

Native American Snowshoe Bindings

by Art Belding

The definitive scoop on traditional quick-release snowshoe bindings for winter travel and muzzleloading biathlons

About 55 years ago I read a letter to the editor in one of the popular outdoor magazines from a reader seeking information about a snowshoe binding he used when he worked in the woods as a young man. The bindings were in common use with traditional snowshoes made of wood and rawhide by native Canadians. The man claimed they were better than modern bindings because if one fell through the ice while wearing them, it was easy to remove them with a simple twist of the foot. He had forgotten how to tie them and hoped some reader could remind him.

I was interested in how these bindings were made, but found nothing in print regarding Native American bindings except in Jaeger's book *Wildwood Wisdom*.¹ I have used his illustrated binding while wearing both rubber bottomed, leather topped boots (from L. L. Bean) and soft-soled winter moccasins. I found the binding effective as long as I tied it according to plate 191 on page 466. I believe the subtle difference illustrated on an earlier page² is an artistic error. Jaeger does not mention the "quick release" feature. For that reason I tied the final knot in front of the ankle instead of behind it, similar to that depicted in my figure 4. This made it difficult or impossible to remove the bindings without untying the knot. I have not experimented with this binding when the final knot is tied behind or alongside the heel, but it should make the quick release maneuver possible. In fact, Henri Vaillancourt³ and Macdonald⁴ show a very similar quick-release binding with two heel loops linked together. One does this by catching the first heel cord between the two halves of the square knot that joins the ends of the second heel thong. (Figure 1 and Figure 3A and 3B)

I have recently found several sources

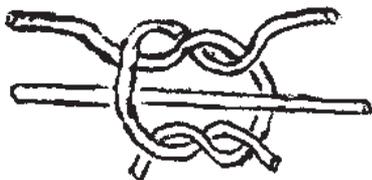


Figure 1

that answer most of the questions I had about the bindings and their use. I have listed them in the bibliography. According to Macdonald, native Canadians tied the original bindings using "soft tanned leather" about 3/4" wide and 3/8" thick.⁵ These had to be greased or oiled frequently because they stretched when wet and became stiff and abrasive when they dried. Today the most common material is **cotton wick for kerosene lamps**, which according to Macdonald stretches less than the leather thongs formerly used. He sells lamp wick in eighty-foot-long rolls of one-inch-wide webbing. He feels this width is superior to 3/4"-wide webbing for bindings. Lamp wick material may also be available from other Canadian suppliers but Upper Michigan hardware stores carry it only in small bundles of three to ten six-inch-long wicks. Some brands appear to be rather flimsy and would probably not be durable if they could be obtained in longer lengths. Dave Brown of Vermont has substituted Shaker chair tape for lamp wick and reports satisfactory results. It is available in the U.S. in short rolls or by the yard, depending on the supplier.⁶ A single binding requires four to six feet of thong, so a pair of bindings requires approximately eight to twelve feet of wick.

Macdonald says Native American bindings fall into two groups. The first type, used in north-eastern Canada, is the **single-thong, double-loop binding** (Figure 2). Clifford Ashley, in his book *The Ashley Book of Knots*, illustrates a variant of this binding. He says it is "a native Indian method of securing the moccasin to a snowshoe" described in a book by S. Newhouse, *The Trapper's Guide*, published by the Oneida Community, Wallingford, CT, 1865.⁷ This is the earliest documentation I have found of the use of the single thong, two loop, binding by Native Americans.

The second type of binding, used across southern Canada from the east coast west to Alaska, is the **two-piece binding** (Figure 3A). These bindings use a separate toe thong that is attached to the snowshoe by tying it to, or weaving it

into the webbing on both sides of the snowshoe toe hole. There are many individual and local variations in the way each of these two regional bindings are tied.⁸

Macdonald⁹ and Vaillancourt¹⁰ prefer to use the simple, easily adjusted,

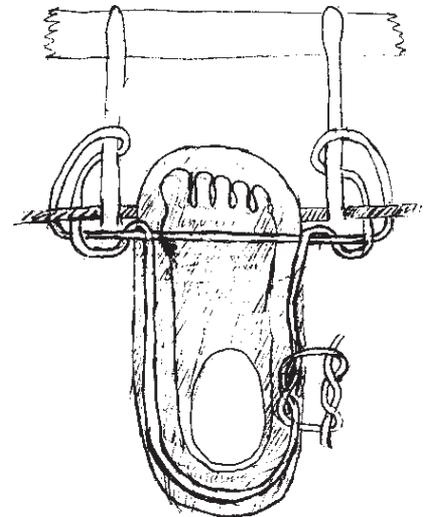


Figure 2 (Modified after C. K. Macdonald)

single thong binding (Figure 2). The Conovers apparently agree, since the binding they illustrate in use seems to be that type.¹¹

The Conovers caution that those who are inexperienced with native-style bindings may find learning to adjust the bindings perfectly takes time and is frustrating. The loop for the toes should fit well but not be too snug. The thong should pass through the snowshoe webbing close to the sides of the foot. The loop for the toes should not allow more than just the toes of the foot to enter the loop. The base of the great toe rests behind the master cord of the snowshoe toe hole, as illustrated in Figure 2.

When first learning to use the binding, the Conovers suggest that an intermediate version of the double-loop binding can be substituted, which does not allow hands-free exit (Figure 4). It is tiring to use when the snowshoes are put on and taken off repeatedly while working in camp, and is less safe should the wearer fall

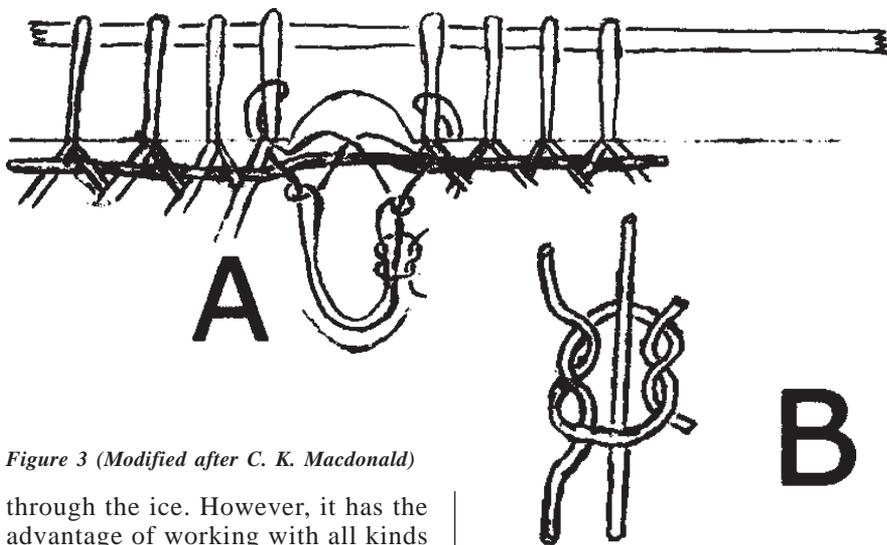


Figure 3 (Modified after C. K. Macdonald)

through the ice. However, it has the advantage of working with all kinds of winter footgear, even rubber-bottomed boots, and of being easily adjusted. It is only necessary to untie the knot in front of the ankle. Loosen or tighten the binding where required, either over the toe area or at the heel. Then retie the ends in front of the ankle as before.

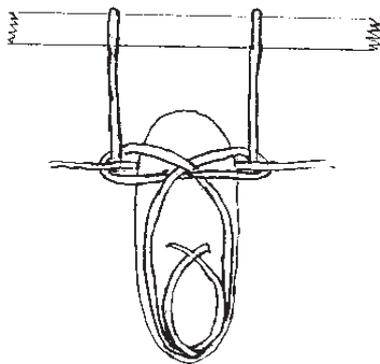


Figure 4

Much of the following information is condensed from a discussion of bindings written by and available from Craig Macdonald, a Canadian Park Ranger.¹² He is an authority on native winter travel routes and techniques and a source for gear and supplies. He believes the use of easily removed native bindings disappeared in many areas when thick-soled leather boots became standard equipment for various occupations such as logging.¹³ These boots do not slide in or out of the bindings easily.

To tie the double-loop binding, refer to Figure 2. Wear the same moccasin and insulation on your foot that you will when using the binding. Place the foot so the transverse master cord at the rear of the toe hole is just beneath the bone connecting the two joints of the great

toe. Place the midpoint of the thong over the toes. If the snowshoe webbing has holes for harness attachment on either side of the toe hole, check to see if they are immediately adjacent to the sides of the foot. If so, you can use them, but if not, disregard them. On each side of the foot select an opening immediately adjacent to the side of the foot and just behind the master cord. Pass the thong through the selected spaces. Snug the binding up to the foot by pulling on the ends. There should be little side-to-side movement of the toes on the snowshoe and no pinching of the foot at the sides or top of the toes. Referring to the illustration, pass the ends of the thong beneath the webbing toward the front of the shoe, loop around the cords at each side of the toe hole and return to the bottom side of the webbing. Then return the thong to the top side of the webbing through the same holes through which it initially passed. Tighten the binding around the cords at each side of the toe hole. Then grasp both ends of the heel thong and circle once (in a counter clockwise direction, viewed from the right side of the binding) the toe-loop thong where it passes above the toe, with each end of the thong. Take the ends of the thong to the rear of the heel. Form the heel loop by tying them together using a square knot. Tying the knot at the side of the heel prevents the formation of blisters caused by pressure from the knot.

The native bindings are most satisfactory when used with the traditional leather soft-soled winter moccasins with soft liners such as duffle cloth, wool blanket material, etc. If one carefully adjusts the binding, stiffer moccasins

insulated with snowmobile boot felt liners such as the "Mukluks" made by Steger Mukluks¹⁴ will also work, but they are slightly heavier and they dry more slowly when wet. I have found they are a little difficult to slide out of the traditional two-loop binding. This may be because of the rubber coating on the sole or the less compressible felt lining of the moccasins. Also, it may be simply my relative inexperience using them with these bindings. I have no experience with boots with aggressive treads on the soles, but would expect them to slide out of the two loop binding with greater difficulty.

To put on the snowshoes, refer to Figure 5A-D. The binding will be dry and floppy if it has not been used recently. Lay one snowshoe on the snow and place the other along side, pointing in the same direction but overlapping enough to keep the first one in place when you stand on the top shoe. For the purpose of this discussion the left shoe will be the first, partially beneath the right shoe.

Pick up the heel loop of the left shoe with your fingers and slip the toes and heel of the left foot into the loop from the upper side (Figure 5A). Let go of the loop and stand up. Push your left foot away from the opposite foot (in this case to your left) and forward, until the loop slides up around the ankle. It may help to rotate the left foot even farther to the left so the heel loop rides up on the instep as far as possible. Move your foot



Figure 5A.

to the rear, toward the center of the snowshoe and rotate it so the toe is just to the left of the snowshoe toe hole (Figure 5B). Lift your heel and rotate the foot more to the right until the toe is in the binding's toe loop and over the toe hole (Figure 5C & D). Repeat the process with

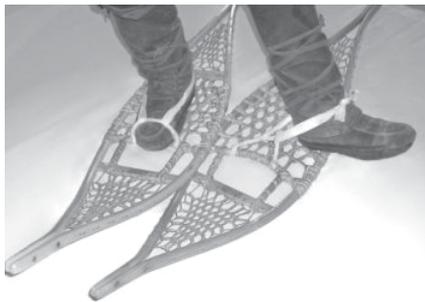


Figure 5B.

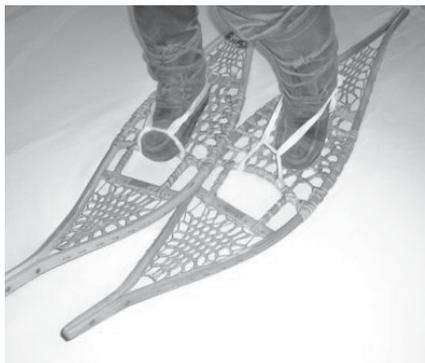


Figure 5C.

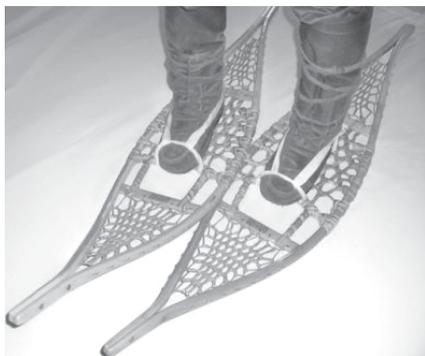


Figure 5D.

the right foot and snowshoe. Remember to pin the right snowshoe to the snow first by standing on it with the left snowshoe, and to substitute "right" for "left" in the instructions when putting on the right binding.

To remove the snowshoes you reverse the process (see Figures 6 A, B, C & D). First, pin the left snowshoe with the right as above. Pull the left foot

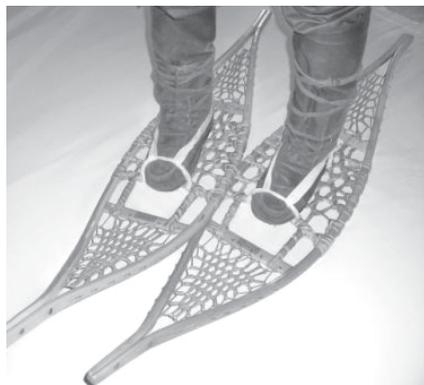


Figure 6A.

to the rear as far as possible, raise your heel and rotate the foot to the left until the toes slide out from under the toe

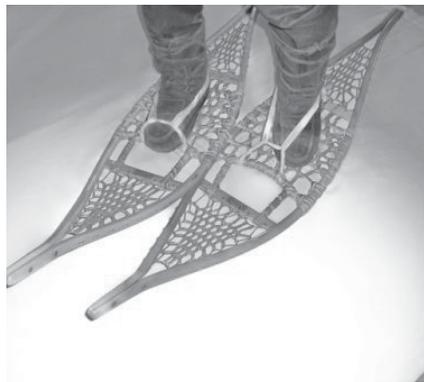


Figure 6B.

loop of the binding. Then push the left foot forward and to the left. Lift the heel of the left foot until the rear of the heel will slide out of the heel loop. Pull your foot out of the loop and step on the

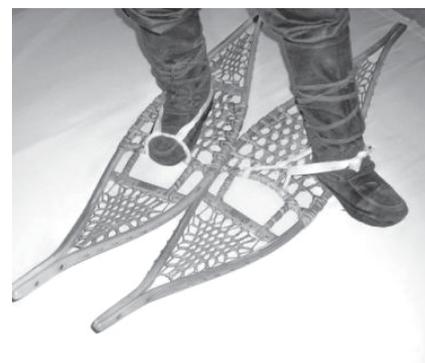


Figure 6C.

side of the right snowshoe. Pull your right foot to the rear as far as possible, raise the heel and rotate the foot to the right until the toes slide out from the toe loop, etc.

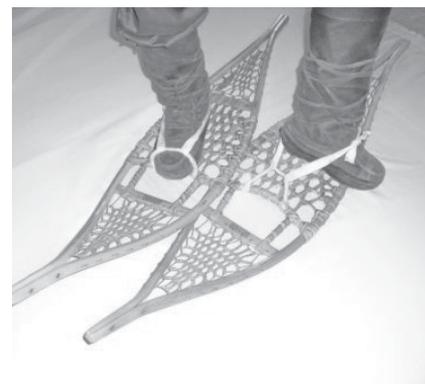


Figure 6D.

According to Macdonald, a big advantage of these bindings is that when one uses them in cold temperatures, moisture accumulates in them and freezes. Upon removal from your feet, the bindings stand up, away from the webbing of the shoe. Then it is easy to simply slide the foot in and out of the binding without handling it, bending down, or removing one's gloves. With practice, it is like slipping on bedroom slippers. The technique is similar to that illustrated in Figure 5A except you point the toes toward the rear of the snow-

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Standing in the snowshoes.

shoe and push to the rear so the heel loop slides up over the instep to the ankle. Next rotate the toes toward the front of the snowshoe while pushing the foot to the rear and lifting the heel. The toes should then be in position to enter the toe loop. Even when the bindings are dry or unfrozen, it is still easier and quicker to put them on or remove them than with most modern bindings that require you to fasten laces or buckles.

An even more important feature is safety. If you fall through the ice on a rapidly moving river, the snowshoes act like parachutes, catching the flowing water and making it extremely difficult to escape. Using the native bindings, with a twist of the foot the toes will quickly slide from the toe loop. The heel cord loop stays on the ankle, which keeps them from being lost to the current, but markedly reduces the pull of the current¹⁵.

When you first tie a binding with a fresh thong and walk a few hundred yards, it will stretch and require adjustment. If the toe loop is too loose, untie the knot at the heel, and remove the windings on one side of the toe so you can tighten or loosen the toe loop and then rewind the heel thong around the toe loop thong in the original direction. Take the same number of turns around the toe loop as on the opposite side of the toe. Then tie the knot beside the heel as before. When this is done properly, winding the heel loop more times counterclockwise around

the toe loop will tighten the heel loop. (It does not make a difference whether you initially wind clockwise or counterclockwise. Just wind the left and right sides equally and in the same direction.) To tighten the heel loop, just pass it around the toe loop in the appropriate direction until the slack is gone. To avoid blisters on the toes, limit the number of turns to three or four. If more turns are necessary, simply retie the knot to reduce the size of the loop, instead of increasing the number of turns. Once the initial stretch in the bindings has been



Walking in the snowshoes.

worked out of the lamp wick and the bindings are adjusted, they usually will need very little adjustment unless you change your footwear.

If despite adjustment, you find the heel cord slips off the heel, there are several options. As mentioned earlier, the first is to try the method illustrated in Figure 4. If you wish to try something that can still function as a quick release binding, try entering the heel loop from below. You will find the heel cord forms an X ahead of the ankle, on top of the instep. This may prevent the heel cord from slipping off the heel so easily. Macdonald discusses this method, but warns it also makes it more difficult to remove the bindings in an emergency. He suggests that if you choose to use this binding while traveling on ice, you should practice putting the bindings on and off the same way every time to improve your chances in case you fall through the ice.

Macdonald finds a pair of bindings will usually last for 120 miles of travel in light, fluffy snow. However, he points out that coarse, crusty snow found in the spring and in some areas, all winter, is abrasive and causes wear, especially where the binding passes under the master cord on each side of the toe hole. In these conditions, bindings should be inspected each day of use. Macdonald suggests carrying an extra pair of bindings in case of breakage.

There will be readers who ask, "When did the use of lamp wick as a substitute

for brain-tanned leather thong begin?” At this time I can only speculate. Lamps using whale oil became popular during the late 1700’s in Great Britain.¹⁶ An improved method for kerosene production was patented in 1850. It was recommended for use in oil lamps in the mid 1850’s.¹⁷ Flat kerosene wick has become popular as a replacement for leather thong, but I do not know when this occurred. I do not know if whale oil lamp wick was suitable for snowshoe bindings or whether whale oil and lamp wick were commonly available on the frontier as trade items. Were there similar woven fabric straps such as Shaker chair tape available, used for other purposes, which could have been used for bindings? This seems a fertile field for research by those interested in the historical use of various materials for snowshoe bindings. My suspicion is that leather straps were commonly available and cheap compared with many purchased substitutes and were the most common straps used for snowshoe bindings by the frontiersmen and colonists during the 18th and early 19th centuries.

I also have no information on when the modern style bindings with various straps and buckles were developed for use with hard-soled leather boots. Certainly they do not seem popular with several northerners who have recently written about traditional style foot travel in the winter. This seems partly because of the frequent travel on frozen lakes and rivers. The level surface and general lack of hills, trees, rocks, and other obstructions on waterways is labor saving, but there is always a danger of breaking through the ice while wearing snowshoes. The native bindings, quickly and easily removed, reduced the labor of outdoor chores and could be life saving.

End notes

¹Jaeger, Ellsworth, *Wildwood Wisdom*, p. 466, plate 191, sketch A.

²*Ibid*, p. 464, plate 190, fig. 12.

³Vaillancourt, Henri, *Making the Attikamek Snowshoe*, p. 160, fig. 45 C.

⁴Macdonald, C. K., “Instructions for Lampwick Snowshoe Bindings”, p. 3.

⁵*Ibid*, p. 1.

⁶Brown, D., personal communication.

⁷Ashley, C., *The Ashley Book of Knots*, p. 73, figure 447.

⁸Vaillancourt, H., *op. cit.*, p. 159-163.

⁹Macdonald, C. K., *op. cit.*, p. 1.

¹⁰Vaillancourt, H., *op. cit.*, p. 163, figure 49.

¹¹Conover, Garrett, and Alexandra, *A Snow Walker’s Companion*, pp. 24, 25.

¹²Macdonald, C. K., *op. cit.*, p. 1-8.

¹³Macdonald, C. K., personal communication.

¹⁴StegerMukluks, www.stegermukluks.com

¹⁵Macdonald, C. K., *op. cit.*, p. 8.

¹⁶Caspall, John, *Fire and Light in the Home, pre-1820*, p. 222.

¹⁷*Ibid*, p. 273.

Bibliography with comments:

Ashley, Clifford W., *The Ashley Book of Knots*, published in 1944 by Doubleday & Company, Inc., Garden City, NY. This is the source for the reference printed in 1865 by Sewell Newhouse to a single-thong, double-loop, snowshoe binding. See below.

Brown, Dave, of Vermont has found Shaker chair tape to be a satisfactory substitute for lamp wick. He provided the

names of two sources: Shaker Workshops, Ashburnham, MA, phone 800-840-9121 (www.shakerworkshops.com) and Royalwood Ltd., Mansfield, OH, phone 800-526-1630, (www.royalwoodltd.com). These suppliers will sell the tape in five-yard and one-yard increments, respectively.

Caspall, John, *Fire and Light in the Home pre-1820*, published in 1987 by Antique Collector’s Club, Ltd., Market Street Industrial Park, Wappingers’ Falls, NY 12590 USA, 1987, the history of fire making and home lighting with discussions of candles, rush lights, candle-firs, lamps fueled by animal and vegetable oils, etc. It was written for the antique trade, but I believe the discussions of early colonial candlesticks, lamps, etc. will be of interest to many of our readers.

Conover, Garrett and Alexandra, *A Snow Walker’s Companion*, published in 1995 and available from McGraw-Hill Co, Customer Service Dept., PO Box 547, Black Lick, OH 43004, phone 1-800-822-8158. (In the 2nd edition the name changed to: *The Winter Wilderness Companion*). Discusses adaptations of native techniques for modern winter camping and travel. It contains an extensive list of suppliers of “hard to find items” and contains plans for making traditional eastern Canadian native footgear, mittens, etc., including a sewing stitch for puckering moccasins. It is an excellent, very readable book.

Jaeger, Ellsworth, *Wildwood Wisdom*, 1945 edition, with many reprints, including my copy from 1995; it is available for \$15.45 from Shelter Publications, Inc., PO Box 279, Bolinas, CA 94924. This book was written to document Native and Pioneer American camping and survival skills at a time when those with first-hand, day-to-day knowledge were dying off.

Macdonald, Craig K., R.R. #1 Dwight, Ontario, Canada POA 1H0. Phone: 1-705-635-3416 (evenings). He wrote “*Instructions for Lampwick Snowshoe Bindings*”, available from the author, included with an order for an eighty-foot roll of one-inch wide lamp wick, \$29 (Canadian) plus postage. This is a well illustrated, detailed eight-page discussion of Native American Snowshoe bindings. It covers how to tie them, and how to use them with soft-soled moccasins and some modern rubber boots. He has several other typewritten manuscripts available on the use and construction of traditional winter gear such as toboggans and sleds. One in particular, a short discussion of winter survival techniques to use when a camper’s winter shelter is destroyed, may be of interest.

Sewell Newhouse, *The Trapper’s Guide; A Manual of instructions For Capturing All Kinds of Fur-Bearing Animals, and Curing Their Skins: With Observations on the Fur Trade, Hints on life in the Woods, and Narratives of Trapping and Hunting Excursions*, Published by the Oneida Community, Wallingford, CT, 1865, (ISBN: 1104932547 / 1-104-93254-7). This early book is currently in print according to www.abebooks.com and www.amazon.com. According to Ashley, this is his source for a reference to a single-thong, double-loop, snowshoe binding used by Native Americans.

Steger Mukluks, 100 Miners Dr., Ely, MN 55731, phone 1-800-685-5857. (www.mukluks.com) Very nice goods, excellent customer service. The moccasins are water resistant, not waterproof. They are excellent in dry snow below 20 degrees F.

Vaillancourt, Henri, *Making the Attikamek Snowshoe*, published in 1987 by the Trust for Native American Cultures and Crafts, Box 142, Greenville, NH 03048. This is an excellent book containing much detailed information on the very artistic crafts of the Attikamek natives. Chapter IV, page 155 is devoted to traditional bindings and native winter footgear. **MB**