern and central Canada are represented in Alberta, British Columbia and the Yukon Territory by several closely related species known as marmots or "whistlers".



Woodchuck.

The Badger



Badger.

Another burrowing animal, common in the Prairie Provinces, is the badger, which is really more at home underground than on the surface. So persistent is this creature in its search for food that it is said to make a fresh burrow every day and the speed with which it can dig its way into the earth as a means of escape from danger is truly wonderful. Unlike its English cousin, which is an animal of social and playful instincts, the Canadian badger is of solitary habit. When attacked he fights to the very last, no matter how unequal the combat; in fact, dies fighting.

The Porcupine

For the most part porcupines must lead a pretty happy existence, for the other wild animals generally leave them alone rather than run the risk of an encounter. One sometimes hears it said that porcupines fling their dart-like quills at an antagonist. But, of course, Boy Scouts know better than that. The truth is it is well nigh impossible to touch him when his quills are raised without some of them sticking into you. And woe betide the wild creature that pays such a price for his meal, for the quills are so barbed that they will not come out, but rather work farther inward with the sufferer's efforts to dislodge them until death results.

The porcupine lives on leaf buds and bark. The barked trees in the woods proclaim his presence in the neighbourhood and, as he is a slow-moving animal, he is easily found and killed. In some of the provinces the porcupine is protected by law because it is the only animal of the northern woods that a lost man, in case of need, can kill with a club. They are sometimes found out in mid-winter, even up to the northern limit of tree growth, ploughing deep ditch-like trails in their slow progress through the snow. Besides the Canada porcupine a yellow-haired species is found in the West.



Canada Porcupine.

The Muskrat



Muskrat.

In form and in some of its instincts the muskrat resembles the beaver; but there is no family relationship between them. The muskrats are rats. The name muskrat is derived from their musky odour. Their fur is in constant demand and is sold under a dozen different trade names.

The Rabbit

Pursued in the wilds by hawks, owls, lynxes, minks, weasels, and a host of other predatory foes, and in settled regions by dogs and hunters as well, the rabbits, by their rapid breeding and wonderful adaptability to changing surroundings, have held their own under most discouraging circumstances. Even on the "barren lands" of the polar regions and the northern islands the Arctic hare manages to dodge the wolf and fox and pick up a good living on the rock lichens.

In winter, when the snow is deep, starving rabbits often eat the bark of young fruit trees and berry bushes, as well as other saplings, but in many cases the damage attributed to them should be charged the meadow mice or voles.



Jack Rabbit.

The snowshoe rabbit, or varying hare, is found in several different varieties throughout Canada from Nova Scotia to British Columbia. The fur is white in winter and greyish brown in summer. This is the common rabbit in most parts of the Dominion, though the cottontail rabbit which does not turn white in winter, is also found in southern Ontario and Quebec, and in parts of southern Saskatchewan and Alberta.

The jack rabbits of the plains of the west and southwest are still in the class of wild animal pests. The prairie hare, or prairie jack rabbit of the Prairie Provinces, is scarcely abundant enough to be a nuisance. It is easily known from other rabbits of the temperate regions of Canada by its greater size.

Jack rabbits have a habit, when they are disturbed, of bounding up into the air for an observation glance in the direction from which any suspicious sound has come. The white hares sometimes practise a similar device for taking in the situation whilst they are running away from suspected danger.



Little Chief Hare, or Pika.

The Scout who has the opportunity of ascending one of the higher mountains in the West, may hear the bleating call or perhaps see one of the curious pikas, or little chief hares. These little animals, allied to the rabbits, inhabit the higher rock slides, and put up little hay-stacks of dried alpine plants for winter use.

The Wood Rats

In many parts of the mountains and foothills of the West are found different species of bushy-tailed wood rats. These animals build bulky nests among the rocks, and from their annoying habit of invading hunters' and trappers' cabins and carrying away large quantities of food as well as any article or implement light enough for them to move, are generally known as "pack rats."

The Beaver

The beaver, which often appears as the Canadian national emblem, is conspicuous among the forest folk for his industry and engineering skill. Beavers were so abundant on this continent in the early days that countless numbers were captured by the Indians and other trappers for export, and beaver skins took the place of money in the settlements of account. So great, indeed, has been their slaughter that their skins have greatly increased in price and the number now taken is relatively small. In the Algonquin Park in Ontario and other places where effective measures have been taken for their protection, they have become abundant and visitors may see their dams and lodges in many different lakes. Books have been written about the beavers, their dams, lodges, canals and love affairs: but space prevents our dwelling on the subject here at any length.



Beaver.



The Little Brown Bat.

The Bat

The bats are at once recognized by being the only mammals that can really fly, as the flying squirrel can do no more than coast or volplane from a higher to a lower level. In their structure they are close to the insect eating animals, such as the

shrews and moles, and are not at all related to the birds. The bat's flying apparatus consists of greatly lengthened fingers, connected with each other and to the sides of the body a thin skin or membrane while the bird gets its support from broad quills laid side by side. The bat spends the day hanging head downward in some dark corner or cave, or on the branch of a tree, and flies by twilight. Most localities in Canada have three or four species, but their distribution is not very well known and the bats deserve more study by naturalists.

Mice



Jumping Mouse.

Nearly any Canadian locality may have several species of native mice, besides the ever-present house mice. There is usually to be found a species of graceful white-footed mouse, or deermouse, a red-backed or pine mouse, voles or short-tailed meadow mice, and interesting long-tailed jumping mice. The mice are rodents, or gnawing animals, and are known by having two long chisel-like incisor teeth at the front of each jaw, like the squirrel or the beaver. Their habits of life in the woods and fields, and their adaptation to the ways of civilization, form interesting studies that can be carried on anywhere.

The Shrews and Moles

At a careless glance the shrews look much like mice, but belong to an entirely different group of animals — the insectivora, or insect eaters. They do not have chisel-like front teeth, and the teeth are, in fact, more like the teeth of the flesh-eating creatures. They live largely upon insects, although they often eat other things. All the species are of small size, have very small eyes, and usually an elongated nose or snout. Some species of shrews are the smallest of living mammals. The moles are usually larger, and have the fore feet broad, with large claws adapted for digging. Moles are not such great travellers as the shrews, and are seldom seen above ground.



Star-nosed Mole.

The star-nosed mole, shown in the accompanying illustration, is found from Manitoba eastward to the Maritime Provinces and is a most peculiar creature by reason of the twenty-two soft fleshy tentacles around its nose, from which the species derives its name. Another odd characteristic of the star-nosed mole is the enlargement which occurs every fall of its long tail, continuing throughout the winter months. These moles are a dull brownish-black in colour, live as a rule in marshy ground and feed on insects and earth-worms.



The Moose.

The Moose

North America was especially favoured by nature in the allotment to her of so many species of the deer family, of which we have in Canada two species of moose (the largest of living deer), ten species of caribou, the elk, the white tails and the black tails.

The North American moose are almost identical with the European elk, although larger, and are, indeed, the biggest and the most picturesque and distinctive game of the North American continent. Picture to yourself an animal taller than an ordinary

horse, weighing more than half a ton, with a huge head carrying nearly one hundred pounds' weight of bony antlers, spreading four, five or six feet in width, and you have before you an outline of the bull moose. But very different is it to meet one of these impressive creatures face to face in the northern forests, or even to see it moving through the woods. So great has been the slaughter of moose for their hides and flesh since the settlement of Canada that the species is extinct in many parts of the Dominion, and will soon be so everywhere outside of the game sanctuaries maintained for the protection of wild life.



The Caribou

The caribou group, of ten different species, resemble in appearance the European reindeer. The woodland caribou is found across the entire Dominion but has disappeared from the eastern parts of the United States, being neither as swift nor astute as other deer. The "barren lands" of Canada's far north, to the east of the Mackenzie River, are inhabited by millions of small caribou, on which the Eskimos and Indians of these parts mainly depend for their food supply. Reindeer meat from Alaska has been sold in considerable quantities in Seattle and, doubtless, the caribou herds of northern Canada could be utilized in the same way, if proper methods of conservation were employed. At present the difficulty would be that of transportation. The caribou hair is said to be the warmest garment worn by any wild animal.

The Musk-Ox

The musk-ox has already disappeared from its former ranges east of the Mackenzie River and Alaska and is at present found only on the "barren lands" north and northwest of Hudson Bay and across the Arctic archipelago to the north coast of Greenland. How these creatures manage to find a living by grazing in temperatures of sixty to seventy degrees below zero and throughout the Arctic darkness is certainly surprising. Doubtless, however, the high winds of the north sweep the snow from the rocky hillsides where they find a supply of mosses and lichens. Musk-oxen are comparatively small animals — only three feet six inches high at the shoulder and combining something of the appearance both of sheep and of buffalo.



The Rocky Mountain Sheep or Big-Horn

Rocky Mountain sheep are inhabitants of the clear cold upper world of the Rockies and are regarded by some as the finest hoofed game animals of North America. Their surefootedness in flight on the steep mountain sides is a revelation, but truth to tell the very sight of one of these animals in the wilds is something of which few travellers can boast for the big-horn is keen-eyed and exceptionally difficult to approach. A beautiful white mountain sheep, smaller than the foregoing, is found in Alaska and the Yukon. Still another species of wild sheep, iron-grey in colour, and known as the stone, mountain or black sheep, is found in northern British Columbia and southern Yukon.

The Rocky Mountain Goat or White Goat

The only wild goats found in Canada are the mountain goats which live on the higher slopes of the mountains from southern British Columbia to Alaska. Their nearest blood relations are the chamois of the Alps and the serow of the Himalayas. They are pure white in colour, and a little smaller in size than the big-horn mountain sheep, having a height at the shoulders of forty-one inches and a weight of about three hundred pounds. With the mountain sheep they share the distinction of being the best rock climbers in America.



Prong-Horned Antelope.

The Prong-Horned Antelope

It is said that so numerous were the bands of prong-horned antelope on the great plains of the west in the early days that they rivalled the buffalo in numbers. Today, it is but a handful that remain and these are constantly decreasing for so timid is it in disposition that it does not thrive in enclosures and it is only under conditions approaching its natural state that it will be saved from extermination. This animal is of special interest to naturalists because of its being the only living representative of its family group. The prong-horned antelope is in many ways intermediate between deer and cattle.

The Elk

The Canada elk is, next to the moose, the largest member of the deer family, and by many regarded as the handsomest of all our hoofed game. Unfortunately, it is now almost exterminated, the mere remnants of once innumerable herds still surviving in the western provinces. Elk breed, however, very readily in captivity and as there are a number of captive herds, this noble species can with care be saved from extinction. A very large number of elk have been sacrificed owing to the senseless demand for tusks of the male elk for charms or fobs. This species of deer is more properly called the wapiti, the elk of the Old World being more like our moose.



Elk or Wapiti.

The White-Tailed Deer or Virginia Deer



White-Tailed Deer.

So hardy, so prolific and so skilful in hiding is the white-tailed or Virginia deer that, according to Dr. W.T. Hornaday, it will be the last big game animal that will furnish sport in North America. It will survive long after all the North American deer have been exterminated. Ernest Thompson Seton says of it "the least migratory, the least polygamous, the least roving, as well as the swiftest, keenest, shyest, wisest, most prolific and most successful of our deer, it is the only one that has added to its range; that in the North and West has actually accompanied the settler into the woods; that has followed afar into newly-opened parts of New England and Canada; that has fitted its map to man's and that can hold its own on the frontier." It is found from Nova Scotia westward to eastern British Columbia, but is essentially a creature of the woods and thickets, especially where these alternate with open glades. In the water it is so much at home that a hunter in a canoe must race to overtake one. The bucks only are provided with antlers. Bucks weigh from 150 to 300 pounds.

The American Bison or Buffalo

No large animals ever congregated within human memory in such stupendous number as the American bison, commonly known as the buffalo, and the practical extermination of the species, whose total number were estimated between 30,000,000 and 60,000,000, is fraught with melancholy interest to lovers of wild life everywhere. Early settlers, both in the Canadian and American west, spoke of the prairies as being "covered with buffalo" and there is a record of a solid herd of buffalo on the Arkansas River in 1871, twenty-five miles wide by fifty miles deep, which contained, at a conservative estimate, four million head. When the transcontinental lines of railway were built trains were sometimes held up for hours at a stretch to let the buffalo pass. No wonder that the early settlers of the west thought it would never be possible to exterminate such a mighty multitude. The Indians of some tribes, in fact, believed that the buffalo issued from the earth continually and that the supply was, therefore, inexhaustible.



Yet in four short years the bulk of the great southern herds passed out of existence in the United States and those farther north were not long following. Happily, the Canadian Government came to the rescue, and established and stocked a buffalo preserve at Wainwright, Alberta, where this noble animal has not only been save from extinction, but has rapidly increased in numbers.

CANADIAN BIRDS

Birds in all ages have been dear to the heart of man, on account of their beauty and their song. As well, however, they serve a very useful purpose in the control of insect and weed pests, as scavengers, and otherwise. A land without birds would quickly become a land without either forests or farms.

Certain birds, such as the wild duck, geese, turkeys, partridge, etc., from their food value, size, habits and distribution, are regarded as legitimate game, the pursuit of which is recognized as offering healthful sport. A true sportsman, however, does not shoot birds that do not have a fair chance, and does not carry his sport to excess. He kills only birds that can be eaten, and does not take pot shots at other feathered forms. If we are to preserve game birds for the pleasure for benefit of generations to come, the principle of the true sportsman must be upheld.

A man who studies birds is called an ornithologist. Mark Twain, the amusing yet kind-hearted American writer, says: "There are fellows who write books about birds and love them so much that they'll go hungry and tired to find a new kind of bird — and kill it. They are called 'ornithologers.' I would have been an 'ornithologer' myself, because I always loved birds and creatures. And I started to learn how to be one. I saw a bird sitting on a dead limb of a high tree, signing away with his head tilted back and his mouth open — and before I thought I fired my gun at him; his song stopped all suddenly, and he fell from the branch, limp like a rag, and I ran and picked him up — and he was dead. His body was warm in my hand, and his head rolled about this way and that, like as if his neck was broke, and there was white skin over his eyes, and one drop of red blood sparkled on the side of his head, — and — laws!

I couldn't see nothing for tears. I haven't ever murdered no creature since then that warn't doing me no harm — and I ain't agoing to neither."

Knowing the Birds

A good Scout is generally a good "ornithologer," as Mark Twain calls him. That is to say, he like stalking birds and watching all that they do. He discovers where and how the build their nests. He does not, like the ordinary boy, want to go and rob them of their eggs or shoot them with a sling or airgun, but he like to watch how they hatch out their young and teach them to feed themselves and to fly. He gets to know every species of bird by its call and way of flying. He knows which birds remain all the year round and which come only at certain seasons, what kind of food they like best and how they change their plumage, what sort of nests they build, where they build them and what the eggs are like.

Attracting Birds About the Home

Parks, gardens and even the smallest of lawns, can be made attractive to bird life if we know how to go about it and are willing to provide the bare essentials of bird existence — food, water and safe nesting accommodation.

In summer the birds' great need in towns is water rather than food, and the simplest bath set out in the open and away from the danger of cats, is sure of patronage. In winter, too, birds can be easily attracted about the house by regularly providing for their modest food requirements.

A bird house or two about the home will also be found full of interest to the household as many varieties of Canadian birds have already shown their willingness to nest in these habitations.

There are practical directions given in a number of bird books which it is well for Scouts to consult for specific direction on the purchase or construction and placing of nesting boxes. These are of a wide range of architectural design, from empty tomato cans to hollowed out sections of small trees in imitation of woodpecker nests, and including also the community or apartment plan of bird houses which are most attractive to martins on account of their highly developed social instinct.

It is wise to get practical directions about your bird house at the outset. In fact unless you do so you are apt to find that instead of attracting wrens or bluebirds, robins, flickers or purple martins, your house is overrun by noisy sparrows.

Many Forms of Bird Life

The bird life of the world has been classified by scientists into various orders such as diving birds, swimming birds, shore birds, etc., which in turn have been divided into families, genera and species. There are altogether between thirteen and fourteen thousand different species of birds. The same species are not, however, found everywhere and the total number found in Canada and the northern archipelago including Greenland, either as all year round residents or as migrants, is 768.

Extinct Bird Species

There are feathered forms of other days among fossil remains in various climes which show that the same process of evolution has operated in bird life as in other forms of nature, and it is claimed that our birds of to-day are, indeed, descended from reptiles.

The island we now call Scotland, England and Wales once numbered among her wild life ostrich-like birds of no small size. There are remains, too, in South America of giant birds from seven to twelve feet in height, and in New Zealand of birds from ten to eleven feet high. How many species of bird life have passed into oblivion none can tell.

The wild pigeon of North America, also known as the passenger-pigeon, was in our fathers' boyhood days one of the most notable birds of North America, alike for its beauty of form, its rapidity of flight, and its immense numbers. In point of numbers it is doubtful, indeed, in the middle of last century, if there was any parallel to this bird among the other feathered tribes of the earth. Audubon, the great American naturalist, has written of single flocks, which he had himself seen, of passenger pigeons numbering over a million birds, and Alexander Wilson, another distinguished naturalist of the last century, tells of a single flock, he himself saw, that measured 240 miles in length and contained on a moderate basis of calculation 2,230,272,000 birds.

The passenger pigeon ranged over the entire area of North America east of the Rocky Mountains and north towards Hudson Bay. Yet, through unrestricted slaughter, this wonderful food bird was brought to extinction within a single generation and large rewards offered within recent years have failed to lead to the discovery of a single member of this once innumerable species.

The Eskimo curlew, the trumpeter swan, the whooping crane and the Caroline parakeet are other North American birds which are now believed to be extinct, or very nearly so.

Bird Protection Laws

Happily, a little more sense is being shown regarding the value of birds in these days than was the case in times past. Laws have been enacted in the different provinces of Canada, and the states of the adjoining country, affording a measure of protection to game birds. Nearly all Canadian provinces have laws, too, protecting non-game birds.

An act was passed in Ontario in 1914 for the protection of wild birds in general, other than game birds, hawks, crows, blackbirds and English sparrows. Under this law persons destroying or capturing wild birds, or interfering with their nests, are subject to a fine of \$20 and, apart from the public authorities, the Canadian Society for the Protection of Birds is exerting itself to secure the observance of this statute.

A treaty has recently been signed between Great Britain and the United States for the protection of migratory birds against extermination through lack of adequate protection during the nesting season, or while on their way to and from their breeding grounds. The treaty is designed to prohibit the shooting of migratory birds in the spring; to make the close seasons approximately equal in length in different parts of the country and to limit the seasons during which game birds may be shot to a maximum of from two months to three and a half months. A close season of five years has been declared on certain migratory game birds, particularly shore birds. The treaty also forbids absolutely the killing at any time of bobolinks, catbirds, chickadees, cuckoos, flycatchers, grosbeaks, humming-birds, kinglets, martins, meadow larks, night hawks or night jays, nuthatches, thrushes, whip-poor-wills, woodpeckers, wrens, and all other perching birds which feed entirely or chiefly on insects.

Apart from the game wardens and police authorities charged with the observance of the bird laws, it is, however, necessary that their efforts should be supported by the public sentiment of the community at large and Boy Scouts can do a great deal to assist in the protection of our feathered friends from wanton destruction.

Bird and Game Reserves

The twelve park reservations controlled by the Dominion Government in British Columbia, Alberta and Saskatchewan, aggregating in all 8,000 square miles, as well as the reserves established by the provincial governments in the Rockies, on the prairies, and among the magnificent pine forests of Ontario and Quebec, incidentally afford protection to all of the various forms of wild life which are found therein. A number of breeding grounds for wild fowl and other birds are also being reserved by the federal authorities in the Prairie Provinces including some of the principal breeding grounds of wild duck in North America. It is hoped that a number of bird reservations may be established in Eastern Canada as well.

Making Friends With the Birds

An ideal landscape in which to find and study birds of different varieties would include a meadow dotted with trees and a reed-bordered stream or pond, with adjacent woods, orchards and hills. Birds are always more numerous in well watered regions than in dry surroundings. There are a hundred along the stream in the valley to one on the mountain top. But if conditions such as these are not obtainable do not despair because a good deal of natural history can be learned with pleasure from the birds in or about your own homes.

Bird study may be more truthfully described as a sport or pastime than a study in the school sense, and the Scout who takes it up thereby establishes a new link of interest with the great world out of doors which will continue to give him pleasure when boyhood has passed into maturity and on even to the snows of old age. All that is needed in the way of equipment is an inexpensive opera or field glass, a note book and a good bird reference book, of which there are several on the market.

You may either take your book with you into the woods or fields — some bird books are written for this special purpose — or you may use your note book to jot down the colours, markings and other peculiarities of any unfamiliar birds you encounter, and afterwards identify them with certainty from your reference book at home. You will find it impossible to carry home a clear enough remembrance in your head alone of unfamiliar bird species encountered in an afternoon's ramble, so it is better far to use your note-book as you go along. By so doing you can usually get a record not only of the bird's markings and size as "between wren and sparrow" or "between sparrow and robin," etc., but you can be certain just where it was seen, whether near the ground or high up, in heavy woods, garden, swamp or open country, and note can be made at the same time of its characteristic movements, notes and nest. In this way you can make quite sure of the bird's identity when it comes time to consult your book, whereas otherwise it might be impossible to do.

Observation Hints

Dress inconspicuously, avoiding flapping neckerchief ends, etc., for your bird observation hike. Stalk with the sun at your back, if possible, and approach slowly, with frequent pauses. When the bird shows alarm, freeze until it has ceased watching you. Or pick out a likely spot beneath the shade of some convenient tree, and remain motionless until the birds' sense of danger has passed.

Some naturalists are able to attract birds about them by making a "squeak" by kissing the back of their hands or fingers vigorously in a way that resembles the cry of a young or wounded bird. Birds are ever on the lookout to protect their young and the note of alarm, even in its counterfeit form, will often bring a number of anxious parents around you to find out what is the matter.

Tramping heedlessly through the woods is apt, on the contrary, to drive all timid birds away. Hunting birds is like a good many other things in life; you must have your eyes, ears and mind wide open, and you must search diligently, if you expect to find.

Whenever you discover a bird's nest be careful not to disturb the foliage around it or the eggs, and do not make your visits too frequent, or you may drive the parent birds away. The same is true of ground nests. In both cases it is well to remember that your tracks are apt to be followed by some enemy of bird kind.

The bird lover who is possessed of a camera will find it fascinating sport to photograph birds in their natural haunts including the nesting birds and their ever hungry offspring. Hunting birds with a camera calls for a great deal more coolness, patience and skill than hunting with a gun. But there is both a zest and a lasting satisfaction in this sport that no killing of wild life with firearms can equal.

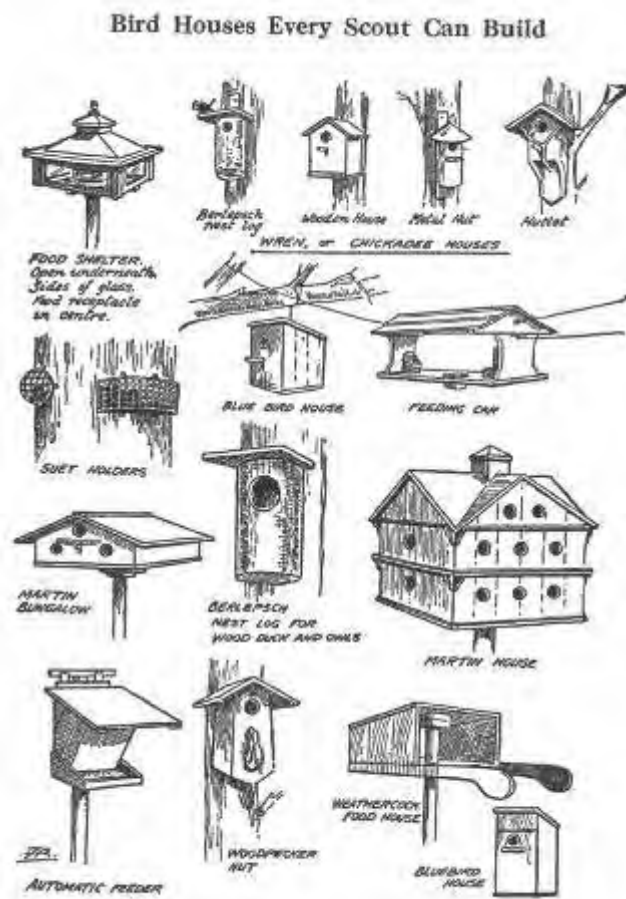
A Field Notebook

An especially handy and helpful note-book of pocket size, is published for the foregoing purpose by the National Association of Audubon Societies, of New York, at fifteen cents each. This booklet contains outline figures of the five common types of birds, viz.: (1) small perching birds, (2) hawks, (3) snipes, (4) herons, (5) ducks, and on the opposite page a numbered list of colours. It takes no time when a bird is before you to quickly fill in his colour markings by numbers on the outline figure and to secure otherwise ready means of identification of any bird species you are likely to encounter.

The Biological Division of the Geological Survey, Ottawa, will, on request, take pleasure in identifying any bird specimens for Boy Scouts, which they have not been able to identify for themselves. Each request to this end should be accompanied by as clear a description of the bird as the Scout can furnish.

Bird Enemies

Among the common enemies of bird life are cats, red squirrels, minks, weasels, skunks, snakes, rats, mice and mankind. Ravens, crows, jays, blackbirds (grackles), and some owls and hawks are also destructive of the smaller birds and rob many nests. A house cat has been known to kill as many as fifty birds in a single season.



*By kind permission of the Boy Scouts of America.



An insatiable enemy of bird life, the House Cat.

Bird Families

No one could observe the solicitous care exercised by parent birds in the upbringing of their family, their joys, their anxieties and sorrows, without benefiting from their example.

The number of eggs laid varies from one to twenty for different kinds. If an egg is stolen from the nest the mother bird will frequently replace it with another; there is a story of a flicker which has in this way known to lay 71 eggs in 73 days. The habit developed by domestic fowl of laying for months at a stretch comes, of course, through their nests being robbed for household consumption.

The period of incubation which is required to hatch out the birdlings varies for different varieties but is relatively shortest in the case of the smallest birds. In most cases, of course, the female bird sits on the eggs to keep them warm, being relieved at intervals by the male bird. The emperor penguin, whose picture appears in the illustrations of most Antarctic expeditions stands with its large webbed feet underneath its eggs to keep the latter off the ice. The gannet hatches out its young by sheltering the eggs with its toes. Other strange habits in the hatching out of young birds are those by the ostrich which leaves its offspring to be hatched by the heat of the sun, the Egyptian plover which covers over its eggs with reeds, and the brush turkey of Australia which buries its eggs under vegetable matter leaving it to the heat generated by fermentation to do the rest.



Meal time.

The greater number of newly hatched birdlings are entirely dependent on their parents for sustenance and care for weeks until, from a state of utter helplessness and partial nakedness, they are nourished with infinite care up to the point of being able to look out for themselves. The offspring of our barnyard fowls, such as chickens, goslings, ducklings, turkey, however, pick up food, and take care of themselves in all respects almost from the moment of their emerging from the shell. The same is true of the offspring of most of the shore birds.

It was an ancient belief that the pelicans nourished their offspring with their own life blood. But this is not the case. Like cormorants, ibises, and certain other water fowl, the young pelicans thrust their bills far down the parents' throats to suck up their means of sustenance.

Mating Habits

When the gander of the Canada goose has chosen his mate the two are said to live together ever afterwards, sharing the fortunes alike of their winter in southern and summer in northern climes. Among these birds there are apparently many which never mate. Perhaps it may be, though, that the seemingly old maids and bachelors are widows and widowers, for geese are evidently slow about venturing again on the troubled sea of matrimony.

Eagles also mate for life, which in their case means for a century, if no mishap befalls.

Apparently very many migrant birds return in the spring to the very meadows in which they nested the year before. Most of the smaller birds may choose the same mates year after year, if these survive, although little is known definitely as to their fidelity to each other in this respect.

Many of the birds alike of meadow, water and forest are unmated, but just what the proportion would be is unknown as, indeed, there are a great many other interesting things which have been left to Scouts and other bird friends to discover.

High Death Rate

The death rate among birds is very high for, apart from the sportsman's gun and the juvenile airgun and sling, many fall victims to birds of prey, rats, cats and other enemies. In winter time hunger, frost and snow take heavy toll, while telegraph wires, lighthouses, decoys and nets all are answering for many lives. Probably the number of birds dying of old age is, therefore, relatively small.

Little is positively known about the ages of different bird species. Eagles, swans and ravens have exceeded a century but in the case of the smaller birds the span of life is comparatively brief.

Bird Nests

There is infinite variety between the nesting habits of different birds. The purpose of the nest is, of course, to keep the eggs warm, and the young birds from falling out. Many sea-birds, such as gulls, terns and sandpipers, and shore-birds, like the plovers and curlews, with quail, grouse, rails and others, build next to no nest at all, on account of their eggs being laid on the ground and their young being able to shift for themselves from birth. Ducks, geese, and other swimming birds follow much the same course, except that arctic ducks provide quantities of feather and down in their nests, to help in keeping the eggs warm.

The grebe nests on a floating raft of green rushes piled across one another for the purpose and usually attached to some upright rushes in the water, so as to prevent it floating away. The eggs are laid in a mass of decaying vegetation, barely above the water. Grebe nests are so lightly tethered that they are apt to be blown about by the winds. The birds are also said to move their own nests from place to place by stretching out one foot and thus paddling off to another location.

A bird like the tern, which builds no nest whatever, but simply lays its eggs on the sand of the seashore, yet has sense enough to pick a spot where there are plenty of broken shells and pebbles lying about so that the mottled eggs are quite difficult to distinguish. Probably the best way of finding them is by following the birds' foot-marks in the sand leading to the nest.

The nighthawk deposits her two mottled eggs on the bare ground, or rock, where they depend for safety on their protective colouring. Sometimes you will find this bird nesting in the city on a gravel roof where their eggs can scarcely be distinguished a few yards distance.



A Night Hawk nesting.

The whip-poor-will is another species nesting on the ground. It has a preference for a bed of yellow leaves in a well sheltered thicket.

Unlike the seafowl and shorebirds, larks, ground sparrows, and many other varieties nesting on the ground, build hollowed out nests, probably because of their offspring having to be nourished before they can provide for themselves.

Very many bird families are under obligations for nesting sites to the industrious woodpecker which chisels its way into a hollow tree for an abode in which to rear its family. Its habit is to make a new nest every year, from which it follows that many comfortable lodgings are left for other birds that wish to occupy them. Sparrow hawks and screech owls, in their search for nesting cavities, often pick on an abandoned woodpecker's hole.

The flicker is not at all a shy bird and often is found on trees and lawns in towns and cities. If there is no hollow tree available it digs its way into a telephone pole and it has been known also to dig through hollow verandah posts and weather boarding under eaves.

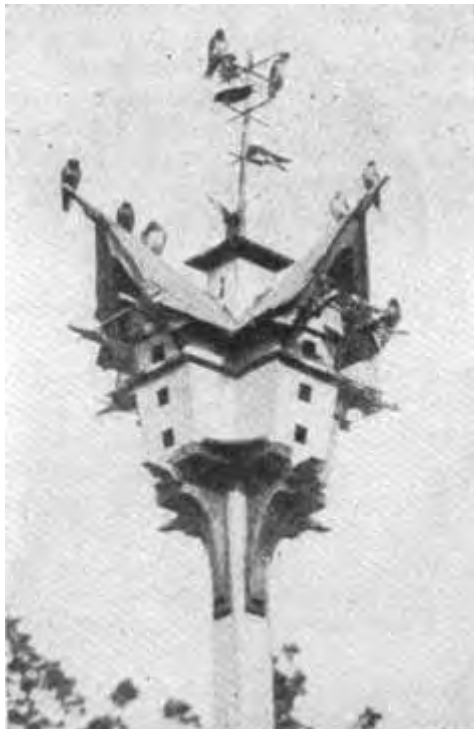
In parts of the west, trees are so scarce that woodpeckers resort in large numbers to the telegraph poles and Mr. T. Gilbert Pearson, Secretary of the National Association of Audubon Societies, writes that "while travelling on a slow train through Texas I counted one hundred and fifty telegraph poles in succession, thirty-nine of which contained woodpecker holes. Probably I did not see all of them, for only two-thirds of the surface of each pole was visible from the car window. Not all of these holes, of course, were occupied by woodpeckers in any one season."

A few taps on the tree or pole will usually be followed by the occupant poling his head out through the open doorway, if the nest is in use. In winter woodpecker holes are used by birds of other species for shelter.

The eagle's nest may still be found in remote regions, in the topmost branches of some tall pine tree near the water, or on the rocky ledge of an inaccessible cliff. Five feet across, and sometimes as much as seven feet deep from top to bottom, is the parent bird's habitation.

Woodland and field birds fashion for their young in most cases cradles of a beauty and texture far beyond elemental requirements and varying in size, form and material, from the massive abodes of eagles and hawks to the solid mud-plastered nest of the robin, the downy couch of the tiny humming bird, and the swinging home of the Baltimore oriole hanging pendant from the outermost limb of some tall elm.

Very different again is the habit of the cowbird, which builds no nest at all, but deposits its eggs in other birds' nests to be hatched out and provided for. The foundlings even starve our the rightful occupants of the nest without the foster-mother being aware of the deception which has been practised upon her.



Purple Martin house.

Few if any native birds in America have adapted themselves more fully to human habitation than the swallows and chimney swifts. The purple martin is the largest of the North American swallows and originally lived in hollow trees but in the east has now forsaken the home of its ancestors for the man-made nesting boxes which are found in so many old-fashioned gardens.

The chimney swift too in earlier days nested in hollow trees and in odd cases does so still. Audubon tells of a plane tree in Kentucky in which he counted nine thousand of these swifts clinging to the hollow trunk. The up-to-date bird of this species has long since forsaken hollow trees for the more convenient brick or stone chimney to the interior of which it fastens its nest. The glue, which they use in sticking their nests to the chimney is a brownish fluid secreted by certain glands in the bird's mouth which thickens into a hard gum on exposure to the air and holds both eggs and birdlings securely unless a mid-summer fire happens to be kindled on the hearth below, when down may come baby, cradle and all.

Lucky is the housekeeper who has a family of swifts living with him for they will rid the air all about the home of mosquitoes and other flying pests. Like the woodpeckers the swifts use their stiff tail feathers to prop themselves up in clinging to the upright tree or wall. On the wing the swift has few equals. This bird is also spoken of as the chimney swallow, which is, however, a mistake as the swift is no swallow. It is, indeed, more nearly related to the nighthawk and the whip-poor-will.

The barn swallow, which once reared its family in the wilds, nowadays seeks out the surer shelter of the barn or outhouse and many farmers encourage these little birds about the premises by leaving windows through which they may pass. Its nest is fastened to the rafters with pellets of mud, which the bird carries in its bill from nearby puddles.

The cliff, or eave swallow, another farmyard resident, has deserted for the most part its ancestral cliff to settle under the eaves of barns or stables. If the woodpeckers were among nature's original carpenters the eave swallows must have been among the pioneer masons. Their cup and gourd-shaped clay nests are built in colonies. There is a protected entrance on the side and the interior is comfortably lined with grass and feathers. In the west, where human habitations are fewer, they still nest in thousands on the faces of cliffs.

Very different again is the nesting habit of the bank swallow, which tunnels two feet or more into the faces of sandy cliffs. At the inner end of the tunnel is a chamber of comfortable dimensions which is usually lined with grass to receive the eggs.

All species of swallows live in colonies and have the social instinct very highly developed.

The tree swallows, which commonly nest in trees leaning over the water, are the only birds of the swallow kind which do not seem fond of another's company. They are, on the contrary, rather quarrelsome in disposition.

When the swallows fly low it is often said to be a sign of rain, which may be true as the insects on which they feed are apt to find the air heavy before a storm and so keep lower than at other times.

The oven bird, which is common in open deciduous woods, is of interest alike on account of its peculiar song "tea-cher, tea-cher, tea-cher," and by reason also of the strange nest which it build in the form of a Dutch oven, of grass, weeds, and bark, completely arched over the top with weeds, grass, pine needles, etc., the entrance being a low opening at one side.

Bird Voices

Certain classes of birds, on account of the distinctive singing qualities, are commonly spoken of as song birds. All birds, however, have some form of utterance and, in many cases, are capable of producing sounds which are clearly indicative of varying emotions. Most birds, too, utter calls as warning notes to their young, or otherwise expressive of their annoyance or fear. The "tweetings" of nestlings, and the answering notes of the parent birds, also tell their own story of expectancy and satisfaction.

Bird voices have a wonderfully penetrating quality. The crow, which is not more than one-thousandth the size of an ox, yet when is "caws" can be heard as far or farther.

The man-o'-war bird is noted for its silence. A number of marine birds including brown pelicans, cormorants, water turkeys and black vultures utter only rudimentary sounds.

The cedar waxwing, or cherry bird, one of the commonest of Canadian birds, utters only a weak "tsee" although possessed of exceptional charm both of manner and appearance.

As a rule the bird singers are males and sing only, or mainly, during the nesting period. In many cases the song wanes with the appearance of the young. Some female birds, also, sing to a limited extent — the cardinal, the rosebreasted grosbeak, for example. One variety of tropical wren performs a duet with its mate. Crowing hens, though, are proverbially of rare occurrence.

Certain birds are fond of imitating other birds' note and songs, notably the mocking bird, which easily takes first place as a mimic. Mocking birds have been found with a repertoire of not less than 32 different bird songs. The cat-bird, white-eyed vireo and bluejay are also among the North American bird mimics.

When one gains even an elemental acquaintance with bird life it is easy to distinguish many varieties by their songs and calls and nothing is more delightful than to trace the elusive bird note to the leafy shade or sunny upland from which it emanates.

Bird Plumage

There is little difference between the garb of male and female birds of the plainly dressed varieties. In the case of brightly marked birds it is the male, however, that sports the fine feathers, the female and the young being ordinarily clothed in duller shades — no doubt, for their protection.

Generally speaking, the colours of different birds are such as to make for their safety in their natural surroundings. Thus, ground birds are usually dull in colour and not easily seen as long as they keep still. Sparrows, nighthawks, whip-poor-wills, and partridges all exemplify what is spoken of in nature as "protective colouring."

No birds wear their feathered suits longer than a single year and most renew their plumage twice a year by shedding their feathers in the process known as moulting.

Ptarmigans and snow buntings, inhabiting the far north, exchange their brownish garb of the summer months for an almost invisible winter habit of white. The goldfinches, often spoke of as wild canaries, shed their bright yellow feathers in the fall for a suit of olive green, in which shade they are enabled to conceal themselves more easily among the leafless bushes and thistle plants amidst which they spend the winter farther south.

Bird Wings, Bills, Etc.

The bird's wing is supported by the stoutest of ligaments to a powerful shoulder blade and is also braced in opposite directions by other interior bones, so as to give the needed strength to the wings in flight. The thick mass of "white meat" in the breast of the fowl is made up entirely of the two principal muscles controlling the wings' downward stroke. These muscles are supported in turn by the broad surface of the bird's breast bone, which is different from that of all other creatures.

Bird's legs are ordinarily covered with scales, which is suggestive of their supposed connection with reptile forms. American birds have only four toes, lacking the fifth or little toe. Some American birds have but three toes.

The fish-catching kinds of birds, including herons, gannets, loons and kingfishers, have long straight beaks, adapted to their requirements. Geese and ducks have rather spoon-shaped, flexible bills for crushing soft plants and squeezing the food particles out of a mouthful of mud from the river-bed.

Snipes, and other marsh-loving birds, have probing bills, to feel for and extract their food from mud and sand.

The foot muscles contract automatically when a bird alights, the toes thus closing around a twig or roost without effort on the bird's part. Effort must be exerted to let go when the bird flies away. Thus it happens that birds sleep so securely on their roost overnight.

Birds' Six Senses

Certain birds are endowed with a very strongly developed sense of smell. The owl is provided with very large ears and noiseless wings because of the extent to which he is dependent on hearing in his quest for food at night.

Although all birds have keen sight, those that seek their food at night have eyes of exceptional size so as to admit as much light as possible. Flycatchers easily perceive and make captive insects which are almost invisible to human sight. The sparrow, too, is able to detect and seize upon grass seeds with a keenness no human eye could match. Even more wonderful again is the vision of the hovering hawks and sea birds overhead in their ability to see and to capture small objects far below, and of vultures and kites to perceive the smallest carrion from mile distant, racing against one another to share in the gruesome feast.

Birds as Destroyers of Weed Seeds

Each of the different families of bird life has its own part in nature's plan. Game birds generally are the largest eaters of weed seeds, the quail perhaps being the greatest weed destroyer of all. Among the smaller birds the sparrows, however, eat more weed seeds than all others. Although depending mainly on seeds for their food supply, they are also very industrious in their search for insects. In this latter quest they are assisted by the robins, vireos, thrushes and other species. Seed eating birds are mild in nature and it is from them that our barnyard fowl have been derived. The hen came originally from India, the goose, duck and pigeon from Europe, the guinea fowl from African and the turkey from America.

Certain garden weeds produce an incredible number of seeds. The United States Biological Survey has found that a single plant of one weed species may mature as many as 100,000 seeds in a season and if unchecked would produce in the spring of the third year 10,000,000,000 plants. There are close on fifty bird species in all which are enlisted in nature's war on weed pests and the quantity of weed seeds they consume in the aggregate is incredible. So fond is the goldfinch of thistle seeds that this species is sometimes known as the thistle-bird. As many as 700 pigeon-weed seeds have been found in the stomach of a tree sparrow. Investigation has also proved that a snow bunting eats as many as 1,000 pigweed seeds at a single meal.

Birds are such living dynamos of energy that their food requirements are relatively larger than that of most other creatures. The appetite of nestlings is so prodigious that a young robin will eat one and one-half times its own weight in worms per day.

Birds as Nature's Check on Insects

Woodpeckers search out and destroy many destructive forms of insect life which burrow into trees, their long, sharp bills, their barbed tongues, clinging claws, and even their tails, being especially adapted for this purpose. In climbing, the woodpecker depends in part on its tail feathers for support. The nuthatches, brown creepers, chickadees and kinglets are other bird species which are enlisted with the woodpeckers in the search for insect life on trunk and limb. "In a single day a chickadee will sometimes

eat more than four hundred eggs of the apple plant-louse," says Prof. Clarence M. Weed, "while throughout the winter one will destroy an immense number of the eggs of the cankerworm."

In the winter a dozen or more woodpeckers and chickadees are often found patrolling the forests together and searching out from their hiding places the eggs which insects have laid in the bark for the spring sun to hatch out. The flicker eats beetles, moths, butterflies and a variety of other insects and is not averse to a touch of wild fruit as dessert. But when he can find them he likes nothing so well as ants. By tearing up the hills with his long bill the bird creates great commotion among the workers of the ant colony. Word is quickly carried down to those below of their danger. This brings the ants swarming up to the surface to find out what is the matter, when they are in turn quickly seized on the flicker's long, sticky tongue and swallowed.

Many insects deposit their eggs on terminal leaves and twigs so that their offspring may have tender buds and foliage to feed upon. Special charge seems to have been given to the vireos and warblers of keeping down these tiny pests. Darting to and fro among the foliage may also be seen the robins, bluebirds, thrushes, wrens, cat-birds, orioles, tanagers and others, on the constant hunt for larger flies and other insects.

The swallows, swifts, martins and nighthawks are among the special enemies of flying insects; the swallows, tireless on the wing, skimming over marsh, field or water; the martins, sweeping the air above our gardens, and the chimney swifts circling about and about our homes. At night the whip-poor-wills and the nighthawks toil while other kinds are sleeping.

On rood or wire or other point of vantage throughout the day perch the kingbirds, phoebes, and other hunters of the larger flying insects, ever ready to swoop down on their prey, returning to their lookout to wait for another.

Insects if unchecked increase enormously. It is said that Canada loses \$180,000,000 a year in her crops and forests through insects. But for bird life there is little doubt that the insects would have things even more their own way.

During the settlement of the American state of Utah, myriads of black crickets streamed down the hillsides and wrought such havoc with the crops that waving wheat fields were shorn bare to the ground in a single day, as though the land had not been planted. When the same thing happened again in the following season the settlers were in despair. Then it was that flocks of Franklin gulls appeared on the scene and fed so greedily on the crickets that the pest was overcome. So signally were the settlers served by the black-headed gulls that a monument has been erected to these birds in Salt Lake City.

The Crafty Crow

Though birds are not generally regarded as having much understanding, yet at times they exhibit considerable evidence of it. The crow kind are considered to be amongst the most sagacious of the feathered tribes. Great flocks of crows occasionally congregate in one place, as if they had been called together for deliberative purposes. These gatherings will sometimes continue for a day or more, with a ceaseless clamour of their harsh calls, when suddenly the purpose of the meeting, whatever it may be, is apparently accomplished and they all disperse.

Crow stories, like fish stories, need to be treated with considerable reserve, but as an outlaw the crow has had to live on his wits so long that his instinct for self-preservation is almost uncanny.

The Canada Jay



The Friendly "Whiskey Jack."

A bird of infinite interest in the Canadian lumber woods is the Canada jay, which is at once both a source of amusement and annoyance to trappers and loggers through his thieving habits. They are ever on the lookout to snatch up and carry off food or soap, or almost any small article that the camper in a forgetful moment may leave within their reach. Of them it might be said, as an old farmer remarked of the crow, that "the pesky critters are carnivorous, herbivorous, granivorous, and pestiferous — chiefly the latter." And yet in Canada our north country life would be duller without them. If the lonely trapper wants company in the northern wilds he has only to light a fire and even on the coldest day of winter, he will presently have a jay perched close by on the lookout for any scraps that fall from his table.

The Canada jay is commonly known among campers and woodsmen as "Whiskey Jack," a corruption of its name among the Cree Indians Wis-ka-tjan.

In certain parts the Canada jay is known as the moose bird because of its habit of frequenting the "yards," as they are called, in which moose families pass the winter months. The cause of the attachment is unknown but it may be that the birds find parasitic insects of a kind that they like on the moose.



Red Shouldered Hawk.

Hawks and Owls

Rodents such as rats, mice, ground squirrels, gophers, prairie dogs and rabbits, with their high birth tare, are exceedingly destructive of farm crops, and in some cases destroy also fruit trees by gnawing the bark. Rodents are busiest at night and would do incredibly greater damage to grain and root crops, trees and grass, clover and vegetables if it were not for the extent to which they were held in check by hawks, owls and other birds of prey. A very interesting bulletin on the Hawks and Owls of the Prairie Provinces has been published by Mr. P.A. Taverner, Ornithologist of the Geological Survey of Canada.

Wild Bird Guests

Even the timidity of the tiny humming bird has been overcome by kindness, and Miss Sherman, an American bird-lover, has actually tamed these creatures to such an extent that they came and buzzed about her for food. The humming bird, like the bee, extracts its sustenance from the sweets which are secreted in various flower blossoms. Beginning with bottles of syrup, hidden in the base of bright coloured artificial flowers, Miss Sherman progressed to the bare bottles, to which the birds resorted with the greatest freedom. They came expecting the syrup and peremptorily demanded it from their trusted friend if the bottles were found empty.

It is a long jump from the humming bird to the Canada wild goose, one of the largest and most cautious of Canadian birds. At Kingsville in Essex county, Ontario, a resident named Jack Miner has, however, brought large numbers of these creatures to a state of extraordinary domestication, and incidentally provided at his own expense one of the most spectacular demonstrations of bird preservation to be seen anywhere on the North American continent.



Canada Wild Geese on Jack Miner's Farm, Kingsville, Ont.

About twelve or fifteen years ago he placed a few domesticated Canada geese in an enclosure, and thereby finally succeeded in inducing a number of migrant wild fowl of the same species to nest on his farm. There are two small ponds on the farm, one thirty-five yards across, the other about thirty by fifty yards. The first year, seventeen wild geese settled on one of these ponds. The next year there were thirty, then one hundred and fifty, then five hundred, and after that Miner said he could not count them for he had about five acres of geese all told.

Mr. W.E. Saunders, of London, Ontario, a well known Canadian authority on birds, writes that: "One morning last April one thousand wild geese came to Miner's farm, all of which lit within one hundred and fifty yards of the house. Many of them — by actual count 425 — were in the small enclosure right in front of his dining room window. I went into the enclosure with him and found it quite possible to walk to within fifteen or twenty feet of the nearest goose. But, when these geese were out on the lake, two miles distant, it was exceedingly difficult to get a boat within one-half of a mile of them. In one case they knew absolutely they were on safe ground and in the other case they suspected danger because man is a dangerous animal. To them, however, the man who goes about Jack Miner's place is safe and, therefore, they were not in the least alarmed."

"It seems," Mr. Saunders further observes, "these birds have methods of communication, not only between members of their own species but with others, because one day, during last year's migration, while the geese were visiting Miner's place, on four different occasions flocks of wild swans flew over them, apparently to see if these stories the geese were telling about the safety and pleasant conditions on Miner's farm were true. But, while the swans found they were apparently, because the geese were down on the pond on the farm, they felt like the farmer, who, seeing the giraffe for the first time at a menagerie, said: 'There ain't no such animal.' The swans looked at the geese and said: 'It looks safe but cannot be,'" and went away. Now Miner's ambition is to have some swans in order to assure these wild fellows that it is really all right on his farm."

Birds in general are accustomed to regard mankind with fear and suspicion and, although their instinctive dread of human beings can usually be overcome by kindness, the lesson is one which ordinarily takes time and patience. The partridge, an exceedingly wary bird, has been domesticated in rare instances to the point of coming into the barnyard to feed with the hens. But intimacies of this order are by no means easy of cultivation.

Bird Migrations

How wonderful is the instinct in bird life which guides their travel every year without chart or compass over vast distances between their summer and winter homes, timing their movements with such unerring precision as to enable them to reach their destination in successive seasons on the same day, albeit their flight may cover the thousands of miles that separate us from far-off Brazil and Peru and the Argentine.

The migration of birds from one part of the world to another has been from the early ages a subject alike of the greatest interest and mystery. It was, of course, observed in early times that birds disappeared in the fall and reappeared in the spring. But the comparative absence of human intercourse between different climes before the days of rail and steamship travel resulted in many curious beliefs regarding bird life.

In some parts it was said, and believed, that certain birds flew to the moon and that others remained hidden throughout the entire winter in hollow trees like the bears or else buried themselves in the muddy beds of ponds and streams to hibernate like frogs. Within the last century, indeed, stories have been current of whole flocks of birds that were seen to disappear from human vision into the waves of the Mediterranean to winter in its depths. The cuckoo was supposed in the fall to turn into a hawk.

Scientific study, both in Europe and America, has shed a great deal of light on bird life in all its aspects, and yet there is no universally accepted theory as to why North American birds migrate. Which is their real homeland — their summer or winter homes — is not positively known. North America possesses immense supplies of bird foods throughout the summer months but, during the frost and snows of winter, the bird life of the north must either turn southward for sustenance or perish. On the other hand, there is no summer movement of bird life from Central and South America southward, doubtless because Patagonia and Tierra del Fuego offer little or no inducements in the way of food supply.

The overcrowding which would possibly ensue if the bird life of the tropics remained constantly in those parts (bird population increases five-fold in a single season) is doubtless prevented by the spring exodus to Canada and the United States, with the superb inducements both of food and climate which these regions provide for the nesting and rearing of their young.

So far as is known there is only one variety of bird nesting anywhere in the New World which winters in the Old. This is the wheatear, which summers in Greenland and winters in Africa. There are, however, some sea-birds, which seem to spend the winter at sea, and which may only come ashore at nesting time. Herring gulls are said to have followed vessels across the Atlantic, feeding on what was thrown overboard.

Some of the petrels and allied species nest in the southern hemisphere and come north only as migrants.

The ducks and geese push northward with the beginning of open water, so early in the spring that many are caught by the later storms and hover disconsolately over icy ponds and streams risking starvation, however, rather than to retreat. Bluebirds and purple martins also sometimes outfly the slow march of spring northward, only to perish of cold and hunger.

If the longing for home is in reality the main incentive of the spring migration, the question naturally suggests itself: why do so many birds forsake their northern homes for the south just as soon as the nesting season is over, for it is well authenticated that the southern migration with some species begins as early as July 10th and probably as early as July 1st. Indeed, most birds move southward as soon as their fledglings are strong enough to shift for themselves, long before fall sounds its warning of approaching winter, and whilst food supply in North America is most abundant. The duration of the birds' stay, however, in their northern habitat varies considerably for different species.

Some birds migrate by day but most of them under the cover of darkness. The day migrants include ducks, and geese (which also migrate by night), hawks, swallows, the nighthawk and chimney swift. The last two, combining business and pleasure, get their morning and evening meals during a zig-zag flight in the desired direction with a daily advance of comparatively few miles distance.

The night migrants include all the great family of warblers, thrushes, flycatchers, vireos, orioles, tanagers, shore birds, and most of the sparrows. They usually begin their daily flight soon after dark and end it before the dawn, going farther before than after midnight.

The length of the migration journey varies greatly for different species. A few birds, like the partridge, quail, cardinal and Carolina wren, do not migrate at all; many of them, in fact, never move more than a very few miles distance from the nest in which they were hatched out. Other species migrate so short a distance that the movement is scarcely noticeable.

Another variation is illustrated by the robins which stay in the middle districts of the United States throughout the year, in Canada only in summer, and along the Gulf of Mexico only in winter. Probably no individual robin is a continuous resident in any one locality, but the bird that nests in the middle states of the American Union eats his Christmas dinner in the south, while his hardier cousin of Canadian birth winters south of the Great Lakes.

Canadian Birds' Winter Homes

Many species from Canada winter in the United States, as the tree sparrow, junco and snowflake. Yet others nesting in the northern United States winter in the Gulf States, as the chipping, field, savannah and vesper sparrows, while more than one hundred species leave the United States and Canada for the winter to spend that season in Central or South America.

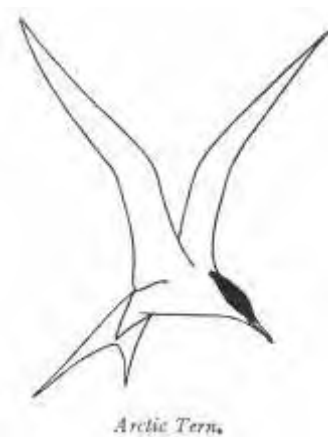
Not are some of these content with journeying only to northern South America, but cross the equator and pass on to the pampas of the Argentine, and a few even to Patagonia. Among these long distance migrants are some of our commonest birds. The scarlet tanager migrates from Canada to Peru. The bobolinks, purple martins, cliff swallows, barn swallows, nighthawks and some thrushes, winter in Brazil. The black poll warblers that nest in Alaska, and winter in southern South America, travel five thousand miles distance from the summer to their winter home.

Probably, however, the land-bird making the longest migration is the nighthawk, which is found north as far as the Yukon, and which winters in Argentina, seven thousand miles to the south.

Even these marvels of long distance travel are outstripped by some of the water-birds, notably some of the shore-birds, which as a group have the longest migration records of any species. Nineteen species of shore-birds breed north of the Arctic circle each one of which travels to far off South America in winter, six of them penetrating into Patagonia, more than eight thousand miles away.

The Longest Bird Migration

All other records of migration are, however, out-distanced by one of the smaller sea-birds the arctic tern, whose shallow nest has been found in the snow not more than five hundred miles distant from the North Pole, and which migrates thence as soon as its young are full grown to the Antarctic continent, eleven thousand miles away. What their track is through the intervening space no one exactly knows. Their period of residence in the Arctic is approximately fourteen weeks duration, from about the middle of June till the last week of August, with a somewhat longer stay in the Antarctic. Their round trip of twenty-two thousand miles per year must be made in somewhat less than twenty weeks in all. To make one hundred fifty miles headway per day they must, however, cover far more than this distance by their zig-zag twists and turns in pursuit of food. The midnight sun has already appeared before the bird arrives in the Arctic and daylight is continuous during their stay in the far north. The same is true of their residence in the Antarctic, so that these migrants enjoy more daylight than any other of God's creatures.



Bird Routes of Travel

There is quite a variation in the migration routes of individual species but the normal route for the birds of eastern North America is a northeast and southwest course, approximately parallel with the Atlantic Coast. The birds of the interior states and provinces follow a line of flight parallel in general with the course of the three great river valleys, the Mississippi, the Red and the Mackenzie, which form a route rich in food supply between their summer and winter homes.

Another interesting migration route is that of the western tanagers which nest in the province of Alberta. On their northern migration they follow the Pacific coast northward from Guatemala to Vancouver Island, from which point they veer across the Rocky Mountains five hundred miles eastward to their summer habitat.

In their passage from North America to their winter abodes in northern South America, the different courses taken by bird species are almost as numerous as the families which travel them. Comparatively few of the migrants appear to follow the land passage by way of the Isthmus of Panama.

The great majority of North American birds, including the tiny humming bird, seemingly prefer to take a short cut across the Gulf of Mexico, millions of them crossing the Gulf at its widest part by a single flight of five hundred to seven hundred miles. The route by way of Florida, Cuba and Jamaica is apparently popular, as far as Cuba, with some sixty species, of whom great numbers winter on this island, or on the island of Jamaica. Scarcely more than ten species continue their flight southward from Jamaica, across the Caribbean Sea, to South America, including the bank swallow, grey kingbird, Florida nighthawk, Alice thrush, black-poll warbler and bobolink.

The next route to the eastward traverses the Lesser Antilles, from Florida to South America, by way of Porto Rico. A few individuals, of about twenty-five species, follow this route as far as Porto Rico, only six continuing, however, to the South American coast, and these last in such diminished numbers as to form an insignificant fraction of the winter residents in that region. The explanation of this lies in the comparative scarcity of food supply on the islands east of Porto Rico. Thousands of water-fowl make the passage from Nova Scotia to the Lesser Antilles.

Longest Continuous Bird Flight

It is said that the longest continuous bird flight in the world is made by the golden plover, covering a distance of 2,4000 miles between Nova Scotia and South America, without pause or rest in forty-eight hours. This bird nests along the Arctic coast in North America. As soon as the young are able to care for themselves they migrate, by way of the Labrador coast of the Atlantic, to Nova Scotia, from which they shape a straight southerly sea-course to the mouth of the Orinoco, afterwards traversing eastern South America to the Argentine.

After six months' vacation in the south, the golden plover finds its way back to the Arctic by an entirely different route, going northwesterly across South America and the Gulf of Mexico to the coasts of Louisiana and Texas, thence up the Mississippi valley and more northern streams to the Arctic.

Equally wonderful in its way is the flight of the golden plover of the Pacific coast from Alaska, 2,000 miles across the trackless, islandless sea, to Hawaii.

The black-poll warblers and cliff swallows, both nesting northward to Alaska, are winter neighbours in Brazil and the Argentine. The former wings his rapid progress by long night flights over land and water from one feeding station to another. His course is direct. The swallow, on the contrary, travels by day

and, although starting several weeks earlier than the warbler, is behind the latter in reaching his destination.

An interesting migration habit is that of the robins nesting in southern Alberta, which arrive long before their kindred from the south and southeast. The truth is that the birds nesting in southern Alberta come from the southwest, though in doing so they are compelled to traverse the main range of the Rocky Mountains, while the latter is still in the grasp of winter. Robins remain all winter on the Pacific coast, northward as far as southwestern British Columbia. Hence, the wintering robins of British Columbia are already far north on the advent of spring and do not need any hurried migration to reach Alberta on time.

How Birds Find Their Way

How do migrating birds find their way? Sight, no doubt, has its part, either by day or by night. But in bird life there must surely be a marvellously developed sense of direction. A like sense is found in man, but how limited is its development in comparison with that of the birds.

Some years ago, members of the United States Biological Survey were travelling by steamer in Alaskan waters, from the Island of Unalaska to Bogoslof Island, a distance of about sixty miles. A dense fog was hanging over the water at the time, through which it was impossible to see anything beyond a hundred yards distance. Yet, when the steamer was half way across, flocks of murrelets, returning to Bogoslof from their feeding grounds, began to break through the fog wall astern, flying parallel with the vessel's course for a few moments and disappearing into the mist ahead. The vessel by chart and compass was making straight for the island but her course was apparently no more exact than that of the birds.

This much is certain: the bird migrant does not travel in any haphazard way. Some American authorities claim that coast lines, mountain chains, especially the courses of large rivers and their tributaries, form well marked highways along which the familiar inhabitants of our yard and garden nesting boxes find their way back to us in the spring from far off Brazil, or it may be even the Argentine. On the other hand, it is contended that food supply is the determining factor in the bird's choice of routes in migration and that in general the course between the summer and winter abode is as straight as the bird can find and still have enough to eat on the way.

Risks of Travel

Flight takes large toll of our feathered friends, through the hazards of storms and other unforeseen causes. The Washington Monument in the American Capital has caused the death of many winged travellers. On a single morning in the spring of 1902 nearly one hundred fifty lifeless bodies were found around its base.

Migrating birds appear peculiarly liable to destruction by striking high objects. As long as the torch in the Statue of Liberty in New York Harbour was kept lighted the sacrifice it caused of bird life was very large, reaching a total of 700 birds in a single month.

Every spring the lighthouses along the Atlantic coast lure many to destruction, whilst the fall journey sees an even greater death toll. A flashing light frightens birds away and a red light will be avoided by them as if they understood the meaning of its danger signal, but a steady white light gleaming out of the mist, or darkness, seems like a magnet luring wanderers to destruction by dashing themselves against the glass, or still oftener by exhausting themselves like moths, fluttering in and out of its bewildering rays.

COLOUR KEY TO SOME COMMON CANADIAN BIRDS*

*Contributed by P.A. Taverner, Ornithologist, Geological Survey, Ottawa.

The following key applies only to adult spring males of some of the commonest and most easily characterized Canadian species. The figures indicate the length from tip of bill to tip of tail. As an aid to realizing comparative sizes the following table is given: —

A Warbler is about	5.50 inches.
A Sparrow is about	6.25 inches.
A Robin is about	10.00 inches.
A Crow is about	19.00 inches.

All sizes are given in inches and decimal parts of an inch.

- Black, slightly iridescent, 19.25, **Crow.**
- Black, slightly iridescent, 22.0, **Raven.**
- Black, steely reflections; yellow eyes, 9.55, **Rusty Blackbird.**
- Black, purple reflections on head, yellow eyes, 9.55, **Brewer's Blackbird.**
- Black, purple reflections, 8.00, **Purple Martin.**
- Black, highly iridescent; yellow eyes, 12.00, **Bronzed Grackle.**
- Black, or brown-black; swallow-like habits, 5.45, **Chimney Swift or Vaux's Swift.**
- Black, or brown-black; swallow-like habits, 7.50, **Black Swift.**
- Black, with seal brown head, 7.92, **Cowbird.**
- Black, with yellow head and neck, 10.00, **Yellow-headed Blackbird.**
- Black, with bright red shoulders, 9.51, **Red-winged Blackbird.**
- Black above, iridescent; reddish brown below, forked tail, 6.95, **Barn Swallow.**
- Black above, iridescent; reddish rump, tail not forked, 6.01, **Cliff Swallow.**
- Black above, iridescent; white below, 5.90, **Tree Swallow.**
- Black above, violet-green on back, white below, 5.90, **Violet-green Swallow.**
- Black and white; with or without red spot on nape, 9.40, **Hairy Woodpecker.**
- Black and white; with or without red spot on nape, 6.83, **Downy Woodpecker.**
- Black and white; pied in large masses, long pointed tail, 17.40, **Magpie.**
- Black and white; steely black above, white below, 5.90, **Tree Swallow.**
- Black and white, steely black above, white below; violet and green back, 5.30, **Violet-green Swallow.**
- Black and white; with creeping habits, 5.30, **Black and White Warbler.**
- Black and white; red cap or red cap and throat, 8.56, **Yellow-bellied Sapsucker.**
- Black and white; red head, neck and breast, 8.00, **Red-breasted Sapsucker.**
- Black and white, red crest, 17.00, **Pileated Woodpecker.**
- Black and white; red head and neck, 9.75, **Red-headed Woodpecker.**
- Black and white, cream patch on hind neck, 7.25, **Bobolink.**
- Black and white; reddish brown flanks, 8.35, **Towhee.**
- Black and white; red spot in centre of breast, 8.12, **Rose-breasted Grosbeak.**
- Black and white; orange or yellow spots on flank, wing and tail, 5.41, **Redstart.**
- Black and white; orange breast, throat and eyebrow line, 5.25, **Blackburnian Warbler.**
- Black and white; yellow crown patch, 9.00, **Three-toed Woodpecker.**
- Black to grey above; white below, lower line of grey breast in sharp contrast; outer tail feathers white; bill flesh, 6.27, **Junco.**
- Black to grey above; white breast and below; tail black tipped with white, 8.75, **Kingbird.**
- Black or Brown-black, swallow-like habits, 5.45, **Chimney Swift or Vaux's Swift.**
- Greyish and black; two black bars across breast, 10.50, **Killdeer.**

Grey (dark) above; light reddish brown breast and below broad black breast-band, 9.70, **Varied Thrush**.

Grey; red face and forehead, 40.00, **Sandhill Crane**.

Grey; black cap; rich reddish brown under tail, 8.94, **Catbird**.

Grey all above, throat and breast; latter contrasting sharply with white underparts, outer tail feathers white, bill flesh, 6.27, **Junco**.

Grey and whitish; small black and reddish areas; long plumes on back and lower neck, 42.00, **Great Blue Heron**.

Grey above; white breast and below, tail tipped with white, 8.75, **Kingbird**.

Grey above; black cap, white below, 6.07, **Carolina Nuthatch**.

Grey above; black cap and throat; white below, 6.07, **Black-capped Chickadee**.

Grey, black and white; fine sharp colour pattern; prominent ear tufts, 9.40, **Screech Owl**.

Light grey back and wings, remainder white; black wing tips, 24.00, **Herring Gull**.

Light grey back and wings, remainder white; darker grey wing tips, 24.00, **Glaucous-winged Gull**.

Light grey back and wings, remainder white; black wing tips; black ring around bill, 18.50, **Ring-billed Gull**.

Light grey back and wings, black head and neck; black bill, 10.30, **Bonaparte's Gull**.

Light grey back, reddish bill, 12.00, **Franklin's Gull**.

Light grey back and wings; black cap; remainder white; forked tail; slightly greyish below, 15.00,

Common Tern.

Light grey back and wings; black cap; remainder white; forked tail; pure white below, 15.00, **Forster's Tern**.

Light grey, white and brown; fine sharp colour pattern, prominent ear tufts, 9.40, **Screech Owl**.

Blue grey and black above; white below; yellow crown, flank and rump spots, 5.65, **Myrtle Warbler**.

Blue grey and black above; yellow throat, flank, crown and rump spots, 5.65, **Audubon's Warbler**.

Blue grey and black above; yellow breast with black stripes, 5.12, **Magnolia Warbler**.

Blue grey and black above; white below; prominent ragged crest; with or without reddish breast-band and flanks, 13.02, **Belted Kingfisher**.

Olive-grey, slightly lighter below; red or no crown patch, no eyebrow line, 4.41, **Ruby Crowned Kinglet**.

Olive-grey, slightly lighter below; yellow or yellow and orange crown patch; white eyebrow line, 4.07, **Golden Crowned Kinglet**.

Olive-grey above, white below; sharp round black spots on breast, 7.50, **Spotted Sandpiper**.

Olive-grey above; whitish below; head nearly black, 6.99, **Phoebe**.

Olive-grey above; white below; grey crown; light eyebrow line, 6.23, **Red-eyed Vireo**.

Fawn, nearly even all over; long pointed tail, 11.85, **Mourning Dove**.

Fawn, variegated above, creamy below, yellow under-wings and undertail; white rump, 12.00, **Yellow-shafted Flicker**.

Fawn, variegated above, creamy below; red under-sides of wings and undertail; white rump, 12.00, **Red-shafted Flicker**.

Fawn, faintly striped above; yellow or cream throat, small black ear tufts, 7.25, **Horned Lark**.

Fawn, very even over all; prominent crest; tail tipped with yellow, 7.19, **Cedarbird**.

Red-brown above; white below; metallic red throat, 3.25, **Rufous Hummingbird**.

Red-brown above; white below; breast heavily and sharply spotted, 11.42, **Brown Thrasher**.

Red-brown wings and back from eye; grey below, cheeks and crown, black throat and bib, 6.33, **English Sparrow**.

Red-brown below, steely black above; forked tail, 6.95, **Barn Swallow**.

Red-brown below, dark grey above; black breast band, 9.70, **Varied Thrush**.

Red-brown back and flanks; black-brown crown and throat, 4.50, **Chestnut-backed Chickadee**.

Red-brown back and tail; slate wings, spotted creamy breast, 10.00, **Sparrow Hawk**.

Red-brown breast, remainder bright blue, 7.01, **Bluebird**.

Red-brown breast, blackish above, 10.00, **Robin**.

- Red-brown and blue breast; remainder blue, 6.50, **Western Bluebird**.
- Red-brown flank bands, remainder black and white, 8.35, **Towhee**.
- Red-brown rump, dirty white below; tail not forked, 6.01, **Cliff Swallow**.
- Red-brown and white; fine sharp colour patter; prominent ear tufts, 9.40, **Screech Owl**.
- Brown, very even over all; prominent crest; tail tipped with yellow, 7.19, **Cedarbird**.
- Brown above, grey below; grey crown; reddish back from eye; black throat and bib, 6.33, **English Sparrow**.
- Brown above, grey below; conspicuous white throat; yellow spot before eye, 6.74, **White-throated Sparrow**.
- Brown above, grey below; conspicuous black and white crown, 6.88, **White-crowned Sparrow**.
- Brown and white; breast barred; flanks striped; eyes black, 20.00, **Barred Owl**.
- Brown and white; fine sharp colour pattern, prominent ear tufts, 9.40, **Screech Owl**.
- Brown and white; sharp dark markings on white ground, no ear tufts, 25.00, **Snowy Owl**.
- Brown and white; barred all below; conspicuous white spot on spread wing, 10.00, **Night Hawk**.
- Brown above, white below; reddish cap, black line through eye, 5.37, **Chipping Sparrow**.
- Brown above, white below; breast spotted; larger spot in centre of breast; outer tail feathers dark, 6.30, **Song Sparrow**.
- Brown above, white below; creeping habits, 5.66, **Brown Creeper**.
- Brown above, white below; tawny bar across breast with faint spots, 7.52, **Wilson's Thrush**.
- Brown above, yellow breast, black necklace, 10.75, **Meadow Lark**.
- Brown above, white below; breast heavily spotted, tail more reddish than back, 1.17, **Hermit Thrush**.
- Brown, variegated with white and cream; white below; breast with many V marks, 17.50, **Sharp-tailed Grouse**.
- Brown, variegated with ochre, reddish and black above, creamy below; long legs and neck and bill, 28.00, **Bittern**.
- Brown, variegated with cream above, nearly white below; very long bill, 11.25, **Wilson's Snipe**.
- Brown, variegated with cream above; mostly ochre below; very long bill, 11.00, **Woodcock**.
- Brown, variegated with reddish or grey above; breast heavily barred; broad tail mostly reddish or grey, 17.00, **Ruffed Grouse**.
- Brown, variegated with black, white and ochre all over; prominent ear tufts, 22.00, **Great Horned Owl**.
- Brown, variegated with black, white and ochre all over; prominent ear tufts, 14.80, **Long-eared Owl**.
- Brown, obscurely marked; lighter below, 5.00, **House Wren**.
- Yellow, fine orange breast stripes, 5.10, **Yellow Warbler**.
- Yellow, black cap, wings and tail, 5.10, **Goldfinch**.
- Yellow, black cap, 5.00, **Wilson's Warbler**.
- Yellow, black face mask, 5.33, **Maryland Yellow Throat**.
- Yellow, red face and forehead; black wings and tail, 6.20, **Western Tanager**.
- Yellow, darkening towards head; wings and tail black, conspicuous white wing patch, 7.00, **Evening Grosbeak**.
- Yellow head and neck; rest mostly black, 10.00, **Yellow-headed Blackbird**.
- Yellow breast; black necklace, brown back, 10.75, **Meadow Lark**.
- Yellow breast; black necklace, grey back, 5.61, **Canadian Warbler**.
- Yellow breast; cheeks, rump and below; black throat, crown, back and wings, 7.50, **Bullock's Oriole**.
- Yellow breast, rump and below; black cheeks, head, back, and wings, 7.50, **Baltimore Oriole**.
- Yellow breast with black stripes; black and grey back; 5.12, **Magnolia Warbler**.
- Yellow breast, and face; black crown, ears and throat, 4.80, **Townsend's Warbler**.
- Yellow cheeks; black throat and breast, 5.10, **Black-throated Green Warbler**.
- Yellow spots on flank, crown and rump; black and grey above, 5.65, **Myrtle Warbler**.
- Yellow spots on throat, flank, crown and rump; black and grey above, 5.65, **Audubon's Warbler**.
- Yellow spots on flank, wings and tail, rest mostly black, 5.41, **Redstart**.
- Yellow spot before eye; brown above; white throat, 6.74, **White-throated Sparrow**.

Yellow below; back, head and throat grey; tail black, 8.00, **Arkansas Kingbird**.
 Yellow crown; rest black and white, 9.00, **Three-toed Woodpecker**.
 Yellow crown spot; white eye-brow line, rest olive, 4.07, **Golden-crowned Kinglet**.
 Yellow and orange crown spot; white eye-brow line, rest olive, 4.07, **Golden-crowned Kinglet**.
 Orange; black head, back and wings, 7.50, **Baltimore Oriole**.
 Orange; black crown, throat, back and wings, 7.50, **Bullock's Oriole**.
 Orange; spots on flank, wings and tail; rest mostly black, 5.41, **Redstart**.
 Orange, throat, breast and eyebrow, 5.25, **Blackburnian Warbler**.
 Red, black wings and tail, 7.25, **Scarlet Tanager**.
 Red, suffused over head, breast and back, rest greyish, 9.08, **Pine Grosbeak**.
 Red suffused over all; bill tips crossed, 6.9, **Red Crossbill**.
 Red suffused over all, white on wings, 6.05, **White-winged Crossbill**.
 Red shoulders; remainder black, 9.51, **Red-winged Blackbird**.
 Red spots or nape bar, yellow underside of wings and tail, 12.00, **Yellow-shafted Flicker**.
 Red spots or nape, red undersides of wings and tail, 12.00, **Red-shafted Flicker**.
 Red spots or nape, otherwise black and white, 9.40, **Hairy Woodpecker**.
 Red spots or nape, otherwise black and white, 6.83, **Downy Woodpecker**.
 Red spot in centre of breast; rest mostly black and white, 8.00, **Rose-breasted Grosbeak**.
 Red cap or throat and cap; mostly black and white, 8.56, **Yellow-breasted Sapsucker**.
 Red cap, throat and breast; mostly black and white, 8.00, **Red-breasted Sapsucker**.
 Red crest; rest black and white, 17.00, **Pileated Woodpecker**.
 Red head and neck, rest black and white, 9.75, **Red-headed Woodpecker**.
 Red underside of wings and tail; fawn above, 12.00, **Red-shafted Flicker**.
 Red throat (metallic); rest iridescent green, 3.75, **Ruby-throated Hummingbird**.
 Red throat (metallic); rest reddish brown, 3.25, **Rufous Hummingbird**.
 Red face and crown; yellow body; black wings and tail, 6.12, **Western Tanager**.
 Red spot on crown; otherwise olive, 4.41, **Ruby-crowned Kinglet**.
 Reddish purple, suffused; white below; faintly streaked, 6.22, **Purple Martin**.
 Blue; sky blue; lighter below, 6.50, **Mountain Bluebird**.
 Blue; indigo on head, 5.59, **Indigo Bird**.
 Blue; reddish brown breast, 6.70, **Eastern Bluebird**.
 Blue; reddish and blue breast, 6.50, **Western Bluebird**.
 Blue; and black and white; prominent crest, 11.75, **Blue Jay**.
 Blue; dark blue breast, wings and below; nearly black head; prominent crest, 11.75, **Steller's Jay**.

AMPHIBIA AND REPTILES*

**Contributed by C.L. Patch, Victoria Memorial Museum, Ottawa.*

These forms of our animal life are cruelly misunderstood by mankind. Our dread of them is not inborn, but is acquired, because from babyhood our elders tell us untrue things about the toads and snakes and teach us to avoid them, though, if we observe them and their habits, they will be found as harmless (except the rattlesnakes), and as interesting as goldfish, butterflies, or moths. Also, they are very useful as destroyers of insects, rats and mice, which do so much damage to agriculture.

Many mysterious powers have been attributed to some of these animals. Shakespeare calls the toad "ugly and venomous," and informs us that he "wears a precious jewel in his head." The salamander is fabled to live in fire which, however, is extinguished by the chill of its body. The latin naturalist, Pliny, tells us that he tried this experiment once, but that the creature was burnt to a powder. Our Iroquois Indians believe that contact with lizards brings on paralysis, but that the green snake, if allowed to coil about a paralysed part of the body, will cure it.

Many misinformed people believe that toads make warts, that "hoop snakes" take their tails in their mouths and roll after their victims, and that the milk snake milks cows, as it is often seen about barns and out-buildings, to which it is attracted, not by the cows, but by the rats and mice which infest such places. The snake is a better rat exterminator than the cat, as it is able to enter cracks and holes which are inaccessible to the latter.

According to the United States Department of Agriculture, the annual food loss in the United States from the ravages of insects exceeds one billion dollars, and from house rats and mice (not including wild rodents), \$400,000,000. No doubt, similarly large losses occur in Canada. So protect and encourage toads, frogs, salamanders, turtles, lizards and snakes, all of which prey on pests.

The toads, frogs, salamanders, turtles, lizards and snakes, of which Canada has over seventy-five different species, are easily distinguished from each other. The toads have dry rough skins; the frogs have longer legs in proportion to the length of the body than the toads and have smooth skins, except the tree frogs, which have somewhat rough skins; the salamanders have tails, four limbs and smooth skins, excepting the newts, which have rough skins; the turtles have shells. The lizards resemble the salamanders in form, but are covered with scales. The snakes are covered with scales, but have no limbs. Various species in each class differ considerably in habits.

Toads

Of this class, Canada has five or more species. Toads spend the winter hibernating in burrows or buried in the soil under logs or stones. In early spring they migrate to water, where the eggs, as many as 12,000 being laid by a single individual, are laid in long strings. The tiny black tadpoles emerge in a few days and swim about, feeding on minute plants and animal life, and breathing by means of gills, somewhat like those of fish. In a few weeks the limbs develop and the tail is absorbed, then they come on land, usually after a rain, and thereafter feed on caterpillars, sowbugs, grubs, snails, worms, plant-lice, mosquitoes, flies, moths, crickets, beetles, bugs, grasshoppers and locusts.

It is estimated that in three months a toad will eat 9,936 injurious insects, and that of this number 1,988 are cutworms. Placing a bounty of one cent each on cutworms, the estimated value of a toad is at least \$19.88 per year.

All of the toads and frogs can produce vocal sounds; the toads are, however, the melodious voiced pond singers of the early spring.

Frogs

In Canada there are thirteen or more species of frogs, varying in size from the spring peeper, which measures three-fourths of an inch in length, to the bull frog, which attains a length of six or seven inches. The species commonly called "tree toads" are classed with the frogs and should therefore be called tree frogs. During the summer the various species of frogs are found in the water, in the meadow, in shrubbery, and in trees, but during winter months they hibernate in cavities or under the bark of dead trees, buried in the soil under logs or stones, or in the mud of ponds.

In April or May they enter the water and deposit their jelly-like egg masses, which sometimes contain 6,000 eggs. The frog tadpoles of "pollywogs" are lighter in colour than those of the toad and in some species require two years to develop into frogs. Vocal sounds produced by frogs vary from the shrill "peep, peep, peep," of the spring peeper to the bass "jug-o-rum" of the bull frog.

Both the toads and frogs shed their skin several times a year and both also have considerable power of changing their colour. These colour changes are caused by the expansion or contraction of black colour cells in the skin, which, when fully expanded, make the specimen appear almost black. The colour cells are influenced by the creature's nervous state (anger, fear, etc.) and by light, temperature, and surrounding colours.

Adult female toads and frogs are larger than the males. The food of the frog is about the same as that of the toads.

Salamanders

Canada has twenty or more species of this class, the largest of which are the tiger salamander, which attains a length of twelve inches, and the mud puppy, which grows to twenty inches. With the exception of the mud puppy or "water lizard," which spends its entire life in the water, the salamanders hibernate in burrows or rotten logs. The newts may spend the entire summer in the water, but the other species only remain long enough to deposit their jelly-like egg masses, which are attached to submerged plants and contain from a few to fifty or so eggs. At least one species is known to deposit its eggs in moist soil, under logs or stones. There is still a great deal to be learned regarding the habits of the salamanders.



Spotted Salamander.

The salamander "pollywogs" breathe by means of three branching gills situated on each side of the neck. The gills are usually absorbed in a few months, when the creatures go on land, where they may be found under moss, rocks, logs, and dead leaves or crawling about at night or after a rain. The food is similar to that of the toads and frogs.

So far as is known the salamanders are silent with the exception of the newt, which squeaks when in pain.

If a toad, frog or salamander, or the "pollywog," accidentally loses a leg, toe or tail, a new one will grow. With young specimens the new one is usually as perfect as the original, but with adult specimens the new limb is stunted.

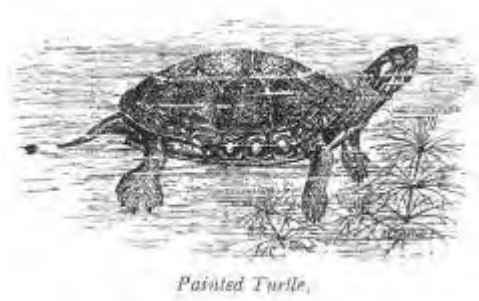
Lizards

This class, of which Canada has five or more species, includes the swifts, the glass "snake," the horned lizards, commonly known as horned "toads," and the skinks. The young of the horned lizards are born alive and are soon able to shift for themselves, but the other species of this class deposit fifteen or so thin-shelled eggs in or under rotting logs.

The food of the lizards, which inhabit dry, sandy or rocky localities, is similar to that of the preceding classes, with the addition of young mice. In captivity the lizards require plenty of sunshine and several inches of sand in the bottom of the cage, which should be kept perfectly dry though water must be supplied in a shallow dish, sunk in the sand. They will feed on small grubs, roaches, grasshoppers, crickets, meal worms and ants.

Turtles

We have ten or more species of these, of which the common snapping turtle is the largest, as it sometimes attains a weight of forty pounds. Our seacoast is too far north to be inhabited by the huge leatherback turtle, which attains a weight of 1,000 pounds, the green turtle, which is used as food, of the hawk's-bill turtle from which "tortoise-shell" is obtained. Neither does the range of the diamond-back-terrapin, so highly esteemed as food, reach our southern border.

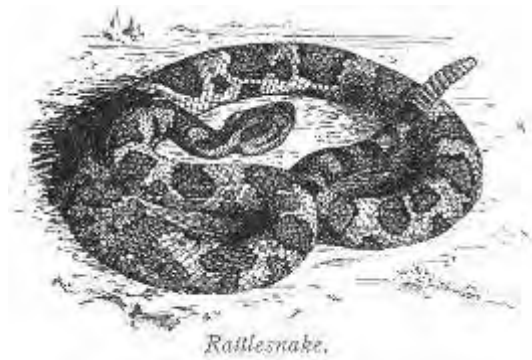


The turtles dig pocket-like excavations in sandy soil, where the white-thin-shelled eggs are deposited then covered over and left to be incubated by the sun's heat. They usually hatch in August or September, but, if the nest is situated in a cool shady place, development is slow and the young do not hatch out until the following spring. Snapping turtle eggs and those of the soft-shelled turtles are spherical in form, while the other species deposit eggs ovoidal in shape.

The turtles feed on vegetable matter (water plants, berries, buds, etc.), dead meat, small fish, frogs, crayfish, snails, slugs, bugs, caterpillars, flies, larvae, beetles, crickets, grasshoppers, moths, cutworms, molluscs, and the snapping turtle on young water-fowl.

Some species pass the winter buried in the earth, while others remain in the mud at the bottom of the ponds, there they sometimes fall prey to muskrats.

Snakes



Excepting the rattlesnakes, none of our twenty-seven or so species are poisonous and, as they feed chiefly on insect pests and destructive rodents, they are far more useful to agriculture than most of us realize. The principal foods are slugs, snails, insect larvae, beetles, crickets, grasshoppers, caterpillars, frogs, toads, small fish, (suckers, catfish, etc.), crayfish, gophers, meadow mice, house mice and young rats, which accounts for the presence of snakes around barns and granaries. Small snakes are sometimes eaten by larger ones and some species eat rattlesnakes without suffering ill effects.

The young of some species are born alive, while most species deposit their white eggs, with leathery coverings, in moist hollow stumps or under decaying logs, from which they absorb moisture, thus becoming swollen and discoloured during the incubation period, which lasts several weeks.

The outer skin of the snake does not grow larger along with the snake, therefore it must be replaced from time to time by one of more ample proportions. Adults shed this outer skin three or four times in a season, while young, growing specimens require a new skin more frequently.

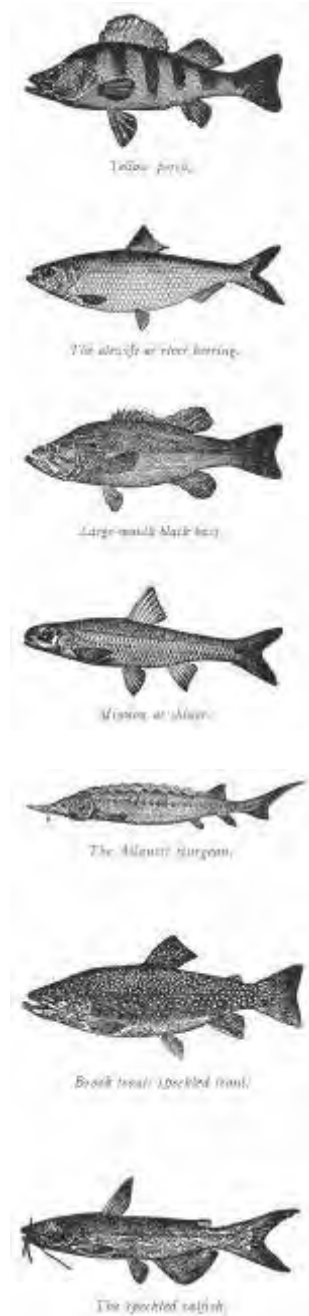
A snake's soft forked tongue is absolutely harmless, as also are the short backward-curving teeth. Located in the upper jaw of poisonous species are two long hollow fangs, which are connected with the poison glands, situated in the sides of the head. Near the point of each fang is a slit through which the poison is ejected into the wound. When not in use the fangs fold back against the roof of the mouth. If

shed or broken, they are soon replaced. A venomous snake never springs bodily at its victim and it is physically impossible for one to strike more than two-thirds of its length.

It is estimated that only two per cent of the persons bitten by venomous North American snakes die as a result. Reference to the proper treatment for the bites of snakes will be found on page 264.

If specimens of reptiles are found by Scouts which cannot be identified with the aid of "The Frog Book," by Dickerson, or "The Reptile Book," by Ditmars, they may be sent for identification to the Victoria Memorial Museum, Ottawa.

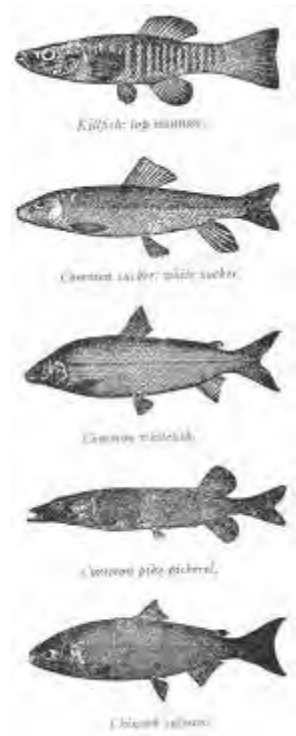
FISH AND FISHING



There is no industry — not even the fur trade — about which the early history of Canada is so entwined as the fisheries. The commerce and navigation, indeed, of the whole North American continent were founded on the fisheries, for the immediate result of the discovery of the northern coasts of the New World was the establishment of a great fishery. In those days the whole Atlantic coast region from the New England States to Labrador was known as "Baccalaos," the land of dried codfish.

Do you know, Scouts, that Canada possesses the most extensive fisheries in the whole world? The coast line of the Atlantic provinces, from the Bay of Fundy to the Strait of Belle Isle, measures over 5,000 miles, and that of British Columbia fully 7,000 miles, without taking any account of the more northern waters. In addition to these immense stretches, we have in our unnumbered inland lakes — great and small — a fresh water fishing area of no less than 220,000 square miles. It is no exaggeration to add that the waters in and around the Dominion of Canada are stocked both with food and game fishes in greater abundance than those of any other country. The total number of fish species that have been taken in Canadian waters is 569, including several varieties all our own.

Scientists classify fish into orders, families and species. For Scouts, however, a more serviceable grouping is as follows: (1) fresh water fish, (2) migratory fish between fresh and salt water, (3) marine fish. Some of the fresh water fishes that are well known by reason of their size, abundance and food value are the trout, bass, whitefish, perch, pickerel, sturgeon, catfish and suckers. The migratory fishes between fresh and salt water include the shad, alewives, or river herrings, white perch, striped bass or rockfish and the Atlantic salmon of five different species, all of which die after spawning in fresh water. The common eel follows the reverse practice of spending most of its life in fresh water, where it often becomes permanently landlocked, but prefers to run down to the sea to spawn. The marine fishes found on the



coasts of Canada embrace very many of excellent food value, such as the cod, haddock, halibut, hake, herring, mackerel and flounder.

In passing it may be mentioned that the sea monsters, known as whales, notwithstanding the fact that their whole lives are spent at sea, as not fishes, but warm blooded mammals like ourselves, and descended, as it is thought, from land or waterside forms of animal life.

Most fishes are such shy creatures that it is hard to get close enough to them to study in their native state. Much useful information has, however, been gathered on these lines by patient observation; yet there is abundant scope remaining for sharp-eyed Scouts to supplement what has already been ascertained regarding fish habits.

Let all Scouts too by their own example endeavour to secure fair treatment for the different fish species. Do not fail to return to the water all uninjured fish that are not needed either for food or study.

SHELLS AND SHELLFISH

“Four and twenty tailors went to kill a snail,
The best man amongst them durst not touch her tail.”

So runs a favourite rhyme of our nursery days. But really, boys, there's nothing in the nature of these shy creatures to justify any dread on our part, for, in truth, there is much about them that is interesting, if we took time to study their habits; none of them can do us any harm, and most of them are good to eat.



Fig. 1
White-lipped snail.

In all of the countries bordering on the Mediterranean, land snails have been held in high esteem as an article of diet from earliest times, and emigrants from these regions to America have brought snails with them to this continent as something they couldn't do without. The Roman soldiers carried this favourite food with them when Julius Caesar invaded Britain in 55 B.C. Some of the land snails found in Canada, such as the whitelipped snail, shown in the accompanying illustration (fig. 1), are from one to two inches in diameter; others are scarcely any larger than the head of a pin.

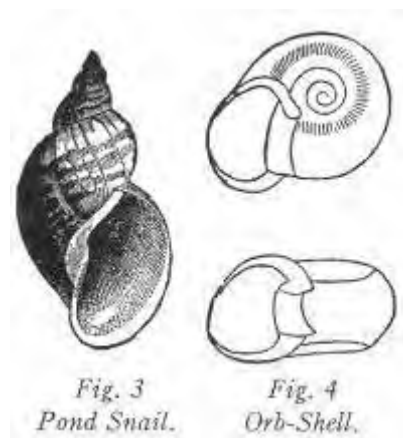


Fig. 3
Pond Snail.

Fig. 4
Orb-Shell.

The interior lakes and rivers teem with fresh water species of snails, clams and mussels, as one may see, when walking along the water's edge, by raking over the bottom close to shore. Three of the principal fresh water snails are the pond snail (see fig. 3); the orb snail (see fig. 4) which has its coil flat; and the physa (see fig. 6) in which the coil is turned to the left instead of to the right.

All up and down the beaches at the seaside, between high and low tides, one finds interesting and pretty shells. But how few there are that even know their names? To the average person they are just oyster or snail or clam shells, and unless the shell is empty when we pick it up our impulse is to hurriedly throw it away rather than touch “the slimy stuff” inside. So slight is our knowledge that many do not know that this “slimy” substance is the living creature itself which made the shell for its own protection. We think only of a “snail's pace” as about the slowest thing imaginable, of oysters as dumb, and of the molluscs in general — to give them their proper name — as among the lowest and



Fig. 6
Bubble Snail.



Fig. 5—Black mussel.

Mollusks may be divided into three groups, as follows: those that inhabit the sea, those that inhabit fresh water, and those that breathe air and live on dry land. Altogether there are several hundred kinds that are found on the Canadian sea coasts, oysters, mussels (see fig. 5) and clams being, of course, pre-eminent among them as sources of food supply.

Not only are oysters sought after as a food supply, but in the case of certain varieties for their pearly. Mother-of-pearl is the inside lining of shells. Pearly buttons are cut from the shells of fresh water clams and cameos from conch and helmet shells. The whelk, shown in the illustration herewith, (fig. 2) is common on both the Canadian coasts.

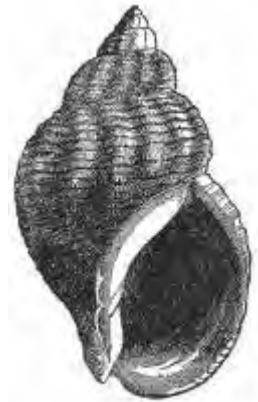
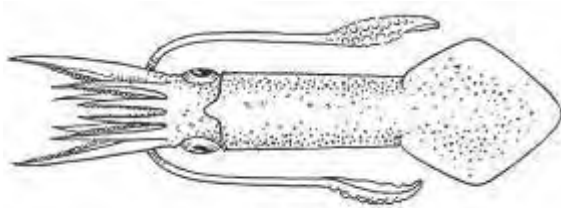


Fig. 2
Whelk.

The Squid



The Squid.

The cuttle-fish or squid, with his long tentacles, and backbone of lime, on which the household canary sharpens his bill, furnished the ancients with their ink supply, and if you poke one with a stick, or catch him on a hook, he may either spray you at several feet distance with an inky fluid, or else escape in the water by throwing out a sort of “smoke-screen” all about him till he gets away. The original and only genuine

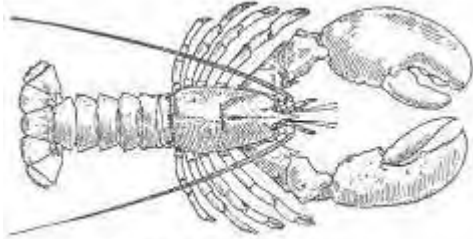
India ink is still extracted from cuttle-fish in the far East, and a single cuttle-fish gives off ink enough to blacken several buckets of water. The cuttle-fish is world-wide in its distribution and if you are lucky enough to possess a salt water aquarium you can bring one of these creatures home and see him try out his tricks.

In ancient times a Mediterranean variety was used in the production of Tyrian purple for the dyeing of king’s clothing. In Bible days these fabrics were worth their weight in gold.

Giant cuttle-fish of great size have been found in the deep sea — some of them up to sixty feet in length — which are said to be very destructive to fish life. Like the octopus, or devil fish, these creatures have a habit of attaching themselves by their long arms to any moving object and often hamper divers in under water work.

Lobsters, Crabs, etc.

The term shell-fish, apart from its reference to molluscs, is loosely applied to lobsters, crabs, shrimps and crayfish, on account of their shelly coat-of-mail coverings. These latter belong, however, to a separate order from the molluscs, known as the crustaceans, comprising many different families and species which serve as fish food and are also available for human consumption. The only crustacean in



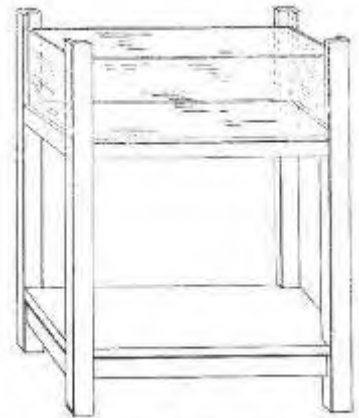
The Canadian Lobster.

common use for food purposes is the lobster, although there are immense numbers of crabs and shrimps on both our eastern and western sea coasts, which in other countries are considered just as good eating as lobsters, and more accessible to families of smaller means. In Continental Europe the crayfish, a familiar inhabitant of Canadian lakes and streams, is known as the poor man's lobster. Both the molluscs and crustaceans serve as nature's scavengers of the seashore, without whom the water's edge would be disease-laden, instead of carrying as it does nature's own healing for many human ailments.

A Scout Aquarium

A great deal of pleasure can be derived from an aquarium which boys can easily build for themselves and either stock with sunfish, catfish and minnows, of their own collecting, or with the fancy varieties of goldfish which are obtainable from the dealers.

Put in snails with your fish to keep the algae off the plants and include a couple of tadpoles as scavengers. It is great fun to watch their legs grow out as their tail grows short, and see them turn into frogs. Add fresh water clams and water insects of different varieties such as whirligigs, diving spiders, and water boatmen. A tank full of beetles is a show in itself. Have a pair of newts and watch them change their skins, when these grow overtight, by slipping out of them like a boy peeling off a close fitting shirt.



Home-made Aquarium.

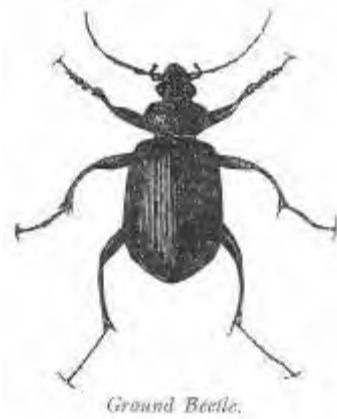
In a properly balanced aquarium there should be swamp and water plants, such as Canadian water weed, tape grass, arrowhead, water milfoil or water crowfoot, which in turn gives off oxygen for the fish to breathe, whilst the latter in turn give off carbonic acid gas which contributes towards the plants' nourishment. Thus the water in a balanced aquarium keeps itself pure and needs only to be replenished occasionally to replace loss by evaporation.

The illustration herewith shows a home-made aquarium of simple design which handy Scouts can readily make for themselves. The four posts in this design may be of any kind of wood, two inches square. The posts are three feet in height and the glass tank is eighteen inches long, twelve inches wide and ten inches high. The glass and special cement for joining the latter, to make the whole watertight may both be purchased from any glazier.

INSECTS*

**The illustrations appearing in this section of the Handbook have been kindly furnished by Prof. John Henry Comstock, of Ithaca, New York.*

It is said that there are over two million different kinds of living creature in this great world of ours, ranging in size from whales, the giants of animal creation, down to forms of life so tiny that thousands of them may live and move and have their being all in a single drop of water. Yet, wide as is the range of the animal kingdom in nature, the number of insect species far exceeds all others combined. Moreover, as Dan Beard, the National Scout Commissioner of the Boy Scouts of America, has observed, "among the little folk of this world, known as the insects, we find almost as many traits of character as we do among



Ground Beetle.

the human beings. We have the idle insects, the industrious insects, the warlike insects, the robber insects, the dead-beat insects, the stupid insects and the intelligent insects. We also have among them the low, degraded insects, dirty insects, clean insects, the sluggish, slow-moving insect, the bright, lively insects, the useful insects and the beautiful insects; all of them are interesting, all of them in one way or another are of vast importance to man, and a study of their habits is not only a source of fun, but it is also a most useful study. Besides which, boys, nature lovers live longer and happier lives than ordinary people."

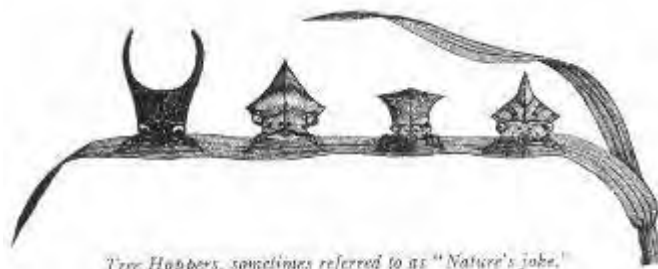
Here then is still another field of interest, easy of access, in which Boy Scouts may range at will, a field of infinite variety, in which there is plenty of room still left for individual observation and discovery. For, with all the book shelves full of books that have been written about moths, butterflies, bugs, bees, ants and the rest, their joys and sorrows, their wars and conquests, their inconceivable numbers, their architectural and engineering skill, their teeming "colonies" and interesting domestic life, their sovereign "queens," "slaves" and faithful subject "workers," their marvellous transformations from one form to another, still are there worlds aplenty yet to conquer before we find out all that is worth knowing about these marvellous little folk of nature, the insects.

To deal adequately with a subject so vast, within the limits of a few short paragraphs, would, of course, be impossible, besides which the days when one small brain could be stretched to comprehend the sum total of human knowledge are long since gone forever. But it is not necessary in order to enjoy nature that one should give up all other pursuits to do so, for it can be made a recreation, a restful and most enjoyable occupation for our vagrant thoughts whilst we move along life's pathway. Many of the world's best naturalists have been just amateurs. Men who interest themselves in different subjects are spoken of as "many-sided men"; men with only one interest in life, whatever that interest may be, are "cranks."

Now, boys, if what you have been reading on this particular phase of nature study should have anything in it that appeals to your interest and imagination, don't let the other fellow laugh you out of it with the slang taunt of your being "bughouse." Don't let your dear mother's shivering dread of spiders and caterpillars deter you. For the former ten to one, is himself a stupid, and the latter, on this subject, with all due respect, does not understand. Rather seek out someone who live on terms of intimacy with some of these little folk — not of the vermin tribe — and get him to take you out with him afield and acquaint you with the best methods of observation and study, including butterfly nets and how to wield them, alcohol and poison bottles, drying boards and specimen



Giant Water Bug.



Tree Hoppers, sometimes referred to as "Nature's joke."

boxes. Or, if you can't find anyone who knows enough about the insect world to do all this for you, buy Dan Beard's "American Boys' Book of Bugs, Butterflies and Beetles," or "Insect Life," by John Henry Comstock, or some one of the other treatises on insects, and after you have read and inwardly digested the guide book you will be ready to set out as a full fledged amateur "bugologist" on your own account.

The Ant

Do you know, boys, that as distinguished a man and authority as Lord Kelvin, writing of the ant, perhaps the most intelligent of all insects, has said that "it is difficult altogether to deny them the gift of reason. Their mental powers differ from those of men, but no so much in kind as in degree."

"Consider the ant," as the wise King Solomon, advised and you will learn lessons in skilful leadership, in prudence and industry, and in the value of co-operation that will be of lasting value to you through life.

Most of the species of ants familiar to Canadian boys are of the kinds that build their nests in the ground. But did you ever, by chance or design, uncover one of these colonies with its underground chamber and galleries in which the industrious female "workers" carry on almost the entire labour of the busy household; some digging, others hauling loosened grains of sand up to the surface; still others foraging for food for the family and to nourish the larvae, which may take as long as one hundred days to emerge from their cells; whilst the "queen" ant is waited on submissively by old and young so that she may devote her full energies to egg-laying.

Every ant colony has its own "queen" — or it may be "queens," for the royalties in the ant world are not so jealous and despotic in their disposition as the "queen bees." Some colonies own several mounds and there are individual colonies in certain parts of the world having as many as two hundred "hills" and extending over hundreds of square yards of the ground. These are built by the harvester tribe of ants, which fill their subterranean granaries with vast stores of seeds for winter consumption.

Then again there are their cousins, the honey-eating ants, who depend, like the bees, on the sweets secreted in flower blossoms for their sustenance.

Many ants feed largely, almost entirely, on sweets secreted by other kinds of insects — among them, the small green flies, or plant lice, known as aphids — and one of the most remarkable things about ant nests is the presence in them of aphids who are waited on by the ants, and otherwise treated as privileged guests in return for the honey-dew which they give off, and which the ants so much desire.

An ant has been seen to walk up to an aphid and stroke its back with its feelers, in return for which the pleased aphid would give off a drop of honey-dew that the ant quickly swallowed. In its way the relationship between the ants and the aphids is not unlike that which exists between mankind and the milch cattle. So solicitous are the crafty ants of their guests' welfare that they will even build special accommodation for them and take the greatest possible care of their eggs.

The number of different kinds of beetles too inhabiting ants' nest is very large, many of them being also blind, helpless and entirely dependent on the ants for their support. Some of these lodgers, as far as we can see, appear to be mere drones and hangers on, who should be driven out to shift for themselves.

No tall ants, of course, live underground. The wood ants, for instance, build themselves shelters of leaves, twigs, etc., above ground. Other kinds again are tunnelers in wood.

Scouts will be interested in the movements of the large bands that sometimes range over the country of "driver ants," as they are called, who kill and carry off all the tiny insect life before them. In the Canadian woods you will often meet innumerable bands of these marauders abroad on their destructive quests. It has long been known among students that slavery is still practised in many ant colonies.

These marvellous little folk of nature, the ants, have their own means of communicating with each other, often patting one another with their feelers. No one has yet learned their language, but certain it is

that they must have some form of utterance, or other way of making their wants and wishes known, and if, indeed, they are not gifted with all the faculties that the Almighty has bestowed upon us nevertheless by their example they can teach us valuable lessons in many respects.

Moths and Butterflies



Caterpillar of Cecropia Moth.

Moths and butterflies both lay eggs which hatch into caterpillars. Moths and butterflies are things of joy and beauty alone, which hurt nothing; so full of the very joy of living that they scarcely take time to eat. In their despised "worm" state, however, they do nothing but eat and destroy. A strange case this of Dr. Jekyll and Mr. Hyde among insects.

When the caterpillar at last can eat no more, it transforms itself into what is called a chrysalis or pupae, an almost motionless object with the parts glued together under a covering sheath, in which state many of them pass the entire winter to burst forth from their wrappings again in the spring as moths or butterflies. Many of these pupae are wrapped in silk cocoons which they spin for themselves just before turning into their motionless condition.



Cecropia Moth Chrysalis.



Cecropia Moth.

Perhaps the most interesting of these are the caterpillar forms of the cecropia moth, the luna moth, the polyphemus moth and the promethia moth, which are all very large, feeding upon the leaves of different trees, and spinning strong silken cocoons. The polyphemus moth, in particular, has been experimented with a great deal in the United States in the hope of being able to use its silken thread for domestic purposes.

It is not at all difficult to study the transformation of moths and butterflies, and caterpillars can easily be fed until they turn into the chrysalid form.

One of the commonest Canadian butterflies is the monarch, a large reddish-brown species, with black markings, and an especially strong flier, which ranges all the way from Canada to the southern states of the United States. This creature feeds by preference on the milkweed plant and the eggs it lays on the milkweed hatch out in the form of caterpillars, nearly two inches long, having a yellow head striped with black and a white body with narrow black and yellow bands. When this caterpillar is ready to transform into the chrysalis it suspends itself by its tail end, the skin splits and gradually draws back, revealing the chrysalis itself — pale pea-green in colour with golden spots.



"Walking Stick."

Limitations of space make it impossible to reproduce here the life histories of the endless varieties of bugs — one of the tumble bugs, familiar to readers of Mark Twain, was worshipped as a god amongst the Egyptians — and of the different kinds of flies, bees, beetles, etc. Nor can we treat here of the wiles of the crafty spiders. The woods, fields, ponds, and roadside, all are swarming with insect forms of animal life which will well repay study, and if you have scarce time for indulging yourself in this recreation through the day, let the fire-flies of early summer light your footsteps through the evening gloaming into this great world of little folks all about us, of whom we know so little.

Economic Loss Through Insects

Apart from the human interest side of insect life, it should also be known among Scouts that the economic loss in Canada every year through insect ravages totals between one hundred and two hundred million dollars. Insects are credited with the destruction of one hundred million dollars worth of field crops alone and from twenty-five to seventy-five million dollars worth of trees and timber annually, and the Canadian government very properly maintains a staff of experts to study these pests and to prescribe the best methods of keeping them in check. There is what is known as a balance in nature in which the various forms of plant and animal life — including the very smallest fly of the insect world — all have their part, and the more we learn about these things the more we feel —

“How great is God Almighty
Who hath made all things well.”

CHAPTER VI

CAMPS AND CAMPING

To the normal Canadian boy there is something irresistibly fascinating in camp life. It is the big holiday adventure of the year, looked forward to for months in advance. Camping also plays a very important part in Scout training. Without it, indeed, the training is incomplete; for it is in camp that the boy gains that actual experience of day-by-day team work, the sharing of duties and responsibilities, and those practical lessons in cheerful resourcefulness that most materially contribute to his training for good citizenship.

For the Parents

Each year parents of boys new to Scouting ask just why so much emphasis is laid on camping. Here are some of the reasons: —

The Boy Scout Camp satisfies that “get away from home” urge which from time to time stirs in the heart of every normal boy; particularly the “gypsy” in town or city boy, restive after the restrictions of the winter and the school, that longs for the free spaces of the woods and the lakes, the simple rough life of camp, and the company of a “gang” of his kind. It is this impulse, unwisely met, that has produced runaway boys.

Invariably the boy returns from a Scout Camp and its carefully worked out activities with a new appreciation of his home, his brothers and sisters and his parents, and generally a broadened outlook on life. As to health, there is no safer or more beneficial place for a boy in the summer than a well run Scout camp, with its close attention to all matters of personal and general camp hygiene, its supervised games and swimming precautions.

There are three general types of Scout camps — the district mass camp, the troop mass camp, and the Patrol System troop camp.

The District Mass Camp

The district mass camp is laid out in a circle, a half-circle, or in streets of tents, there is a large dining room or tent, a kitchen staff, usually assisted by boys assigned each day; and the activities programme is planned for groups of boys rather than individuals. Probably the chief advantage of the district mass camp is that it takes care of small parties of Scouts from troops which cannot attend camp as a body, or boys of troops whose Scoutmasters cannot accompany them to camp. The cooking question is easier of solution for inexperienced troops, and the cost per boys usually is a little lower than for other camps. The drawbacks include the difficulty of giving the individual boy the personal attention necessary to his securing the maximum benefit from the outing, particularly in his knowledge of campcraft and woodcraft, learning to swim and rescue, etc.

In some district camps, the cooking plan has called for the preparation of breakfast and the noon meal by the individual troops or patrols, supper being prepared by an experienced cook and served in a common dining hall.

The Troop Mass Camp

The troop mass camp is run on the lines of the district mass camp, with the modification of smaller numbers. The tents are closely groups, the cooking is done by a professional cook assisted by Scouts, and the meals are served in a large tent or shelter.

The Patrol System Camp



A Patrol site.

Under this system each patrol camps by itself in its own corner of the camp ground, does its own cooking, makes and maintains its own sanitary arrangements, etc. The patrol spirit is thus given its maximum development, the Patrol Leaders and Seconds learn actual and sustained responsibility and leadership, and the other members of the patrol learn to take their turn in all the work and duties of the patrol family. This type of camp usually costs a little more per head, and requires more supervision by the Scoutmaster and his assistants, but the results for the individual boy in health, character development and advancement in scoutcraft generally are notably greater than under any

other system. All reported experiences of recent years indicate that the well run Patrol System camp is the most enjoyed from the boy's point of view.

A Combination Camp

A combination of the district and individual troop camp that has had considerable success, where sufficient ground is available, is the scattering of the camp in independently organized troops, each under its own leader, and each carrying out its own daily programme.

Preliminary Arrangements

The Scout camp should be planned only with the full co-operation of the Troop Committee or Local Association, and the committee or association should not grant permission for the holding of a camp unless it can be held in direct charge of competent adult leaders.

Camp Finances

In some well-run troops a Camp Bank is started each Fall, a Camp Fund deposit card (may be secured from the Stores Department, Dominion Headquarters) issued to each Scout, and a fixed or minimum sum is deposited each week until the following summer. Other troops raise funds through entertainments, or such activities as providing and planting shade trees at so much per tree, systematically collecting wastepaper, etc. During a Spring Clean-Up Week one Ontario town troop, in addition to several days of Good Turn tidying-up, earned \$40 camp money by removing large accumulations from behind business blocks. Another troop earned camp money by collecting rags, and washing and selling to factories for 13 cents a pound those suitable for polishing furniture or wiping machinery. In cases where the boys pay their way individually, the money should be earned by the boys themselves. This is the true Scout way. The average boy's self-respect and self-reliance are appreciably added to by an outing financed by himself.



Patrol site Gadgets.

When the problem of camp financing cannot be met by any of the above methods, a situation which may occur with a newly organized troop, the solution found by one Canadian Scoutmaster may prove feasible. He located a suitable, quiet camp site five miles from town, and secured its use free. The tents were loaned by private individuals. The daily rations were left by the boys' parents at a certain store, where a car called each evening and brought them out to camp. Some boys secured milk from a farmer, others had it included in the rations sent from home. The camp was voted a fine success by both boys and Scoutmaster.

Camp Location

While there is no such thing as a perfect camp site, the various features which would make up the ideal Scout camping ground should be considered, and met so far as possible. The site should be reasonably, but not too easily, accessible. For the average boy much the best results are secured when camp is entirely free from the calls of casual visitors, so that the camp spirit and atmosphere may not be broken.

The site should be located by a personal visit, never by hearsay. Even a camp site previously used should be visited and looked over by the Scoutmaster or some of his older Scouts. During the year's interval, some local conditions may have developed which would seriously affect the camp's success.

Permission to Use the Site

There should each year be a clear understanding with the owner of the property regarding the use of the camp site, and definite arrangements made with reference to firewood, cutting of trees in pioneer work, etc.; bounds of property not to be entered, field or lane gates to be kept closed, etc. This understanding should be in writing.

The Scout camp will be beside or convenient to water, of course. And beside *safe water*. Unsafe water includes dangerous river or tidal currents, shallow bottoms which suddenly drop, or in which there are holes; bottoms containing snags or rocks dangerous to divers; steep banks and deep water. One of the most dangerous swimming places is the apparently shallow bottom which suddenly drops. Such places claim the lives of inexperienced or careless bathers every summer.

Camp Site Details

The camp site should have adequate natural or artificial drainage for all extremes of weather. It should not be overlooked by houses or by frequently used roads. The neighbourhood should provide as many varieties of trees as possible, and plant, wild animal and bird life. There should be level ground suitable for games. Of first importance is unquestionably good drinking water (see page 211).

Tents

For a camp other than a week-end hike, reasonably large tents are advisable. A continued spell of wet weather with only the cramped quarters of a hike tent for shelter is a trying experience, and may result in sickness. It is difficult to keep clothing and other things dry; it may be difficult to dress or undress without going outside in the rain. And boys cannot be expected to keep still for long. They should have room to move about in a tent.

Generally speaking there are two kinds of tents suitable for Scout fixed camps, — the bell and the wall tent.

While the bell tent has its drawback, it has many features to recommend it. A full sized bell tent will accommodate a complete Scout patrol comfortably, allowing room to move about. It is one of the best weather tents, because of its shape and the sharp pitch of its roof. It is easily put up and taken down, even by one Scout, after a little experience. Its chief drawback is its poor ventilation; it is hotter in the sun and colder at night than a wall tent with a fly.



Wall Tent with Fly.

The wall tent with a fly is the most popular tent, since it allows of comfortable head room, and the fly makes it cool in the sun, warm at night and entirely rainproof. It requires a large type to accommodate a full patrol, however, and generally costs considerably more than a bell providing similar accommodation. It is more difficult to erect, and calls for more pegging, and does not so well stand up against a heavy wind.

Various models of tents will be found described in the Dominion Headquarters Supplies Catalogue.

Making a Tent

When specially made tent material proves to be too expensive for the patrol's resources, a very satisfactory substitute may be found in some light cotton fabric of close weave, the tent after completion being waterproofed. One simple process of waterproofing is the paraffine-turpentine method. Pare a one-pound cake of paraffine into a pail containing a gallon of turpentine. Place the pail in a larger pail of hot water until the mixture is well heated. Place the tent in a tub of suitable size, and pour the hot mixture over it, working the liquid thoroughly into the cloth with the hands. Without wringing out, hang up to dry.

A second method, the alum-sugar of lead (acetate of lead) treatment, calls for the dissolving of four and one half ounces of powdered alum in a gallon of hot rain water and four and one half ounces of sugar of lead in another gallon of water. The two liquids are then mixed, and the whole poured over the tent in a tub. The tent is left to soak for two or more hours, then rinsed in clean water, wrung out and hung up to dry. (Clothing may be waterproofed in the same manner.)

Prepared commercial waterproofing mixtures also may be bought.

The Indian Tepee

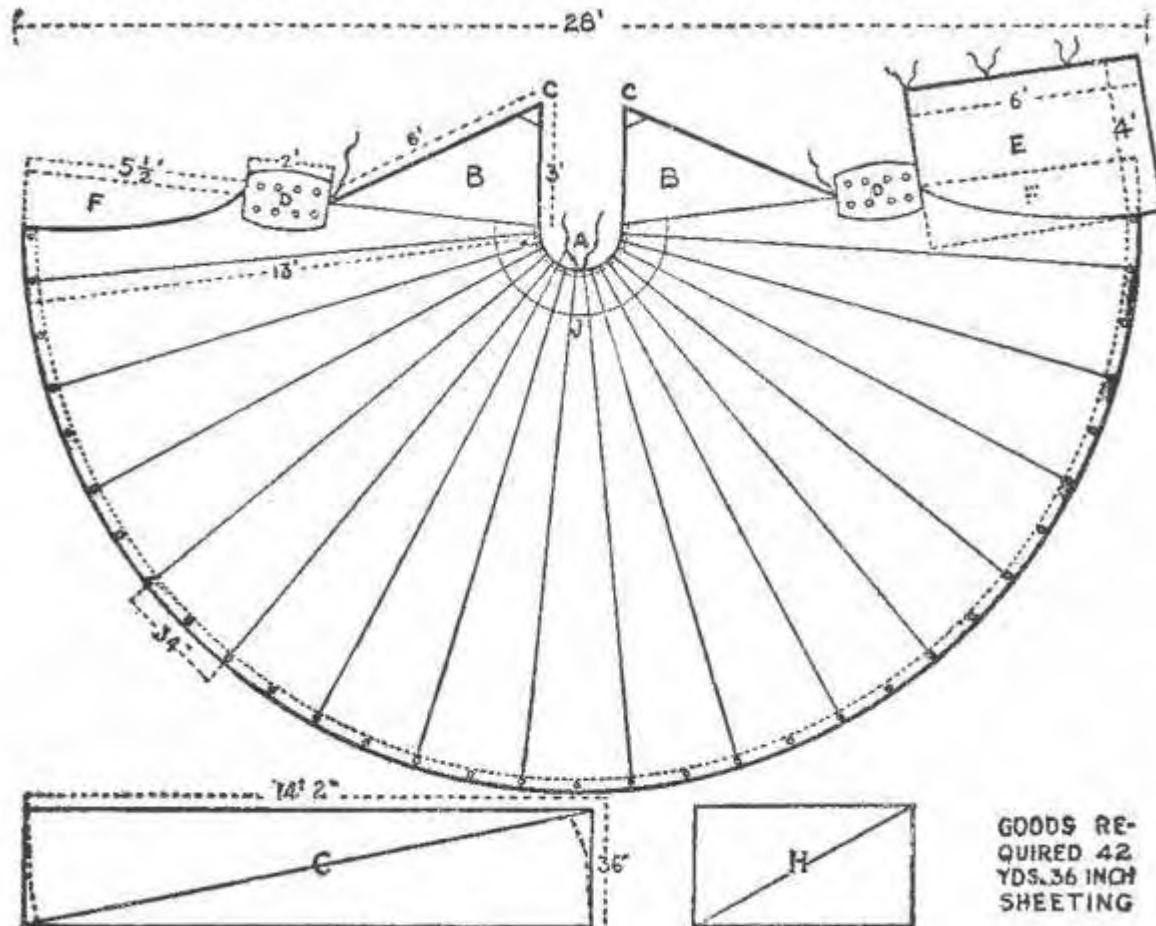
A particularly picturesque form of tent is the Indian "tepee," or "wigwam." This is circular in form and is erected on nine to thirteen light poles, thirteen or fourteen feet long, taken from the woods and lashed together about two feet from the top. A tripod of three poles is put up first, the others being laid in the intervening angles. The peak of the tent is fastened to the last pole and the canvas is then spread over the poles and pegged down all around. A ten foot tepee is the smallest size for practical purposes and is the best size for boys' use. It requires twenty-two square yards of



Indian Tepee.

material. Tepee poles should be stacked carefully against a large tree for future use. An advance party should prepare suitable poles for use in constructing this form of tent.

A small hole is left in the peak of the tepee which serves for ventilation. This style of tent admits also of a fire inside, being almost the only make which does so. The Indian tepees were made of buckskin or other hides and many famous campers have claimed for them that they made an ideal movable home.

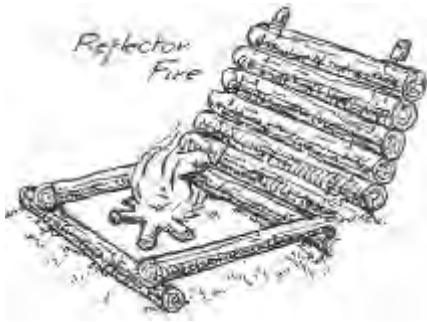


Design of an Indian Tepee

A, Suspension cord for erecting on one pole; B, Smoke-flaps; C, Pockets to receive ends of smoke poles; D, Overlapping flaps for lacing the lodge around the poles; E, Door; F, Cutting for door; G, Section of sheeting showing how to cut it to make two segments; H, Section of sheeting showing how to cut to make the smoke-flaps; J, Reinforcement. The 17 segments should be very carefully cut, and as carefully sewn together, using a $\frac{1}{4}$ -inch lap seam. This is the strongest and best design, and will repay the additional pains necessary to make it.

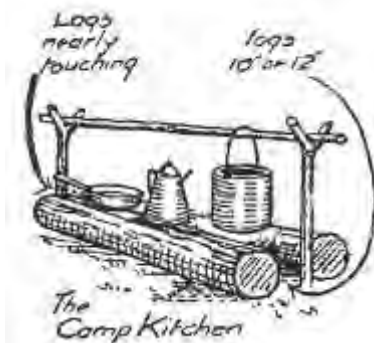
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Camp Fires



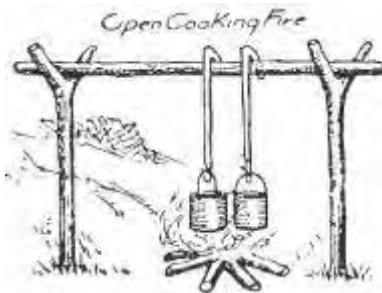
order that it may be returned to its place when the camp is cleared up for departure, Scout fashion.

Undoubtedly the most satisfactory cooking fireplace from all points of view is that built up of flat stones, the construction being four to six feet long, the sides about eight inches apart at the windward end and four at the other, and the interior trenched three or four inches.

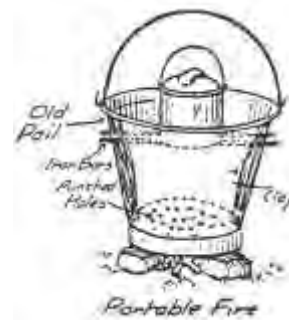
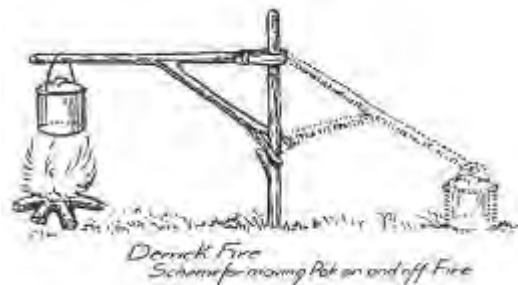
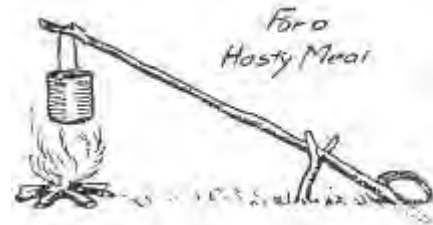


beneath the windward log, clumps of sod or stones being used as dampers to control the fire. The cooking may be done on the logs, or the kettles hung from a billy bar supported by crotch sticks.

For a location where there is considerable wind the trench fire is the best type of kitchen fire. This is merely a trench some eight or ten inches wide and four or five inches deep at the windward end, narrowing to six or eight inches and deepening to eight or ten inches at the other end. The trench is covered by an old piece of sheet iron, or crossed by iron spikes, if available; or the pots are hung low from a billy bar. This form of fireplace makes a good oven, with a flat

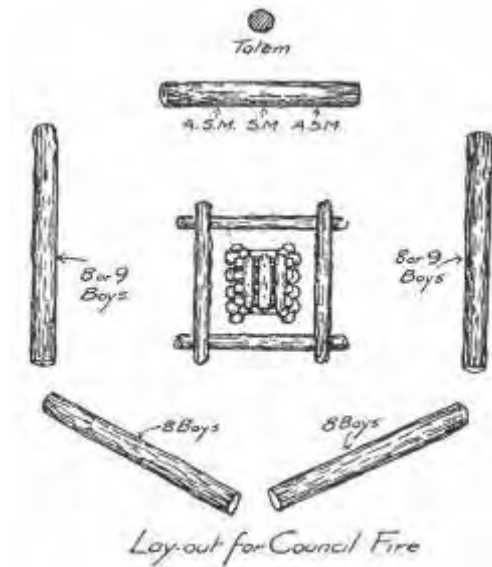


stone placed on the bottom at the inner end, and a second stone or piece of iron over the top. Fire is built on the lower stone, burned to coals, the coals raked forward, and bannock or biscuits placed on the stone to cook.



For starting the fire, birch bark when available is the commonly used tinder. A “shaving stick” or “fuzz stick,” whittled from a piece of dry wood, preferably a soft wood such as pine, will make a sure start under all ordinary circumstances. The “fuzz stick” is driven upright into the bottom of the fireplace, the shavings pointing down, and small dry twigs placed upright about it. To start a fire in the wind, stack twigs or shavings about a clean stone the size of your fist, insert the match and strike it on the stone.

The Council Fire



There is only one good type of fire for the evening’s camp fire or council fire — the log cabin type. That is, a square construction of logs, each tier placed across the preceding tier. The largest logs are placed on the ground; and in order to secure the best form, each succeeding tier should be of shorter logs. This produces a pyramid. The advantage of this type of camp fire over the wigwam type is that the latter usually topples over, scattering embers, and perhaps endangering those seated about the circle, whereas the log cabin fire collapses inward.

The council fire should be suited in size to the number of persons to be seated about it. Frequently it is made too large, resulting in considerable discomfort from smoke, sparks and heat to those on the windward side. A small, compact log cabin fire, with its steady, lasting light, will be found the most satisfactory.

Kinds of Wood to Use

The Scout fire in all cases should be suited to its particular purpose, in size, and kind of wood used. For a quick, hot, short-lived fire — as for boiling a billy, frying bacon or heating beans — birch bark, small pieces of split dry pine or cedar, or almost any small, dry hardwood twigs, will serve. For long-lived coals, to be used for broiling or baking, find hickory, white oak or white ash, if available. Poor burning woods in pieces larger than “kindling” include hemlock, cedar, and white elm. For back logs use poplar, red oak or pitch pine, all green.

Wet Weather Fires

After a long spell of wet weather, wood for fires may be found in the upstanding branches of fallen dead trees, or the dead limbs of live trees. An old stump chopped open usually will produce dry firewood. To make a fire in a heavy and continued rain, find a heavily leaved tree, shake it well, and start a fire under its protection. The fire will be well under way before the tree has again become saturated.

Camp Cookery

A reason sometimes given by Scoutmasters for not holding a Patrol System vamp is fear that the cooking by the boys of the various patrols may not be satisfactory. Simple camp cooking will present few difficulties if the boys are previously directed to practice some plain cooking at home, and if a number of week-end or Saturday hike-camps are held. The frying or broiling of bacon and other meats, the boiling, frying or poaching of eggs, the boiling, frying or roasting of potatoes, the making of porridge and of

stews, and the cooking of rice and raisins and dried fruits — all such cooking is within the ability of the average Scout. Bread generally is obtainable; if not, good bannock, flapjacks or twist can be made with ordinary attention to details and a little commonsense and supervision. Incidentally the boys will be qualifying for their Second or First Class Scout badges.

Recipes and Cooking Hints

DAMPER. — Use 1½ pints flour, 1½ heaping teaspoonfuls baking powder, ½ heaping teaspoonful salt, 1 heaping tablespoon cold grease, ½ pint cold water or sweet milk. The quantity of water or milk may vary with the quality of the flour. Too much liquid makes the dough sticky, and prolongs the baking. Baking powders also vary, and directions on the can should be studied.

Mix thoroughly with a big spoon or wooden paddle, first the baking powder with the flour, and then the salt. Rub into this the grease (which may be lard, cold pork fat or drippings) until there are no lumps left and no grease adhering to the bottom of the pan. This is a little tedious, but it does not pay to shirk it; complete stirring is necessary for success.

Now add the water, and stir with the spoon until the result is a rather stiff dough. With a clean round stick roll out the dough, at once, to a half-inch thickness, and bake in a frying pan (covered if a wind is blowing), or on hot stones.

TWIST. — Work the dough into a ribbon two inches wide. Get a stick of sweet green wood (birch, poplar, maple or sassafras), about three feet long and three inches thick; peel the large end and sharpen the other and stick it into the ground, leaning toward the fire. When the sap simmers, wind the dough spirally around the peeled end. Turn occasionally while baking.

Bread enough for one man's meal can quickly be baked in this way, or on a stick held over the coals.

PORRIDGE. — For each person allow one pint of water, 2 ozs. of rolled oats or oatmeal and a quarter spoonful of salt. Bring the water to a boil, add the salt, then sprinkle in the oatmeal, stirring all the time. Allow to simmer for half an hour. (Coarse oatmeal will take an hour.) Stir frequently to prevent burning.

A double boiler is the surest method to prevent burning. One may be improvised by placing a small pot inside a larger, containing water, with a few pebbles in the bottom to keep the two vessels apart.

BACON. — Slice thin, and remove the rind, or cut through, so the slices will not curl in the pan. Fry slowly over a few coals, and turn frequently.



A GILWELL FIRELESS COOKER.
A hole in the ground, a billy packed in with grass, the whole covered with more grass, then sod. Oatmeal first brought to a boil then cooked this way all night is great! So is stew.

HUNTER'S STEW. — Cut some lean meat or game into small pieces, brown it with fat in a frying-pan, shuffling the pan so as to sear, but not burn, the surface of the meat. Then drop the meat into a kettle of boiling water and set it to one side or hang it over the fire so as to simmer. Later add potatoes, onions, rice, and salt and pepper. It is essential that the water should not boil hard, but merely simmer after the meat and vegetables are put in. The time varies according to material used; cook until tender. Do not use any fat meat.

If a thick stew is desired, rub up a little flour into the grease left in the frying pan, and add water, stir, and let the mixture

boil a little; then stir this thickening into the stew a short time before it is ready.

Almost any meat, vegetable and cereal, can be used in a stew.

SKIN AND COOK A RABBIT. — A rabbit (cottontail, jack rabbit, or hare) is a meal very likely to come the way of a Scout, so every Scout should know how to prepare and cook one. First place the rabbit on its back. Cut off the legs at the first joint. Slit the skin down and between the hind legs, and “peel” toward the head — that is, turn the skin inside out. (If inexperienced, it will aid you to have someone hold the hind legs during the skinning.) You may require a sharp knife to free the skin in spots. Next slit the carcass down the middle of the belly, from the ribs, and clean out the entrails. Wash well in warm water. If there is time, rub well with salt and soak for several hours in water. Cut up, first removing the legs. Make a stew similar to hunter’s stew, adding onion and several pieces of lean bacon. Cook for an hour and a half. If desired thick, mix a little flour with cold water, and add.

NOTE. — A rabbit is good eating only in the fall or winter.

PLUCK AND COOK A BIRD. — If it is desired to pluck a fowl, this can easily and quickly be done after first scalding. To scald, hold the fowl dead down, by the legs, and pour the scalding-hot water through the feathers close to the body. Give particular attention to the wings.

Plucking is not necessary, however, where roasting is desired. First remove the entrails and wash the inside, then plaster the fowl over with a mixture of clay, earth, ashes, etc., and place in the middle of the fire, covering with ashes and hot coals. With a good fire, an hour and a half to two hours, depending on the size of the bird, will complete the cooking. The feathers will come off with the baked coating of clay and disclose a delicious meal for a group of hungry Scouts.

Fish and meat may be cooked in practically the same way, the meat being first wrapped in two or three thicknesses of wet paper. The cooking of a bird or a large fish will be hastened if a stone of suitable size and shape is heated nearly red hot and placed inside. The same idea will help the roasting of a bird or fish on a grid or spit over the fire.

HUNTER’S BEANS. — Pick over beans, soak all night, parboil with pinch of baking soda until the skin starts. Drain and put half the beans in the bean pot, then add a generous piece of salt pork or bacon and then the rest of the beans. A little salt and some molasses or sugar are then added. Pour in enough hot water to more than cover the beans. Put cover on and set in hot ashes, or a crib of stout green twigs, or a bake hole.

The bake hole is prepared as follows: A hole is dug in the ground about eighteen or twenty inches in diameter and a foot deep. A fire is built in the hole, hard wood being preferred for this purpose, and is kept going until there is a plentiful supply of red hot coals. After raking out the coals from the hole, the kettle is put in, and the hot coals arranged around and over it, the whole being covered with a few inches of earth. In case of rain the bake hole should be covered with bark or some other material. Cook eight to ten hours. If the embers appear to be consumed, build a small fire on top.

CAMP BREAD. — Mix prepared flour to a thick stickiness, use plenty of bacon grease in the pan, and have the grease hot when you dump in the dough. When nicely browned on one side, put in a little more grease, turn over and cook on the other side.

POTATOES. — Peeled, cut into quarter-inch slices, and fried in very hot fat are fine.

When boiling potatoes, use lots of salt in the water. A strong brine gives the best results. Always boil the potatoes in their skins; and please don't dig out the eyes, or in any way mutilate the murphies. They don't like it; it makes them wet and soggy. When a fork can easily be thrust through them, pour off the water, and allow them to steam off dry over the log range. They will then be snow white, dry and mealy, and altogether "fit for the King."

FISH. — Fry in plenty of fat, and have it very hot at first. The head should be reduced a little afterward.

COFFEE. — Boil only three minutes by the watch. Coffee made in a small tin pail, with a tight-fitting cover, is better than coffee made in an ordinary pot. To settle coffee, dash in a little cold water, or stand the pail or coffee pot to one side, away from the direct heat.

GREASE. — When in the woods never waste a drop of grease; and keep separate the grease used for frying fish. Condensed milk cans make fine grease holders.

TOAST. — Excellent toast can be made in a frying pan over the log range. Use just enough grease to keep the bread from sticking, and be sure not to burn it. Bread dipped in condensed milk and fried also make a mighty nice addition to breakfast.

PRUNES, DRIED APPLES OR PEACHES. — Soaked over-night and boiled with sugar until tender, should be used constantly in the woods. Prunes are tasty with a bit of lemon added; and are also good medicine.

HOT WATER. — In a permanent camp whenever the fire is burning always have a full kettle of water over it. This means a quickly made hot drink, if needed. Also it assures hot water for washing the dishes — a matter frequently overlooked until it is time to do the washing.

NOTE. — When ordering supplies do not confuse *Baking Powder* with *Baking Soda*. The difference has spoiled many a Scout's dream of a tasty meal. It is *Baking Powder* you take with you for making damper, biscuits, etc. Baking Soda is used only in combination with cream of tartar or sour milk.

Suggested List of Food Supplies

The following is a suggested list of food supplies for a 32-boy Troop for one week: —

Apples (dry)	8 lbs.
Apricots (dry)	5 lbs.
Beans (dry)	8 lbs.
Bacon	10 lbs.
Baking Powder	½ lb.
Beef	12 lbs.
Beets	12 lbs.
Bread	150 lbs.
Butter	25 lbs.
Cheese	4 lbs.
Coffee	2 lbs.
Catsup	4 bottles
Corn flakes	18 pkgs.
Corn (canned)	9 cans
Cornstarch	1 pkg.
Cocoa	7 lbs.

Chicken (dressed)	20 lbs.
Crackers	15 lbs.
Cream of wheat	3 pkgs.
Doughnuts	4½ doz.
Eggs	12 doz.
Flour	12 lbs.
Frankfurters	10 lbs.
Ham	12 lbs.
Ice Cream	9 qts.
Jam	8 lbs.
Lard	4 lbs.
Lamb	12½ lbs.
Lemons	4 doz.
Lemon extract	2 oz.
Lettuce	15 lbs.
Lime juice	5 bottles
Macaroni	8 lbs.
Marmalade	8 lbs.
Milk	150 qts.
Molasses	4 pts.
Mustard (prepared)	1 pt.
Oranges	3 doz.
Onions	8 lbs.
Peaches (dry)	12 lbs.
Peas (No. 2 can)	9 cans
Peas (split)	9 lbs.
Pepper	¼ lb.
Potatoes	2 bus.
Prunes	10 lbs.
Puffed Rice	4 boxes
Raisins	2 lbs.
Rice	8 lbs.
Rolled Oats	18 lbs.
Rolls	6 doz.
Salt	1 small bag
Salmon (tall cans)	1 doz.
Shredded wheat	½ doz. boxes
Soup (mixed)	30 cans
Spaghetti	5 lbs.
Spinach	3½ gals.
Sugar	40 lbs.
Tapioca	4 lbs.
Tea	2 lbs.
Tomatoes	5½ gals.
Vinegar	1 qt.
Vegetables (carrots, parsley, celery) ..	8 lbs.
Vanilla extract	2 oz.

The quantities of vegetables, greens and fruits would be adjusted to make use of those available from nearby farmers. If small fruits will be available during the period of the camp, the dried fruits would be reduced in quantity. When procurable, rhubarb makes an excellent and economical substitute for fruit. Similarly, fresh fish may be substituted for meat.

It should be remembered that fruits are included in the list not as “extras” but as necessities, for their laxative and other beneficial qualities.

During very warm weather, particularly for the noon meal, lime juice will be found popular. It should not be made over-strong.

SUGGESTED MENUS
(Based on foregoing list of food.)

SEVEN BREAKFASTS:

Monday — Stewed prunes, oatmeal, boiled eggs, coffee or milk, bread and butter.

Tuesday — Stewed peaches, shredded wheat, fried bacon, coffee or milk, buttered toast.

Wednesday — Stewed apricots, oatmeal, coffee or milk, bread and butter.

Thursday — Cream of wheat, boiled eggs, coffee or milk, bread and butter.

Friday — Stewed prunes, oatmeal, pancakes, coffee or milk, bread and butter.

Saturday — Stewed apples, corn flakes, cocoa, buttered toast.

Sunday — Oranges, rice, scrambled eggs, coffee or milk.

SEVEN DINNERS:

Monday — Soup and crackers, boiled ham, mashed potatoes, spinach or other greens, fruit, bread and butter, tea or lime juice.

Tuesday — Beef pot-roast, boiled potatoes, gravy, tapioca pudding, bread and butter, tea or lime juice.

Wednesday — Lamb stew, creamed onions, fruit, bread and butter, tea.

Thursday — Split-pea soup, bacon, potatoes, stewed tomatoes, bread and butter, bread pudding, lemonade.

Friday — Salmon balls, mashed potatoes, creamed corn, chocolate pudding, bread and butter, coffee or lime juice.

Saturday — Soup, pork and beans, buttered beets, bread and butter, tea or lime juice.

Sunday — Chicken fricassee, mashed potatoes, gravy, creamed peas, lettuce salad, ice cream, bread and butter, lemonade.

SEVEN SUPPERS:

Monday — Soup, cereal and milk, bread and butter, stewed peaches, cakes, cocoa.

Tuesday — Fried potatoes, cold beef, bread and butter, jam, cocoa.

Wednesday — Split-pea soup, frankfurters, bread and butter, marmalade, cocoa.

Thursday — Macaroni and cheese, bread and butter, stewed apples, tea.

Friday — Fried potatoes, spaghetti and tomatoes, bread and butter, cocoa.

Saturday — Boiled rice and milk, bread and butter, jam, tea.

Sunday — Frankfurters, potato salad, rolls, doughnuts, marmalade, cocoa.

Care of Provisions

The proper care of provisions in camp calls for thought, and if neglected invites trouble. Mice, squirrels, porcupines, and other denizens of the wild are ever ready for a change of fare if chance offers, and this may come when the boys are all off for the day, or it may happen at night if things are left where they can be got at. The ants too are ready to march in armies on unprotected foodstuffs. So see that things are properly covered, and if there is spring water close by your camp kitchen, stand covered milk and butter pails in it to keep them fresh and cool.

Be careful not to store milk and butter too near onions or anything else with a strong odour as they are easily tainted.

If you have ice in camp a simple refrigerator may be made by boring a few holes in the bottom of a box or barrel for drainage and then sinking it in the ground in a shady spot to its top, which may be covered with a blanket. The ice will keep better if one box is fitted inside another in such a way as to have an air space all around. Keep the ice in one end of the box and the food in another. Breadstuffs can best be kept in dry boxes away from dampness. If ice is not available, dig a hole in the ground, and either stone it up or line it with wood or bark and cover the top with a wet blanket.

It takes a little while, of course, to get some of these conveniences rigged up but it pays to attend to them at the right time, which is at the very outset.

Camp Beds

There are many ways of making a comfortable bed in camp or you can take a folding camp cot with you. Do not attempt, however, to lie on the bare ground, as the change is too great from the comfort of one's accustomed bedroom and bedding. When sleeping in camp in cool weather the secret of keeping warm is to have as many blankets underneath you as you have above you. If the patrol is sleeping around the fire you would all lie with your feet towards the fire like the spokes of a wheel. If your blankets do not keep you sufficiently warm, add straw or ferns or newspapers or anything else you can get under them. It is also a good tip in cold weather if you have not sufficient warm clothing to put a newspaper under your coat or vest, up your back and around your body. It will be as good as an overcoat in giving you extra warmth. A canvas cot is more luxurious than one made of boughs. If it is not convenient to take along a folding cot, one made of canvas may easily be stretched in camp on poles supported on crotched stakes driven into the ground.

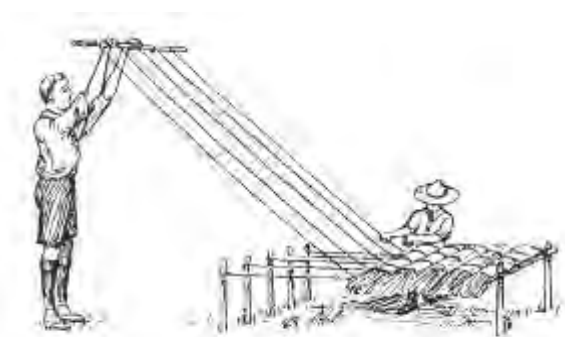


Ground Bed

A simple and comfortable bed can, however, be made on the ground of dry leaves, grass or straw, or of the branches of evergreens laid overlapping one another like shingles on a roof until a sufficient depth is secured. Be sure to turn the boughs upside down in making the bed as this tends to make the whole more springy. This form of bed is usually kept in place within four poles laid on the ground and overlapping slightly at the corners. Pegs driven into the ground at the four corners keep the poles in place as shown in the illustration herewith. The whole is then covered with a ground sheet. In settled parts it is not generally permissible to cut evergreen boughs at will.

Sometimes cots are woven in lattice form of small pliable saplings and laid on a pair of poles supported by crotched stakes driven into the ground. Both twigs and leaves are spread over the lattice mattress to a sufficient depth to make it soft to lie on, the whole then being covered with a blanket or two fastened to the cot at the corners so as to keep the leaves and twigs from falling out.

Still another type of camp mattress, illustrated herewith, is that which is made on a camp loom of woven grass, straw, ferns, etc. With this loom you can also make grass or straw mats with which to form tents, shelters, walls or rugs.



Camp Loom

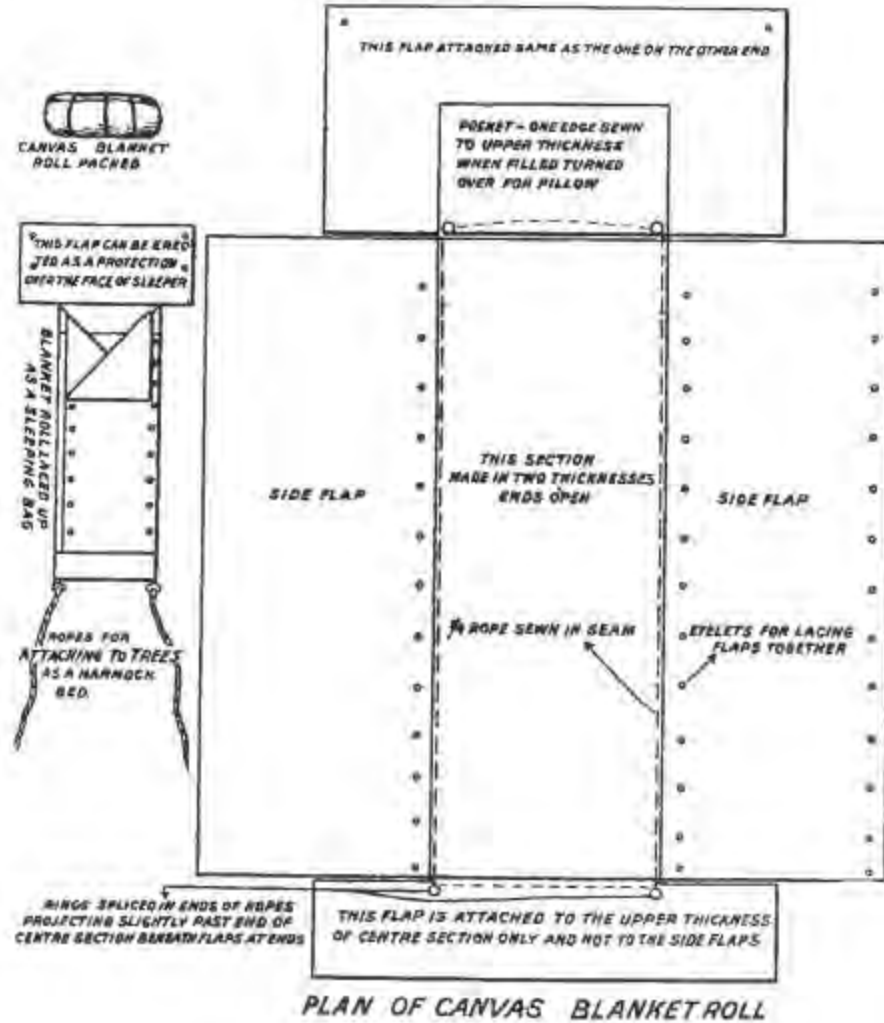
To make a camp loom, plant a row of five stakes, 2 ft. 6 in., firmly in the ground; opposite to them, at a distance of 6 ft. to 7 ft., drive in a row or two and a cross-bar or else a second row of five stakes. Fasten a cord or gardener's twine to the head of each stake in the first row and stretch it to the cross-bar or corresponding stake in the second row and make it fast there; then carry the continuation of it back over the first row for a distance of about 5 ft., and fasten it to a loose cross-bar or beam at exactly the same distance apart from the next cord as the stakes. This beam is then moved up and down at slow intervals by one Scout, while the others lay bundles of ferns or straw, etc., in layers alternately under and over the stretched strings, which are thus bound in by the weaving process.

A Canvas Blanket Roll

A canvas blanket roll, in the form shown in the accompanying illustrations, will be found useful and is easily carried. Not only will it hold blankets, but in it one can securely roll everything required on a camping trip excepting eatables. Food is better carried separately in a haversack, rucksack or packsack, particularly if going on a week-end or short term trip. The pocket at the top of the roll will hold all the surplus clothing and equipment and when so filled provides an excellent pillow.

This blanket roll is not very expensive and can be made up by a handy Scout as follows. Four pieces of canvas six feet, six inches long, and about twenty inches wide, are sewn together along the edges so that there will be two thicknesses of canvas in the centre and a single thickness on each side to act as a flap. A piece of ¼ -inch manilla rope with a ring spliced into each end should then be sewn along either edge of the bag formed by the two thicknesses of canvas in the centre of the blanket roll. Next sew a piece of canvas twelve inches by fifty-six inches to one end of the upper thickness in the centre, so placed that an equal portion will project on either side of the centre section, but without being fastened to the side flaps. At the other end sew a piece twenty-eight inches by fifty-six inches in the same manner. The first piece is folded over to close the foot of the bed, and the latter may be erected as a shelter over the head in bad weather. Now make a pocket twenty-eight inches by fifteen inches, and attach one edge of the mouth

at the same place as the flap at the head of the bed. This pocket forms a pillow when filled with extra clothing, ditty kit, etc., and turned over. At six-inch intervals along either edge of the side flaps, put in small brass eyelets, or grommets, to be used for lacing up the blanket roll after the blankets are placed inside, and the flaps closed over. Cotton clothes line will serve for lacing.



Light weight canvas may be used, and the bottom thickness of the centre section and flaps waterproofed. Blankets are more secure if pinned to the canvas with large horse blanket pins.

Apart from its use to roll things in, the blanket roll can be made to serve as a sleeping bag. When the side flaps overlap the full width as shown in the sketch, it will hold only one person, but it can be made large enough for two persons by drawing the outside edges together only and lacing instead of overlapping. It may be used also as a stretcher-bearer by placing poles at either side of the bag formed by the centre section and lashing pieces at either end to keep them apart. Or it may be slung as a hammock between trees by attaching ropes to the rings provided at either end of the bag and using a couple of sticks twenty-four inches long for spreaders.

Going Into Camp

Like all other Scout doings, “going into camp” is a well planned procedure, and the camp layout therefore will have been decided upon beforehand. On arrival the boys of each patrol will at once set to work on their own patrol site. For example, two may proceed to erect the tent; the first day’s cook and cookee, perhaps assisted by a third boy, may construct the kitchen fireplace, gather wood and prepare the first meal; another boy will make the patrol latrine — all under supervision of the Patrol Leader or Second. Another boy may be sent to assist in the erection of the Headquarters tents, or to help prepare the council fire, if the troop has arrived on the grounds late in the afternoon.

Scout Camp Duties and Rules

Scout camps are not run haphazard, but according to well defined rules. This does not mean unpleasant restrictions, but that kind of planning that ensures the most enjoyable and worth while time with the least possible danger of mishaps and sickness. It is generally understood that the Scout Law is the law of all Scout camps. Frequently the sign is posted over the camp entrance, “The Scout Law is the Law of this Camp.” Broadly this means every fellow “playing the game”; cheerfully obeying all the rules of the camp; always ready to dig in and do his share, or more, of anything to be done, without even looking to see what another fellow is doing; it means doing everything to the best of his ability, including the washing of the pots and pans; it means cheerfully accepting the decision of the Scoutmaster in all games and other competitions.

The rules of the camp will include those regarding swimming, camp boundaries, carrying axes and the cutting of trees, the noon rest hour, sleeping hours (against tent raiding or other rowdiness after Lights Out), and rules regarding the reporting of cuts, scratches and other injuries, however apparently trivial. Of particular importance will be the rules regarding swimming. The disobedience of these rules in some camps means that the boy is at once sent home. Fortunately this is very rarely necessary, and then only in the case of a very “tender” Tenderfoot.

Camp Duties

These will include the turn-about arrangement in patrol cooking, in the case of a Patrol System camp; or turns in assisting the professional cook in the case of a mass camp; going for food, water, milk, etc. One patrol each day will be designated the Duty Patrol. It will “take over” at the close of the evening’s Council Fire, its first task being to thoroughly put the fire out. At 6.30 the following morning the P.L. of the patrol will rouse the camp cooks and the “milk party,” where the milk is sent for. At 7 he will rouse the entire camp. The P.L. will prepare the flag for breaking. During the day the Duty Patrol will see that the camp ground is kept tidy, collect and take out the mail, assist the Quartermaster as required, prepare material for the Scoutmaster’s lectures or demonstrations as requested; and some time during the day the patrol will prepare the council fire. The Duty Patrol also may be called to prepare the Council Fire programme.

THE DAILY CAMP PROGRAMME

In a properly run Scout camp there is no lying around and wondering “What shall we do next?” A definite programme is worked out each day, usually by the camp Court of Honour (meeting during the noon rest period, or immediately after supper). The programme may include patrol bird observation competitions, tree, wild flower or weed identification, tracking and stalking games, bridge building, lean-to building, finding the wood and making friction fire sets; archery; lariat spinning and throwing, and a score of lively Scout athletic games calling for quickness of thinking and speed of foot.

Some of the most successful Scout camps include in their programme a camp museum competition, in which each patrol demonstrates its knowledge of camp and woodcraft by making various types of fires, sanitary arrangements, handy gadgets of various kinds, sun and star clocks, brush shelters, etc.

A SAMPLE FIRST DAY'S PROGRAMME

6.30 a.m. —	Duty Patrol rouses cooks and Milk Party.
7.00 a.m. —	General camp rouse.
7.10 a.m. —	Morning Dip or short P.T. game.
8.00 a.m. —	Breakfast.
9.00 a.m. —	Patrol site inspection.
9.15 a.m. —	Rally for Flag Break, Prayers, Awarding of patrol site competition flag, Announcements.
9.30 a.m. —	Brief lively P.T. game.
9.45 a.m. —	Talk and axemanship demonstration by Scoutmaster.
10.00 a.m. —	Talk on Stalking and Camouflage by Scoutmaster, followed by inter-patrol game of Camouflage and Observation.
11.00 a.m. —	Swim. Free time until Dinner.
12.00 a.m. —	Dinner. Compulsory Rest Period until 2 p.m.
2.00 p.m.	Bird Observation Hike, patrol competition. Back at 4 and P.L.'s. report results. Talk by Scoutmaster, "What Birds Eat."
4.30 p.m. —	Swim. Free time.
5.30 p.m. —	Supper.
7.00 p.m. —	Flag Down.
8.00 p.m. —	Council Fire.
9.15 p.m. —	Turn in.
9.30 p.m. —	Lights out.

Hoisting the Flag

One of the first duties in camp after the tents have been put up should be that of hoisting the national flag and the troop colours, and steps should be taken to insure proper respect being paid to these emblems throughout the continuance of the camp. The flags must, of course, be lowered at sundown.

It is important to know the correct method of hoisting the flag and how to prepare the flag-pole and halyards. First get enough one-quarter or three-eighths inch manilla rope to measure twice the height of the flag-pole and allow ten or twelve feet over for halyards. One end of the rope is passed through the steel eye, or pulley, at the top of the flag pole. The eye, or pulley, should be of a proper size to allow the halyard to run freely. The two ends are then spliced together with a long splice, making the halyard into an endless loop running through the eye or pulley. Take a piece of the same size of rope and splice an eye on one end, leaving enough over to splice the eye into the halyard. Then take another piece of the same size of rope, four to six feet long, and "whip" or put a "monkey knuckle" on one end, splicing the other end into the halyard at a point about ten or twelve feet below the above mentioned eye. The eye and the loose end of the rope should face one another. This will take a flag three to eight feet in width.

To raise the flag insert the toggle, that is the small wooded piece at the upper left hand corner of the flag, through the eye in the halyard; then fasten or bind the piece of rope which has been spliced into the halyard, to the bolt rope of the flag, that is the piece of rope with an eye fastened to the lower left hand

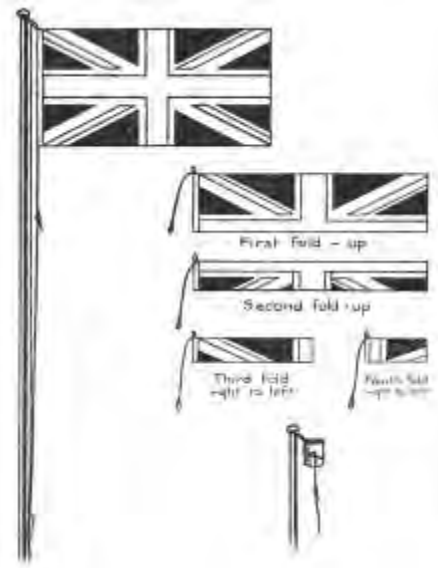
corner of the flag. Be sure to take up enough slack so that when the flag is raised the halyard will be taut between the points at the top and bottom of the flag thus holding it as closely as possible to the flag pole.



Breaking the Flag.

On all occasions the flag should be raised and unfurled sailor fashion. To do so, it is pulled to the top of the pole in a small bundle and the rope is given a quick jerk, causing the flag to break (unfurl) as if by magic. To prepare the flag for this purpose proceed as follows: lay it out flat, fold it twice lengthwise, then twice crosswise and roll tightly. Wind the lanyard once around the roll and tuck it under itself. Attach the toggle of the flag to the eye of the halyard, and fasten the lanyard of the flag to the piece spliced into the halyard for this purpose. Hoist very carefully so as not to disturb the loop of the lanyard and hold the bundle in position at the top of the flag-pole. At the proper point in the ceremony give the down halyard a

quick jerk with the free hand, and the flag will break with a very pleasing effect. The accompanying diagrams will assist in making these directions clear.



When the flag is lowered roll it up in the same manner and keep it so ready when not in use.

Daily Prayers

Prayers should always have a place in the daily camp routine. It will generally be found that the morning parade for flag-raising is the most appropriate time also for daily prayers.

Every troop should have its Chaplain and the form of service should be carefully considered by the Chaplain and Scoutmaster together in order that full account may be taken of the religious beliefs of the troop members. On Sunday a Scout's Own may be held. This is an undenominational service led by the Scoutmaster and consisting of considerable singing and the discussion of some feature of the Scout Promise or Law. The Scout's Own will only be held with the full knowledge and consent of pastors and parents.

WATER SUPPLY

The safest water is that from a spring. It is a popular idea that water from a brook or other small running stream is always pure. As a matter of fact water from any stream is subject to human or animal pollution throughout its entire drainage area; and when such water is to be used at a Scout camp, its source and borders should be carefully inspected.

Or if you have to choose between a bright clear stream which may be polluted at some point above, and a pond full of dead leaves and peaty matter, but which you can inspect all around and find free from contamination, choose the pond. This is the advice from the noted biologist, Dr. Charles E.A. Winslow.

Where any uncertainty remains regarding the quality of the water supply, it should be boiled for fifteen minutes, or chlorinated in the following manner: In a teacupful of water dissolve a level teaspoonful of chloride of lime. Dilute with three cupfuls of water. Add a teaspoonful of this to each two-gallon pail of drinking water and stir thoroughly.

SANITATION

It is possible to find camps sites that are scarcely approachable after the campers have left. **These are never Scout Camps.** Good sanitation is one of the features of good camping upon which we Scouts pride ourselves, — as to health, safety and good taste, as well as the condition in which we leave our camp sites.

Latrines

One of the most important details is the latrines. The Scoutmaster should select the site — one to each patrol; if possible within 40 or 50 feet of the patrol tent, for night convenience; amid screening trees or bushes, or where an effective screen can be constructed. The simple narrow straddle trench, eight inches in width and two to three feet deep is recommended, with the dug out soil neatly banked 18 inches back on one side. Instructions are given for keeping the sides clean and lightly covering with fresh soil whenever the trench is used. If flies appear, ashes from the fireplace should be added. The enclosure should be made large enough to permit of digging such new trenches as may be needed. For protection from the weather paper may be placed in a large jam tin hung from a convenient branch.

Even in a one-night camp, Scouts should dig a latrine trench, and when away from camp a Scout will always dig a small pit of a few inches, which he will fill in again after use. Neglect of this not only makes a place unhealthy, but also makes the farmers and landowners disinclined to give the use of their ground for Scouts to camp on or to work over. So don't forget it, Scouts.

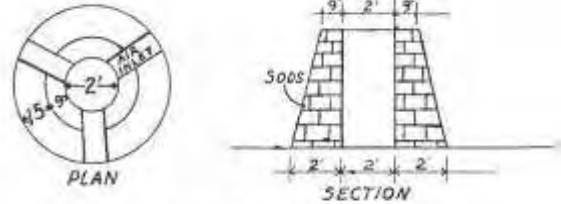
Grease Pits

Dirty water is never thrown over the ground or "into the bushes" at a Scout camp, but is poured into a grease pit, — twelve to eighteen inches square and two or three feet deep, depending upon the absorbent nature of the soil. As a night protection the pit is guarded by corner sticks and cross-pieces. A rough grating of woven twigs covers the hole, this grating in turn covered by grass, — to strain the solids. The grass strainer is burned in the fireplace two or three times a day and fresh grass supplied.

It may be most convenient to dig a grease pit beside the kitchen, and another a short distance away beside or beneath the washstand.

Disposal of Refuse

All refuse from the camp, including garbage from the kitchen, should be destroyed, if possible by fire. One means of disposal is a large sized pit dug in the side of a hill and lined with stones, and air inlet being left at the bottom. All refuse is thrown into this pit, and burned every two or three days.



Camp Incinerator.

Another effective incinerator for disposal of camp refuse is shown in the accompanying drawing:

When the garbage is not of any great quantity most of it may be burned in the kitchen fire, between cooking hours, and the balance disposed of in a kitchen refuse pit. This is a hole some two feet square and two or three feet deep, covered by a coarse screen of sticks and fern or grass, and protected by a “fence” of crotched sticks and cross pieces. All empty cans should first be burned out in the fire, and pounded flat before being thrown into the refuse pit.

Returning the Sod

All sod dug up in the making of fireplaces or sanitary pits is placed carefully to one side, and returned when the pit is filled.

Evening Council Fire

The evening Council Fire is the outstanding feature in well nigh every successful Scout camp and offers a unique opportunity at the close of the day’s activities for story telling and other fire-side stunts. The glare of the wood fire in the gathering darkness has something in it that quickens the duller imagination and the Scoutmaster will find the boys’ minds wide open to the influence of stories which suggest the highest ideals of true manhood. A well selected story often has more influence than direct advice. Let the stories and all other features of the informal programme be short and as varied as possible and the camp-fire experience will prove one not soon to be forgotten.

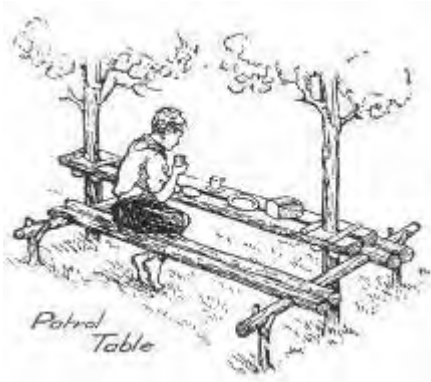
The fire should be opened and closed by some simple but effective ceremony, such as that used at Gilwell training camps. There, after the rest of the troop are in their places, standing, the camp Scoutmaster appears in his blanket, enters the circle, extends a hand over the leaping flames and announces, “Brother Scouts, the Council Fire is now open.” This is immediately followed by the singing of “O Canada,” the circle is seated and the programme begins. The fire is concluded with the singing of the National Anthem, a brief prayer by the Scoutmaster, or a few moments “Scout Silence,” and the Scoutmaster again steps to the fire circle, extends a hand over the dimming embers, and says, “Brother Scouts, the Council Fire is now closed. Good night.” The Duty Patrol then proceeds to put the fire out, with shovel or water, or both, and the troop disperses quietly to the tents.

Handy Camp Wrinkles

Camp tables may either be brought to the camp in knock-down shape or may be built in camp of lumber which has been provided for the purpose. In a camp of any duration, camp tables and benches are essential and their making is no real task for the troop handymen.

Tongs are useful about a camp-fire, and may be made from a rod of beech or other tough woods, about four feet long and one inch thick. Shave it away in the middle to about half its proper thickness, and put

this part into the hot embers of the fire for a few moments, and bend the stick over till the two ends come together. Then flatten away the inside edges of the ends so that they have a better grip — and there are your tongs. (See illustration herewith.)



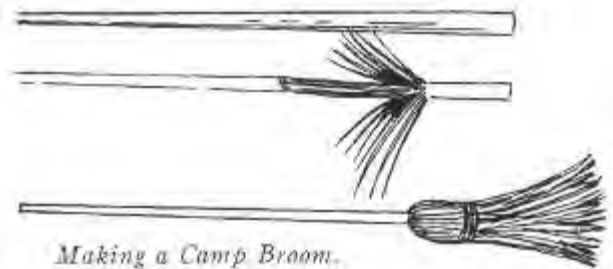
Patrol Table



Camp Tables.



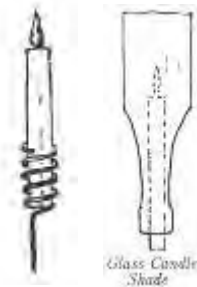
Camp Tongs.



Making a Camp Broom.

A broom is also useful for keeping the camp clean, and may easily be made with a few sprigs of birch bound tightly round a stake. (See illustration herewith.)

Camp candle-sticks may be made by bending a bit of wire into the form of a small spring, (see illustration) or by using a cleft stick stuck in the wall, or by sticking the candle upright in a lump of clay or in a hole bored in a big potato. A glass candle shade can be made by cutting the bottom off a bottle and sticking it upside down in the ground with a candle stuck in the neck. The bottom of the bottle may be cut off, either by putting about an inch or an inch and a half of water into the bottle, and then standing it in the embers of the fire till it gets hot and cracks at the water level. Or it can be done by passing a piece of string round the body of the bottle, and drawing it rapidly to and fro till it makes a hot line round the bottle, which then breaks neatly off with a blow, or on being immersed in cold water. (See illustration.)



Glass Candle Shade

If an extra lantern is needed, one can be made of an empty tomato can punched full of holes, with a hole big enough to hold a candle in the bottom, or the candle can be fixed in a hole in the side of a tomato can and the latter carried by the disc which has been cut from the top. This latter make a sort of search light. Torches can be made of resinous knots, which will burn a long time if desired.

Camp forks may be made out of wire sharpened at the points, or of forked branches of green wood for toasting at the camp fire. (See illustration.)



Camp Forks

Buttons are always being lost in camp, and it adds greatly to your comfort to know how to make buttons out of leather or of

bootlaces or strings. Scouts should also be able to carve collar studs out of wood, bone, or horn.

It is something to know how to sit down in a wet camp. You squat instead of sitting. Natives in India squat on their heels, but this is a tiring way if you have not done it as a child; though it comes easy if you put a sloping stone or block of wood under your heels. Boers and other camp men, squat on one heel.

Swimming

When in camp, bathing will be one of your joys and one of your duties — a joy because it is such fun, a duty because no Scout can consider himself a full-blown Scout until he is able to swim and to save life in the water. Some camps have two swimming places; one where the deep water is close to the shore and where the expert swimmers can dive freely; the other a long, sloping beach, which makes it possible for boys who cannot swim to bathe and play about. Generally an early morning dip is allowed just before breakfast, but it is not compulsory. And it must be *only a dip*. For some boys early morning swimming is positively harmful, and in many cases it will take the edge from the boy's energy for the rest of the day. A regular swimming hour is appointed later in the day. When the whistle sounds for "all out" every Scout must instantly obey the signal.

A spring board is greatly enjoyed by the more expert swimmers. It may be fastened on the bank or attached to a float or raft. An excellent support for a swimming raft is a strong barrel lashed under each corner. A diving tower is sometimes constructed and the spring board attached to it. The spring board should not be more than five or six feet above the water, but the tower may be continued up to a height of fifteen or twenty feet. Special attention should be paid to teaching Scouts how to swim while in camp.

It is sometimes necessary for Scouts to provide a "swimming hole" where a small stream is handy, but not of sufficient depth. For this purpose a convenient spot should be selected and cleared of all rock or other rubbish, and then a dam built in order that the required depth of water may be secured.

In no part of camp life does the element of risk figure so materially as in connection with the swimming, and the greatest care must be exercised here. Every well regulated camp has a definite understanding regarding this. No Scout is allowed to enter the water for swimming except at stated times and in the presence of and with the consent of one or more adult leaders.

One risk connected with swimming is that of taking a cramp. This comes very often from entering the water too soon after eating — that is, less than two hours after meals. Twenty minutes is ample time for the healthy boy to be in the water. Ten minutes is safer. For some boys this will be too long. A good rule is to come out immediately you begin to feel tire or cold.

In its excellent handbook of instruction on swimming and life saving the Royal Life Saving Society give the following directions to be observed in cases of cramp: "If taken with cramp, keep calm, turn on the back, rub and stretch the affected limb. If seized in the leg, turn up the toes, straighten the leg, and stretch the muscles, apply friction and kick the surface of the water until they relax."

The Indians had a plan of their own for protecting themselves against cramps. Before entering the water the redman rubbed the pit of his stomach vigorously with the dry palm of his hand for the space of a minute or so, then dashed cold water on his stomach continuing, meanwhile, the rubbing of his stomach for another minute before taking his plunge.

There should always be a bathing picket posted, while bathing is going on, of at least two good swimmers, who will not go in themselves but will be ready, undressed, except for overcoats, and prepared

to jump in at any moment and help a swimmer if he is in difficulties. Many lives are lost every summer through neglect of proper bathing precautions.

GOOD HEALTH IN CAMP

Needless to say, it spoils all the fun to be sick in camp. Also the sick boy helps to spoil things for the others. This does not occur very often in a Scout camp — for there is no place where a boy should be in better condition; where it does happen, it usually is due to the failure of the boy to obey some health rule of the camp.



Scouts do not need to be told that camp is not a place where they can “let down” and be careless about cleanliness and other personal matters, “because we’re just camping.” Scouts from good homes should help boys from less fortunate surroundings to learn while in camp the habit of cleanliness and tidiness, and the care in personal matters that are necessary to good health.

Here are a few camp good-health hints: —

Be careful not to overheat, particularly during the first few days at camp.

Drink only water from the supply that has been approved by the Scoutmaster.

Take your sun tanning gradually, even on the arms and legs. During the process, cover up as soon as your skin begins to burn, and do not uncover until the burning sensation has passed. Badly blistered arms, legs and shoulders can seriously interfere with several days’ fun, and also give your Scoutmaster a good deal of worry.

Keep dry. In the early morning when the grass is wet, and during rainy weather, go barefoot or wear sandals. This will avert colds. It is the wet foot inside the wet stocking and wet shoe that brings trouble.

Do not sit around in wet or damp clothing, particularly cotton clothing. When your clothes are wet, keep on the move until you can change them. As soon as possible air and dry all clothing and bedding that has become damp. During a continued spell of rain this may be done by building, under some kind of cover, a beehive framework of branches, placing hot hardwood coals and ashes beneath, and over this spreading the things to be dried.

Make sure you get a good sleep every night. This is absolutely necessary to your getting the full benefit of the outing. Set a good example to others by going to sleep as soon as possible after Lights Out. Never indulge in the foolishness of tent raiding or other night horseplay or rowdyism.

SHIFTING CAMPS AND HIKES

Apart from the annual troop camp of two weeks’ duration or more, splendid practice can be had in Scoutcraft through overnight camps and hikes. These may either take the form of week-end or more extended outings, and may comprise the entire troop or one or more patrols.

Constant change of scene naturally adds to the interest of these expeditions. Reasonably good weather is, however, essential to the fullest enjoyment. Many of the outings will be no more than Saturday

afternoon excursions into the surrounding country for nature study or other Scouting practice. The travelling may be done on foot or on bicycle, by automobile or other vehicle, depending on circumstances. In Western Canada, where horses are plentiful, mounted patrols should do well in many parts. Still another enjoyable form of outing is that which may be taken by motor boat or canoe, camping from point to point en route, or in winter on snowshoes or skis.

Especially where the travelling is done on foot, it is wiser to avoid long distances, to take it easy, and to carry no more with you than is absolutely essential. The object is not to cover as much ground as possible, but to afford the best possible opportunity of Scout training, and, incidentally, to pump health and enjoyment into the party. Three miles an hour should be the speed limit on foot with the smaller boys in front to set the pace rather than the big ones.

Even the Saturday afternoon hike should have some definite object in view. The party should keep together and try to see how many interesting things it can find either through the woods or along the roads.

Occasionally the party may separate — one-half setting out half an hour ahead of the other and leaving signs for the others to follow. The destination of the first party should, however, in this case be given to the others in a sealed envelope which is only opened if they should be unable to track them down.

It is taking undue risk to attempt to make your way without a light through unfamiliar woods in the darkness, unless necessity absolutely compels.

Each boy should write a diary account from day to day of the day's movements and happenings, the features of the country traversed and the animals, birds, insects, trees and plants which are observed. A good time to write up the diary is during the noon rest. It is a good plan to encourage all members of the party also to draw route maps for practice, even when travelling through familiar scenes. Generally speaking, there is more fun hiking in small parties than in larger numbers. The patrol unit is a good one for this purpose.

Leadership is an important consideration — either in the camp or on the hike. No group of boys should go camping by themselves. Even in the case of a week-end outing there should be at least one of the Assistant Scoutmasters along if the Scoutmaster is not himself in charge. If the trip is through an unfamiliar district, it is well to be provided with a good map. The best large scale maps in Canada are those which have been compiled by the Militia authorities, but these have only been issued for certain parts of the country, and are not at present generally available. Some excellent maps have also been issued by the Geological Survey of Canada. Automobiling calls for good road maps and many of them are of value for Scouting purposes, although the Scout is naturally more interested in the unfrequented paths than he is in the main highways of traffic.

The problem of what to take on a shifting camping trip should be decided upon on the basis of what is absolutely necessary to health and comfort. Sometimes baggage can be sent on ahead to your intended destination in which case you may treat yourself to a few further comforts in the way of more complete changes of clothing. The pioneers who blazed their way through the deep forests of Eastern Canada travelled light, and there is great joy in getting close to nature when you have gained sufficient experience to know what must needs be taken along and what can readily be done without.

A troop trek cart provides an admirable solution to the transportation problem of hike camping. Any enterprising troop can construct such a cart, using discarded but sound carriage or light wagon wheels, or Ford car wheels.

Suitable clothing and footwear are indispensable to comfort in the open. Take along a shirt to change to when the one you are wearing becomes wet with perspiration. If you have to carry a pack, it is better to provide yourself with one of suitable design, after taking expert advice. Make up your mind where you are going to camp for the night in plenty of time to get up your tent or shelter and have a good meal. It is risky to sleep in damp blankets. See to it in time that your night covering is dry. Hot stones from the camp fire make a good substitute for a hot water bottle at night, if one is needed.

Choice of Tents

With all that has been said regarding serviceable temporary shelters, most travellers prefer tents. A number of different types of light tents have been designed for the special purpose of shifting camps, ranging from simple tarpaulin or canvas squares to quite elaborate forms, and in materials from tarpaulins to feather weight silks weighing only twelve ounces for a tent 6x5x4 ft. 6 in. high. Most manufacturers and dealers in sporting goods specialize, however, in certain lines from among which Scouts will usually find it easy to satisfy their own requirements, whether for tents that are to be packed on the owner's backs, taken on bicycles, in canoes, or otherwise. A complete line of such tents will be found listed in the Dominion Headquarters Stores Catalogue.

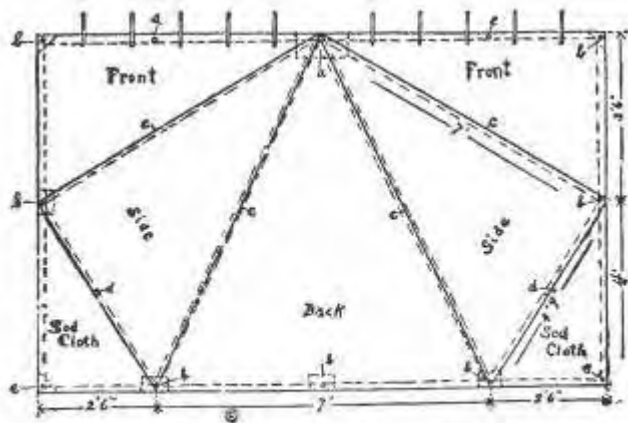


Fig. 1. — Plan of the Tarpaulin Tent

By courtesy of Edward Cave and Messrs. Doubleday, Page & Co.

the risk of lightning in locating beneath trees.

The Indians believe that beech trees are proof against lightning and it is claimed that experiments have shown that woods like the beech and birch, "rich in fat" give much more resistance to electric currents than woods "poor in fat" such as maple, oak, elm, ash, poplar and willow.

Tents that are used in mosquito or fly time need to be provided with a detachable curtain of cheesecloth to exclude these torments. The smaller the tent the greater the need of ventilation. All tents that are to be closed up at night or in the rain should be provided with screened windows and a sod cloth.

A very useful combination hike tent is the tarpaulin sheet described in "The Boy Scouts' Hike Book" by Edward Cave. These tarps. range from 7½ x 12 to 10x13 feet in size. Its uses are manifold. It will do for a tarpaulin, a ground sheet, a pack cloth, dining fly, or emergency sail, or it may be used for tent purposes either as a lean-to, a wedge tent open at both ends, or a semi-pyramidal enclosed tent.

In the case of poleless tents, which are strung up to trees, it should be remembered that dead trees or dead branches may be dangerous, during a strong wind. There is also

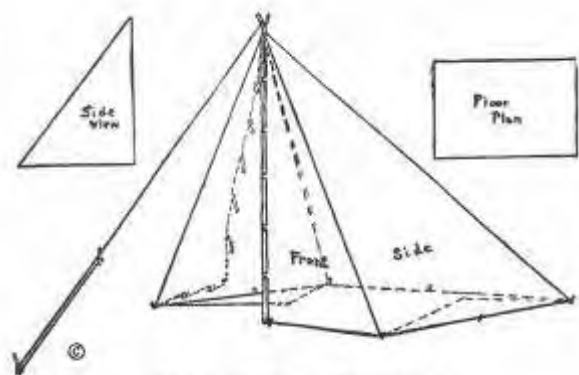
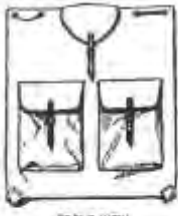


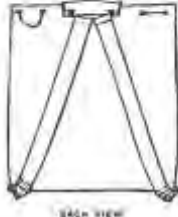
Fig. 2. — Plan of Tarpaulin Tent Erected

—By courtesy of Edward Cave and Messrs. Doubleday, Page & Co.

Pack Sacks



FRONT VIEW



BACK VIEW

Long distance summer and fall hikes, cycling and canoeing trips, are becoming more popular with Canadian Scouts — as they should. For no form of outing is more enjoyed by a live Canadian boy than a journey of discovery and observation, and occasional adventure, through new country, camping for the night beside the trail. The equipment for all such outings will include a “pack” of some description. Packs range from the old army-style blanket roll with kit inside, to a large pack sack with tump lines, for use on canoe trips.

For most trips afoot or awheel, the Canadian Gilwell rucksack, designed by Rodney C. Wood, former Dominion Camp Chief, and which has been adopted as the official Canadian Scout pack, will be found very comfortable to carry, and roomy. The first requisite of a pack sack is its comfort in carrying. The Gilwell rucksack achieves this first through its high central suspension, which prevents the web strap from bearing upon the shoulder-blades, thus permitting a free arm movement; and second, because of a shape and length which brings the weight down upon the hip bones, and not in the small of the back. The big outside pockets will carry all frequently-used toilet articles, and an extra pair of stockings and low shoes. (This rucksack is stocked by the Dominion Headquarters Stores Department.)

For their heavy packing, Indians use a tump line, or strap across the forehead (see illustration). Many experienced woodsmen still carry the big pack with the tump line; but boys who try it will be well advised to start with a light load. The standard pack carried by the packers of the Hudson’s Bay Company weighs ninety pounds. Individual packers will portage loads of up three hundred pounds.



Pack Sack, showing use of tump line.

Canoe Trips

These are becoming more popular every year with older Scouts and Rovers. In some cases long distances are covered. The experience frequently is a rather strenuous one, and sometimes hazardous; and should only be taken under competent and experienced leadership.



Quebec Scouts on a Canoe Trip.

“BIKE HIKING”

The first necessity, of course, is to have the bicycle in first class condition, whether the distance to be covered is long or short. Make sure that the saddle is at the right height, and is comfortable. See that there are no loose or broken spokes, that the cones are not too tight, and that none of the ball-bearings are broken. Thoroughly clean the bearings of any sand or other grit, and pack them with Vaseline. Next the chain should be washed well in coal oil or gasoline. Do not use oil or grease as a lubricant, but use a good quality of bicycle chain graphite. It is better to take along two or three extra links in case of a break. The tires should be examined for weak spots or faulty patches, and if the trip planned is a very long one an extra inner tube should be carried. Do not fail to examine the outer coverings, and if any cuts, tears or weak spots are discovered they should be repaired. If the covering is in very bad shape it would pay to get a new one before setting out on a trip of any length. See that all nuts are screwed up tight, that no bolts are missing and that the brake works properly.

Each one in a party should carry his own repair outfit containing rubber for patching, cement, sandpaper, adhesive tape, wrench, pliers, wire, strong cord, tire remover, an oil can filled with a good quality of lubricating oil, a small screw-driver, a small pump in good working condition, and a piece of old outer cover to strengthen or repair weak spots.

If the trip covers two or more days, the party should be divided into groups of three or four, for cooking and sleeping purposes, each in charge of a leader, with the whole party in charge of a senior leader.

An equipment for over-night camps will be necessary. A good style of tent for this kind of outing is a small wall tent about six feet, six inches wide, seven feet long and four feet six inches high, with a twelve-inch wall. The ends should be constructed with a sleeve at either end about 5 inches in diameter to admit a fair sized pole or rail.

This kind of tent can often be pitched along the side of the road, using a top rail of the fence for a ridge, resting one end on the fence, and lashing the other end to an upright piece, and of course, putting the rail back in place when finished in the morning. Both ends should open all the way up to the sleeve, and there should be a canvas floor sewn in. Eight-ounce duck waterproof is one of the best materials to use. This tent will shelter three or four boys for sleeping purposes, and can be made quite easily by Scouts themselves.

Each group of three or four should carry, in addition to the tent described above, the following camp equipment divided equally among the boys: two sharp Scout axes, and cooking utensils as follows, two four-quart kettles, two two-quart kettles, and two three-pint kettles, all aluminium or enamelled ware and provided with covers. Also take along two large tablespoons, a frying-pan about 8-in. diameter, and a turn-over.

Each individual equipment should consist of the Scout uniform to be worn, extra shorts, a sleeveless jersey, strong shoes, sweater, a suit of combination underwear for sleeping, light in summer and heavier for spring or fall months; a towel, soap, a toothbrush, a comb, needles and thread, plate (enamelled), a knife, a fork, a spoon, a cup (enamelled), a bowl (enamelled), two blankets and a rubber sheet or oil-cloth.

Eatables will, of necessity, be purchased along the way. Eggs, butter, milk and potatoes can in most cases be secured from the farmers near where the different over-night camps are located or where stoppages are made for meals during the day. Canned goods should be used as little as possible, and all cooking should be simple and plain. The senior leader of the party should do all the purchasing and serve

to each group the proper rations. The following are sample menus which may be varied at the discretion of those in charge: —

BREAKFAST. — Porridge, bacon, toast, butter, coffee, jam or marmalade.

DINNER. — Salmon, bread, butter, milk or water, syrup, cheese.

TEA. — Ham, eggs, potatoes, bread, butter, biscuits, cocoa.

Put all small articles in a canvas bag and roll the latter up inside the blankets with the rubber sheet on the outside. Make the package oblong rather than square or round, and fasten it securely by means of straps or rope to the carrier or to the handle bars. It is more convenient if the bicycle is equipped with front or rear carrier, or both. Left-over food and eating utensils should be securely fastened to the outside of the bundle. The tent may be wrapped around the package or fastened in a separate parcel at the rear.

The leader of the party should have some first aid equipment in the nature of roll and triangular bandages, absorbent cotton, adhesive plaster, iodine and remedies for burns, diarrhoea, and constipation.

It is better to select a part of the country where the roads are known to be good, if possible, and to use a good road guide. The Automobile Blue Book is the best but is rather expensive. Other very good road maps may, however, be purchased quite cheaply for many districts. Farmers and others along the way know conditions better than anyone else, and are always ready to give information, when approached in a courteous manner.

Scout who try bicycle hiking will find it interesting, helpful and instructive, and a means of putting many features of the Scout training to a practical test.

A SUGAR BUSH HIKE

In early spring, when the sap begins to run, there is nothing the boys will enjoy more than a Saturday afternoon trip to any nearby sugar bush, and, if time permits, a chance of taking part in the syrup and sugar making. There is usually snow in the woods at this time, and maple sugar cooled on the snow in the French-Canadian style has a richness of flavour all its own. For this purpose the syrup should not be boiled to the sugaring-off stage, but only to the point which will allow it to thicken when it cools on the snow.

The necessary appliances for tapping the trees and for boiling the sap are ordinarily available in most sugar bushes. If they are not, permission would, of course, have to be obtained from the owner of the bush to tap a few of his trees, and the pans or kettles would need to be brought along for boiling the sap.

Maple sugar is usually made from the sap of the hard maple, but it is worth while knowing that the soft maple and the birch may also be treated in the same way with excellent results.

Maple sugar used to be known in many parts of Canada as Indian sugar, and there is little doubt that the aborigines, in spite of their limited range of cooking utensils, succeeded in boiling down the maple sap to the form of sugar. The technic of maple sugar-making also reveals its Indian origin not only in the utensils employed but also in such device as straining through hemlock boughs, cooling on the snow, etc.

The earliest extended account of maple sugar is "An Account of the Sort of Sugar made of the Juice of the Maple in Canada," published by the Royal Society, in 1684-5, wherein it is stated that "the savages have practised this art longer than any now living among them can remember."

WINTER HIKES AND CAMPS

Winter Scouting in Canada has a special charm. The leafless trees disclose new and unexpected views, the frozen streams and marshes permit of interesting short-cuts where in the summer the trail wound and twisted and doubled, and the white stretches of snow tell fascinating stories of the adventures of Peter Rabbit, Reddie the Fox, and others of the Scout's big and little fiends of the woods and fields.



A Ski Hike

Winter hikes and short winter camps are becoming more popular every year. The boys are keen for the adventure, and Scout Jack Frost only adds zest to the outing. As a matter of fact, winter hikes are apparently more popular the farther north you go. The Scout troops and Cub packs of Winnipeg and Portage la Prairie, with temperatures frequently below zero for considerable periods, are among the most active in Canada during the winter — with their hikes, week-end camps, tobogganing, skiing, etc.

Some troops are fortunate enough to own huts, located at a hiking distance from town. Other troops use tents, and find them satisfactory. Many of course prefer the genuine spruce lean-to, facing a crackling fire. But even these shelters are not necessary for the enjoyment of the Saturday hike. A wind break and a fire at the end of the trail will suffice.

The hike should be carefully planned and discussed — clothing, food and objectives. If it is to be a ski or snowshoe hike, the wearing of suitable footwear will be taken for granted; otherwise footwear will depend upon the weather. For frosty days larigans, show packs or moccasins are the proper thing. If there is a possibility of mild weather and damp snow, larigans, show packs or heavy shoes, well “dubbed” or oiled, should be worn, in preference to rubbers or rubber boots. It is just as harmful for the feet to become wet from perspiration — which is likely to occur inside rubber-covered shoes or rubber boots — as it is from snow or water. A comfortable shoe for particularly cold weather is a rubber and felt storm boot with an extra pair of heavy socks worn in place of the inside shoe.

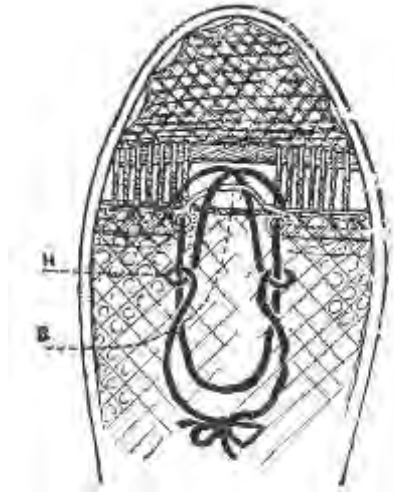
The matter of clothing should not be overdone. It should be just sufficient in quantity for the probable weather conditions, and should not be too tight. Remember, you will be more or less steadily on the move until arrive at the rendezvous. The mackinaw, breeches and toque of the officially adopted Canadian Scout winter uniform will be found a very comfortable hiking costume. If the occasion is simply an afternoon's hike, an extra sweater carried along and slipped on when a halt is made will provide the extra warmth then needed. If it is to be an overnight camp, and the question of weight prevents the carrying of an extra sweater, a blanket may be thrown about the shoulders for added warmth during a halt. Where equipment is taken by sleigh or toboggan, each boy may be advised to take the extra sweater. Long, flapping overcoats should not be worn.

For the overnight hike two or three good woollen blankets will be required by each boy. These should be of a total weight of at least eight pounds, preferably ten. A ground sheet or poncho also should be taken; or where the boys do not possess these, heavy wrapping paper or several thicknesses of newspaper may be used beneath the blankets. Newspapers also may be used to secure additional warmth if needed on especially cold nights, being slipped between the blankets.

The provisions should be simple in kind but plentiful. As an example for a Saturday hike: — Canned beans; sandwiches; bread (buttered); cocoa (prepared, including milk and sugar); cake or marshmallows.

Snowshoes

Snowshoes? Well, the choice mainly depends on the use which is to be made of them. Snowshoes differ considerably in style and size. Size 12-in. x 40-in. is, however, about right for a boy. There is nothing difficult about learning to move about on snowshoes. The best fastenings are not the buckling-up kind which are apt to cramp and freeze the feet, but the rig used by Indians, the original snowshoers, show in the illustration herewith. For your bindings get two yards of $\frac{3}{4}$ -inch lamp wick, and for bridles half a yard of one-inch calf skin. To rig a snowshoe, first lace the bridle into the webbing on each side of the toe hole (see diagram), leaving it just slack enough to allow you to insert your three fingers on edge between it and the webbing, where your toes are to go. Take a yard of the lamp wicking and, with an end in each hand, pass them downward through the post holes, leaving the loop shown in the diagram. Bring the ends up as shown, and pass the left under the bridle and over to the right side; pass the right one under the left in front of the bridle, draw it up on top of the bridle and pass on to the left side (see diagram). Now place the foot on the snowshoe, the toes under the bridle just far enough so that the bridle lies across the root of the great toe, and draw the ends of the binding up so the loop rests comfortably on the heel. You, of course, now hold in you right hand the end



How to make the Algonquin Snowshoe Binding. P. Post-Hole; B. Bridle; H. half hitch.

—By courtesy of Edward Cove and Messrs. Doubleday, Page & Co.

that was passed through the left post-hole, and vice versa. Make a half hitch from the outside around the loop which rests on the heel, at each side of the ball of the foot; draw up and tie over the heel. Do not draw the binding so tight as to force the toe too far under the bridle, or the heel of the shoe will kick up at every step. By stepping on the show with the other foot, and twisting around sideways the foot you wish to free, you should be just able to work the toe out from under the bridle. This is how you will take you snowshoes off without untying the binding; to put them on you will simply reverse the operation. Work the knot around so it lies at the side of your heel, in order to keep it from chafing. Remember you have to step on the snowshoe with one foot to hold it while you twist the other loose.

Moccasins are the proper footwear for snowshoeing — smoke-tanned ones of caribou or moosehide, if you can get them, or smoke-tanned elkhide or buckskin which are the next best. Smoke-tanned moccasins dry out comparatively soft after being wet. Another type of moccasin know as “shoe packs,” “beefskins” or “larrigans” originated among the French-Canadian woodsmen. These are made of oil-tanned cowhide leather, and are manufactured similar in style to moccasins, in four heights, low, high, three-quarter and knee. Being of waterproof nature they are preferred by lumbermen to the elk or moose moccasins as they withstand the wet slush of early spring and late fall. They may be dried before fire but care must be taken to prevent them from burning. A dressing of oil keeps them soft and waterproof. Let your moccasins or shoepacks be large enough to permit your wearing several pairs of woollen socks.

Skiis



Skiis have a decided advantage over snowshoes under certain conditions, especially when you are travelling down hill, and a skiing hike, with a little sliding thrown in, makes jolly good sport. Let the novice, however, get a little practice in balancing before trying any jumps. Remember we must all learn to walk before we can run. In running hills, keep the feet close together, on a little in advance of the other, the knee of the advanced leg straight, or almost so, but the knee of the rear leg considerably bent. Ben well forward and steer by throwing your weight on the outside edge of the ski on the side to which you want to turn. Many boys make their own skiis and sell others to their friends.

Let not the Indian snowshoe, however, be despised and abandoned in favour of the Norwegian ski. For the former has its own uses and offers good sport besides.



CHAPTER VII

SCOUTCRAFT

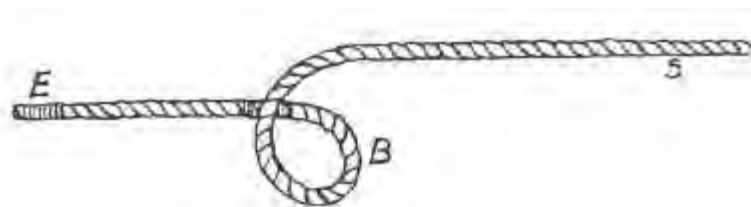
KNOT TYING

One of the abilities expected of every Scout is deftness in the tying of knots. The art of knot tying is of constant use — and it occasionally happens that the saving of life depends upon the ability of someone to tie a knot quickly and securely. A tragic illustration was provided some years ago by the woman and two men who, when an “ice bridge” broke, were carried down the Niagara rapids on a small ice floe, to death in the whirlpool, because they could not tie a knot in a rope thrown to them.

There are three essential qualities in a good knot, namely, —

1. The rapidity with which it can be tied.
2. Its ability to hold under strain.
3. The readiness with which it can be undone.

In order that he may more clearly understand the descriptions which follow, the Scout must constantly remember that the three principal parts of a rope are:



1. The Standing Part — The long unused portion (S in Fig. 1) of the rope on which he works;
2. The Bight — The loop (B) formed whenever the rope is turned back upon itself; and,
3. The End, or Free End — The part (E) he uses in leading.

Other Rope Definitions

A BEND. — A Bend is a fastening of one rope to another rope or spar, of such a kind that it will hold permanently the full strength of the rope. The word must not be confused with the ordinary meaning of “bend.” Two good examples of a Bend are the Fisherman’s Bend and the Carrick Bend.

HITCH. — A Hitch is also a fastening, but generally less permanent than a Bend. It usually depends upon direct friction for its grip. Two examples are the Clove Hitch and the Blackwell Hitch.

SEIZED. — The end of a rope is said to be *seized* to anything when it is attached to it by a few turns of yarn or marline.

STOPPER KNOT. — A Stopper Knot is any knot put on a rope either at the end or in some other portion, to prevent its passing through a sheave block, or some other opening through which the rope may be weaved.

JAMB. — A Knot is said to jamb when, after being formed, and pulled tight it can not be readily undone. *This is a very bad fault.*

Whipping Rope-ends



To prevent fraying, rope-ends should be snugly whipped, with stout thread or twine. Fold back three inches of the twine (Fig. 1), lay the bight thus formed on the end of the rope and hold in place with the thumb. Wind the twine towards the end of the rope, about both bight and rope. Pass the end through the bight loop (Fig. 2). Pull the other end until the loop is half way under the whipping, and cut off the surplus twine.

Overhand Knot



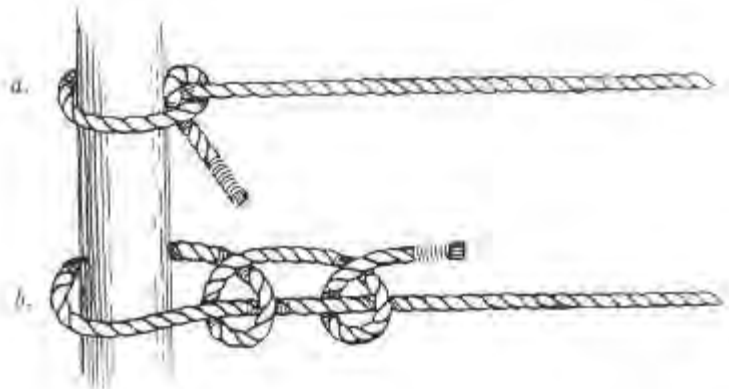
This simple knot is often used to tie a rope-end, in the place of whipping, but is only a makeshift for that purpose. It is used also as a stopper knot, but is not as satisfactory for that purpose as the Figure-of-8 knot.

Figure-of-8 Knot



Self explanatory. By pulling on the standing part an effective stopper knot is made. The knot is used to prevent the end slipping through a hole or a pulley block.

Half Hitch (a) and Two Half Hitches (b)



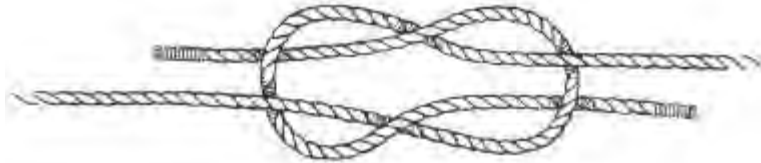
Used to bend a rope to an upright or spar. Will hold wet or dry.

Reef Knot



Also known as the Square Knot. The knot most commonly used for joining the ends of two cords or ropes. Also used in first aid bandaging. Will hold wet or dry, with equal sized ropes.

False Reef or Granny Knot



When making the Reef Knot care should be taken not to make a Granny, by reversing the lay of the ends. The Granny may slip, or if it holds will jamb, and prove very difficult to untie. It should never be used by a Scout.

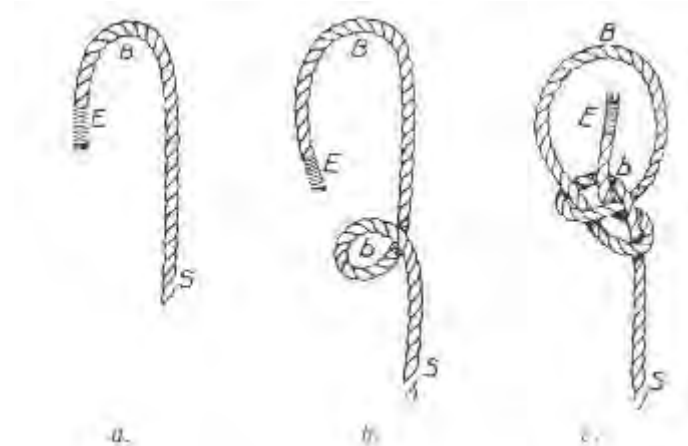
Sheet Bend or Weaver's Knot



Used for bending one rope to another of larger diameter. If properly formed and made "snug" will hold wet or dry. Also used by weavers for joining silk or cotton thread. This bend is sometimes made in its "double" form, which is even more secure.

Make a bight with the heavier rope. S is standing part. E is end. Lead end of light rope E upward through the bight, around E and S and then underneath itself. This bend should *never* be made in ropes by pulling out one end of a square knot.

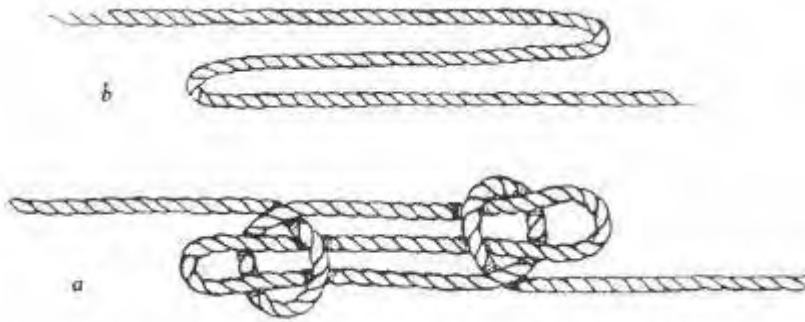
Bowline



The Bowline is probably the most useful and important of all the different knots. It is easily tied, will not slip or jamb, and may be easily untied. It is used frequently on the farm to form a noose to throw over an animal's head, for leading; it has been used many times for lowering persons from burning buildings; it is regularly used to form a bight on the head of a ship's hawser, to slip over a snubbing post when docking.

To tie, form a bight *B*, with the standing part *S* towards you. In the standing part *S* form a small bight *b* with the standing part above. Lead *E* through *b* from above, over *S*, under and upwards through *b* again. Having once thoroughly mastered the formation of the knot as shown, the Scout should practise it with the main bight turned toward him.

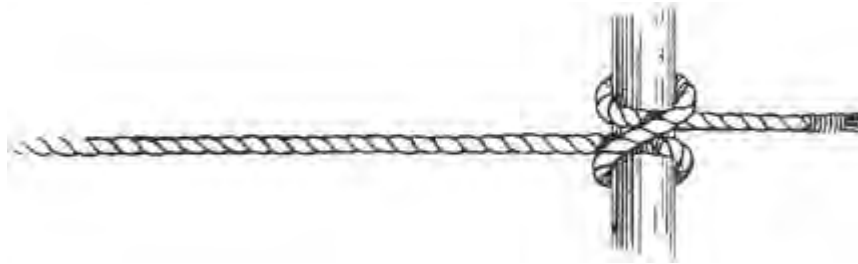
Sheep Shank



Used for temporarily shortening a line. The advantage it has is that when the special need is over the whole knot may be disengaged by a sudden 'whip' along the line. This would not be the case, were a knot used.

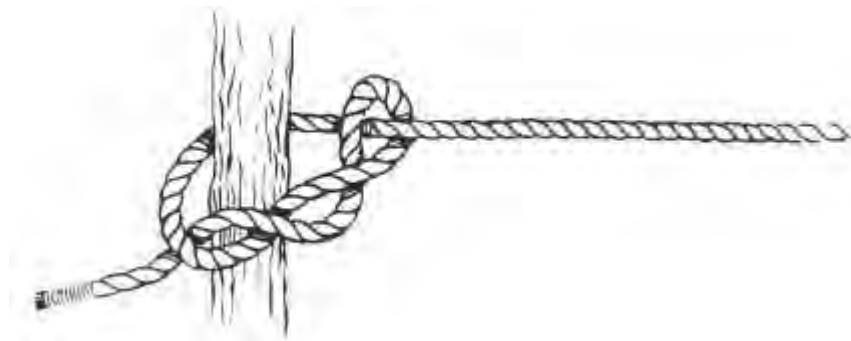
Gather up amount to be shortened by making two bights as shown (see *a*); then by using standing parts place a half hitch at each end of each bight in such a manner that each hitch nips at each end of each bight.

Clove Hitch



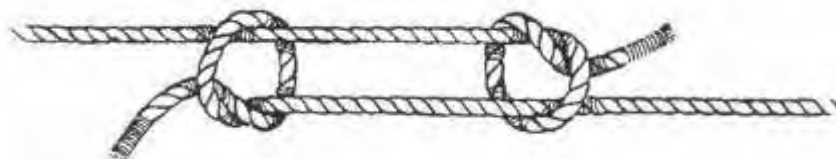
This is perhaps the most used and at once the most useful of all the hitches, as it will take a strain in either direction without slackening. It is used for mooring ships, heads of derricks for guy lines, and all kinds of rigging work, and it is always used for commencing and finishing a lashing. It is easily undone. There are many ways to tie it, but every Scout should at least know how to tie it around a pole.

Timber Hitch



This hitch is used in hauling timber, also for commencing a diagonal lashing in bridge work. It will hold wet or dry. Pass the end of the rope around the timber spar, then lead it around its standing part and bring it back to make two or more complete turns on itself. It is then pulled up taut and the hitch is formed.

Fisherman's Knot



The fisherman's knot is used for tying the ends of ropes of different sizes, and particularly ropes which are wet or greasy. The knot derives its name from the fact that it is commonly used for joining silk or gut on fishing tackle. In making it the strands are laid together, and an overhand knot is made with one end around the other strand. The strands are then turned end for end, and another overhand knot made with the other end around the first strand.

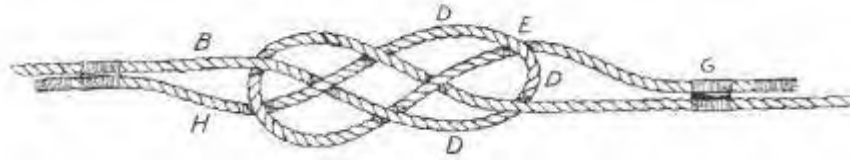
Fisherman's Bend



This is frequently used for bending a mooring line to an anchor or buoy, also used for attaching bucket line to water pail. When the bend is to be more or less permanent the end is usually seized to the standing part.

Make two complete turns round the ring, then lead end round standing part and through the turns already formed. Then above this take a half hitch round the standing part.

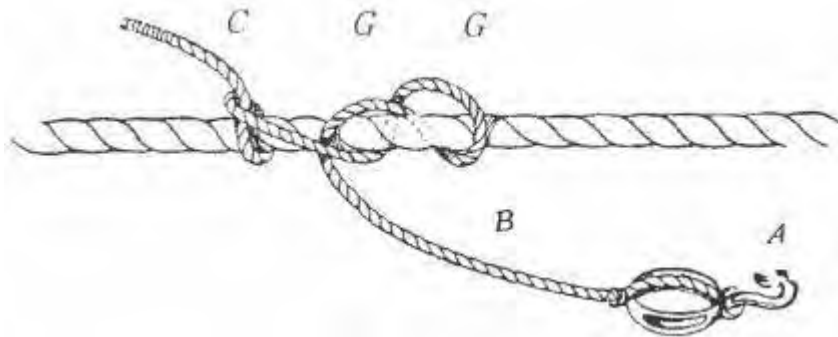
Carrick Bend



This bend is used frequently for uniting heavy hawsers. It is easily untied by pushing bights inwards. In practice, the ends (H) and (G) are usually seized to their respective standing parts.

Turn one end of a hawser (H) over its own standing part (B) to form bight DDD. Lay the other hawser across the bight thus formed, back of the standing part (B), over the end (H), then under bight (D) over its own standing part and under the other bight again (E).

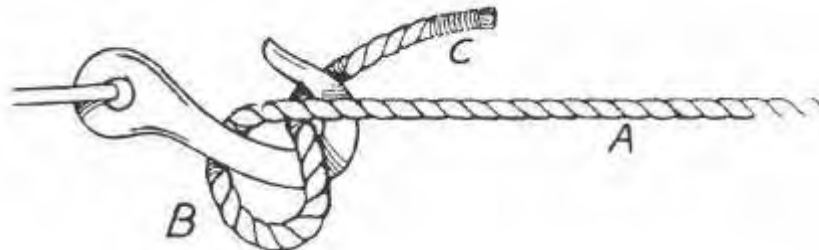
Rolling Hitch



Start as for Clove Hitch, but, instead of taking one turn before crossing over, take two complete turns around heavy rope, then cross over standing part and finish as for Clove Hitch.

This hitch is principally used for attaching a rope to a spar or to another heavier rope when load is to be taken from one to the other. It is particularly applicable for attaching the tail of a “handy-billy” to a rope which it is desired to haul tighter. The illustration given shows the latter in use. (A) being a block of the “Handy-billy” and (B) being the tail. (C) is the end of the tail and (GG) are the two turns before finishing of as in the Clove Hitch.

Blackwall Hitch



Used for a temporary hitch to a hook. It will securely carry a heavy load.

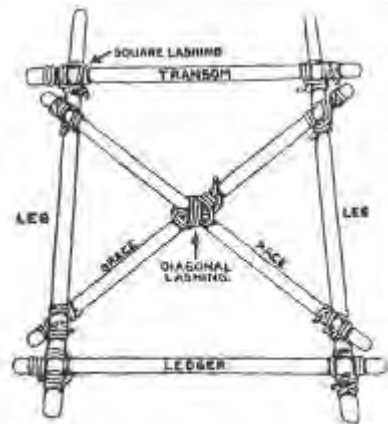
Make a round turn (B) on the hook, with end (C) under the standing part. As soon as the load is applied on the standing part (A) it jams its own end and the hitch will then hold.

BRIDGE BUILDING

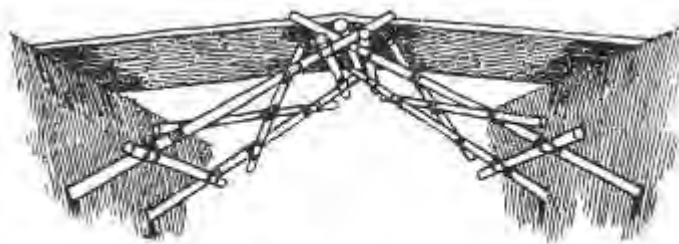


There are many ways of improvising bridges of timbers and rope. In Indian, in the Himalaya mountains, the natives make bridges out of three ropes stretched across the river and connected together every few yards by V-shaped sticks, so that one rope forms the footpath and the other two make the handrails on each side. They are jumpy kind of bridges to walk across, but they take you over; and they are easily made.

The type of bridge most frequently built by Canadian Scouts is the single-lock bridge, of two trestles. The lashing together of the poles or light timbers of the trestles calls for a knowledge of the square and diagonal lashing. The square lashing (that made at the corners) is started with a clove hitch about the upright (see illustration) immediately beneath the cross-piece; and the lashing is then carried up over the front of the cross-piece, and right, down over the front of the cross-piece and around beneath the upright, — and so on. The end is secured with a clove hitch, or snugly stowed beneath the turns, i.e., thrust in with the aid of the marlin-spike on a Scout knife. The diagonal lashing in the centre, is started with a timber hitch, and the end carried alternately round the crosses.



A two-legged trestle used in constructing the bridge shown below.



A single trestle bridge.

THE LARIAT

One of the developments of Scouting in Canada during recent years was the bringing back of popular interest amongst Canadian boys in the lariat and spinning rope, through the instruction of Scoutmasters at the Gilwell training camps. To-day numbers of Scouts throughout the Dominion have become expert ropers and lariat spinners, and are able to perform tricks that are most interesting to watch. In addition to the fun of it, lariat throwing and spinning provide excellent exercise, and good training for the hand and eye.

As a matter of fact, the ability to throw a rope accurately should be acquired by every Scout, for its possible usefulness in rescue work, particularly in rescue from drowning. It has been used numbers of times in this and other ways. For example, a New Brunswick Scout stopped a runaway horse and buggy

at a very dangerous spot, and thus saved two ladies from injury or death. On another occasion a hiking Ontario troop, when a barn they were passing was struck by lightning and set ablaze, from the door lassoed and pulled out considerable valuable farm machinery.



Lariat practice at a Gilwell Camp for Scoutmasters.

more suitable. Ropes of this quality may be secured from the Stores Department, Dominion Headquarters, Ottawa.

The honda, or “eye” through which the rope is passed to form the noose or loop, is an important part of the lariat. Its weight plays an important part in the successful spinning. Usually the honda of the spinning lariat is fashioned by strongly whipping the rope end to the standing part, so as to make an “eye” about three quarters of an inch in diameter. For the longer and heavier rope a metal eye is used as a honda.

The stiffness of a new rope usually adds to the difficulties of a beginner. This may to some extent be overcome by stretching the new lariat tightly between trees, and hanging weights upon it. Before attempting to throw or spin, any twists in the rope should be eliminated. Trailing the full length of the rope along the ground will accomplish this quickly.

Throwing the Lariat

There are several lariat “throws” but in all cases the first step is the whirling of a well-opened noose or loop. The size of loop will depend upon the purpose, but the chances of success will increase with the size, so long as this can be thrown properly — as for instance, in the case of trying to lasso a helpless person in the water. Experiment will soon demonstrate the size of loop required for various objects.



The loop should be gripped along with the main portion of the rope at an arm’s length from the honda. With the end coiled in the left hand so the rope will run free, the loop is circled about the head in such a way as to keep it open, the twirling wrist being turned over each time it passes the back of the head. When sufficient momentum has been obtained, throw — aiming high and to the right of the target. To catch an animal by the feet, throw the open loop on the ground in front, and jerk as the animal steps into it.

Spinning the Lariat



Spinning a "Crinoline"

It is usual to begin with the "flat spin." As a start, tie a stone to a two-foot string, and spin this in a flat circle in front of you, the arm held out almost straight, the momentum given the stone by a simple twist of the wrist. Now hold the spinning rope as described for throwing, and make a flat-circle motion with the hand. As you complete the circle, allow the honda end to drop, and continue the circular motion with the wrist.

To spin the "crinoline," begin as though you were going to throw the loop over something, and instead allow it to fall over your head, at the same time continuing the circular motion with the wrist held at the point above and a little back of the centre of the head.

With these two spins mastered others will be developed by patient practice, and by observation of experts whenever the opportunity is offered.

MAP-READING AND MAP-MAKING

It is required in the training for the badge of a First Class Scout that the candidate must be able to read the conventional signs of a map correctly and draw an intelligible rough sketch map.

One of the first things which a Scout must note in order to understand any sketch map is the scale on which the map is drawn. By the term scale is meant the proportion which the distance between any two objects on the map bears to the real distance between the same two points. Thus, the scale may be one of ten inches to a mile, which means that a road ten inches long on the map is a mile long in reality. After acquainting himself with the scale the Scout should locate the north point on the map. The correct method of drawing this is shown in the illustration appearing on page 98. The variation between the "true north" and the "magnetic north" varies in different localities. A margin of at least one inch should be left all around the sketch.

Experience in map making has shown that there is a practical advantage in using certain conventional signs to indicate roads, woods, houses, etc. A number of the conventional signs in use are shown on the illustration appearing on page 233.

ROADS. — Continuous lines are employed to show a road when it is enclosed by a fence, hedge, ditch or obstacle of any kind. Dotted lines are used when the road is unenclosed. Every road or railway should have "From" printed at the left end of it, on the margin of the sketch; and "To" at the right end. The distance between the nearest town or village should be given thus: "From Avon — 2 miles," (This would be on the left margin.) and to "To Crosby — 12 miles." (This would be on the right margin.)

RAILWAYS. — A continuous line with crossbars is used to show a railway. The word "single" or "double" should be written along it, as the case may be.

WOODS. — State their nature, whether maple, pine, etc., and whether they are passable or not.

CULTIVATION. — Indicate the nature of the crops; for instance, oats, wheat, fallow land, irrigated, rocky, etc.

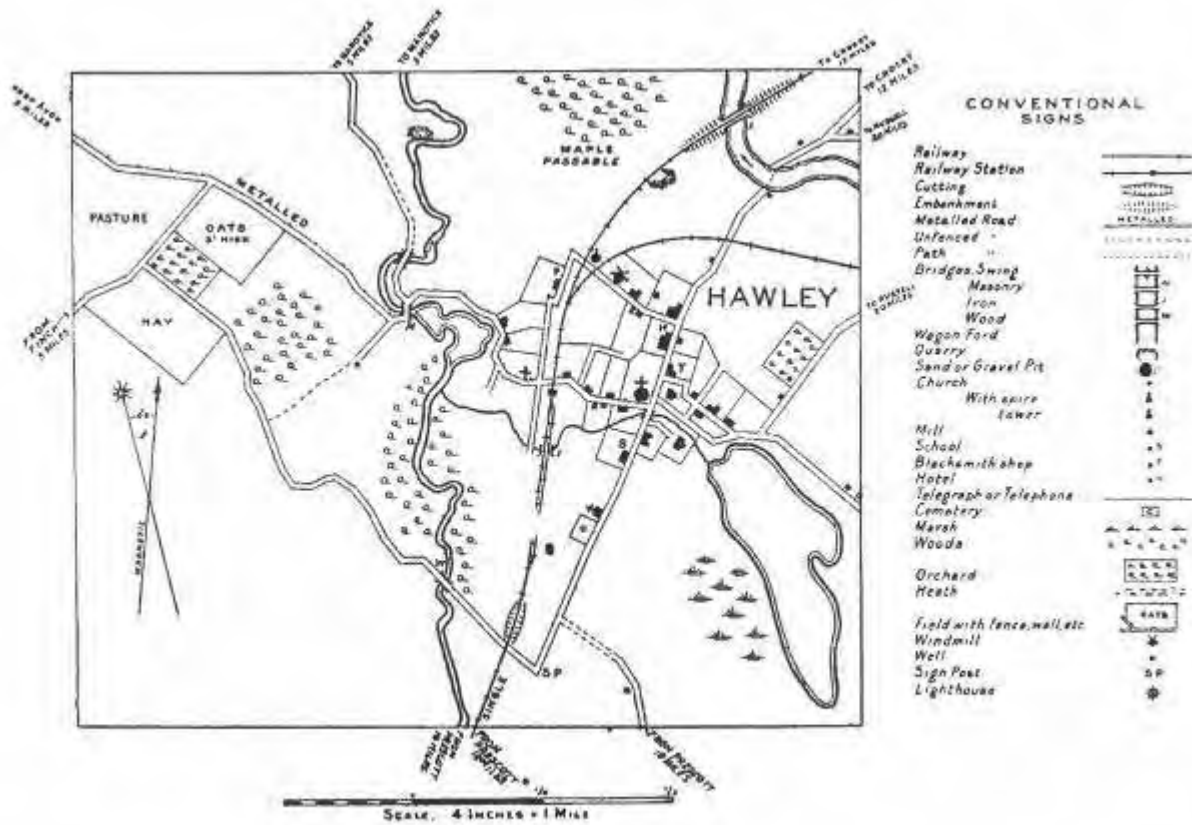
BRIDGES. — Always indicate the material a bridge is composed of, as masonry, iron, wood, and construction, e.g. swing, etc.

RIVERS. — The names of rivers should be written along their courses and the direction of the stream indicated by an arrow.

TOWNS AND CITIES. — The appropriate positions should be shown of towns, villages and cities on the map. Large cities are often marked by a number of closely drawn parallel lines with perpendicular intersections. The names of towns, villages and cities should be in block letters. All lettering should be horizontal except the names of rivers, railways and canals, which should be written along their course. When possible rivers should be drawn in blue.

CHURCHES. — Churches are made an important item in sketches because a church is always a prominent feature of any view where a town or village is included, and by seeing a church marked in a map it is easily located when trying to compare the map with the country.

The reason churches are shown in three different ways is to show their value as signalling stations, or points where good observations can be made. A church with a tower would be available for this purpose, but one with a spire would not be.



Specimen map showing conventional signs.
Contributed by J. L. Crawford, Asst. S. M.

The conventional signs used for sketching maps are not the same as those used in Ordnance Survey Maps. The signs used in Ordnance Survey Maps are given in the training for the Surveyor's Badge.

Nothing should be in any map that is unnecessary for its complete understanding.

JUDGING DISTANCE, ETC.

Every Scout must be able to judge distance from an inch up to a mile or more. Objects appear nearer than they really are when light is bright and shining upon the object, when looking across water or snow, or when looking uphill or down. Objects appear farther off when in the shade, across a valley, when the background is of the same colour, when the observer is lying down or kneeling, or when there is a heat haze over the ground. A general rule to remember is that one is apt to underestimate the distance of a distinct object and to overestimate the distance of an indistinct one.

Fix firmly in your mind the length of a foot, 25 feet, 100 feet, and 100 yards and use these as units in estimating greater distances, remembering that for all ordinary purposes the horizontal distance is the one required. In the country, distances along the road can often be computed accurately by knowing the distance between telegraph or telephone poles, concessions, sections, range and township lines.

Make yourselves familiar also with the size of objects of daily occurrence, such as the length of a street car or railroad car, the average frontage of a house or barn, the length of an average cedar rail on a rail fence; also standard distances, such as the width of the usual city street (1 chain, that is 66 feet). You ought to know exactly what is the span of your hand and the breadth of your thumb, the length from your elbow to your wrist, the length of one hand to the other with your arms stretched out to either side, and the length of your feet. If you remember these accurately they are a great help to you in measuring things. Also, it is useful to cut notches on your staff, showing such measurements as an inch, six inches, a foot and a yard. These you can measure off with a tape measure before you use the staff, and they may come in very useful.

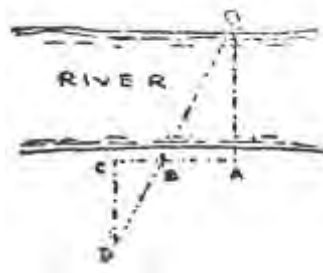
A Scout should know his ordinary pace, and be able to judge distances by the time taken in walking, running or traveling "Scout's pace." To find the length of his average step it is a good plan first to measure off a convenient distance such as 100 feet and then walk over it at his natural pace, counting the number of steps. Dividing the number of steps he has taken into 100 will give him the length of his average pace, which the Scout should note in his diary.

Judging the distance of object from you is only gained by practice. The distance of a journey is generally estimated by seeing how long you have been traveling and at what rate; that is to say, supposing you were traveling at the rate of three mile an hour, if you have been walking for an hour and a half you know that you have done about four and a half miles.

Distance can also be judged by sound: that is to say, if you see a gun fired in the distance, and you count the number of seconds between the flash and the sound of the explosion reaching you, you will be able to tell how far off you are from the gun. Sound travels at the rate of 360 yards in a second. A more accurate computation can be made by counting eleven beats to three seconds, each beat between the sight of the flash and the noise of the sound equalling one hundred yards. Practice is, however, required to estimate the beats correctly.

Another method of judging the distance to any object, either near or far, is to hold the arm stretched to its full length in front, cover the object with the thumb, close the left eye, then without moving the thumb close the right eye and open the left. It will be noticed that the thumb has apparently moved along to the right. Judge the distance in any units desired — for example in feet, yards or miles — which the object

appears to have moved, and multiply by a factor ranging from eight to twelve. The result is the desired distance expressed in the same units as those just selected. The exact factor differs for individual boys and can only be definitely ascertained by practice. The factor for the average boy is, however, between ten and eleven. This method is particularly useful for judging the distance of the shore on the far side of a large body of water, as its degree of accuracy is quite unchanged by the amount of water lying between the observer and the far shore.



Still another way to estimate the distance across a river is to take an object X, such as a tree or rock on the opposite bank, start off at right angles to it from A, and pace, say, ninety yards along your bank; on arriving at sixty yards, plant a stick or stone, B; on arriving at C, thirty yards beyond that, that is ninety yards from the start, turn at right angles and walk inland, counting your paces until you bring the stick and the distant tree in line. The number of paces that you have taken along the line CD will then give you the half distance across AX.

Some Further Hints

Some further hints for judging distance are as follows: —

At fifty yards, the mouth and eyes of a person can be clearly seen. At 100 yards, eyes appear as dots; at 200 yards buttons and details of uniform can still be seen; at 300 yards a face can be seen; at 400 yards, the movement of the legs can be seen; at 500 yards the shoulders of a man no longer appear square, but bottle shaped; at 600 yards the head is visible as a dot; at 700 yards the head is invisible; at 800 yards a man looks like a post. The Arabs said: “at a distance of one mile one cannot tell the difference between a man and a woman.”

For distances over these think out for yourself which point is half-way to the object, estimate how far this may be from you, and then double it to obtain the distance. Another way is to estimate the farthest distance that the object can be away and then very nearest it could be, and strike a mean between the two.

Lateral distances are usually estimates by the number of fingers required to cover the object, but this, of course, can be done only when the direct distance is known. The fingers are held at arm's length and not close up to the eye. One hundred yards is covered at 500 yards by six or seven fingers; one hundred yards is covered at 1,000 yards by three to three and a half fingers, one hundred yards is covered at 1,500 yards by two fingers, one hundred yards is covered at 2,000 yards by one thumb.

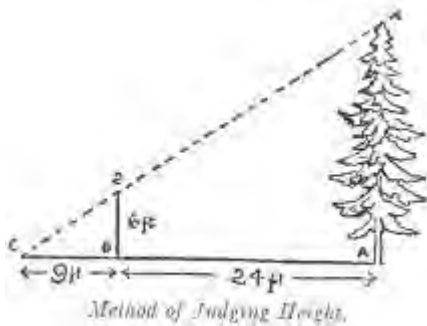
All the foregoing rules are for good light and level ground. In bad light, in mist, when looking across a valley or when lying down the tendency is to overestimate distance.

Practice in Judging Distance

For practice in judging distances take a patrol and station its members about in different directions and with different backgrounds, according to the colour of their clothes; then take another patrol to judge the distance of these points. Practice may also be gained by sending two competitors in turn to three different points. At the first point they are merely given the compass bearing of the next one, which is some three hundred yards distance, and so on in succession. At each point each pair of Scouts notices, regarding the enemy — first, how many are visible; second, how far they are off; third, their compass direction; fourth, how they are clothed. The best answers win, provided they are within the specified time. The time allowed should be one minute for observation at each station, and half a minute for each bit of running.

Judging Height

A Scout must also be able to estimate heights, from a few inches up to three thousand feet or more; that is to say, he ought to be able to judge the height of a fence, the depth of a ditch, or the height of an embankment, of a house, tree, tower, hill or mountain. It is easy to do when once you have practiced it for a few times, but it is very difficult to teach it by book. The readiest way to estimate the height of a building is first to calculate the height of a storey and then multiply by the number of storeys in the building.



To find the height of an object, such as a tree (AX), or a house, pace a distance of, say eight yards away from it, and there at B plant a stick, say, six feet high; then pace on until you arrive at a point where the top of the stick comes in line C with the top of the tree. The whole distance AC from the foot is to AX, the height of the tree, the same as the distance BC, from the stick, is to the height of the stick; that is to say if the whole distance AC is thirty-three feet, and the distance BC from the stick is nine (the stick being six feet high), the tree is twenty-two feet high.

Judging Weight

You must also know how to estimate weights, from a letter of an ounce, or a fish, or a potato of half a pound, or a bag or bran, or a cartload of coal; also the probable weight of a man from his appearance. These, again, are only learned by practice, but as a Scout you should take care to learn them for yourself.

Practise lifting weights of one, five, ten and twenty-five pounds and in this way you will come to know how to judge the weights of different object. A gallon of fresh water weights ten pounds and a cubic foot of water about sixty-two and one-half pounds. Salt water weighs a little more.

Judging Numbers

Scouts should be able to judge numbers; that is to say, for instance, to tell at a glance about how many people are in a group, or on a street car, or in a big crowd, how many sheep in a flock, or cattle in a herd, how many marbles on a tray, and so on. These you can practise for yourself. One of the best ways of estimating large numbers is by counting the number in a small group or section and applying this unit to the whole.

Judging Capacity

Capacity can be estimated approximately by making yourself familiar with the ordinary units of measurement such as a pint, a quart, a gallon, a cubic foot, a cubic yard, etc., and then applying the unit to the larger bulk.

Judging Area

The same plan may be applied to area by using the units of a square foot, a square yard, an acre, a small field and a quarter section or section.

Self Measures

Each Scout should know his exact personal measurements in the following details. The figures here given are the average man's measure: —

Nail joint of forefinger, or breadth of thumb	1 inch
Span of thumb and forefinger	7 inches
Span of thumb and little finger to other finger	8 ½ inches
Wrist to elbow	10 inches
(This also gives you the length of your foot.)	
Elbow to tip of forefinger (called "cubit")	17 inches
Middle of kneecap to ground	18 inches

Extended arms, from finger-tip to finger-tip, is called a fathom, and nearly equals your height.
 The pulse beats about 72 times a minute; each beat is a little quicker than a second.
 A pace is about 2 ½ feet; about 120 paces equal 100 yards. When walking fast paces are shorter than when going slow.
 In fast walking you will cover a mile in approximately 16 minutes, or at the rate of nearly four miles an hour.

SIGNALS AND SIGNALLING



Signalling is a subject full of romance. Its story in the Old World begins with the torches and hill-top fires of the ancient Greeks and Romans, telling of tragic defeats or victories that shaped the course of history; in Africa its story begins with the terrifying rumble of distant war drums, in America with the smoke fires of Indians on the warpath.

From these crude beginnings signalling has come down to us — to wireless, with its ready communication across thousands of miles of space, at the unthinkable speed of 136,000 miles a second.

Naturally signalling always has played an important role in warfare. The earliest record of such use is given by Polybius, the Greek historian, writing in the second century before Christ. He described a system by which messages were spelled with torches.

Signalling with Torches

The Romans also used flags, shields and lanterns for signalling, and doubtless similar methods were practiced during the Middle Ages. Captain John Smith, when he was fighting on the side of the Austrians against the Turks three hundred years ago, devised a system of night signalling with torches which he put to excellent use. On one occasion when an Austrian force was besieged by the Turks, Smith brought up a relief force, and arrived on a hill near the besieged town during the night. With torches he signalled to the Austrian garrison, then attacked the enemy in the rear, and enabled the garrison to break through the Turkish lines and escape.



Signalling Resourcefulness



A feature of signalling that appeals to every true Scout is the opportunity it offers for the exercise of inventive ingenuity and resourcefulness in getting messages through to their destination over all manner of difficulties.

The Great War provided many instances of resourcefulness of this character. One of the most interesting examples was furnished by a group of Canadian signallers in improvising a switchboard.

The switchboards provided for headquarters "Signals" early in the war were soon found too small. When confronted with the problem, the Canadians, instead of throwing up their hands and awaiting the outcome of larger boards, immediately set about manufacturing them with such materials as were at hand. They took rifle cartridges, removed the bullets, extracted the powder, and fixed the empty shells in the board. With suitable lengths of wire they then connected the bullets together in pairs — their "plugs." And they were ready to carry on.



In another instance it was found unsafe to use flash lamps. The light made a target quickly taken advantage of by the Germans, or else the enemy picked up the message. One signaller "with a head" struck an idea. He aimed a rifle at the station with which he wished to communicate, fixed the gun in place, then flashed his electric torch through the barrel. This proved most effective. It prevented diffusion of the light, allowing the flash to be seen and read only from the exact direction in which the rifle was pointed. Later the idea was generally adopted and expanded and long lengths of gas pipe used in place of a rifle.

A Submarine Buzzer

This means of communication offers an interesting field of experimenting and buzzer practice by Scouts during the summer months. Any Scout swimmer knows how distinctly the sound of two stones struck together beneath the water may be heard at a considerable distance. This illustrates the principle.

A submarine buzzer may be made by securing rigidly to the inside of a small watertight box an ordinary bell buzzer, insulated wires connecting with the key or push button above the surface. A simple receiver can be fashioned of a watertight tin box with a small megaphone attached; the box being submerged and the megaphone being above the surface.

A Birch Bark Message



In addition to their smoke signals, pictures on sheets of birch bark were used by the North American Indians in sending dispatches. The illustration accompanying is the reproduction of a picture dispatch sent to the French by Indians near Montreal at a time when the French were at war with the English colonists. The meaning of the dispatch was that the English had left Montreal, this fact being represented by the

bird taking wing from a hill (Mount Royal). The moon and buck in the picture told the French that the time was the first quarter of the Buck moon, answering to July.

Trails and Trail Signs

Closely related to signalling in its usual sense are trail signs. Many of the original pathways through the forests of Canada, across her plains and through her mighty mountains were made by roving bands of big game. These trails were used by the Indians, and later by exploring adventurers, trappers and settlers. In many cases, to complete the romance, the old pathways were followed by the railroads.

When laying a new trail through the forest the Indian marked his way by slashing a bark chip from either side of an occasional tree. The double cut was made so that the trail might readily be followed in either direction. Many old trails, however, showed one blaze — on the side of the tree facing the trail. This was not as easy to follow as the double blaze.

A sharp turn in the trail was indicated by an additional blaze, or by a sapling partly cut through and bent in the direction taken.

Some of these old Indian trails are still found in remote wooded sections of Canada.

The Trapper's Trail

The trapper's trail usually begins at some distance from his camp, and is more or less concealed, being marked only on noteworthy trees, and much higher up. Peculiar hacks and other individual signs are employed to indicate the location of traps. A still more carefully concealed form of trail was made by Indians on the warpath.

Boy Scout Trails

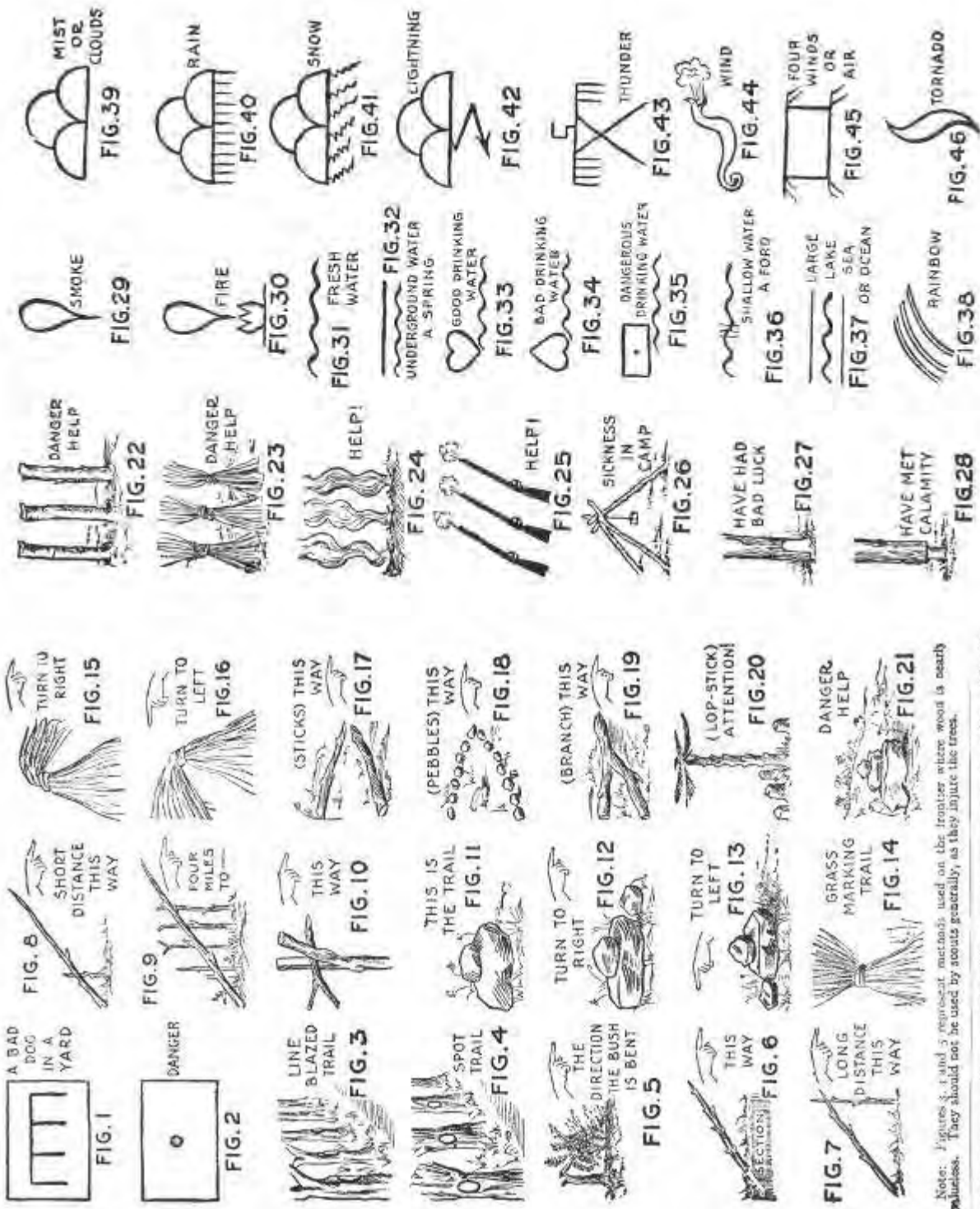
It may be necessary for Scouts to blaze a trail through unfamiliar woods, as a precaution against being lost; but blazing trees under other circumstance is not permissible. Equally good trail-making can be practised by using chalk marks, or pieces of paper pinned to trees, or dropped on the ground.

An advance party of Scouts traversing an unfamiliar path may by the use of Indian signs such as those shown in the illustration on page 240 leave information for the Scouts following. At a cross road they can in several ways indicate the direction taken. Should they leave the path they may indicate this by tying a bunch of green grass to the top of a stick set up in the middle of the path and pointing in the desired direction. If the advance party plans to return and meet the others, they may bend two conspicuous branches or saplings toward one another; and if they desire their followers to camp at a certain spot, they may indicate this by drawing a circle on the ground.

To Indicate Time of Departure.



The Eastern Cree Indians use a simple but effective device to indicate at what time a place was left. A circle is drawn in the earth or snow, a stick is set up in the centre of the circle, and the shadow cast by the stick at the time of departure is marked. The age of the circle also may be read by the signs left by later rainfalls or snowfalls, etc.



Note: Figures 1, 2 and 3 represent pictographs used on the frontier where wood is scarce and useless. They should not be used by scouts generally, as they injure the trees.

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Distress Signals

Three shots fired in succession are generally recognized as a call for help. The Indians used three smoke signals for a like purpose. Three stones on top of one another, three blazes on a tree, three tufts of grass, or three short blasts on a steamboat whistle all indicate distress and an appeal for help.

Smoke and Fire Signals

Scouts of all countries use fires for signalling purposes — smoke fires by day and flame fires by night.

Three continuous columns of smoke about fifty feet apart are accepted as a warning that someone is in trouble or that there is danger ahead. A succession of smoke columns from one fire means “Halt.” Columns and short puffs alternately mean “Danger.”

To make a smoke fire light your fire in the ordinary way, and as soon as it is strong enough, add damp leaves or grass, to make it smoke. Cover the fire with a damp blanket, raise the blanket sufficiently to release a puff of smoke, and drop it again. To make two short puffs hold the blanket up while you count two, replace it while you count eight, remove it while you count two. For a long puff raise the blanket for about six seconds.



Night Flare Signals

Long or short flares mean the same as the above smoke signals. For a night signal fire use dry wood, so as to secure as bright a flame as possible.

To signal with the help of another Scout, hold a blanket up in front of the fire on the side toward which you wish to signal; for a short flash drop the blanket while you count two, then raise it; and for a long flash drop the blanket while you count six.



Semaphore Signalling

Semaphore signalling, with hands or flags, is perhaps the easiest of all signalling systems to acquire. Beyond the excellent training it provides for the eye and brain, Semaphore, like the Morse, will be found very useful when on hikes or camping, for communicating between scattered groups, or back to headquarters — to discover whether the “eats” are ready, etc.

Correct style in sending is very important. Be careful to observe these rules: —

- (1) Exactly face the person to whom you are signalling, and stand firmly, with feet eight to ten inches apart.
- (2) Hold the flags at the full extent of the arm, the first finger lying along the pole, arm and flag forming one straight line, except when holding the flag above the head. In this

case a slight bending of the arm is permissible so that the flag may be held perpendicular above the centre of the head.

- (3) Hold the arms in the exact position for each letter, and thrown neither forward nor to the rear.
- (4) When making the letters T, O, W, and the Numerical Sign, distinctly separate the two flags.
- (5) Turn slightly on the hips when making such letters as I, X, etc., but keep the eyes straight to the front.
- (6) When double letters occur, separate them by bringing the flags smartly in to the body. This signal is called a "smart group," meaning that it is done so smartly that the reading station does not misunderstand it as indicating the end of a word or group. (The smart group is also used before and after the miscellaneous signs, WA, SR, ML, etc., and after the Numerical Sign and before the Alphabetical Sign.)
- (7) Never send faster than the other boy can read. In the end you will only lose time through having to repeat.

For distant signalling flags are necessary, but for short distances and in practise work the hands alone can be used, — extending at full reach, and held flat to the front. When sending Semaphore the signaller must always face the reader squarely.

How to Learn Semaphore

The simplest way of learning the Semaphore alphabet is to memorize by "circles" thus: —

1st	Circle	A to G.
2nd	"	H to N, omitting J.
3rd	"	O to S.
4th	"	T, U, Y and "Erase".
5th	"	Numerical Sign; J (which is also used as the Alphabetical Sign) and V.
6th	"	W and X.
7th	"	Z.

Morse Signalling

Although Morse signalling is somewhat more difficult to learn for the average Scout, it is well worth the effort, since it can be used in many more ways and circumstances than Semaphore, and over much greater distances.

As is the case of Semaphore, it is important to acquire a good style in sending with the Morse flag. There are two positions, "Prepare to Signal" and "Ready," and two movements, "Dot" and "Dash." For "prepare to signal" the folds of the flag are gathered in the left hand by sliding the hand up the pole to a position about level with the left breast, the flag pointing over the left shoulder. The right hand hangs easily to its full extent, grasping the pole about 6 in. from the butt. This is the position in which to hold the flag when not actually signalling.

CHARACTER	INTERNATIONAL OR CONTINENTAL MORSE WIG-WAG Sound Flash Some Wireless	AMERICAN MORSE Land Telegraph Code	TWO ARM SEMAPHORE		INTERNATIONAL CODE OF SIGNAL FLAGS (Navy - Army - Air - Coast - Marine)	SECONDARY MEANING Alpha & Colours variable
			MACHINE	HAND FLAGS		
N	••	••				
O	••••	••••				
P	•••••	•••••				
Q	••••••	••••••				READY TO SAIL Col. III
R	•••	•••				Quarantine Col. III
S	••••	••••				65 V. W.
T	•••••	•••••				LANEY A. BRIST Col. IV
U	••••••	••••••				NUMERALS GENERAL SERVICE CODE
V	•••••••	•••••••				1.....
W	••••••••	••••••••				2.....
X	•••••••••	•••••••••				3.....
Y	••••••••••	••••••••••				4.....
Z	•••••••••••	•••••••••••				5.....
						6.....
						7.....
						8.....
						9.....
						0.....

CHARACTER	INTERNATIONAL OR CONTINENTAL MORSE WIG-WAG Sound Flash Some Wireless	AMERICAN MORSE Land Telegraph Code	TWO ARM SEMAPHORE		INTERNATIONAL CODE OF SIGNAL FLAGS (Navy - Army - Air - Coast - Marine)	SECONDARY MEANING Alpha & Colours indicated
			MACHINE	HAND FLAGS		
A	••	••				Alphabetic 1 Col. V. W.
B	••••	••••				Alphabetic 2 Col. V.
C	•••••	•••••				Alphabetic 3 Col. V.
D	••••••	••••••				Alphabetic 4 Col. V.
E	•	•				Alphabetic 5 Col. V.
F	••••	••••				Alphabetic 6 Col. V.
G	•••••	•••••				Alphabetic 7 Col. V.
H	••••••	••••••				Alphabetic 8 Col. V.
I	••	••				Alphabetic 9 Col. V.
J	••••••	••••••				Alphabetic 0 Col. V.
K	•••••••	•••••••				Col. W.
L	••••••••	••••••••				
M	•••••••••	•••••••••				

Signalling Systems
The drawings on this and the preceding page are reproduced by kind permission from the Handbook for Boys of the Boy Scouts of America.

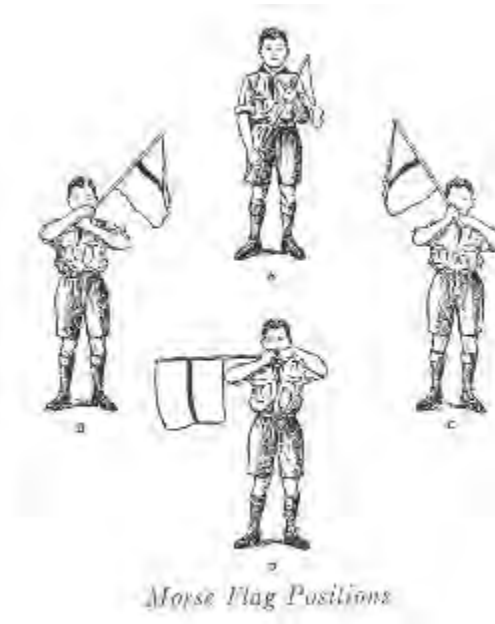
Comparative Chart



When about to commence signalling release the flag with the left hand, raise the pole so that the right hand (which is holding the pole about 6 in. from the butt) is level with the nose, at the same time grasping the pole with the left hand below the right. The thumbs of both hands should be pointing up the pole, the flag at the same angle as at the "prepare to signal."

To make the "Dot," pivot the pole between the hands, swing it smartly from the "Ready" position to a corresponding position on the opposite side of the body, then smartly back to the ready position without pausing.

To make the "Dash," smartly bring the pole from the "ready" position to a position just below the horizontal, pause slightly and return to "Ready" position.



Flag Backgrounds

In signalling either with Semaphore or Morse flags attention should always be given to securing a proper background and using the flag that will best be seen against the background. That is, a dark blue flag should be used against a light background, such as is given by a hill-top or a signalling tower, or an open field; and a white flag with a blue horizontal stripe should be used for a dark background, such as trees, dark buildings, or a hillside.



A Good Background.

Points to Remember

It is very important that the flag be held in a perpendicular position. A very little slanting forward will reduce its surface as seen by the distant reader.

Stand exactly square to the station to which you are signalling. If this is made difficult by the direction of the wind, turn your back squarely to the distant station. In the event of a side wind it usually will be found easier to send with the wind blowing on the right cheek.

To keep the flag unfurled move the point of the pole in an elongated figure-of-eight.

Whatever the rate of sending, the flag should be moved smartly — never “sleepily.” The rate of speed can be varied by the pause made on the dash.

When a letter, figure or other symbol has been commenced, it must be sent straight through without pause. For example, if a signaller sending the letter F hesitates after the second dot, the letter becomes IN instead of F.

Other Morse Signalling

In other systems of signalling in which Morse code is used the letters are formed by “dots” and “dashes.” Whether these signs are conveyed by sound or by flashes of light, they are distinguished by their length of time. Whatever the means used, or the rate of sending, the dash must always be distinctly longer than the dot — never less than the length of three or four dots. For learning, the dash may to advantage be made longer, especially in flashlight signals.

How to Learn the Morse Alphabet

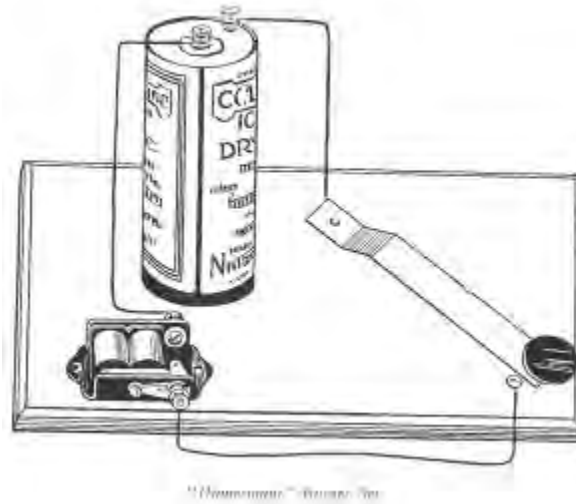
There are several systems for mastering the alphabet. The following will be found effective. Progress will be most rapid where two or more boys work together, using a buzzer. (This can be improvised with a door buzz-bell, a dry cell, and a few lengths of wire, connected as for a doorbell, with two wire-ends arranged so they can be tapped against one another.) Where a buzzer is not available, whistling makes a good substitute. Practice the letters by successive groups, making up words containing only those letters, or including the letters of previous groups.

Dot Letters	Dash Letters	Remaining vowel and two long letters
E •	T —	A •—
I ••	M — —	U ••—
S •••	O — — —	C —•••
H ••••		J •— — —
	Short Opposites	Long Opposites
A •—	N —•	G — — •
U ••—	D —••	F ••—•
V •••—	B —•••	Q — — • —
R —••	K —•—	P ••—•
		Z — — ••
		W •— —
		L ••••
		Y —• — —
		X —•• —

Learning on a Buzzer

While most boys can learn the Morse alphabet readily by the flag alone, others will learn more rapidly on a buzzer.

Special high-toned buzzers may be bought, separately, or mounted on a base with a key. Any ordinary office buzzer or old doorbell, with the clapper removed, will do as well. Here is a diagram of an easily made buzzer set: —



RAILWAY SIGNALS

Boy Scouts should at all times be prepared to prevent an accident on a railway. To this end it is advisable that they should know the signals used and recognized by trainmen for stopping trains. Two pulls on the bell cord running through every car of a train is a signal to the engineer to stop at once. Two pulls on the air whistle serves the same purpose. Three pulls on the bell cord or the air whistle is the direction to stop at the next station. When the train is standing still, two pulls on the bell cord or on the air whistle is the signal to start and three to back up. Four pulls when the train is running is the signal to reduce speed and five pulls to increase speed. Six pulls is the direction to increase steamheat. In the case of danger on the track or otherwise, all that is necessary to do to stop a train is to get into a position where you can attract the attention of the engineer of the on-coming locomotive and wave any object violently as a signal to stop. It is on record that a little girl on her way to school prevented what might have been a very serious accident to a train through a washout, by taking off a red shawl she was wearing, tying it to a stick, and placing the whole upright in the centre of the track, then proceeding over the washed out portion of the roadbed to a point where any train could be signalled coming from the other direction.

Red always mean stop. Thus, if the semaphores that are to be seen in railway yards and on the approach to stations are set in a way to show red, the train must stop until this signal is changed. A fusee on or near the track burning red must not be passed until burnt out. Green is a signal to proceed with caution. White is a signal to proceed.

There are also hand, flag and lamp signals in use in railroading. If one of these is swung across the track it is an indication that the train is to stop; if raised and lowered vertically, to proceed; and if swung vertically in a circle across the track when a train is standing, it is a signal to back.

One short blast of the engine whistle indicates that the train is about to stop. One long blast is used when a train is approaching a station, junction or railroad crossing; two long and two short blasts when a train is approaching a public crossing at a grade. Eight long blasts of the whistle is the distress signal and is a call for assistance. Section men or others hearing this signal should go at once to the train making this call. A succession of short sounds of the whistle is an alarm for persons or stock on the track and to call the attention of trainmen to danger ahead.

Torpedoes are also used by trainmen, particularly in a fog. The explosion of one torpedo is a signal to stop. The explosion of two, not more than 200 feet apart, is a signal to reduce speed and look out for a stop signal.

It must be clearly understood that the signals and information given above with regard to trains must only be used in case of emergency and as a direct aid to the railroad companies in saving life and property.

MARINE SIGNALS*

**Contributed by J.G. Macphail, Commissioner of Light, Department of Marine, Ottawa.*

Marine signals include lighthouses, fog alarms, signal buoys, storm signals, signals exchanged between vessels for preventing collisions and in case of distress, and also signals exchanged between vessels and shore reporting stations.

Lighthouses are so arranged along the coast as to mark the principal headlands and dangers, and the apparatus in the principal lighthouses is designed to show one flash, two flashes, three flashes and four flashes, these signals being so arranged along the coast line that two similar signals do not occur within fifty or sixty miles of each other. The signals displayed at each station are advertised through the medium of a List of Lights and Notices to Mariners. A mariner, therefore, approaching the coast at any point and picking up a signal will readily identify it and thereby determine his position. The larger lighthouses depend for their signals on a system of large lenses revolving around a central source of light, kerosene oil vapour burned under a mantle usually being employed. The larger lights vary from one-half million to a million candle power and have been seen upwards of forty miles.

The signals emitted from fog alarm stations are likewise distinctive in character, giving one, two or three blasts of a definite number of seconds each at definite intervals and recurring at definite periods of time, usually a single, double or triple blast each one-half minute or minute. The sound is produced by means of an instrument called a diaphone operated by air compressed either by steam engines or internal combustion engines, the latter using kerosene for motive power. The sound from a diaphone may be heard distances up to fifteen miles, depending upon atmospheric conditions.

Signal buoys include light buoys, whistling buoys, bell buoys and submarine bell buoys. Light buoys or gas buoys are maintained at the more prominent turning points and to mark dangers lying offshore. They are operated either by acetylene or oil gas. They vary in weight according to size from five to nineteen tons. Whistling and bell buoys are operated by the motion of the waves, as are likewise submarine bell buoys. In the case of the latter the bell is carried some fifteen feet under water and being struck by the clapper attached to the mechanism sets up vibrations in the water which radiate in all directions and which are picked up in the form of sound through telephone instruments aboard vessels. These telephone instruments electrically connect the skin of the vessel with the pilot house. The advantage of submarine signals over aerial signals is that the direction of the former can be more or less exactly determined while in the case of the latter this cannot be done. Furthermore, silent areas occur with respect to aerial signals while submarine signals are not so affected. In the case of an aerial signal it

sometimes happens that the sound is not audible over its entire range and that while it may be heard several miles away zones or areas occur within that distance where it is not heard.

In Canada there are some 1,600 lights, 300 fog signals, 450 signal buoys and 25 submarine bells.

Storm signals are exhibited at upwards of one hundred harbours throughout the Dominion. Information as to meteorological conditions is received daily from over five hundred points, co-related and interpreted by the Meteorological Service by which weather forecasts are given and warnings as to storms. The signals are hoisted from the yard arm of a mast and are as follows: —

No. 1. — This signal indicates the probability of a gale, at first from an easterly direction.

No. 2. — This signal indicates the probability of a gale, at first from a westerly direction.

No. 3. — This signal indicates the probability of a heavy gale, at first from an easterly direction.

No. 4. — This signal indicates the probability of a heavy gale, at first from a westerly direction.

The night signal, corresponding to Nos. 1 and 3, is a red light.

The night signal, corresponding to Nos. 2 and 4, is a red light above a white light.

Signals exchanged between vessels for preventing collisions consist of whistle blasts, the code of signals being of international comprehension. Signalling between vessels and shore stations is usually done by means of an international code of flag signals in which each letter of the alphabet is represented by a particular kind

of flag. By the combination of several flags words may be spelt and sentences formed, but it is usual to employ the code. This code has been adopted by all the important maritime powers of the world and the interpretation of the several thousand different signals composing the code is translated into the language of each nation. All ships, therefore, meeting at sea are able to communicate with one another no matter if one is a Frenchman and the other a Greek, or whether the commander of one vessel is able to understand the language of the other in a verbal conversation. In this code a combination of two or three flags does duty for a sentence. For instance, U E represents "Report me by telegraph to owners;" H C, "Indicate nearest place I can get coal," etc.



CHAPTER VIII

PREVENTION AND TREATMENT OF ACCIDENTS

Editor's Note: The information in this chapter is presented for historical reference only. The instructions in First Aid are out of date by 21st Century standards, and should not be used for the training or application of First Aid. Please refer to current Red Cross or St. John's Ambulance manuals for the modern standards of First Aid instruction.

Before receiving the Second Class badge, it is required of Scouts that they shall have a knowledge of elementary first aid and bandaging. Scouts qualifying for the First Class badge are required to describe the proper method of dealing with various specified accidents, also to bandage an injured patient and to revive an apparently drowned person. Simple directions on all of the first aid tests for both the Second and First Class Scout badges are contained in the present chapter.

There are no available statistics of the total number of cases in Canada each year of accidental death and injury. But if all the accidents occurring in employment, on the street, and in the home were reckoned together they would be found to number many thousands, with an accomplishment of money loss and human misery which is truly incalculable. Yet more than one-half of all accidents that occur are due to carelessness. Happily, there has been within recent years a nationwide movement in the direction of greater safety, with results which are already apparent. It is an old saying that prevention is better than cure. A Scout's influence, therefore, should always be on the side of prevention whilst at the same time he should know what to do in any emergency that may arise.

THE AVOIDANCE OF ACCIDENTS

As Scouts you will have especial opportunities in this branch of the programme to train your powers of observation. To tell you of all the ways in which you would be able to be of service to your home, community, school, and later to your employer would require a book. The following suggestions are given as a help to you and are recommended by the National Safety Council as fundamentals which every boy should observe in his daily life. They are classified under the home, the street, and the school.

Accident Prevention at Home

Pick up pins and needles; they cause the death of many babies.

Keep medicines out of the reach of small children.

A thoughtful Scout will not leave anything on the stairs that may cause others to trip.

Scalding water tipped from the edge of the stove may cause a fatal accident to a small sister or brother.

Be on the "lookout" for sharp knives, etc. They should be kept out of reach of small children.

Rugs should lie flat. Serious falls come from tripping over rugs.

Keep your yard free from broken glass, rusty wire, and projecting nails.

To play with matches is dangerous.

Keep matches in a closed metal receptacle.

Break matches before throwing them away.

Let dad's gun alone.

A Scout sometimes does his good turn by warning others against the use of coal-oil and gasoline when lighting a fire.

Keep all combustible articles, other than fuel for immediate use, away from the stove.

Curtains or woodwork are sometimes ignited by gas jets.

See that the chimneys are examined twice a year to keep the flues clear.

Sixty per cent. of all fires start in closets, cellars, or attics. Keep them clear and free from rags and dry wood.

See that the fire escapes and halls are kept clear of obstructions.

A Scout will not carry a lighted match or candle into a closet.

Burn greasy or oily rags and paper immediately after using.

When emptying gasoline or benzene cans, pour the contents on the ground away from buildings, instead of into sinks or drains.

Handling the electric wiring of a house is dangerous and may cost considerable for repairs.

Accident Prevention in the Street

Obey all traffic signals.

Cross streets at the corners and at right angles, never diagonally.

Be careful in crossing behind a vehicle; one may be coming in the opposite direction.

Keep to the right in walking, and in entering doorways.

When waiting for a car, stand on the curb, not in the middle of the street.

Get on this the right hand and left foot; get off with the left hand and right foot.

Get off face forward, retaining firm hold of the handle until both feet are on the ground. Watch for teams and autos when you get off. Look both ways.

Always wait until the car stops, getting on or off.

It is dangerous to let any part of your body project from the car window or platform.

Electric Wires

To handle wires of any kind, hanging from poles or trees, or to tamper with them may cause a serious accident or death. They may be live wires.

Report broken wires to the police department by telephone immediately.

A Scout will not fly a kite near wires.

He will not stone or shoot at glass insulators on poles.

A Scout knows that it is dangerous to throw a string or wire over a trolley or other wire carrying a high voltage current.

Fires

Know the location of nearby fire alarm boxes.

Know how to turn in a fire alarm. After turning in an alarm, stay at the box until the arrival of the department to direct them to the fire.

When you hear a fire alarm, keep on the sidewalk.

Railroad Tracks and Yards

Keep out of railroad yards.

Keep off sidings and cars standing on tracks.

Riding on steps and platforms is dangerous, as is climbing through cars when standing or moving. Wait until the car stops to get on or off.

Before crossing railroad tracks stop and listen; look in both directions.

To walk around lowered gates or crawl under them is dangerous.

Notify the station agent, track foreman, or some other official of the railroad whenever you discover a fire on railroad property. As Scouts you should put out any fire you may discover, unless instructed differently by railroad employees or officials.

Accident Prevention at School

Assist your teacher or principal in organizing a safety patrol among the older boys of your school. The following are some duties of the safety patrol: —

Guard street intersections near school as children come to school.

Keep children out of street at dismissal.

Help smaller children over crossings.

Post bulletins of advice to pupils for co-operation in safety work.

Make reports of accidents with suggestions for prevention.

Give notice to principal of any dangerous conditions.

Report open manholes, blocked hallways and fire escapes, protruding nails, or injurious obstructions, broken wires of all kinds; report the building of fires in dangerous places; for example, in lanes or near fences or buildings.

Doors of all public buildings should open outward.

See that hall doors are not locked.

Doors should have panic bolts; care should be taken not to rush and cause a jam at the entrance way.

Panics and Their Prevention

Note all exits as you enter a building.

In case of a panic at an indoor assembly, Scouts if they live up to their motto, "Be Prepared," may be able to save hundreds of lives.

Distribute the crowd. Use all exits leading to safety.

There is usually time for people to get out of a building if the exits are not blocked by too many crowding them at once. One should, if possible, try to arrange to have the performance continue whilst others reassure the people and get them to go out quietly through the exits provided, which, according to law, must open outward and be marked by illuminated signs.

Keep the crowd moving after passing through an exit.

Scouts know how quickly and safely our school buildings are cleared by means of well-organized fire drills.

Keep cool.

FIRES AND THEIR PREVENTION

It is stated on the authority of the Chairman of the Canadian Conservation Commission that the Dominion of Canada has an abnormally large fire loss in proportion to its population.

In addition every year many persons are burned to death and others suffer serious injury.

The destruction of standing timber alone in Canada by fire in the last fifty years has amounted to \$350,000,000. The annual property loss through all kinds of fires between 1922 and 1925 averaged \$49,526,267, or \$5.58 per head of the population, and if the cost of fire protection be added thereto the economic waste is much greater again.

Yet it is said that ninety per cent. of all fires are due to carelessness.

Scouts therefore should do all in their power to prevent fires.

What To Do in Case of Fire

The first thing to do in case of fire is to notify the inhabitants of the house. Use any and every means to accomplish this; also warn the people next door; then either go yourself or send someone to the nearest alarm box and turn in an alarm.

After the arrival of the brigade there is little to be done, as firemen who are trained to do the work will probably be there in sufficient numbers to do all that is required. In places where there are no fire alarms, or where it takes a brigade a long time to reach the fire, much can be done by a properly organized patrol of Scouts. A Scout should, when he gets the opportunity, attend as many fires as possible, day or night, for experience.

Familiarize yourself with the operation and location of the nearest fire alarm box to your home, and whenever a fire occurs notify the fire department by sending in an alarm at once. Realize that the fire department is ready at all times, day and night, and remember that the most efficient service is rendered if the department is promptly notified.

Don't fail to notify the nearest fire station, or any fireman, of anything you see that is dangerous or liable to cause a fire.

Speak distinctly when calling the fire department by phone. As soon as you enter a theatre, hall or public building look for the exits and make up your mind which way you will take to the nearest exit if anything unusual should happen, and get up quietly and walk, not run, to that exit. Don't try to beat your neighbour to the street.

Own a fire extinguisher if you can, and have it situated where it will always be handy to get at. Keep on the sidewalk when apparatus is responding to a fire.

Always give the right of way to the fire department when it is responding to an alarm.

Ask any fireman for instructions or information and he will be only too pleased to advise.

How Scouts May Help

Scouts can do good work, if in numbers, to prevent the spread of flames. A fire, after it has gained sufficient headway, will carry sparks and burning embers a long way and endanger the surrounding property. The very best assistance Scouts can give under these circumstances is to organize and get around in yards and among sheds and watch the surrounding property, putting out sparks and burning embers which are liable to rekindle and start another fire. Work in the direction the wind is carrying the sparks. In case of a very large fire it may be necessary to even go a mile or two. If there are a number of Scouts together let the Senior Scout inform the fire chief as soon as possible of the work he and his fellow workers are doing. Short ladders may be used from the fire trucks but must be returned as soon as possible.

Scouts must not under any consideration attempt to jump on fire apparatus either going to or returning from a fire. Avoid getting in the way of the firemen while at work. Don't stand or sit on any fire apparatus in order to get a better view of the fire or climb poles. Don't get in the way of the police but rather assist them in keeping the crowd back and preventing people from driving vehicles over lines of hose.

How to Enter a Burning Building

Care must be taken entering a burning building. If it is necessary to go into a hose to search for feeble or insensible people when the smoke is dense, take time to place a wet handkerchief, towel or stocking over your nose and mouth, fastened in such a way as to leave your hands free. A wet sponge is excellent as you will then get a little air from the water. Remember the air within six inches of the floor is free from smoke so if you find it difficult to breathe in an upright position, bend low or crawl along the floor. Also for passing through fire and sparks if you can get hold of a blanket wet it and cut a hole in the middle through which to put your head. This forms a kind of fire-proof mantle with which you can push through flames and sparks.

How to Improvise Ropes

Tear blankets or sheets along the warp in strips about twelve inches wide and tie the ends together with a reef knot. To lower a person from a window to the ground use the bowline knot.

Chutes and Fire Escapes

Chutes are sometimes provided for the rapid exit of people from the upper floors of buildings in case of fire. These may be of a stationary form in connection with schools, convents, colleges and public buildings. Canvas chutes through which people may slide to safety are detachable and portable, being made of canvas in the form of a tube, one end to be connected to the window sill. To prevent jamming at the bottom, never use a chute that is too long for the descent and in descending use the elbows as a brake to prevent too rapid a drop. Take off boots, if time permits, in order that the canvas of the chute may not be ripped.

Ropes may also be used as fire escapes, after first being secured to heavy pieces of furniture, pipes or hooked to the sill. Special care should, however, be taken in the use of rope fire escapes in order to avoid accident. The legs need to be twisted around the rope to prevent slipping and it is better to have a corner of your coat or some other clothing in either hand to avoid skinning or burning your hands on the rope.

Jumping Sheets

Jumping sheets are carried by all efficient fire brigades but in smaller centres and in the country places occasions may arise where a proper jumping sheet is not available and rescues must be effected. Two or three blankets held taut by a number of people will be sufficient to break the fall, at least, of anyone jumping from the windows of burning buildings. Hay, straw or some other soft material should be placed on the ground immediately under the net.

Fire Extinguishers

Fire extinguishers are found in many public buildings, factories and schools and it is a Scout's duty to become familiar with the manner of working then in case of fire. The most commonly used fire extinguisher is one containing water, bicarbonate of soda and acid. This is used by turning upside down, causing the acid and alkaline liquid to mix and flow at high pressure. Care should be taken in storing this kind of extinguisher for use. It should not be placed near a radiator or stove or the heat causes the water to evaporate. It should be inspected at intervals and re-charged every six months.

Bucket Brigades

Where there is no fire brigade it then becomes necessary to form a bucket brigade. This should be made up of two lines of people, one line for passing buckets of water from a well, river, stream, creek, etc, to the fire and the other for returning empty buckets for more water.

Rescuing Animals

Animals, as a rule, particularly horses, get so overcome with terror in a burning building that they will do nothing to save themselves. If a horse is struggling to get loose it is best to watch your chance and rush past him in his stall to his head. There you have a fairly good chance to handle him. Untie or cut his halter strap close to the manger, then back him out. Throwing your coat or a horse blanket over his head so as to blindfold him, may make it easier to get him out.

How to Extinguish Oil, Tar or Gasoline Fire

Don't use water because instead of putting it out it will spread it. Use sand, earth, ashes or anything to smother it out.

Clothing of Fire

If your own clothing should catch fire do not run for help, as this will fan the flames, but call for assistance to anyone within reach of your voice. Lie down at once and crawl to the nearest rug, blanket or other covering in which to wrap yourself and smother the flames. If no covering is at hand roll over slowly on the ground and beat the fire out with your hands.

If you find a person with his clothes on fire you should throw him flat on the floor, because flames only burn upwards, and then cover him up in a rug, blanket or coat, taking care in doing so that you don't catch fire yourself. Remember that woollen material is much less inflammable than cotton and that flannelette, in particular, is highly inflammable.

Rescue of Insensible Persons

If, in a smoke-filled room, you find an insensible person (sometimes in their fright, they will have crawled beneath a bed or table), lose no time, but seize them in any manner, by limbs or clothing, and drag them out. Delay in order to carry them may mean precious minutes lost, with possibly fatal results.

A Burning Automobile

Ignited gasoline causes the great majority of automobile fires. In such cases water is useless, or may further spread the burning oil. The object should be to choke the fire out. For this, sand or earth is most effective, or in the winter snow, if it can be flung in smothering quantities. When the ground is frozen and bare, flour may be resorted to, if procurable. If the location and proportions of the fire permit, it may possibly be smothered with a blanket, or even with a coat. When the framework or contents of a car alone are concerned, water of course may be used. Some of the more expensive cars and most large commercial trucks carry small chemical extinguishers. On the road it might be possible to secure one of these from a passing car or truck. Keep this in mind.

The Fireman's Lift

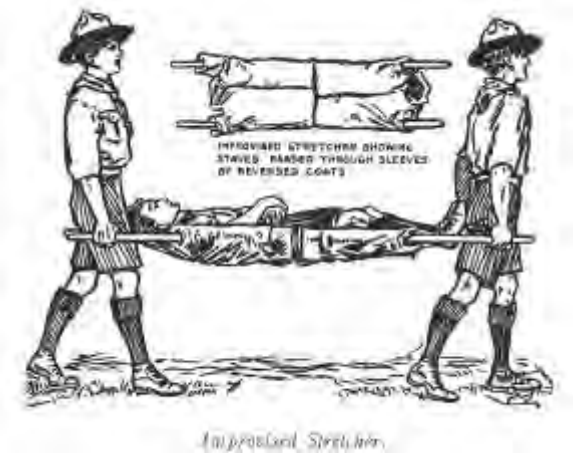


Also practise the "fireman's lift" for getting an insensible person on your shoulders. To do so turn the patient on his face, raising him into kneeling posture. Kneel and place yourself across and under him, so that his stomach rests on your right shoulder. Pass your right arm between his legs, and behind his right thigh. With your left arm draw his right hand forward under your left, and grasp the wrist with your right hand, then raise yourself to an erect position. This is called the "fireman's lift."



Improvised Stretchers

With two helpers to carry the patient stretchers may be arranged in the following ways:



- (a) A shutter, door or gate, covered well in straw, hay, clothing or packing.
- (b) A piece of carpet, blanket, sacking, tarpaulin, spread out, and two stout poles rolled up in the sides; use clothes for a pillow.
- (c) Two coats, with the sleeves inside out; pass two poles through the sleeves and button the coats over them.
- (d) Two poles passed through a couple of sacks, through holes at the bottom corners of each.

In carrying a patient on a stretcher be careful that he is made quite comfortable before you start. Let both bearers rise together; they should walk out of step, and take short paces. It should be the duty of the rear bearer to keep a careful watch on the patient. If the poles are short four bearers will be necessary, one at each corner of the stretcher.

Another method of carrying a patient by two bearers, known as the chair carry, is shown in the illustration.



WATER ACCIDENTS

Drowning is said to be the commonest single cause of accidental death. It is, therefore, most important that every Scout should become a good swimmer and also learn how to save others from drowning.

Canoes and light boats are not intended for heavy seas. Be careful not to change seats except in a wide and steady boat. Above all, do not make an idiot of yourself by rocking the boat.

Life-Lines

In many cases, where someone has fallen into the water, a life preserver or line may be used to advantage without endangering others' lives and it is a wise precaution to have a life preserver and rope available for instant use in emergencies in camps and other localities where water accidents are liable to happen. If there is no life line at hand and you are yourself unable to swim you may at least be able to throw something to the drowning person to support himself on until further aid is procured.

Life lines should be properly cared for, as often valuable time is lost through a line being badly coiled, or too tightly tied. A life preserver is attached to one end of a prepared life line.

The line should be coiled, with one coil on top of the other and in case of use capsized; that is to say, the whole coil is turned over with the running part underneath. When throwing the line, the rope should be thrown over the person to be rescued, and if any hard object is attached to the end care must be exercised that the person in the water is not hit. If the shore end of the line is not fastened to a post or other object, it is better to tie it around your waist or body to guard against the possibility of its slipping away from you. If there is a current at the point where the rescue is being attempted, throw the line above the person, allowing it to float down to him.

If there are floating logs in the water where an accident occurs good use can often be made of these in helping oneself or another person to shore. Round logs have a tendency to roll in the water if they are grasped only from one side, so a good plan is for the rescuer to keep on the other side of the log from the person whom he is helping, and if possible, to clasp the latter's hand over the top of the log.

One often hears it said that a drowning person must rise to the surface three times before finally sinking to the bottom. This is incorrect. It depends on circumstances whether the victim come to the surface at all after once going down. Ordinarily a drowning person struggles until insensibility occurs, when the body sinks on account of the loss of air and the filling of the stomach with water. It attempting a rescue, therefore, it is most important to act promptly or the victim may sink before you can reach him.

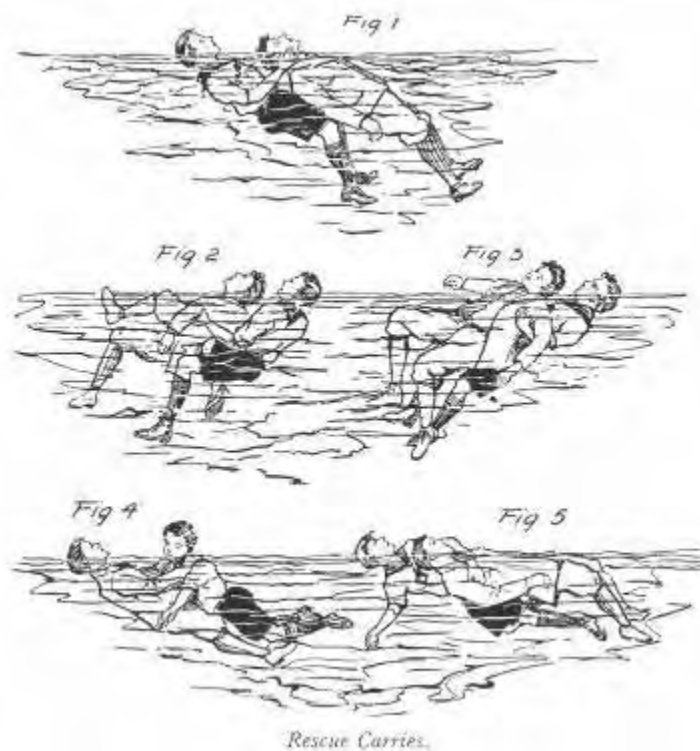
Training for Life Saving

A moderate swimmer can save a drowning man if he knows how and training will enable a small boy to rescue a grown-up person. Understand, though, that this cannot be done without practice. The secret of life-saving is to make the water carry the weight as far as possible. A very slight effort in the water will suffice to keep either yourself or another afloat and the body of an unconscious person can often be brought up from the bottom in reasonable depths with comparatively little effort and consciousness restored through well directed efforts on shore. In salt water the human body is more buoyant than it is in fresh water.

THE FIRST STEP. — As a first step in learning life-saving the Scout should acquire a special back-swimming leg stroke, with the legs kept well beneath the surface, to avoid kicking the person being saved. In practising this stroke the arms should be folded across the chest, and the legs from the knees down kept

in continuous motion, with short, sharp, semi-circular kicks, that never bring the legs actually together. When you have mastered this way of swimming, practise with the arms outstretched before you, trailing on the surface, and with the head well raised. Then try supporting someone.

To do this, place a hand on either side of the subject's head, the hollow of the hand over the ear, the fingers extended along the point of the jaw. (See Fig. 1.)



Remember that to tow a person is not enough. You must keep his nose and mouth above the surface. Your subject will cease to struggle if he finds himself progressing shoreward, and his nose and mouth above water.

Another way to support a person when swimming on your back is to grasp him under the biceps, as in Fig. 2, page 258, the fingers gripping the upper arm muscles, palms up, thumbs out; or under the armpits, as in Fig. 3, page 258. Fig. 5, page 258, shows an excellent one-arm hold, in which the rescuer passes an arm over the victim's left shoulder, across the chest, and grips him beneath the right arm.

By any of these methods the drowning person is held in such a position that he cannot reach you; and should he struggle unduly, it is easy to get clear of him until he takes in enough water to render him more easily handled.

HELPING ANOTHER SWIMMER. — Where another swimmer has become exhausted or is attacked by cramps, but remains cool, he may be helped as in Fig. 4, page 258. Direct him to lie on his back. Face him, and have him place his hands lightly against your shoulders, close to the neck. Then simply swim shoreward, using the breast stroke. This is the easiest method of rescue, where the coolness of the subject makes it possible.

WHEN CLUTCHED. — If care is used in approaching a frightened or drowning person in the water there is little danger of being clutched. The Scout's life saving practice, however, should include the breaking of "death grips."

It should be borne in mind that a drowning man grasps what he can see above the surface of the water.



Breaking a Front Neck Hold.

IF CLUTCHED AROUND THE NECK FROM IN FRONT. — Take a deep breath, lean well over the drowning person, place your left hand in the small of his back, and with the right hand over his chin, drive his head back with all possible force.

IF CLUTCHED BY THE WRISTS. — Throw both hands above your head, then bring them sharply down, outward and up, against the other's thumbs.

IF CLUTCHED ABOUT THE BODY. — Lean well over, place the left hand in the small of the drowning person's back, at the same time lifting your right knee and placing it as high as possible against the drowning person's stomach. With a strong and sudden push drive the arm and leg straight out, and throw the weight of your body backwards.



Fig. 1
Fig. 2
Fig. 3
Breaking a Back Strangle Hold.

THE BACK STRANGLE HOLD. — This is the most difficult one to deal with, and must be broken with an instant's delay, or you may yourself need help. Grasp the holder's wrists, arch your back against his body, and throw your head sharply backward against his nose (See Fig. 1, above). As the drowning man releases his grip, slip out under his arm (Fig. 2, above). Retain your grasp on his arm until you can secure a safe carrying hold (Fig. 3, above).

To break a front neck hold, place the flat of the right hand over the holder's nose and chin. With left hand under his right elbow, lift, and at the same time press the right hand against the right side of his face. This will throw him into a carry position. Begin to swim at once, keeping the victim's head well up.

SAVE YOUR STRENGTH. — In all cases the Scout rescuer should save his strength. Where there is a current, or tide, you should not struggle needlessly against it with your burden, but swim with it, and gradually make shoreward; or wait until a boat, or other aid, reaches you.

DIVING RESCUE. — When a drowning person has disappeared in quiet water, the locality of the body will be shown by rising bubbles. If there is a tide or current, you must dive at the spot where the person went down, and look along the bottom, swimming with the current.

USE DISCRETION. — You should never plunge into the water to make a swimming rescue if the rescue can be effected in a safer way. When a person has fallen from a bridge or a dock, a line or buoy often can be utilized without placing other lives in danger. At other times a boat or canoe can be used to advantage. The help of logs or planks also should not be overlooked. Where possible, you should practice throwing a life buoy. After such practice you must always leave the line properly coiled and the buoy in position for instant use.

Reviving the Apparently Drowned

If possible send immediately for medical assistance, blankets, and dry clothing. As soon as the victim is clear of the water, quickly feel with your fingers in his mouth and throat, and remove any foreign body, such as tobacco, false teeth, etc. If the mouth is tight shut, pay no more attention to it until later.

Instantly proceed to the restoration of breathing.

Place the patient face downwards, with the arms extended. (Do not take time to loosen or remove the clothing.) Bend one arm at the elbow, turn the face to one side, and rest it on the hand of the bent arm, as on a pillow. This will keep the mouth out of the mud, dust or dirt. In case of drowning, if possible have the victim's head slightly inclined, so that the water forced out will run away from the body. (Fig. 1, p. 260.)

Schafer's Method of Resuscitation



FIG. 1.



FIG. 2.

Kneel, straddling one or both legs of the patient, your knees a few inches below the hip bones. Place your hands on the small of the back, one on either side, thumbs parallel (Fig. 1).

Swing forward slowly, arms straight, so that the weight of your body is gradually but not violently brought to bear upon the patient. The movement should occupy the time necessary to say slowly, "Out water!"

Swing backwards, relaxing the pressure, but without lifting the hands, saying slowly, "In air."

Repeat deliberately, without any marked pause between the movements, making a complete respiration in four or five seconds. The movements may be timed with your own breathing.

Now, while continuing the breathing movement, have someone loosen any tight

clothing about the patient's neck, chest or waist. If procurable, have dry, warm covering placed over the patient, and apply hot water bottles, or hot bricks, or stones wrapped in flannels, between the thighs and to the armpits and feet. The movements of artificial breathing must not be interfered with, however.

Artificial respiration must be carried on uninterruptedly until the victim breathes, or rigor mortis (stiffening of the body) sets in. This may mean four hours, or longer.

Do not move the patient until he is breathing normally. If it is absolutely necessary to move him, have him placed on some hard surface, such as a door, or the floor of the conveyance used, artificial respiration not being for an instant interrupted.

When natural breathing has fully resumed the patient should be allowed to lie in a natural position, on his right side, and treatment begun for the promotion of warmth and circulation.

TREATMENT AFTER NATURAL BREATHING HAS RETURNED. — While disturbing the patient as little as possible, remove the wet clothing, wrap him in warm blankets or other covering, dry the hands and feet, and proceed to promote circulation and warmth by rubbing the limbs upward (that is, toward the heart). Do this with a firm, grasping pressure, under, or outside the covering. The object is to drive the chilled blood along the veins toward the heart.

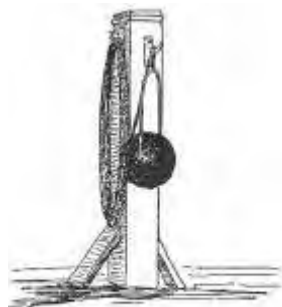
When the patient can swallow, administer small quantities of hot coffee, tea, milk, or broth, or other light warm nourishment. Keep the patient in bed, and encourage him to sleep.

APPEARANCES WHICH MAY ACCOMPANY DEATH. — Breathing and the heart's action cease entirely. The eyelids generally are half closed, and the pupils dilated. The jaws are relaxed (not clinched), and the hands partly open. The lips and nostrils are covered with a frothy mucus. Coldness and pallour of the skin increase.

GENERAL CAUTIONS. — Prevent unnecessary crowding of persons around the body. Avoid rough usage. Under no circumstances hold the body up by the feet. Do not place the body in a warm bath unless under medical direction, and even then it should only be employed as a momentary excitant. Spirits are on no account to be given without direct medical orders as alcohol may lead to fatal results.

ICE ACCIDENTS

If the case be one of a mid-winter accident, in which someone has broken through the ice, it is important to remember that ice which gives way under one person's weight is not likely to support another's. If you should yourself break through you are apt to find that the surrounding ice will likely sink under you as you attempt to climb out. When rescuers are close at hand it is safer to support yourself on the edge of the ice and wait for them to assist you.



*Life line
for ice accidents.*

The Royal Canadian Humane Association recommends an appliance in the form of a line with a large wooden ball attached (shown in the accompanying illustration), which is thrown along the ice to any person who has broken through.

A rope alone will, however, often serve the purpose required. Anyone attempting to reach a person who has broken through the ice should have a rope around his body in order to ensure his own safety and the other end tied or held on the shore. If he can, let him lay hold of a long board or limb of a tree to

support his weight and in any case, lie down flat upon his face and crawl out, whether on the board or otherwise, as by doing so there is less weight bearing on the ice at any one point than in walking.

RUNAWAY HORSES

Accidents are of frequent occurrence from runaway horses knocking down or running over people. It is well, therefore, that Scouts should know how to stop a runaway and thus save numerous cases of injury. Several awards have already been made to Canadian Scouts for gallantry in bringing runaway horses to a stop.

The most effective way of checking a runaway is to run alongside, catch hold of the shaft to keep yourself from falling, and seize the reins with the other hand and drag the horse's head round towards you, so turning him until you can either bring him up against a wall or fence, or otherwise compel him to stop. As a rule it is of little use rushing out into the road and swinging your arms if the case is one of a dangerous runaway. Sometimes, indeed, this only makes matters worse. If the case is one of a runaway team it is necessary to get into the vehicle and grasp the reins. But, of course, either of these methods of checking runaway horses is not without risk to the rescuer and should not be attempted by inexperienced small boys.

FIRST AID DIRECTIONS FOR VARIOUS EMERGENCIES

It is not the purpose of the Scout training to make boys into amateur doctors, but rather to teach them what to do for themselves and others in connection with the simple accidents and ailments which are so commonly encountered, and how to administer, if necessary, first aid in connection with more serious occurrences whilst waiting for the doctor to arrive. Young Scouts should be first taught what to do in everyday simple accidents, such as small burns, cuts, bruises, grit in the eye, fainting, choking, stings, blisters, sunstroke, etc., before taking up the more advanced features of first aid training.

The very first thing to be done in any serious accident is to telephone or send a messenger for a doctor, stating the nature of the case. Don't wait, however, until he arrives to do anything you can for the injured person. If the patient is unconscious, lay him on his back so that he does not choke, and with his head a little on one side so that any vomit or water, etc., can run out of his mouth. If the patient's face is flushed raise the head slightly on a pillow. A folded coat will do for the purpose. If the face is pale it is better to keep the patient on his back with his head low. A restful position assists recovery. Loosen the clothing about the neck and chest. See where the patient is injured, and treat him according to the directions contained in this chapter.

If you have found a person lying insensible you should carefully examine the ground round about for any "sign" and take note of it and the position of the body, etc., in case it should afterwards appear that he had been attacked by others.

If you are out with a patrol and an accident happens, or you find an injured man, the Patrol Leader should direct one Scout to go for a doctor whilst he himself attends to the patient with another Scout to help him. The Second will, if necessary use the other Scouts in assisting by getting water or blankets or making a stretcher; or, if it be in the street, by keeping the crowd back so that the sufferer may have plenty of fresh air. If breathing ceases, prompt measures should be taken to restore it.

As a rule it is best to keep the patient quite quiet at first. Unless it is necessary, do not move him or bother him with too many questions. If the nature of the accident or injury is not quite clear, take time to find out, if you can, exactly what is the matter in order that your first aid measures and the doctor's subsequent treatment may be intelligent.

Whenever the case is one of poisoning or of severe bleeding, common sense will itself suggest the need of prompt action.

The cause of the injury should at once be removed, whenever this is possible.

Poisons swallowed should be got rid of, or, if this is inexpedient, neutralized. (See treatment of poisoning, page 274.)

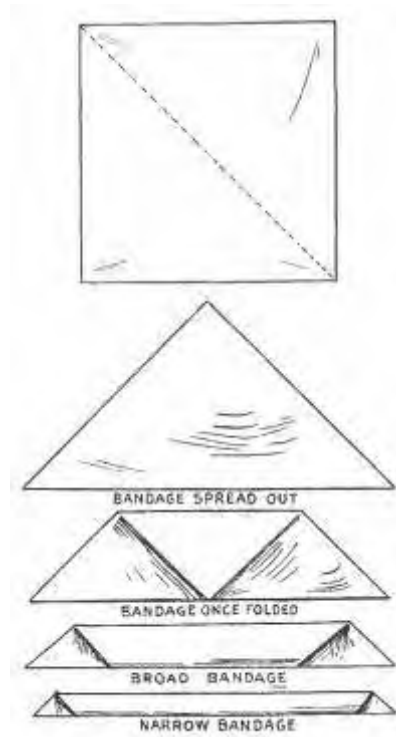
Severe bleeding should receive the first attention, no matter what the other injuries may be.

Clothes should not be taken off unnecessarily as it is important to keep a patient warm after the occurrence of an accident.

It is safer to defer the administration of an alcoholic stimulant until the arrival of a doctor. If the patient is able to swallow, strong tea or coffee, or milk, as hot as can be drunk, may be safely given or a little sal volatile (aromatic spirits of ammonia) in water. Smelling salts may also be held to the nose. Sprinkling the face with cold and hot water alternately, warmth applied to the pit of the stomach and over the heart, and vigorous rubbing of the limbs upwards have a stimulating effect. Do not attempt to give an unconscious person anything to drink.

The following note, alphabetically arranged, cover briefly the requirements for the Second and First Class Scout First Aid work.

Bandaging



Triangular bandages, of the forms shown in the accompanying illustrations, are the ones generally used for first aid purposes on a wound, burn or scald on any part of the body, or for an injury of a joint. If other materials are not available the Scout neckerchief, folded diagonally, will serve, but care must be taken to see that the neckerchief does not come in contact with a wound as the dye might cause blood poisoning. In emergencies, bandages may also be made from handkerchiefs, belts, straps, braces, neckties, or from any piece of linen, cotton, string or cord that comes to hand. Where the bandage is being applied directly to a wound it is most important that whatever material is used should be perfectly clean. Reef knots, in the form shown in the accompanying illustration are always used when fastening bandages. Avoid granny knots.

The triangular bandage is made by cutting a piece of cotton or linen, forty inches square, into two pieces crosswise. This will form two bandages.

It is used open, or as a broad bandage or narrow bandage. To make a broad one spread out the bandage, bring the point over to the base, then double it over again. By again doubling over a narrow bandage is formed. The bandage should be carried folded narrow.

Bites

MAD DOGS. — Scouts should know how to tell mad dogs by their behaviour and what to do when there is one about. Dogs, like other creatures, sometimes take convulsions and fits. These are, however, very different things from the contagious and incurable disease known as rabies or madness. Dogs affected with rabies become surly and inclined to wander. Their accustomed bark changes into a half howl. Instead of eating their usual food they will eat filth or gnaw at wood work. The common belief that they are afraid of water is apparently without foundation, as is also the belief that they are always frothing at the mouth. We are informed, on reliable authority, that this dread disease never arises spontaneously, or from thirst, lack of proper food or cruelty. Nor is its occurrence limited to any particular season of the year, being as common in the winter as in the so-called “dog days” of midsummer.

The only thing to do with mad dogs is to destroy them as soon as the disease is discovered. They have a perfect mania for biting and, although some dogs and persons suffer no evil from being bitten, the bite is liable to produce a violent and horrible death, either in man or beast.

TREATMENT. — Fortunately there is a specific treatment known as the Pasteur treatment by which the evil effects of the bite of a mad dog may be prevented. In all cases of bites pressure should at once be applied to the part affected, between the wound and the heart, so as to prevent the poison being carried through the system. That is to say, if a finger, for instance, have been bitten it should be encircled between the thumb and first finger of the other hand on the side of the wound nearest to the heart and held until a ligature (a string, tape or piece of handkerchief) is tied tightly around the root of the finger. If the wound is in the face or chest, where no ligature can be applied, it may be sucked. Encourage bleeding from the wound for a time by keeping the injured part low and bathe in warm water. If it is impossible to obtain the services of a doctor the wound should be burned with a fluid caustic or with a red hot wire or fusee. The ligature may be removed when the caustic has been applied.

SNAKE BITES. — Happily the snakes found in different parts of Canada are with one exception, the rattle-snake, which is found only in certain parts, quite harmless. What has been said regarding first aid treatment for rabid animals applies also to the case of bites from venomous snakes. The important thing is to keep the poison from being absorbed into the system. Most bites are received in the legs or arms where ligatures can easily be applied to check the circulation. The bites may be squeezed to extract the poison, or sucked if there are no cuts in the mouth.

Bleeding

Some people turn sick at the sight of blood. Scouts, however, must learn to keep their wits about them in order that they may act promptly and with good judgement.

There are three kinds of external bleeding or hemorrhage, viz.: arterial bleeding (from an artery), venous bleeding (from a vein), and capillary bleeding (from the capillaries). Arteries are vessels which convey blood from the heart. Veins carry blood back to the heart. The capillaries are smaller vessels connecting the arteries and veins.

In most cuts the bleeding is from a capillary and is easily controlled by the pressure of a bandage. The blood may flow briskly from a capillary in a continuous stream or merely ooze from the wound. It is red in colour.

Any foreign bodies seen in the wound such as broken glass, bits of clothing, hair, etc., should be removed. Do not, however, search for foreign bodies you cannot see.

Bleeding from an artery or vein is more dangerous than capillary bleeding and more difficult to check.

BLEEDING FROM A VEIN. — If the bleeding proceeds from a wounded vein the blood is of a dark red colour and flows in a slow, continuous stream from the side of the wound further from the heart. For bleeding from a vein the part should be elevated as thereby less blood finds its way into it. Any tight fitting article of clothing such as a collar or garter on the heart side of the wound should be removed. Pressure should then be applied to the wound with the thumb and fingers until you can apply a pad and tight bandage. If this does not stop the flow of blood, pressure should be applied near the wound, on the side away from the heart.

ARTERIAL BLEEDING. — If it is an artery that has been cut the blood is bright scarlet in colour and if the wounded artery is near the skin the blood spurts out in jets corresponding to the pulsation of the heart.

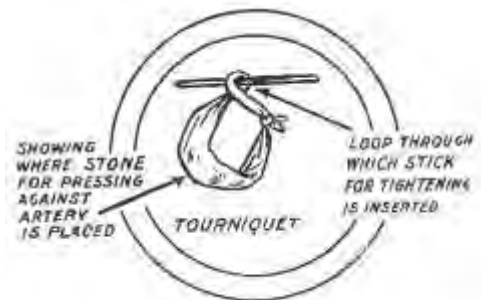
The Scout training for the Second Class badge comprises instruction in the checking of severe bleeding and how to dress a wound.

Pressure is employed in the case of all external wounds to stop loss of blood. Sometimes the only pressure required is that of a bandage or of a bandage and pad underneath.

If at all possible one's fingers should be kept out of the wound on account of the risk of infection.

In arterial bleeding it is often necessary to apply pressure on the side of the wound nearer the heart over a pressure point. The clothing should be loosened. It will also help matters to raise the part affected as high as possible above the level of the heart. You can often feel an artery beat under your fingers and the bleeding below will stop when the pressure is properly applied.

THE TOURNIQUET. — If the bleeding cannot be stopped by firm pressure with the thumb and finger a tourniquet, (which is a pad and bandage applied over a pressure point) must be applied, above the wound over a pressure point, in a case of arterial bleeding, or by circular compression with a firmly applied bandage on the side of the wound farther from the heart if the flow comes from a vein.



Always raise a bleeding limb.

A tourniquet can be applied to the arm or leg. In order to stop arterial bleeding from wounds elsewhere in the body one must apply direct pressure of the thumb and fingers or of a pad on the injured artery, if it what can be reached.



If you are not alone on the job another fellow can prepare the tourniquet by tying a handkerchief loosely around the patient's arm or leg at the point shown in the accompanying illustration. A pad or smooth pebble should be placed on the artery. When this is done a stick is slipped under the handkerchief and twisted until the bandage tightens sufficiently to stop the flow of blood through the artery. The stick must be secured to the limb to keep it from untwisting. The pad of the tourniquet should be accurately placed on the pressure point so as to completely compress the artery;

otherwise arterial blood will be allowed to pass along the limb and the veins being compressed will not allow the return of the blood to the heart with the result that dangerous swelling and congestion may occur.

WARNING. — A tourniquet should not be allowed to remain on tight longer than twenty minutes. If the doctor has not arrived by that time it should be loosened, but left on in such a way that it can be re-tightened if the bleeding starts again.

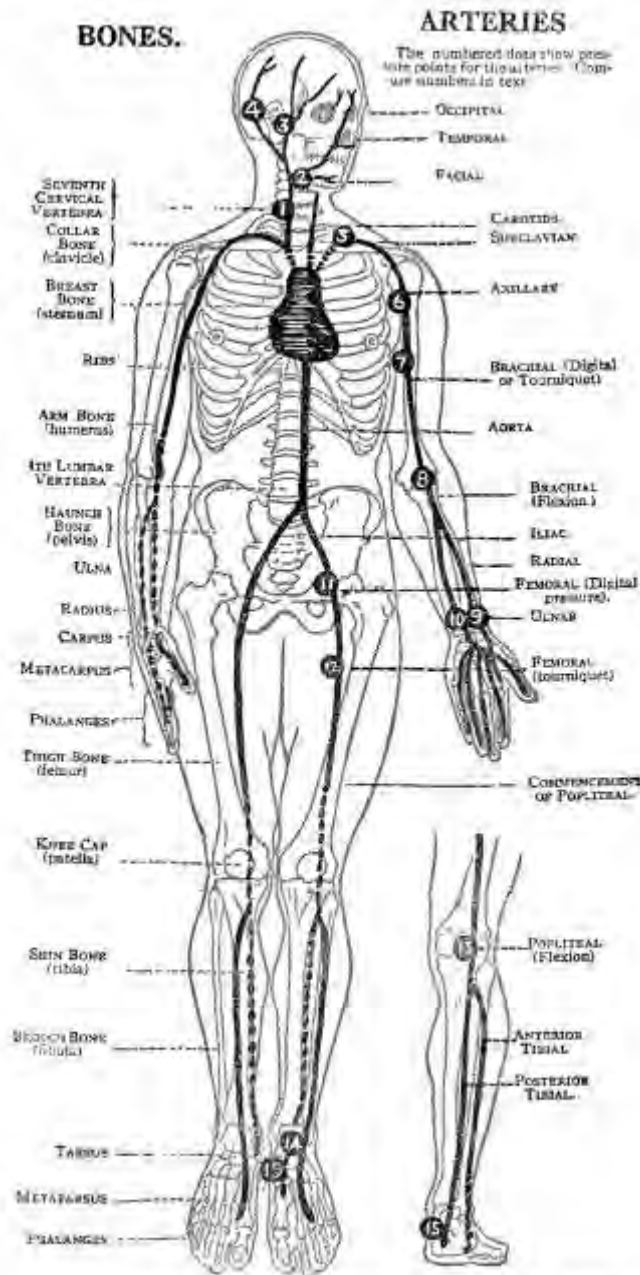


Chart illustrating bones, arteries and pressure points.

Scouts need to know the course of the larger arteries in order to know where to press on them. The illustration appearing on page 266 shows the various arteries of the human body and the points known as pressure points at which pressure may be effectively applied. In the leg the artery descends about in line with the inseam of the trousers from a point midway between the hip and the crotch. The point in the leg at which to apply a tourniquet or other pressure is situated about three inches below the crotch, as shown in the illustration on page 266. The course of the large artery in the arm is down the inside of the large muscle of the upper arm, about in line with the seam of the coat sleeve. The point in the arm at which to apply a tourniquet is marked "seven" in the illustration appearing on page 266.

INTERNAL BLEEDING. — Wounds of the blood vessels within the body cause bleeding into the cavity of the chest or of the abdomen.

An internal hemorrhage is easily recognized by rapid loss of strength, giddiness and faintness (especially when the patient is in an upright position); by hurried and laboured breathing; by the face and lips becoming very pale, and by the gradual failure of the pulse until the patient becomes unconscious.

In the treatment of internal hemorrhage keep the patient lying down and undo all tight clothing around the neck. See that there is a free circulation of air, if necessary by fanning the patient; sprinkle cold water on the face; hold smelling salts to the nostrils,

and avoid stimulants until the hemorrhage has been controlled. Give ice to suck or cold water to drink, and, if the seat of the hemorrhage is known, apply an ice bag over the region. Inspire confidence in the patient. Do not show alarm.

Hemorrhages of the lungs and stomach are treated as internal hemorrhages. In stomach hemorrhage nothing is to be given, however, by the mouth.

Always send for a doctor, remembering that first aid is only an emergency helping of matters.

NOSE BLEEDING. — For bleeding from the nose place the patient in a sitting position before an open window, with the head thrown slightly back and the hands raised above the head. Undo all tight clothing around the neck and chest and apply cold applications of ice, a cold sponge, or bunch of keys over the nose and back of the neck. If necessary, place the feet in hot water. Cause the patient to keep his mouth open and so avoid breathing through the nose.

Bruises

A bruise is caused by a blow anywhere on the surface of the body, which may cause bleeding beneath the skin, without breaking it — a “black eye” is an instance. The injury caused by a bruise is accompanied by discolouration and swelling.

TREATMENT. — Apply ice or cold water dressings. A piece of lint soaked in extract of witch hazel may be placed on the affected part.

Burns and Scalds

Burns may be caused by fire or touching a hot iron, by touching a “live” electric wire, by friction through contact, for example, with a revolving wheel, or by touching certain chemicals. Scalds are caused by moist heat, such as boiling water, hot oil or tar. The effect may be slight reddening or blistering of the skin, or the affected parts may be burned and blackened. The great danger in connection both with burns and scalds is often that of shock (see page 275).

TREATMENT. — If there is anything over the injured part it should be carefully removed. If stuck to the skin it should be cut around with scissors, soaked with sweet oil and left to come away later. Blisters should not be broken. The injured part should not be left exposed to the air, but should be covered up at once by a linen or cotton dressing soaked in or smeared with sweet oil, Vaseline, lanolin or cold cream. A small quantity of boracic powder sprinkled on the dressing will also be found helpful. The inside of a raw potato scraped out and spread on the dressing has a soothing effect and may be used in emergency. If it is possible the injured part should be bathed in water of blood heat until the dressings have been prepared. A dessertspoonful of baking soda in the water adds to the soothing effect.

Burns on the face are treated by applying a cotton or linen mask in which holes are cut for the eyes, nose and mouth.

If the burn is caused by a corrosive acid the injured part should be bathed with a weak alkaline solution, such as can be made by dissolving washing soda, baking soda or slaked lime in water.

If the burn is caused by a corrosive alkali, such as lime, it is helpful to bathe the injured part with a weak acid solution, such as vinegar or lemon juice, diluted with an equal quantity of water. If the skin is broken over a large surface do not cover it with one large dressing but cut up the dressing into strips about

the width of one's hand. When the oily dressing has been applied it should be bandaged firmly but not too tightly to keep it in place.

Choking

Choking is something which requires quick treatment, if the case be one of a serious nature. Usually the sufferer tries to dislodge the obstruction from the throat by coughing or trying to reach it with a finger. If the obstruction is large enough to block the windpipe and is not removed the patient becomes black in the face and quickly loses consciousness.

TREATMENT. — Loosen the collar, try to pull out the object with forefinger, handle of spoon, or other object. Sometimes two or three hard blows to the back will dislodge the obstruction. For bone in the throat, eat doughy bread. If a small object has been swallowed, give castor oil; if sharp objects like pins, give crusty bread to eat. If the substance is in the windpipe, send for a doctor at once. Hold the patient upside down; this may dislodge it. If breathing ceases before the obstruction is removed artificial respiration should be applied. (See page 260.)

Concussion

Concussion of the brain follows a violent blow on the head, direct or transmitted. (See Unconsciousness, page 276). Keep the patient quiet. Do not attempt to arouse.

Convulsions

Teething and stomach trouble sometimes produce what are known as convulsions among children, which are marked by spasms of the muscles of the limbs and body, blueness of the face, insensibility and occasionally by squinting, suspended breathing or froth at the mouth.

TREATMENT. — The treatment for this ailment is to place the child in water slightly above blood heat so that the water will come up to the middle of the body. At the same time a sponge or cloth dipped in cold water should be applied to the head. Care needs to be taken to avoid scalding the child's body with too hot water in the bath.

Cramps or Stomach-Ache

This is ordinarily caused by irritation through the presence of undigested food, although it is occasionally due to a more serious cause. The undigested matter should be got rid of by vomiting or physic. Rubbing the affected part or placing a hot water bottle against it will often relieve the pain. Peppermint in hot water and ginger-tea are other common remedies. If the pain continues for some time it is better to send for a doctor.

Dislocations

In a dislocation there is a displacement of one or more of the bones at a joint such as at the shoulder, elbow, finger, knee or jaw. When a joint is dislocated there is severe swelling, pain and inability to move the joint.

TREATMENT. — Cold water should be applied to the injured joint and when this ceases to give comfort resort should be had to cloths wrung out in hot water. The dislocated joint should be supported in whatever position gives the most comfort and a doctor summoned to set it. It is not wise for anyone but a doctor to set a joint.

Earache

Hot cloths, a hot-water bottle or a bag of heated salt applied to the ear will often cure ear-ache. The fumes from a few drops of alcohol on a hot cloth held close to the ear will sometimes give relief. If the aching continues put a few drops of sweet oil, as hot as you can stand it, into the ear and plug the ear with cotton. Be careful not to have the oil too hot. Ear-ache is liable to prove serious and a doctor should be consulted in order to avoid risk of possible loss of hearing.

Object in the Ear

Don't push anything down the ear to poke the object out. This is very dangerous. To get an insect out, lay the patient on his side, the affected ear uppermost, and pour in slightly warmed water, which will bring the insect up to the top. To get out an object, such as a pea, hold the affected ear downwards and shake the head. If this does not bring it out, send for a doctor. It is dangerous to attempt to syringe the ear unless you have experience. If the sufferer is a child the hands should, if necessary, be tied to prevent the fingers being thrust into the ear passage.

Epilepsy (See Fits)

Object in the Eye

One is always tempted to rub the affected eye. To do so, however, will only make things worse. Sometimes rubbing the other eye will cause tears to wash the object out. Pull down the lower lid and if the foreign object is seen it can easily be removed with the corner of a wet handkerchief. If the trouble is lodged under the upper eyelid, the lid should be lifted forward, whilst the lower lid is at the same time pushed up beneath it and then let go. The hair of the lower lid will usually dislodge the obstruction. Repeat this attempt if necessary. If the foreign body is not dislodged it is better to summon a doctor immediately. Close the eyelid and apply an unfolded handkerchief very gently thereto until the doctor arrives. It will have a soothing effect to drop one or two drops of any vegetable oil, e.g., castor oil, into the eye. If a doctor's help cannot be obtained the upper eyelid should be rolled back over a match or bodkin, when the foreign body may be found and removed.

Fainting

In a case of fainting the victim becomes pale and the skin clammy and cold. The pulse is feeble, the breathing shallow and the victim often falls insensible.

TREATMENT. — Lay the patient on his back with the head low, and raise the legs. Provide for a full circulation of fresh air, if necessary by fanning. Smelling salts may be held to the patient's nostrils or water may be given if he can swallow. Bathe the face and hands with cold water. When consciousness returns give tea or coffee.

Fishhook Embedded in the Skin

If a fishhook should become firmly embedded in the skin one may find it difficult to withdraw it by the way it went in. In this case the hook should be cut from the line and pressed through the flesh until it can be pulled out point first.

Fits

In an epileptic fit the victim falls unconscious to the ground, sometimes with a piercing scream. The legs and arms twitch and jerk in violent convulsions. The hands are tightly clenched. The face is contorted. Froth, sometimes blood-stained, appears at the mouth. After a few minutes of violent convulsions the patient falls asleep, or recovers consciousness, but may be for a time in a dazed condition.

TREATMENT. — Do not give stimulants, or anything to drink. Undo the collar and tie. Roll a small piece of wood or pencil in a handkerchief, and place it between the back teeth, to prevent the tongue being bitten. Do not attempt to restrain the sufferer's movements, but let him sleep. Prevent him from doing himself bodily harm by removing obstacles, such as chairs, from his vicinity.

Fractures

The first thing Scouts must learn in this connection is to distinguish between a fracture, that is a broken bone, and a sprain or strain. If the case be one of a broken arm or leg the injured member becomes limp and helpless. Pain and swelling occur at the spot where the injury has occurred, but both of these occur also in connection with any severe sprain. Sometimes the position of the arm or leg will be such as to make it quite clear what has happened, or by moving or feeling the bone it may be possible to determine whether it is really broken. A grating sensation is felt when the broken ends of the bone are rubbed against each other. Scouts should not, however, attempt to rub the ends of fractured bones together as by doing so they may do further injury. Sometimes the broken limb will show shorter than the other.



When the bone is broken with but slight injury to the surrounding parts it is known as a simple fracture. When the bone is broken through the flesh and skin or when the skin is broken without the bone protruding it is known as a compound fracture. The object of the first aid treatment of fractures is to guard against further mischief and especially to prevent a simple fracture from becoming compound. A fracture should in all cases be attended to on the spot, no matter how crowded the thoroughfare may be where the accident has happened, or how short the distance to a more convenient place. If the case is of a compound fracture accompanied by bleeding, attention should first be given to stop the bleeding and dress the wound. Clothing should only be removed when there is a wound that cannot otherwise be attended to. In all cases of fracture it is necessary to cover the patient to keep him warm and so lessen the effects of the shock of the accident.

SPLINTS. — If the doctor is not expected at once the injured limb may be drawn into a position corresponding to the sound one and held in position by splints. These may be anything stiff and straight. Split shingles make excellent splints. But the Scout's staff, limbs off a tree, or even a newspaper rolled up tightly will do. One splint should be put on either side of the limb. A splint should be long enough to go beyond the joints above and below the fracture. Something soft, such as folded bandages, cotton wool, or neckerchiefs should be placed between the limb and the splints.



Fractured Arm Bone

TREATMENT. — Carefully place two splints along the injured limb, one inside the arm, the other on the outside. Others may be added in front and behind care being taken that the end of the splint will not press into the bend of the elbow when the arm is bent.

Secure the splints in position by carrying a narrow bandage around them above the fracture and tying securely. Then carry another bandage round them below the fracture. When this is done apply a small arm sling.

Fracture of Forearm

TREATMENT. — Bend the forearm at right angles to the arm, keeping the thumb upwards and the palm of the hand towards the body. Apply broad splints on the inner and outer sides from the elbows to the finger tips. Apply narrow bandages embracing both splints immediately below and above the fracture and round the hand. Apply large arm sling.



Large Arm Sling.

Large Arm Sling

Spread out the bandage on the front of the patient's body. Carry the end over the shoulder on the sound side and bring it round behind the neck so that the end just hangs over in front of the shoulder on the injured side. Carefully place the point behind the elbow of the injured limb, then gently bend the limb across the centre of the bandage. Bring up the second end and tie it to the end that hangs in front of the patient's shoulder. The sling thus formed should support the arm so that the little finger is slightly above the level of the elbow. Then bring the point forward and pin it to the front of the bandage.

Small Arm Sling

Carry the end of a broad bandage over the shoulder on the sound side round behind the neck and let it just hang over on the injured side. Gently bend the arm and bring up the second end and tie it to the end in front of the shoulder. This sling should support the forearm at the wrist, which should lie in the centre of the bandage. The sling should carry the forearm at a little greater angle than a right angle so that the weight of the forearm is carried by the lower part of the broken arm bone.



Small Arm Sling.

Fractured Jaw



Fractured Jaw.

A fractured jaw gives considerable pain, and can be readily recognized by observing that the patient will probably be supporting his chin in his hand, by the teeth being uneven, by the speech being indistinct, and by a little blood issuing from the mouth.

TREATMENT. — Take a handkerchief and fold it like you would a muffler for the neck, making it about three inches wide. Next tie a knot about four inches from each end, the space between the knots not to be more than nine inches, or less than six inches. Open the fold between the knots and you will find that it forms a pocket. Join it to another handkerchief to give additional length to the first, and place the point of the patient's chin in the prepared pocket. Pass the

second handkerchief over the top of the head. In applying the handkerchief, see that the knot of the pocket on the injured side of the face does not come near the fracture, otherwise the hard surface will cause unnecessary pain. In the event of only one handkerchief being available, a boot-lace or two chin-straps can be attached to the handkerchief, and tied over the top of the head, and a second time across the back of the head, one acting as a check to the other. No better support for the jaw has yet been devised. It will prevent movement, and cannot possibly slip if at all reasonably applied.



Fractured Collar-Bone

Fracture of the collar bone is frequently caused by a fall on the hand or shoulder.

TREATMENT. — Place a pad about two inches thick under the armpit and gently bend the forearm up. Secure tightly the arm to the side of the body and support the arm in a sling made in the manner shown in the accompanying illustration. Great care should be taken not to move the arm about more than is absolutely necessary.

Fractured Leg

TREATMENT. — Lay the patient on his back. Steady the limb by holding the ankle and foot. Draw the foot into its natural position and do not let go until the splints have been fixed. Apply splints on the outer and inner sides of the leg, reaching from above the knee to the bottom of the foot. Fasten the splints with bandages above and below the break, around the ankles and above the knee, also apply a broad bandage around both knees. All knots are to be tied over the splint.



Fractured Leg.

Fractured Thigh

The thigh bone may be broken at its neck, anywhere in the shaft, or close to the knee. It is often difficult to distinguish from a severe bruise of the hip, but if the patient cannot, when lying on the back, raise the heel from the ground, the bone is broken. A prominent sign is the position of the foot, which, as a rule lies on its outer side.



Fracture of the Thigh.

TREATMENT. — First, gently draw down the injured limb to its normal position, the toes of both limbs pointing upwards. Having done this, on no account let go or relax your tension until you have a bystander to hold the limb firmly in that position. If no bystanders are present, then, without letting go of the

injured limb, tie the ankles firmly together by passing a bandage underneath, bringing it around, crossing over the insteps and tying off under the feet.

Second, apply a splint outside the limb; this splint must be long enough to reach from the armpit to beyond the foot. Then apply another splint on the inside of the limb, reaching from the fork to the same distance below the foot as the other.

Third, secure the splints by bandages applied as follows:

1. Around the body close up under the armpits, securing the top of the outside splint.
2. Around the loins securing the outside splint.
3. Around the injured limb above the seat of the fracture securing both splints.
4. Around the injured limb below the seat of the fracture securing both splints.
5. Around the injured limb at the centre of the leg securing both splints.
6. Around both limbs at the knee joint.
7. Now secure the bottom part of the outside splint firmly to the bandage which is tied round the ankles, if that has been applied at first. If, however, a bystander has been holding the limb, the bandage round the ankles is now applied, taking in the outside splint; when this is secured the hold can be released.

All knots must be tied on the outside splint.

Frost-bite

In frostbite the part of the body affected becomes of a greyish white or tallow colour. No sensation of cold or pain is, however, felt after the blood ceases to circulate and often it is only by the remark of a bystander or passerby that the frost-bitten person becomes aware that his own nose, or cheek, or ear has been frozen.

TREATMENT. — The victim should not be brought into a warm room until feeling and circulation have been restored in the affected part by rubbing with the hand or bathing in cold water or holding snow against it. Care needs to be taken to avoid breaking the skin by too vigorous rubbing.

Gas Suffocation

The most common gas accidents are caused by escapes of illuminating gas, very often brought about by persons going to sleep and leaving a small jet burning, which either blows out, or through fluctuation of pressure, goes out, the pressure afterwards coming on again and causing the gas to escape into the room.

Then we have sewer gas and coal gas from stoves and a very poisonous gas called Carbon Monoxide, which is generated by automobiles. Carbon Monoxide has frequently been the cause of death to owners of private garages. This gas is odourless and tasteless and most subtle in its poisoning effect. The greatest care should be taken to keep all garages well ventilated.

To rescue a person from a room filled with ordinary illuminating gas, you must move quickly and breathe as little as you can. Take a few deep breathes before entering and then hold your breath as long as possible. Crawl along the floor and place a wet handkerchief over your nose and mouth before entering the room.

TREATMENT. — To revive a gas poisoned patient, apply artificial respiration as for drowning.

Hemorrhage (See Bleeding)

Hiccough

Hiccough is caused by indigestion and can usually be controlled by holding the breath or drinking a glass of water in small sips without taking a breath. If these experiments fail vomiting is an almost certain cure.

Poisoning

TREATMENT. — Poisons are grouped for purposes of treatment under two headings, viz.: (1) those which do not stain the mouth, which are treated by giving an emetic to induce vomiting; and (2) those which burn or stain the mouth, in which no emetic is to be given. The latter are confined to corrosive acids and alkalis. In all cases of poisoning it is best to send at once for a doctor telling him, if possible, exactly what has occurred. Except when the lips and mouth have been stained or burned the victim should be induced to vomit by tickling the back of the throat with a finger or with a feather or by drinking either a dessertspoonful of mustard dissolved in a tumblerful of luke-warm water, a tablespoonful of salt dissolved in a tumblerful of luke-warm water or in the case of a young child, a teaspoonful of Ipecacuanha wine. If the patient has not become insensible, milk should be given, raw eggs beaten up in milk or water, cream and flour beaten up together, animal or vegetable oil (except in phosphorus poisoning) and tea. If the patient is disposed to go to sleep keep him awake by walking him about or otherwise, or by giving strong black coffee to drink. If the throat is swollen to the extent of obstructing the windpipe it is desirable to apply hot flannels or poultices to the neck and to give the patient frequent sips of cold drinks. If breathing ceases apply artificial respiration. Preserve any vomited matter suspected of being the poison.

If the lips and mouth are stained or burned give no emetic, but if the poison is known to have been an acid give an alkali at once, such as soda, chalk and even wall plaster.

If the poison was itself a corrosive alkali wash the mouth out with lemon juice or vinegar diluted in an equal quantity of water and afterwards let the patient sip the same.

In either case give oil.

If the victim of poisoning is unconscious when found, and it is not otherwise clear what form of poison has been taken, this can sometimes be ascertained from the smell of the breath.

Alcoholic Poisoning

Alcoholic poisoning is not simply drunkenness but the collapse which follows excess, often ending in death. The victim may become speechless and motionless, the pulse quick and feeble with snoring breathing, the eyes bloodshot, the face pale (flushed at first). The breath smells of alcohol.

CAUTION. — These symptoms may resemble apoplexy, narcotic poisoning and injury to the brain. Drunk or dying is often a difficult question to answer. Drunken men fall and sometimes fracture their skulls. An unconscious man smelling strongly of alcohol is by no means necessarily dead drunk.

TREATMENT. — If the circumstances indicate alcoholism tickle the back of the throat with a finger and keep doing so until the patient vomits. Keep the patient warm, and when he is conscious give him hot drinks of milk. Encourage sleep.

Poison Ivy

Poison ivy causes a very intense inflammation of the skin. It is better to avoid contact with this plant, even though it has not harmed you before.

The following is an effective remedy discovered and used by H.T. Gussow, Dominion Botanist: "Wash the affected parts perfectly clean with soap and water, dry with a clean absorbent towel, and paint two or three times with a cotton wool plug dipped in Tincture of Iodine. If oozing results, dust with boracic acid powder. Repeat once or twice a day for three or four days."

"Should any person fear the application of Iodine, it is suggested that it be not resorted to until the treatment is authorized by a medical adviser."

If no other remedy is available, as soon as possible after contact, wash the hands repeatedly, with soap and water. In severe cases a doctor should be consulted.

Shock

In cases of shock, or collapse, the face is pale, and the surface of the body is cold. The patient shivers. The pulse is feeble and irregular, the breathing feeble and shallow, the patient sighs and is only partly conscious.

TREATMENT. — Arrest any bleeding. Keep the patient lying down and the head low. Apply hot water bottles and extra clothing. Rub arms and legs. Speak encouragingly and make light of the injury. If the patient is conscious and there is no bleeding, give some mild stimulant such as smelling salts, tea or coffee.

Sprains

A joint is said to be sprained when by any sudden wrench or twist the muscles around it have been unduly stretched and torn. Going over one's ankle is a sprain of a simple kind.

TREATMENT. — The injured member should be placed in the most comfortable position and treated with cold or hot applications as in the case of dislocation (see p. 268.) Then bandage tightly. When the ankle is sprained do not remove the boot until the patient is indoors. Instead bandage firmly over the boot.

Strangulation

TREATMENT. — Remove whatever may be gripping the throat. Loosen the clothes. Dash hot and cold water alternately over the patient. Apply artificial respiration if the patient is not breathing.

Sunstroke or Heatstroke

Exposure to the sun in very hot weather or to excessive heat in an overcrowded or confined space is apt to induce a feeling of sickness, giddiness and difficulty in breathing which, if proper measures are not taken, may develop into insensibility. The patient complains of thirst, the skin becomes dry and burning, the face flushed and the pulse quick and bounding. Sometimes vomiting occurs.

TREATMENT. — Any tight clothing should be undone and the sufferer to a cool shady spot, stripped to the waist and laid down with the head and body well raised. Fanning vigorously will usually assist in

obtaining a free circulation of air. Cold water or ice should be applied to the head, neck and spine until the symptoms subside. On regaining consciousness the patient may also be given water to drink.

Toothache

TREATMENT. — Hot applications will help in the relief of tooth ache much in the same way as in earache but the aching of a tooth indicates the existence of trouble which can only be permanently cured by a dentist. If there is a cavity it will sometimes afford relief to clear it out with a small piece of cotton or tooth pick and afterwards plug the hole with cotton, containing a drop of oil of cloves.

Unconsciousness

TREATMENT. — In cases of unconsciousness loosen all tight clothing, and keep the patient in a reclining position. If pale, lay flat (no head rest); if the face is flushed raise the head on pillow. If the patient becomes sick turn on the side. Give nothing by the mouth. Keep the body warm and give plenty of fresh air. (See Fainting, Fits, Bleeding and Concussion.)

Wounds

TREATMENT. — Even small cuts should be thoroughly cleansed, either with water or with an antiseptic solution such as may readily be made with boracic acid. Any foreign substance which may be lodged in the wound, such as glass, or gravel, etc., should be removed and a dry clean dressing applied to bring the edges of the wound together. In many cases it will be necessary to secure the dressing with a bandage.

CHAPTER IX

HEALTH AND ENDURANCE

No Scout need be told that good health is one of the most important things in life, and that it is a Scout's duty to take care of himself so that he is always fit and ready to do his best in any situation or circumstance. The importance of health and endurance was recognized by the North American Indians, and Indian boys were put through a rigorous system of training from an early age.

Every night and morning, in some tribes, the boys, from their fourth year on, were compelled to take a cold bath in a lake or river, summer and winter alike. After he had entered his teens a boy was often made to lie out all night without any clothing, so that he might become inured of the cold. While it is not suggested that Scouts follow this plan, a brief cold morning dip or sponge bath and a brisk rub-down is of undoubted benefit, and makes the ideal start for a live boy's day.

The Japanese are a strong and healthy race, as was shown during their war with Russia, and the Great War. There was little sickness amongst them, and those wounded usually recovered quickly because their skin was clean and their blood in healthy condition. They offer an excellent example of healthful living. They bathe regularly and frequently.

They eat plain food, chiefly rice and fruit, and not much of it. They drink plenty of water. They take lots of exercise. They make themselves good-tempered and do not worry. They live in the fresh air, as much as possible, day and night. Their particular exercise is "Ju-Jitsu," which is more of a game than a drill, and is generally played in pairs. Pupils get to like this game so much that they generally go on with it after their course of instruction has finished.

To be healthy and strong, you must keep your blood pure and clean. This is done by deep breathing, drawing in plenty of pure, fresh air and clearing out all dirty matter from your inside, which is done by having a movement of the bowels daily, without fail. Many people, indeed, are the better for having it twice a day. If there is any difficulty about it one day, drink plenty of good water, especially after breakfast, and practise body-twisting exercises, and all should be well. Persons whose bowels do not move as freely and regularly as they should will find it helpful to eat brown bread rather than white, or muffins containing as much as one-half bran.

Proper Carriage

"Head up and chest out" is the Scout style of walking — no stooped shoulders and contracted lungs. An erect body means a deeper chest, and plenty of room for the important organs of the body to carry on their work. A few setting-up exercises after your bath every morning will help to give you this good carriage.

Exercises and Their Object

Exercises should not be taken with the object of developing huge, lumpy muscles. They should be taken to keep the heart and lungs and other important organs in a strong and healthy condition. Hiking of course provides the ideal exercise. Strain should be avoided. Long runs or swims should not be taken without preliminary training, and such strenuous games as rugby football and hockey should not be played without gradual "hardening."

Any of the Swedish or other exercises taught at school are excellent, and should be practiced each morning and for a few minutes each night before retiring, by the healthy Scout.

Care of the Eyes

Boys, and older folks as well, take good sight for granted — until they lose it, and yet sight is the most important and most highly prized of our senses, and blindness one of life's greatest tragedies.

Therefore Scouts should be careful of their eyes. Avoid reading by artificial light as much as possible, and in any case always read or do any other close work with the light at your back, over the left shoulder.

Blood-shot eyes, styes, squinting, red eyelids, twitching of the lid muscles, wrinkled eyebrows and a tired or drowsy feeling about the eyes are all indicators of eye-strain; headache also, in many instances. Defective sight is, in fact, responsible for more headaches of the recurring kind than all other causes combined. Usually the headache caused by eye-strain follows some continued use of the sight, as in reading or writing or sight-seeing. Occasionally it follows hours afterward. Train-sickness is in many cases due to the straining of the sight in looking out of the car window.

In all cases of eye trouble, it is safest to consult a competent oculist and if you have to wear glasses or spectacles to follow the directions of an expert rather than a dealer.

For a simple test to determine whether you are possessed of normal vision, place this book in an upright position and unless you cannot read clearly with both eyes together, and with each eye separately, the first line following at twenty feet distance, the second line at fifteen feet, and the third line at ten feet, it is desirable that you should consult a competent oculist.

C L V F O T

E A C F D L O T

D V C L A E O T F

Care of the Nose and Throat

Always breathe through the nose. Air passing through the nose is warmed and moistened and cleansed before passing into the lungs. If you cannot breathe readily through the nose, have it examined. There may be a growth present which should be removed. Unobstructed breathing is particularly important if you go in for running or other sport calling for similar exertion. Adenoids, which are growths far back in the mouth, often interfere with breathing, and may retard both physical and mental development. They produce "snore", and frequently account for susceptibility to head colds. They should be removed by a surgeon. If crusts form in the nose, use a little vaseline to soften them. Do not blow the nose too vigorously. This may be harmful.

Care of the Ears

Affections of the ears are exceedingly serious and may lead to grave results. Any trouble with them should be given very prompt attention and a good specialist consulted. Pain in the ear, or ringing or hissing sounds, and particularly any discharge from the ear, should not be neglected. Any sign of deafness must be heeded. Sometimes deafness occurs in reference to some particular sounds while hearing is normal to others. No matter what the degree of deafness may be, do not neglect to see a physician about it. Ordinarily the tick of a watch can be heard at a distance of thirty inches. If you cannot hear it at that distance and can hear it at say fifteen inches then you are just one-half from the normal in your hearing. The test should be made with one ear closed.

Ear troubles are often caused by sticking foreign objects in the ear, such as hair pins, pins, matches, toothpicks, and lead pencils. Never pick the ear with anything. Often the ear drum is pierced in this way. The normal ear does not require anything more than the usual cleaning with the wash rag over the end of the finger.

If wax to any extent accumulates in the ear it should be removed by syringing, but out to be done by a physician.

In camp an insect might crawl into the ear, and if alive cause pain. Putting oil or other fluids in the ear to drown it is unwise. If a foreign body should get in the ear it should not cause any great alarm unless attended with severe pain. If a physician is not available such objects may remain for a day or two without serious results. Syringing usually removes them, but it should be remembered that some objects such as peas or beans swell if made wet.

Water in the ear when swimming is best prevented by the wearing of rubber ear stops. These usually can be purchased. Cotton should not be used, as it may work inside the ear passage.

Care of the Finger Nails

It will not be necessary to remind a Scout of the necessity of keeping his finger nails clean, — because nothing is more unscoutlike, and because of the possibility of carrying disease germs beneath uncleaned nails. The nails should be kept properly trimmed, by use of a nail file or scissors, neither too long nor too short. And of course a Scout never indulges in the disagreeable habit of biting his nails.

Eating

The Scout's appetite is proverbial. The wise Scout, however, keeps his eating well under control. A simple diet is best. Don't mix your food unwisely, — as pickles, frankfurters, cake, sodawater, pie, etc. Take meat but once a day, and make it a rule not to eat anything that you always taste for several hours afterward, even though you like it.

Don't eat when very tired; lie down and rest for a while. Don't eat heavily before exercise. Never eat when excited or angry. Wait until you have "cooled off."

And of course chew your food thoroughly.

Coffee and Tea

The question is often asked, "Should a Scout drink coffee and tea?" Coffee and tea are stimulants. What is a stimulant? A stimulant is a whip, making the body do more at a given time than it ordinarily would. It doesn't add any fibre to the tissues, doesn't add any strength, isn't a food, but merely gets more out of the tissues or nervous system than they would ordinarily yield. Of course there is a reaction because the tissues have had nothing to feed on.

Peary's men, who drank lots of tea on their voyage north, during the most trying time of their trip, showed it in the haggard faces and loss of tissue. Their own tissues had turned cannibal and fed on their own material.

Stimulants are not foods. They add no strength to the body. They exact of the body what ought not to be exacted of it. There is always a reaction and one is always worse off as a result. Growing boys especially should have nothing to do with tea, coffee, or any stimulant.

Alcohol and Tobacco

Alcohol is not a stimulant, but is really a narcotic that is very depressing. It dulls rather than stimulates. The same is true of nicotine in tobacco. No growing boy should use either. The first athletes to drop out of a race are usually the drinkers, and all trainers know that smoking is bad for the wind.

Constipation

Boys who are troubled with constipation may find the following plan helpful in overcoming the condition:

Drink a cool, copious draught of water upon arising. Then take some body-bending exercises. Follow this with the sponge bath. Then, if possible, take a walk around the block before breakfast. After school play some favourite game for at least an hour. In the absence of this, take a good hike of three or four miles or a longer bicycle ride. At least twice a week, if possible, enter a gymnasium class and make special emphasis of body-bending exercises.

Have a regular time for going to stool. A good plan is to go just before retiring and immediately upon arising. Go even though you feel no desire to do so. A regular habit may be established by this method. Always respond quickly to any call of nature. Toasted bread and graham bread and the coarser foods and fruit will be found helpful.

The Teeth

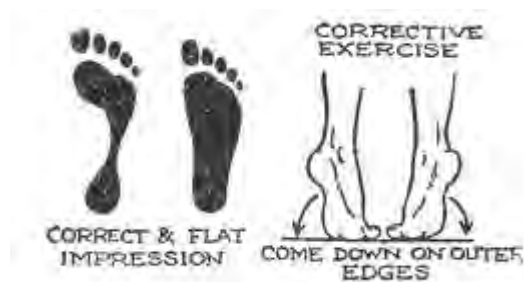
Perhaps — without care — the mouth is the filthiest cavity in the body. We spend a great deal of energy trying to keep food clean and water pure, but what is the use if we place them in a dirty cavity as they enter the body? Fully 90 per cent. of the children examined in our schools have decayed and dirty teeth. These decayed teeth provide cavities in which food particles decay and germs grow, and through which poisons are absorbed.

Every boy should own his tooth brush, and should use it at least twice a day. At night the teeth should receive most careful cleansing, with a good tooth paste or powder, and in the morning rinsing with clean water. Time should be taken in the cleansing of the teeth. The gums should be included in the scrubbing, as this acts as a good stimulant to the circulation of the blood to the teeth. Not only should the teeth be brushed with a backward and forward stroke, as we ordinarily do, but also upward and downward the

length of the teeth. In addition to the scrubbing, particles of food which are lodged between the teeth should be removed after meals, or at least after the last meal of the day. This is most safely done by the use of a thread of a fair degree of thickness. Dentists and druggists furnish this thread in spools. Hard toothpicks often cause bleeding and detach fillings. A dentist should be visited once every six months so as to detect decay immediately. Never have a tooth drawn unless it is absolutely necessary.

Care of the Feet

Care of the feet is a matter too often overlooked until corns, bunions or even more serious trouble develops. The first care is to see that you walk correctly, i.e., with the feet pointing straight forward. The normal foot is straight, broad at the ball, and with space between the toes. Shoes therefore should be straight on the inner border, broad across the ball, and have a low, broad heel. With a normal foot, the inner border does not touch the floor. To determine this, wet the foot and make an imprint on the floor.



The following exercises are good to strengthen the arches of the foot if there is a tendency to flat feet: 1. Turn toes in, raise heels, and come down slowly on the outer borders of the feet. 2. Walk with heels raised and toes pointing inward or walk on the outer borders of the foot, inner borders turned up.

Shoes should fit the feet comfortably. Tight shoes, or shoes that fit loosely, will cause callouses or corns. The way to get rid of these is to remove the cause — namely, the badly fitting shoes. Soft corns are due to pressure between the toes. The toes in such cases should be kept apart with cotton. Pointed shoes should be avoided. Patent-leather shoes are non-porous and hot. Ingrown toe nails are exceedingly painful. The pain comes from the nail piercing the soft parts. Allowing the nail to grow long and beyond the point of the tender spot will help; and on the side of the nail and under it cotton should be inserted to protect the soft parts.

Hot foot baths will generally relieve tired feet. Boys should be very careful in trimming corns for fear of blood poisoning. Never buy plates at a store for flat feet. They may not be adapted to your needs. Always consult a foot specialist for treatment and buy plates if needed on his order. Only severe cases need plates.

Many boys are troubled with perspiring feet and are frequently annoyed by the odour resulting. Those who are thus troubled should wash the feet often and carefully, especially between the toes. By dusting the feet with boric acid the odour will disappear.

Sleep and Health

Regular and sufficient sleep is one of the most important factors in building up a strong and healthy body and an alert capable mind. A boy of Scout age should sleep at least nine, and preferably ten hours each night. If you lose sleep one night, make it up the next. Whenever unusually tired, or when you feel out of trim, get to bed an hour or so earlier, if possible.

A healthy Scout should wake up each morning feeling like a “fighting cock.”

The conditions under which one sleeps are as important as the length of time one sleeps. Many people are finding it wonderfully healthful and invigorating to sleep out of doors. Often a back porch can be arranged, or, in summer, a tent can be pitched in the yard. But, by all means, the sleeping room should be

well ventilated. Windows should be thrown wide open. Avoid drafts. If the bed is in such relation to the windows as to cause the wind to blow directly on it, a screen can be used to divert it or a sheet hung up as protection. Good, fresh, cool air is a splendid tonic. In winter open windows are a splendid preparation for camping out in summer.

Self-Conservation

In this chapter much has been said of the active measures which a boy should take in order to become strong and well. We should be equally concerned in saving and storing up natural forces we have within us. In the body of every boy who has reached his teens, the Creator of the universe has sown a very important fluid. This fluid is the most wonderful material in all the physical world. Some parts of it find their way into the blood, and through the blood give tone to the muscles, power to the brain, and strength to the nerves. This fluid is the sex fluid. When this fluid appears in a boy's body it works a wonderful change in him. His chest deepens, his shoulders broaden, his voice changes, his ideals are changed and enlarged. It gives him the capacity for deep feeling, for rich emotion. Pity the boy, therefore, who has the wrong ideas of this important function, because they will lower his ideals of life. These organs actually secrete into the blood material that makes a boy manly, strong and noble. Any habit which a boy has that causes this fluid to be discharged from the body tends to weaken his strength, to make him less able to resist disease, and unfortunately fastens upon him habits which later in life can be broken only with great difficulty. Even several years before this fluid appears in the body such habits are harmful to a growing boy.

To become strong, therefore, one must be pure in thought and clean in habit. This power which must be conserved because this sex function is so deep and strong that there will come times when temptation to wrong habits will be very powerful. But remember that to yield means to sacrifice strength and power and manliness.

For boys who desire to know more of this subject we would suggest a splendid book by Dr. Winfield S. Hall, entitled, "From Youth to Manhood." Every boy in his teens who wants to know the secret of strength, power and endurance should read this book.

CHAPTER X

PATRIOTISM AND CITIZENSHIP

All boys of Scouting age have rights which are recognized at law, and all have duties. Every child born in Canada of a father already a British citizen, whether himself born in Canada or in any other part of the British Empire, is a Canadian; and the children of foreign-born "New Canadians" who have become naturalized British citizens are also "full fledged" Canadians and entitled to all the rights of citizenship on coming of age.

Britons everywhere are proud of their nationality and of the security it has ever afforded them against oppression. Under the Roman Empire, the greatest of the dead Empires of the past, the privileges of full citizenship were reserved for a favoured few. But in the British Empire it is the many and not the few who are the citizens.

The personal authority of the King in public affairs, which was in earlier times almost complete, has gradually diminished until it may now be said, with truth, that the King reigns but does not govern. He is the head of the State, the descendant of a long line of kings, the representative of the dignity of the nation. In him centre the majestic traditions of Britain's history. But his people govern themselves through their elected representatives.

In earlier times men were burned at the stake in England for holding to their conscientious religious beliefs. Now, in all parts of the British Empire, there is the most complete freedom in regard to religion. We have, too, freedom of speech and freedom of the press. Liberty is the great gift which the British peoples possess and have helped to bring to others.

As long as the British peoples are loyal to their great past, it remains solidly true, to use the great words of Abraham Lincoln, that "government of the people, by the people, for the people, shall not perish from the earth." The British would not be freer under any other form of government than that which they have today. Canada has the fullest rights of self-government, rights patterned on those which the people of the Motherland themselves enjoy.

True Patriotism

Patriotism is a much abused word. There is a boastful, swaggering, intolerant spirit of dislike and contempt for other countries, a spirit of hate, which tries to disguise itself as the spirit of patriotism. But true patriotism is a love for and a readiness unselfishly to serve one's homeland. The good citizen counts his own interests as nothing compared with the well-being of his country as a whole. To each of us life is precious; but other things, honour and duty, are more precious. That is why millions of Britons, among them some half million of Canadians, during the Great War, were willing to die, if need be, on the field of battle, in order to save the Empire and the principles for which it stands.

The Good Citizen

It is the duty of every Canadian Scout to find out how his country is governed. Canada has a system markedly different from that of Great Britain. Great Britain is governed under a single parliament in which all authority is centred. Canada, on the other hand, is a federation in which authority is divided between the central federal Parliament at Ottawa and a Parliament in each of the provinces. At Ottawa the tariff, the Post Office, the army, Canada's relations with Great Britain, and other interests of a national character are looked after. The Provincial Parliaments control interests of a more local and personal

nature, such as education and the government of cities, towns and villages. It is the duty of the good Canadian citizen to understand and to watch the working of all branches of government, from that at Ottawa to that of his own town or village. Though he may be only one person in the great total of Canada's population, and may, perhaps, have little taste for public affairs, it will not do for him to leave politics only to the politicians. If he does, he will not be living up to the spirit of the Scout's promise. Each of us has a duty to King and country in peace as well as in war. The best system of government will be ineffective if we sit down, do nothing and imagine that the affairs of state will take good care of themselves. They won't.

Family life teaches us daily its lessons of consideration for the other members of the household; and the well-ordered state is, after all, but a larger household in which each has the same two-fold daily obligation to fulfill, his duty to himself and his duty to others. The good citizen never shirks the responsibility of doing his share in all spheres, in the family as well as in the state. Just as members of a family, by their bearing, earn the respect or incur the condemnation of others, so the citizens of a state, by their conduct or misconduct, bring credit or discredit upon the nation. Great Britain's high standing among the nations does not come from wealth and power alone. It comes from the character of her citizens. In the Far East the word of honour of an Englishman is accepted as if it were an oath.

No matter what our station in life may be, we all have, apart from our personal and family affairs, a public responsibility as citizens. Always duty may call for personal sacrifice. In private life we have to stand by our friends and relatives. During war-time we may be called on to serve our country in battle. The good citizen realizes that his own convenience and advantage must give way to the interest of the community as a whole. The spirit of patriotism, which is the spirit of sacrifice, calls him to seek not his own good alone, but the greatest good for the greatest number.

The most powerful force in a free state is public opinion. By it governments are made and unmade. Well-informed public opinion is the country's greatest safeguard against wrong-doing. Unintelligent opinion is fraught with gravest danger.



A FINE TRIBUTE TO NATIONAL SCOUT SERVICE

The above statues of Boy Scouts appear over a window near the main entrance to the great new Government office building, Confederation Block, nearing completion on Wellington Street, Ottawa. The figures were placed in recognition of various forms of national service performed by the Scout organization, and particularly the part played by Scout Troops during the Diamond Jubilee of Confederation, including the locating and decorating of the graves of the Fathers of Confederation. The statues were modelled after the famous "Scout" by Tait MacKenzie. A panel to the right bears the Scout Badge.

CHAPTER XI

SCOUTING GAMES

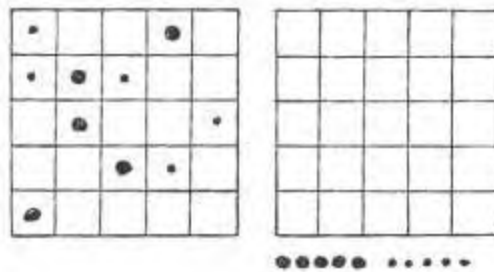
GAMES OF OBSERVATION

Kim's Game



The Scoutmaster places on a table a number of articles such as knives, spoons, pencils, pen, stones, a book — not more than about fifteen for the first few games — and covers the whole over with a cloth. He has the Scouts gather round, and uncovers the table for one minute. Each Scout then makes a list of the articles he can remember. The one who remembers the greatest number wins the game.

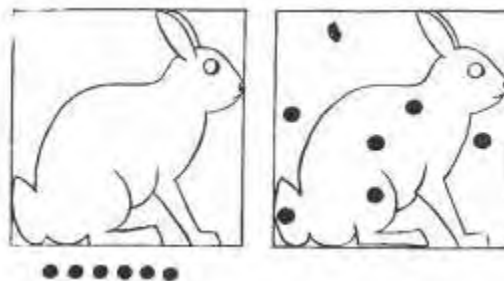
Memory Game



Make two boards about a foot square. Divide each into twenty-five squares. Get ten nuts and ten pebbles. Give to one player one board, five nuts, and five pebbles. He places these on the squares in any pattern he hankies, and when ready the other player is allowed to see it for five seconds. Then it is covered up, and from the memory of what he saw the second player must reproduce the pattern on his own board. He counts one for each that was right, and takes off one for each that was wrong. They take turn and turn about.

This game is a wonderful developer of the power to see and memorize quickly.

Farsight, or Spot the Rabbit



Take two six-inch squares of stiff white paste-board or whitened wood. On each of these draw an outline rabbit, one an exact duplicate of the other. Make twenty round black wafers or spots, each half an inch across. Let one player stick a few of these on one rabbit-board and set it up in full light. The other, beginning at one hundred yards, draws near till he can see the spots well enough to reproduce the pattern on the other which he carries. If he can do it at seventy-five yards he has wonderful eyes. Down even to seventy (done three times out of five), he counts high honour; from seventy to sixty counts honour. Below that does not count at all.

Strange Scout

The Scout who is designated stands on a chair, or for two minute strolls about within a circle while the patrols study him, and note their observations and deductions. They retire to Corners, and the P.L. writes a report. Preferably this is presented and read by the Scoutmaster at the evening's council fire. Patrol Competition points in order of completeness.

Surveying the Country (A Patrol Game)

This makes an excellent subject for a patrol competition in Camp. Each Patrol Leader is served out with a sheet of paper upon which to make a sketch map of the country for perhaps two miles around. He then sends out his Scouts in all directions to survey and bring back a report of every important feature — roads, railways, streams, etc. — choosing the best Scouts for the most difficult directions. The patrol whose leader bring to the Scoutmaster the best map in the shortest time, wins. (See page 233.) The Patrol Leaders must make their maps entirely from the reports of their own Scouts.

Old Spotty Face

Prepare square of cardboard divided into about a dozen small squares. Each Scout should take one, and should have a pencil and go off a few hundred yards, or, if indoors, as far as space will allow. The umpire then takes a large sheet of cardboard, with twelve squares ruled on it of about three-inch sides if in the open, or one and a half to two inches if indoors.

The umpire has a number of black paper discs, half an inch in diameter, and pins ready, and sticks about half a dozen on his card, dotted about where he likes. He holds up his card so that it can be seen by the Scouts. They then gradually approach, and as they get within sight they mark their cards with the same pattern of spots. The one who does so at the farthest distance from the umpire, wins.

Give five points for every spot correctly shown and deduct one point for every two inches nearer the furthest man. This is a test of long sight.

Far and Near

A hike game. The Scoutmaster reads a list of things to be observed during the hike, and on a scoring card records the observations as reported — a point for each observation. Scout securing the most points wins. Following is a sample observation list, and the points awarded: —

A match found	.....	1
A button found	.....	1
A bird track seen	.....	2
A grey horse seen	.....	2
A pigeon flying	.....	2
A sparrow sitting	.....	1
A broken window	.....	1
A hawk flying	.....	2
A groundhog	.....	2

Morgan's Game



Scouts run to a certain bill board where an umpire is already posted to time them. They are allowed to look at the board for one minute — no notes being taken — then run back to headquarters and describe the advertisements seen.

Shop Window

A patrol of Scouts is taken in turns to six shop windows, and allowed a minute's observation of the contents of each. Returning to headquarters, each Scout makes out a list of articles seen in any two windows designated — say the third and fifth. One point for each correct article, one point off for each error.

Scout's Nose

Prepare a number of paper bags, all alike, and put in each a different smelling article, such as chopped onion in one, tar in another, rose leaves, leather, anise-seed, talcum powder, orange peel, etc. Put these bags in a row a couple of feet apart, and let each competitor walk down the line and have five seconds'

sniff at each. At the end he has one minute in which to write down or to state to the umpire the names of the different objects smelled, from memory, in their correct order.



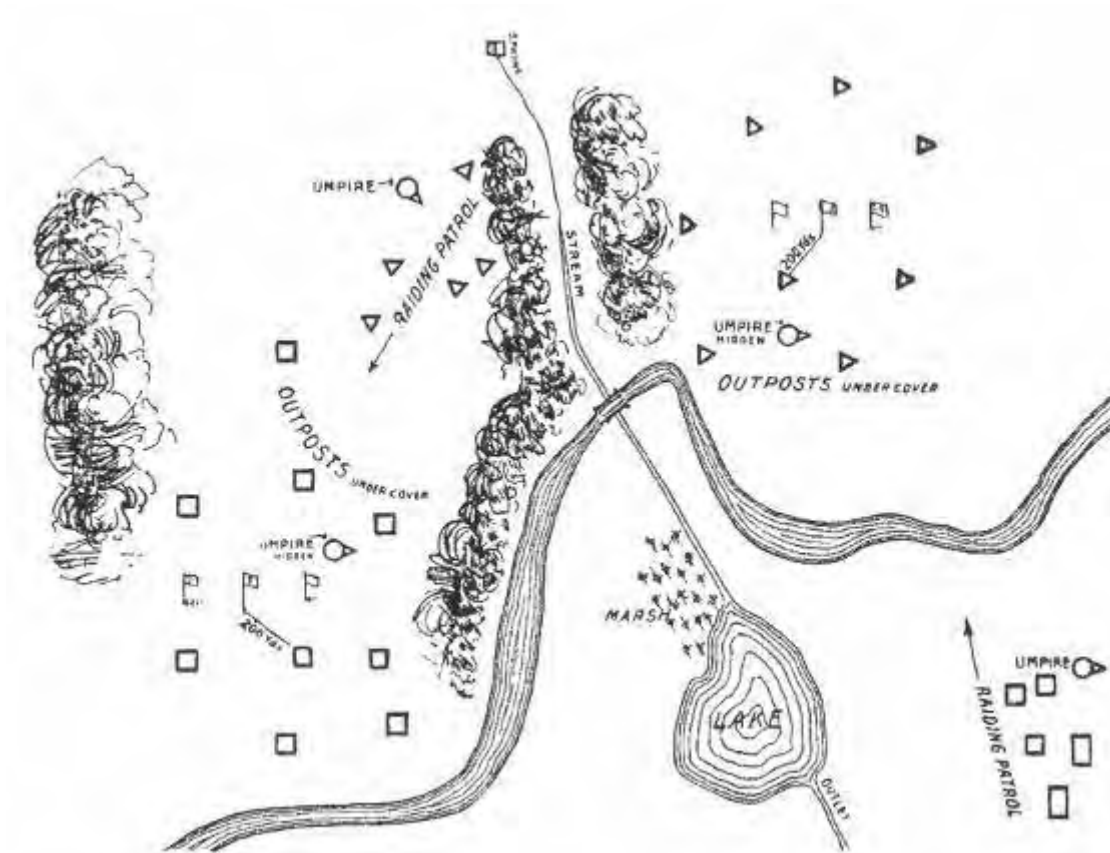
SCOUTING GAMES

Flag Raiding

Two or more patrols may take part in this game on each of two sides.

Each side forms an outpost within a given tract of country to protect three flags (or at night three lanterns two feet above the ground), planted not less than two hundred yards (one hundred yards at night) from it. The protecting outposts are posted in concealment, either all together, or spread out in pairs. They then send out Scouts to discover the enemy's position. When these have found out where the enemy's post is, they try to creep round out of sight till they can get to the flags and bring them away to their own line. One Scout may not take away more than one flag.

Any Scout coming within fifty yards of a stronger party will be put out of action if seen by the enemy. If, however, he can creep by without being seen it is all right.



Scouts posted to watch as outposts must not move from their ground, but their strength counts as double, and they may send single messages to their neighbours or to their own Scouting party.

An umpire should be with each outpost and with each raiding party.

At a given hour operations will cease, and all will assemble at a given spot to hand in their reports. The following points may be awarded: —

For each flag or lamp captured and brought in	5
For each report or sketch of the position of the enemy's outposts up to five	5
For each report of movement of enemy's Scouting patrols	2

The side which makes the biggest total wins.

The same game may be played to test the ability of Scouts in stepping lightly — the umpire being blindfolded. The practice should preferably be carried out where there are dry twigs lying about, and gravel, etc. The Scout may start to stalk the blind enemy at one hundred yards distance and he must do it fairly fast — say, in one minute and a half — to touch the blind man before he hears him.

Treasure Hunt

The treasure hunt needs observation and skill in tracking. Practically any number may take part in it. Several ways of playing the game are given.

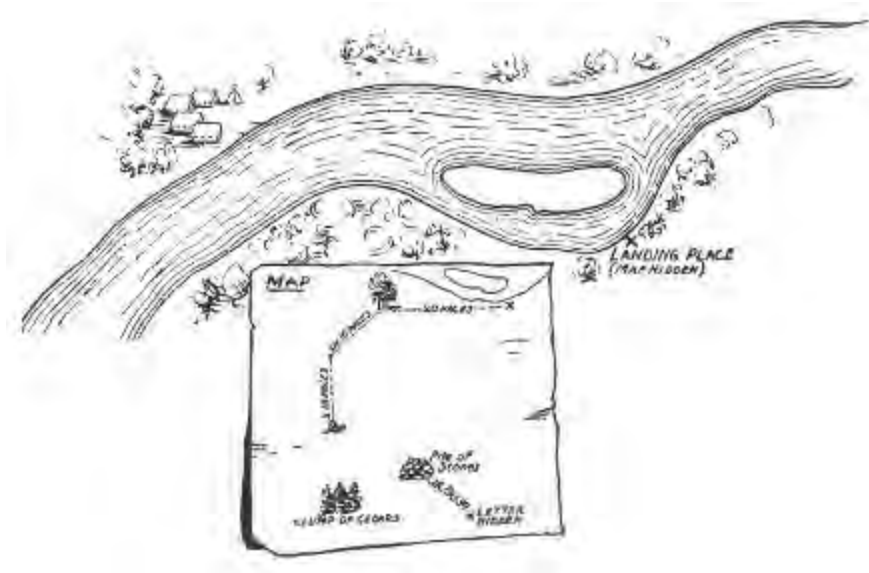
1. The treasure is hidden and the Scouts know what the treasure is. They are given the first clue, from which all the others can be traced. Such a clue might be the following written on a gate post: "Go west and examine Scouts' signs pointing to a notice-board," on which, when it is reached, will be found the following: — "Strike south by south-east to telegraph post No. 22," and so on. The clues should be so worded as to need some skill to understand, and the various points should be difficult to access from one another. This method might be used as a patrol-competition, starting off successive patrols at ten minute intervals. At one particular clue there might be different orders for each patrol, to prevent them following one another.

2. The clues may be bits of coloured wool tied to gates, hedges, etc., at about three yard intervals, leading in a certain direction, and when the last clue is reached it should be known that the treasure is hidden within so many feet. To prevent this degenerating into a mere game of follow-m-leader, several tracks might be laid working up to the same point, and false tracks laid, which only lead back to the original track.

Each competitor or party might be given a description of the way, each perhaps following a slightly different route. The description should make it necessary to go to each spot in turn, and prevent any "cutting." For example the direction may be to "go to the tallest tree in a certain field, from there go 100 yards north, then walk towards a church tower which will be on your left," etc. All the descriptions should lead by an equal journey to a certain spot where the treasure is hidden. The first to arrive at that spot should not let the others know it is the spot, but should search for the treasure in as casual a manner as possible.

Treasure Island

A treasure is known to be hidden upon a certain island or bit of shore marked off, and the man who hid it is known to have left a map with the clue for finding it (compass directions, tide marks, etc.) This map is hidden somewhere near the landing-place. The patrols come in turn to look for it. They have to row from a certain distance, land, find the map, and finally discover the treasure. They should be careful to leave no foot tracks, etc., near the treasure, because then the patrols that follow them may easily find it. The map and treasure are to be hidden afresh for the next patrol when they have been found. The patrol wins which returns to the starting place with the treasure in the shortest time. This game may be played on the river, the patrols having to row across the river to find the treasure.



The Man-Hunt

This is played with a Scout and ten or more hostiles, or hounds, according to the country; more when it is rough or wooded.

The Scout is given a letter addressed to the “Mayor” (usually the lady of the house that he gets to) of any given place a mile or two away. He is told to take the letter to any one of three given houses, and get it endorsed, with the hour when he arrived, then return to the starting point within a certain time.

The hostiles are sent to a point half-way, and let go by a starter at the same time that the Scout leaves the camp. They are to intercept him.

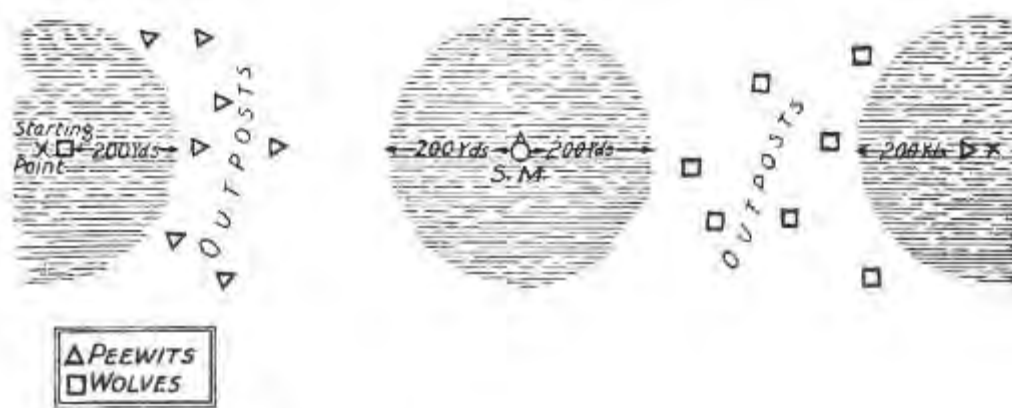
If they catch him before he delivers the letter his captor keeps the letter as a trophy. If he gets through, but is over time, it is a draw. If he gets through successfully he keeps the letter as a trophy.

They may not follow him into the house but may surround it at one hundred yards distance. They do not know which three houses his is free to enter, but they do know that these are within certain limits.

The Scout should wear a conspicuous badge (hat, shirt, coat, or feather), and may ride a wheel or go in a wagon, etc., as long as his badge is clearly visible.

To “tag” the Scout is not to capture. “The blockade to be binding must be effectual.”

The Rival Dispatch Bearers



The game is played between two rival patrols, which for convenience we will name the Wolves and Peewits. From each patrol one Scout is selected as a dispatch bearer.

The Scoutmaster takes up a position at a certain spot, preferably in the middle of a wood, or if in a town at a street junction, and the chosen Scouts start from opposite points about two miles distant from the Scoutmaster and attempt to reach him.

It is the duty of the remainder of each patrol to try to prevent the rival dispatch carrier reaching his goal. Thus the Wolves will watch the stretch of country over which the chosen Peewit is likely to come, and the winning patrol is decided by the first dispatch carrier to reach the Scoutmaster. The Wolves will, of course, do all they can to capture the Peewit and secure the dispatch. The Peewits in their turn will naturally try to effect the same result.

When the carrier has his dispatch captured he cannot, of course, continue. The patrols must keep 200 yards away from the starting and finishing point, thus giving the dispatch-bearer a better chance of reaching the Scoutmaster. To be captured, the dispatch-bearer must be actually held by one of the defenders, though no fighting is allowed.

Smugglers Over the Border



The "border" is a certain line of country about four hundred yards long, preferably a road or wide path or bit of sand, on which foot tracks can easily be seen. One patrol watches the border with sentries posted along the road, and a reserve posted farther inland, about halfway between the "border" and the "town." The "town" would be a base marked by a tree, building, or flags, etc., about half a mile distant from the border. A hostile patrol of smugglers assemble about half a mile on the other side of the border. They will all cross the border, in any formation they please, either singly, or together, or scattered, and make for the town, walking or running, or at Scouts' pace. Only one among them is supposed to be smuggling, and he wears tracking irons (see page 95). The sentries walk up and down their beat (they may not run till after the "alarm"), waiting for the tracks of the smuggler. Immediately upon seeing the track, a sentry gives the alarm signal to the reserve and starts himself to follow up the track as fast as he can. The reserves thereupon co-operate with him and try to catch the smuggler before he can reach the town. Once within the boundary of the town he is safe and wins the game.

Dispatch Relay Run

One patrol is pitted against another to see who can get a message sent a long distance in the shortest time by means of relays of runners (or cyclists).

The patrol is ordered out to send in three successive notes, or tokens such as springs of certain plants, to be obtained from a certain house, say two miles distant, or further if the patrols are on cycles. The leader takes his patrol out and drops Scouts at convenient distances, who will act as runners from one post to the next, and then back again for the second notes or token. The runners should be started at certain intervals.

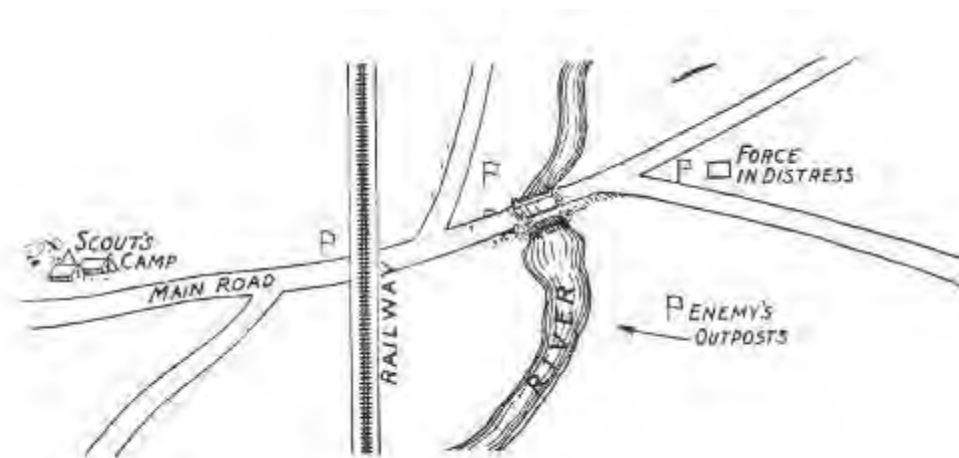
By arranging with neighbouring Scoutmasters long distance relay practices can be carried out, for fifty miles or so. Each Scoutmaster or Patrol Leader should be responsible for forwarding the message through his own district by relays of Scouts on cycles. For instance, a message could be carried from Toronto to Hamilton on a certain day, each patrol being responsible for so many miles of the road.

An interesting series of records could thus be set up, and districts compete with one another in carrying messages over fixed distances.

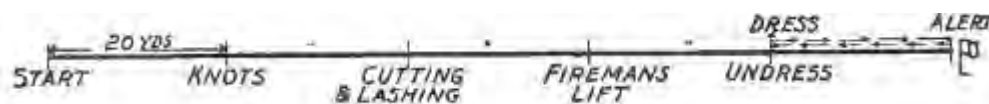
Flying Columns

This game is one in which any number of patrols may compete. A force is in need of help, and a military motorist on his way to the nearest garrison comes across a Scouts' camp. He gives each Patrol Leader a hasty idea of the situation and shows him a rough map explaining that the distressed force is two miles distant along a certain road, and that between the Scouts' camp and the force are enemy's outposts. The Patrol Leaders are to take their patrols in the shortest time to the relief of the force in distress without being seen by the enemy. The distressed force should be represented by any conspicuous spot, and the enemy's outposts by people with red flags stationed on the road between the Scouts' camp and the other force. As soon as they see any of the patrols they should blow a whistle, and those Scouts who are seen are to be considered captured; or else they may notice to which patrol the Scouts they have seen belong and count it against them. The patrol which gets to the distressed force in the shortest time, and without any of its Scouts being seen wins.

The following gives an idea of what the rough map should be: —



Efficiency Race



Regulation uniform is to be worn with neck-to-knee swimming costume under uniform, next to skin. Hatchets must be worn. Commence the race by running 20 yards; then tie the following knots: bowline, sheet bend, fisherman's and reef. Run another 20 yards, cut a 2-inch diameter log in halves, then lash the two pieces together, using a square lashing; perform a fireman's lift, and carry an insensible patient 20 yards, as in the test for the Fireman's Badge (page 256.) (Patients will be selected of as nearly possible the same weight.) Run another 20 yards; undress to costume, then run another 20 yards and capsize a flag that will be placed in the ground. Return to clothes and dress completely; return to flag, and stand at the "alert."

FIRST AID GAMES

An Ice Accident

Take one boy from each patrol, seat him on the floor, and announce: "These boys have been skating where they shouldn't — on rotten ice — and have broken through. They are already chilled to the point of collapse. Get them out!" Points given for the rescue, for the subsequent handling of victims, for the leadership given by Patrol Leaders and for teamwork shown.

A Fire Problem

Place one boy from each patrol behind a row of chairs or within a chalked space. Line the patrols in front. Announce: "you are entering a house; you see smoke, and hear a child's cry; you enter and find the child running about with its clothing on fire (it had been playing with matches); it is alone in the house; the window curtains are on fire." Points for all steps taken, as dispatching of one boy to ring fire alarm; P.L. leading the way into the house; instantly throwing the child to the floor, rolling it in an imaginary rug, and at the same time directing one boy to find the 'phone and call a doctor and the others in fighting the fire. Include points for manner toward the child (gentle handling, quieting its panic, etc.); treatment for its burns; for leadership shown and teamwork.

Fire in Movie Theatre

An unannounced quiz of Patrol Leaders during Patrol Corners: (a) "you are in a movie theatre. Some one has cried 'Fire!' People are spring to their feet. What would you do?" (b) "The panic gets out of hand, the crowd is rushing for the exits. They pile up in a stairway, and some are apparently suffocated. What would you endeavour to do immediately and afterwards?"

A Garage Problem

For each patrol, chalk a space on the floor. Place one chair for a door and another inside for a car. Take one boy from each patrol, and instruct him on signal to show a clutching hand at the garage door window (through the back of the chair), then fall to the floor. Line the patrols in front of each garage. Explain: "This is a garage. This chair is the door, which is closed; the chair inside represents a car. You can hear the car running but you do not see anyone in the garage. Now watch and act." On whistle the boy inside shows a hand, then drops.

Points for P.L. running to look in through garage door window; for immediately opening the door, and at the same time calling upon one Scout to run and 'phone for a doctor; for directing the other boys to hold their breath and drag out the victim, while he himself, holding his breath, runs in and stops the car; for resuscitation work, etc.

COMPASS GAMES

Compass Forfeits

Sixteen boys join hands and form a circle at full stretch. Hands are dropped. Another boy, a chair or any other object is placed outside the circle to mark the North point. The boys are told to silently note the compass points they represent. The Scoutmaster in the centre calls upon various boys to change places, as: "South and North-East!" "South-West and South-East!" Forfeit points are scored against those making errors, and paid at the conclusion of the game by the performing of stunts.

Around the Clock

A circle is formed as before, with a fixed North point. Order is given, "Left turn, march!" Scoutmaster calls, "Halt, turn inward!" and quickly asks their direction of several of the boys. Then the circle is again put in motion. Note that the interval between the boys should be properly kept, and the halt called when the North point is properly covered. This is also a forfeit game.

Compass Blind Man's Bluff

Boy who is IT is blindfolded, stood in the centre of a standing circle, and faced North. Two boys in the circle are directed, aloud, by the S.M. to change places, as "South-east and South-west." The boys endeavour to change places without being captured. A boy captured becomes IT.

Which Way Mister?

Troop in any formation. Ask questions such as these: "You are standing in front of the Post Office. Which way is the Station, Mister?" "You are standing in front of Brown's Bakery. Which way is the City Hall, Mister?", etc., etc. Forfeits or Patrol Competition points.

STALKING GAMES

Tails

Scouts on both sides wear the neckerchiefs tucked lightly in their belts, and the object of each side is to capture as many of these "tails" as possible.

To creep up behind a hostile Scout and grab his "tail" before he discovers you, call for far more caution and Scouting than does ordinary tagging.

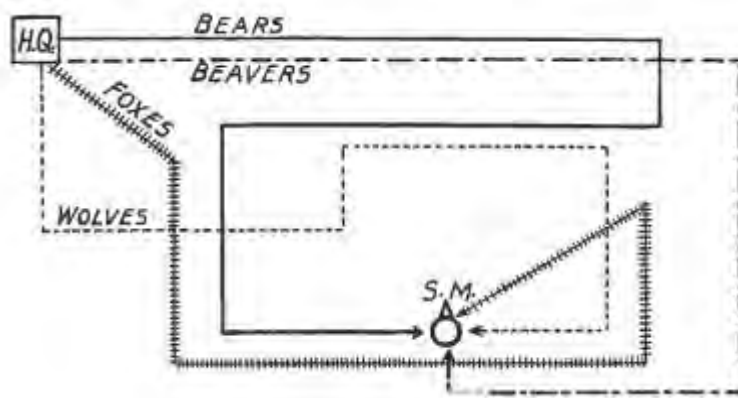
Again, a Scout may suddenly discover that his own tail is missing just as he is going to capture an enemy's, which all adds to the fun of the game.

Of course, if desired, coloured pieces of cloth or handkerchiefs can be used instead of Scout neckerchiefs.

Seeking the Scoutmaster

The Patrol Leaders of a troop are each handed sealed envelopes, and being told that the contents are important, are put on their honour not to open them before a certain time. This waiting time makes the game more exciting.

When the moment for opening the envelopes arrives, they find inside a rough outline map of some particular district, and instructions stating that all are to meet at a certain point. The patrols will form themselves, and each patrol, proceeding by its special route, will make for the place depicted in the map, where the Scoutmaster will be hiding. Naturally, the boundaries of the place must not be too confined, or the Scoutmaster's discovery will quickly take place.



A reward is offered to the patrol which first finds the Scoutmaster, so the members of each patrol should work together, searching the ground carefully in extended order. If the Scoutmaster is still concealed at the expiration of half an hour, or some other agreed upon time, after the troops' arrival at the spot, he blows a whistle and the game is at an end.

The spot selected should contain undergrowth in plenty and should be physically suited for concealment. In the envelope given to each Patrol Leader a paper should be placed showing the route his men must follow to reach the spot, and these routes should be equal in length, otherwise one patrol will have an advantage over another.

This game can also be played after dark.

The Pathfinder

This game is to be played at night. A town or camp is chosen and defended by all the Scouts present, except one patrol. The outposts must be carefully placed all round. The one patrol is to be led into the town by a guide chosen from the defenders. The latter is the traitor. He first foes around and carefully examines the defences, then slips out of the town to meet the patrol at a certain spot. He tries to guide them into the centre of the town, perhaps taking two or three at a time, or all together in Indian file. If touched by one of the defenders they are captured.



Stalking

The leader acts as a deer, not hiding, but standing, moving a little now and then if he likes.

The Scouts go out to find the deer and each in his own way tries to get up to him unseen.

Immediately upon seeing a Scout, the leader directs him to stand up as having failed. After a certain time the leader calls "time." All then stand

up at the spots which they have respectively reached, and the nearest wins.

To demonstrate the value of adapting the colour of clothes to the background, send out one boy about five hundred yards to stand against different backgrounds in turn, till he gets one similar in colour to his own clothes. The rest of the patrol are to watch and notice how he becomes invisible when he gets to a suitable background, *e.g.*, a boy in a grey suit standing in front of dark bushes, etc., is quite visible but becomes less so if he stands in front of a grey rock or house. A boy in a dark suit is less distinctly visible in a green field, but not when he stands in an open door-way against a dark interior shadow.

Will-o'-the-Wisp

This game should take place across country at night. Two Scouts set off in a given direction with a lighted bull's-eye lantern. After two minutes have passed the patrol or troop starts in pursuit.

The lantern-bearer must show his light at least every minute, concealing it for the rest of the time. The two Scouts take turns in carrying the light, and so may relieve each other in difficulties, but either may be captured. The Scout without the light can often mingle with the pursuers without being recognized and relieve his friend when he is being hard pressed. They should arrange certain calls or signals between themselves.

GAMES FOR CAMP AND HIKE

Snatch the Hat



For this game two equal teams are required. Each team formed of one patrol is the best fun, but, if necessary, the two teams may be furnished from one patrol.

The simplest form of the game is to take the hats of all the players and place them in a row on the ground, the two teams standing facing each other on either side of the row of hats.

A Scoutmaster or Patrol Leader, standing at one end of the row, then calls a number, and each Scout having that number in his patrol runs to the row, and endeavours to obtain the hat nearest the Scoutmaster, and return to his place without being "tagged" or touched by the other. Should he be tagged, he must replace the hat in the row.

The game proceeds until one patrol has secured a complete set of hats. If there are more than two patrols, the losers of the first game play another patrol, and so on, till all have had a turn.

As the two Scouts will probably reach the hat almost at the same time, one may pretend to seize it, and thus induce the other to move in one direction, while he seizes the hat and moves off briskly the other way.

There is much value in securing a good start by means of a well-executed feint, and great fun always results when two experts at pretense are opposed to each other.

No Scout should be called upon a second time until every other member of his patrol has had a turn.

The game may be varied in several ways, of which the two following are typical: —

1. Instead of aiming at the same hat, each Scout called upon may be required to find his own hat among all the hats placed in a heap, and, having found it, to attempt the double task of tagging his opponent and of returning to his own place without being tagged. Should he be successful when his number is called again, he has only to tag his opponent, and need not trouble about securing a hat, as he will, of course, already have got his own.

When the two Scouts bearing the same number have secured hats, they inform the Scoutmaster and drop behind the line, taking no further part in the game.

2. Other articles of Scout toilet such as neckerchiefs, lanyards, water-bottles, may be put down, and any player having secured a hat would then aim at another article until his toilet was complete.

The order in which articles are to be obtained must be definitely laid down by the Scoutmaster, when the game begins.

In this variation the patrol to which a Scout who first completes his toilet belongs, wins the game.

Bear Hunt



This is played by half a dozen or more boys. Each has a club about the size and shape of a baseball club, but made of straw tied around two or three switches and tightly sewn up in burlap. One big fellow is selected for the bear. He has a school bag tightly strapped on his back, and in that a toy balloon fully blown up. This is his heart.

He has three dens about one hundred yards apart in a triangle. While in his den the bear is safe. If

the den is a tree or rock, he is safe while touching it. He is obliged to come out when the chief hunter counts one hundred, and must go the rounds of the three till the hunt is settled. The object of the hunters is to break the balloon or heart; that is, to kill the bear. He must drop dead when the heart bursts.

But the bear also has a club for defense. Each hunter must wear a hat, and once the bear knows a hunter's hat off, that one is dead and out of the hunt. He must drop where his hat falls. Tackling of any kind is forbidden. The bear wins by killing or putting to flight all the hunters.

The savageness of these big bears is indescribable. Many lives are lost in each hunt, and it has several times happened that the whole party of hunters has been exterminated by some monster of unusual ferocity. This game has also been developed into a play.

Poison

This is an ancient game. A circle about three feet across is drawn on the ground. The players, holding hands, make a ring around this, and try to make one of the number step into the poison circle. He can evade it by side-stepping, by jumping over, or by dragging another fellow into it. The first to make the misstep is "it" for the next game.

Slipper Shuffle

This game can best be played by 15 to 20 boys. The players are placed in a circle, sitting on the ground with their feet placed flat on the ground, and knees raised as high as possible. One player is in the centre and a running shoe or slipper is required. The one in the centre, after turning his back and being hit by the running shoe or slipper in the hands of one of the players, turns quickly and tries to locate the slipper. After touching the player in the centre, the player in the circle immediately places the slipper under his knees and passes it around the circle. When the player in the centre succeeds in securing the slipper, the one in whose hands, or under whose knees he found it, must take his place.

Whip Tag



This game may be played by any number of boys. The players are placed in a circle facing inward, with their hands behind their backs. One, running around the circle on the outside, will drop the whip (a towel or similar piece of material made into a roll, and bound tightly with cord, like a stuffed club), into the hands of one of the players. The person receiving it quickly turns to his right hand

neighbours, hits him over the shoulders and chases him around the circle to the right, back to his place, beating him all the time with the whip over the back or shoulders. Any player using the whip on another player's head should be dropped from the game. The holder of the whip now takes the place of the last leader.

Mount Ball

The players are paired off according to height and strength, and form a double circle facing the centre, at two to six pace intervals. One person acts as umpire and holds a basketball, soccer football or indoor baseball. If these are not available, a boxing glove or other soft object may be used. On the command "Mount," the outer circle mount by straddling the backs of the inner circle, and the umpire tosses the ball to one of them, who will throw it across the circle to another one of the riders. Every time any one misses, the riders and ponies change places, and the umpire secures the ball and throws it to one of the riders and the game continues as before.



Duck on a Rock



Each player has a stone, called a "duck," about the size of a baseball. Bean bags may be used in a gymnasium. A large rock or posts selected and a line drawn twenty-five feet from it for a firing line. First all players throw their ducks at the goal from the firing line. The one whose duck remains farthest from the centre,

becomes the first guard, places his duck on the rock, and stands guard near it. The other players then take turns trying to knock off his duck, throwing from the firing line. After a throw, the thrower must recover his duck and run back to the line. If he is tagged by the guard, he must mount guard himself. He may be tagged at any time he is within the line unless he stands with his foot on his duck where it first fell. He may stand thus until he sees a good chance to run, but if he once picks his duck up he may not put it down again.

If the guard's duck is knocked off, he must not tag a player until he replaces it. Any player tagged by the guard must put his own duck on the rock. The guard must quickly get his own duck and run behind the firing line, as he may be tagged as soon as the new guard gets his duck on the rock.

Three Deep

This is a game in which the whole troop may take part. The boys are drawn up in circular form two deep. Two other players are necessary, one of whom stations himself on the outside of the circle close up to one of the pairs and tries to get inside the circle and station himself in front of anyone of the players without being caught. The other player tries tag him before he succeeds in doing so, when the one who is tagged in turn becomes "it" and mounts guard inside the circle.

If the outside player succeeds in stationing himself in front of any one of the pairs without being tagged, the outside man in this particular file of three must move and try to place himself in front of another pair without being tagged.

WINTER GAMES

Siberian Man Hunt

A man has escaped through the snow and a patrol follow his tracks, but, when they think they are nearing his hiding-place they advance with great caution because for them one hit from a snowball means death. The escaped person has to be hit three times before he is killed. If he has taken refuge up a tree or any such place, it will be very difficult to hit him without being hit first. The hunted man has to remain at large for a certain time, perhaps two or three hours, and then get safely home without being caught.



Arctic Expedition

Each patrol takes a sleigh or toboggan with harness to fit two Scouts who are to pull it (or for dogs if they have them, and can train them to the work.) Two Scouts go a mile or so ahead. The remainder with the sleigh follow, finding the way by means of the trail, and by such signs as the leading Scouts may draw in the snow. All other drawings seen on the way are to be examined, noted, and their meaning read. The sleigh carries rations, cooking utensils, etc.

Build snow huts. These must be made narrow, according to the length of sticks available for forming the roof, which may be made of brushwood, and covered with snow. Or, if the snow is suitable, the snow house may be made on the plan described on page 114.

Fox-Hunting

This game is to be played where there is plenty of untrodden snow about. Two Scouts representing foxes start from the middle of a field or piece of open ground, and five minutes afterwards the rest are put on their trail. The two foxes are not allowed to follow any human tracks. If they approach a pathway where other people have been, they must turn off in another direction; but they can walk along the top of walls and use any other ruse they like, such as treading in each other's tracks, and then one vaulting aside with staff. Both of them have to be caught by the pursuers for it to count as a win. The foxes have to avoid capture for one hour and then get back to the starting point.

The Dash for the Pole

Two rival parties of Arctic explorers are nearing the Pole. Each has sent out one Scout in advance, but neither has returned. They know the direction each started in because their tracks can be still seen in the snow. What has really happened is that each has reached the Pole, and each is determined to maintain his claim to it and so dare not leave the spot. They both purposely left good tracks and signs, so that they could be easily followed up, if anything happened. These two, one from each patrol, should start from headquarters together, and then determine upon the spot to be the Pole — each approaching it from a different direction.

The two parties of explorers start off together, about fifteen minutes after the forerunners, and each follow up the tracks of their own Scout. The first patrol to reach the spot where the two are waiting for them take possession; the Leader sets up his flag and the rest prepare snowballs, after laying down their staves in a circle round the flag at a distance of six paces. When the other party arrives, they try to capture the staves. The defenders are not allowed to touch their staves, but two hits with a snowball on either side puts a man out of action. Each defender killed and each staff take counts one point, and if the rival party gain more than half the possible points, they can claim the discovery of the Pole. Before the defenders can claim undisputed rights, they must kill all their rivals by pursuing them; even if only one or two are left. The two forerunners do not take part, but act as umpires.



TRIALS OF STRENGTH AND SKILL

The Palm Spring

This is performed by standing at a little distance from a wall with your face toward it and leaning forward until you are able to place the palm of your hand quite flat on the wall. You must then take a spring from the hand and recover your upright position without moving either of your feet. It is better to practice it first with the

feet at a little distance only from the wall, increasing the distance as you gradually attain greater proficiency in the exercise.

Prostrate and Perpendicular

Cross your arms on your body, lie down on your back and then get up again without using either your elbows or hands in doing so.



Tantalus Tricks

(a) Desire a player to stand with his back close to the wall, then place a piece of money on the floor at a little distance in front of him and tell him he shall have it if he can pick it up without moving his heels from the wall.



(b) Place the left foot and leg and the cleft cheek close against a wall; then lift the right foot slowly and endeavour to touch the left knee with it and stand steadily in that position.

Knuckle Down

This consists in placing the toes against a line chalked on the floor, kneeling down and getting up again without using the hands or moving the feet from the line.

Jumping Through Fingers

Hold a stick of wood between the forefinger and thumb of each hand, and, without letting go, try to jump over it both forward and backward. You may also jump over your middle fingers placed together without touching or separating them with your feet.



The Turn Over

Take a short run, place the toes of the right foot against a wall and throw the left leg over it, making a complete turn at the same time so that when your foot touches the ground your back is to the wall. The right foot is the pivot on which you turn and you must take special care to keep it quite close against the wall while you perform the turn over.

Indian Wrestle

Two players lie on their backs, side by side, locking arms, and with heads in opposite directions. Count "one, two, three." At each count the adjoining legs are brought to the perpendicular. At count three catch at the knee and endeavour to make the opponent perform a back roll.



Badger Pulling

Here is a good game which you can play either in your club-room or out doors. Two boys take part. Two or more neckerchiefs are knotted together and hung over the players' heads. A line is drawn between the players, and the object of the game is for each to try to pull the other over this line, using heads, hands and knees alone. There should be no catching hold of the handkerchiefs or the arms and hands, otherwise the fun will be lost.



Cock Fighting

This is a game for two players with arms folded and one leg lifted. The aim is to hop towards one another and by collision or otherwise to seek support to retain his balance. Cock-fighting always proves amusing, and our illustration shows a way of playing the game, which may be new to some of you. Instead of sitting on the floor, with staff under knees and hands clasped around legs in the usual manner, the two combatants get in a squatting position, with the staff held as usual. The picture shows this quite clearly. It is then very comical to see each "cock" hopping about and endeavouring to upset his opponent.



Tub-Tilting

Two Scouts are mounted on upturned tubs or barrels, about nine feet apart, and armed with long bamboo poles. Each pole has a boxing glove on one end, and the Scouts have to knock one another off the tubs with poles. The boxing glove, of course, prevents any damage being done.

If tubs cannot be obtained, forms or chairs may be used instead.



Reproduction of advertisement found inside back cover of the original 1930 edition:

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