

Fur returns in this area are concerned mostly with Arctic fox, and a similar short-term fluctuation is demonstrated, which falls into step with the Labrador coloured foxes. In this case migration has to be taken into consideration as well, and the ice movements round the coasts, which are discussed at length, facilitate a southward movement by carrying down foxes that hunt out on the sea ice.

From the predators we again turn to the small rodents, and the findings in Labrador are exactly repeated. The mainstay of the four-year cycle is here the lemming, which ranges from extreme scarcity to overwhelming abundance, just as in Norway.

This vast body of research states very clearly a problem, which can only be finally resolved by intensive ecological and population research on the spot. The implications of its solution, not only for the furtherance of scientific knowledge, but for the well-being of the peoples concerned, are enormous. The author allows himself a small plea for this research to be done, but the whole book constitutes the strongest possible plea that could be advanced.

There are of course parts of the book which tend to dullness, especially the building up of the case for small rodent fluctuations from quotations from letters and journals. But the remarkable thing is how small, in such a sustained effort, the dull parts are. Perhaps the warmest recommendation is that the central principles and problems are never allowed to be obscured by the detail. One is always quite certain just what the author is talking about and his arguments gain cogency from their very lucidity. The incisiveness of the style is also of great assistance to this end, and the absence of technical jargon proves that a scientific book can be written in good English, intelligible and enjoyable to anybody.

H. N. SOUTHERN.

*Dog Team Transportation. Basic Field Manual F.M. 25-6.* War Department, U.S.A., United States Government Printing Office, Washington, 1941. 78 pp., 14 Figs. (For sale by the Superintendent of Documents, Washington, D.C., 15 cents.)

This comprehensive little book has much to recommend it to those interested in its subject. It covers most of the field including housing, driving, feeding and care of the dogs, but as the title implies it is intended as a manual and guide for men detailed to undertake the care and working of dogs. The authors have therefore decided on certain methods and principles, and the use of these is more or less stipulated, and although there are some alternatives mentioned it is far from complete as an authoritative book on Dog Team Transportation. If one, in reading it, remembers this primary object of the booklet, much can still be learnt from a study of its somewhat condensed contents. The beginner will be able to adopt the methods suggested without much further instruction, for trouble has been taken to work through the subject methodically, but the dog expert will miss many methods of driving, puppy training and feeding not included in its pages.

Very full descriptions of certain types of sledges and harness are included, but again because of the intended scope of the book, many types are omitted, a mention of which would have made the subject more complete.

Two methods only of driving are mentioned, with teams hitched in tandem or in pairs, and therefore it must be presumed that these are the only methods which it is intended the forces for whom the manual is written will be called upon to use, but it must be remembered that there are conditions under which neither of these methods would prove at all suitable.

The kennels recommended are spacious and well constructed, though they are somewhat ambitious except for a permanent base where dog transport is in annual use. Under war conditions dog transport should be capable of being rushed from place to place where most needed and a temporary base established. Some form of light sectional housing easily movable would prove most useful.

It appears to me that the chaining of dogs is over-emphasised. Where the members of a team are blood relations or at any rate friendly and welded into a pack with individual relationships and authorities established I feel chaining is unnecessary, but it is an advantage to have team pens so that one team cannot come in contact with any other. At feeding time, should there be any fear of the weaker dogs not getting sufficient to eat, the dogs can be chained shortly before their meal and released after.

The rules laid down for the feeding and care of the dogs at the base are excellent, but to those of us who have established bases in the waste places of the earth on very meagre finances, they appear somewhat idealistic. Again, the feeding recommended for the trail would only suit certain types of journey, as for example one on which the supply of food could be replenished and with natural fuel available. To quote para. 27 (b), page 28:

For long trips, where economy of space in packing the sleds is necessary, the following ration may be used and should be cooked fresh every day: 1 lb. of rice, 1 lb. of grease, and  $\frac{1}{4}$  lb. of fish for flavour. If unrendered grease is used, such as suet, old bacon, etc., cut up the grease and fish into a kettle containing enough water to make a thick mixture and boil until the grease is boiled out well; add rice and more water where required, boil thoroughly without stirring. If a mixture is once stirred the stirring must be kept up constantly to keep the rice from burning. When well cooked, add a little moistened corn meal or oat meal and then stir continuously until the meat is cooked through. The mixture should then be cooled and should be of thick, firm consistency. As it becomes nearly cool, stir frequently in order to distribute the grease evenly throughout.

It seems obvious that these instructions are meant for a country where one is either travelling from house to house or at least where there is plenty of wood available. War, however, does not confine itself to such places, and it is felt that if the outfit must be self-supporting, the weight of food suggested plus the fuel necessary to cook it would leave a very small margin for pay load. One pound of Bovril dog pemmican per day uncooked and unembellished has in the experience of the writer on many occasions kept dogs fit though thin during periods up to two months while hauling heavy loads over hundreds of miles.

The difficulty in turning corners with a long tandem team is mentioned, but it is not noted that this can be greatly decreased if the bridle is lengthened so that a lighter push on the near front side of the sledge will prevent it from turning until it has reached the spot where the dogs turned.

Para. 14 (15) describes the bridle as being attached only to the first pair of uprights on the sledge. This is considered an unnecessary weakness. A suggested improvement is to take a turn of the bridle round the first and second pairs of uprights and splice it to the third pair. By this means the strain on any one pair of uprights is considerably reduced.

The paragraphs on puppy training are very good and it is pleasing to find emphasis laid on the necessity for patience and forbearance. "Spare the rod and spoil the child" is not an applicable proverb. One hint not mentioned which I have found useful is to run the mother in the team alongside the pup when training is first instituted.

*Words of command.* To start the team the words "all right" are recommended. I consider a single word better, but agree that "mush" is not incisive enough. In Labrador "Huit" is used. I favour a preparatory order. A resting team is mostly lying down and it is almost impossible to have the complete team get to their feet simultaneously and start pulling together and so start the sledge. I have used therefore with advantage the term "now dogs". The dogs then got to their feet and took the strain without pulling. Traces were adjusted if necessary and the whole team started as one when given the word. This refers only to halts during a journey, as I heartily agree with the remarks about anchoring a sledge before the initial start and not harnessing the dogs until the last moment. A team which is prepared to lie calmly in harness while the sledge is packed at the base on the first day of a long trip is either too unfit to be taken on the journey or has had its spirit broken.

There is a comprehensive chapter on the Physiology and Hygiene of dogs, setting out the diseases to which dogs are prone and giving suitable remedies.

A short chapter on the transportation of dog teams might with advantage be enlarged. This is of particular importance in war-time.

The manual ends with a useful chapter on loads and loading, but refers mainly to things military.

E. W. BINGHAM.