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for
the braiding artisan

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Braided Slit Braids

Slit braids have been discussed in many different publications. In *The Braider*, Issue No. 1, pp. 13-15, can be found an article on basic slit braids which goes into much greater detail than is found in other publications.

In Bruce Grant's book *The Encyclopedia of Rawhide and Leather Braiding* these basic slit braids can be found on pp. 50, 51, 68, 69, 200 and 201. The written instructions for a somewhat different slit braid can be found in the 4th paragraph on pg. 200 with its associated drawings in figs. 4, 5, 6 and 7 on pg. 201. His text calls this a '*--more fancy method of making this braid--*' and the desired result is depicted in fig. 6 where the view of the edges gives the appearance of a four-string braid. This is a simple form of a **braided slit braid** and one in which, although the idea is not difficult to understand, the braiding process itself can easily result in a final product with not the best of appearances.

A **braided slit braid** of much greater quality was noted as being a part of, and the attachment for, a quirt lash. The quirt was made by a Mexican sheepherder using mostly scraps of old leather recycled from worn out horse equipment. While the materials used were of generally only fair to poor quality, the braiding skills were quite good.

The braid has a square cross-section as shown in the centre of Fig. 761. If side 'a' has the appearance shown to the left of the cross-section view in Fig. 761, then side 'b' will be the mirror-image of side 'a'. If side 'c' has the appearance shown to the right of the cross-section view in Fig. 761, then side 'd' will be identical to side 'c'.

While there are, no doubt, many applications for these braided slit braids, we will limit our discussion to the general construction process needed to make similar quirt lashes. The lash as drawn in Fig. 761 is braided from three straps of leather. We will return to this braid shortly, but first we can look at a two strap braid. The preferred material used for these lashes is leather or rawhide.

In Fig. 762 is depicted a similar braided lash, but made from two straps rather than three. Again the braid will have a square cross-section as shown in the centre of Fig. 762. If side 'a' has the appearance shown to the left of the cross-section view in Fig. 762, then side 'b' will be the mirror-image of side 'a'. If side 'c' has the appearance shown to the right of the cross-section view in Fig. 762, then side 'd' will be identical to side 'c'.

This braid may be made as follows using two straps of material. In Fig. 763, top row left, the outermost strap is on the left labelled and identified as strand 1 while on the right it is labelled and identified as strand 2. The innermost strap is on the left labelled and identified as strand 3 while on the right it is labelled and identified as strand 4. This gives an initial left to right strand order of 1–3–4–2. Strand 1 is shown with its initial slit cut in for braiding to begin. The braiding proceeds as follows:

Fig. 763, top row right — Pass strand 3 through the slit made in strand 1. This will result in the left to right strand order 3–1–4–2. Cut a slit in strand 2.

Fig. 763, bottom row left — Pass strand 4 then strand 1 through the slit made in strand 2. This will result in the left to right strand order 3–2–1–4. Cut a slit in strand 3.

Fig. 763, bottom row centre — Pass strand 2 through the slit made in strand 3. This will result in the left to right strand order 2–3–1–4. Cut a slit in strand 4.

Fig. 763, bottom row right — Pass strand 1 then strand 3 through the slit made in strand 4. This will result in the left to right strand order 2–4–3–1.

This completes half a periodic sequence of the braid. If the flesh-side of the leather or rawhide is outermost on the two straps at the beginning of the braid as depicted in Fig. 763, top row left, then at the completion of the stage depicted in Fig. 763, bottom row right, the braid will have the appearance of Fig. 762 where the braided portion has the flesh-side outermost while the remainder of the lash-strands will have the hair-side outermost.

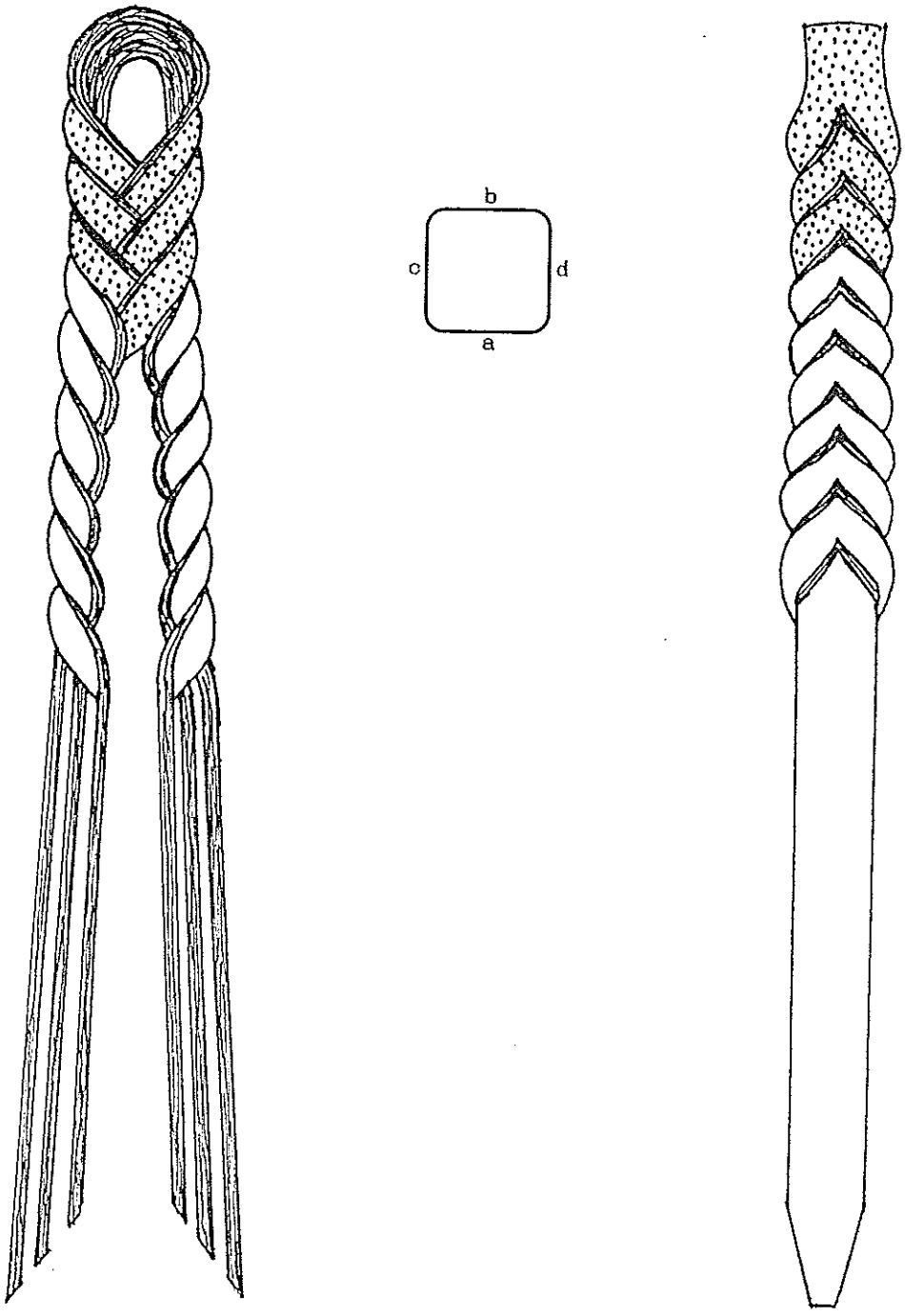

Fig. 761 — A braided slit braid made from three straps.

To continue the braid beyond the stage depicted in Fig. 763, bottom row right, we

begin by cutting a slit in strand 2. Then:

1. — Pass strand 4 through the slit made in strand 2. This will result in the left to right strand order 4–2–3–1. Cut a slit in strand 1.

2. — Pass strand 3 then strand 2 through the slit made in strand 1. This will result in the left to right strand order 4–1–2–3. Cut a slit in strand 4.

3. — Pass strand 1 through the slit made in strand 4. This will result in the left to right strand order 1–4–2–3. Cut a slit in strand 3.

4. — Pass strand 2 then strand 4 through the slit made in strand 3. This will result in the left to right strand order 1–3–4–2.

This completes the consecutive half periodic sequence (the second half periodic sequence) of the braid, and hence a full periodic sequence of the braid has been completed. The final left to right strand order 1–3–4–2 is identical to that shown in Fig. 763, top row left. The second half periodic sequence will have doubled the length of the braided portion shown in Fig. 762, but the additional braided portion will have the hair-side outermost. The remainder of the lash-strands will now have the flesh-side outermost.

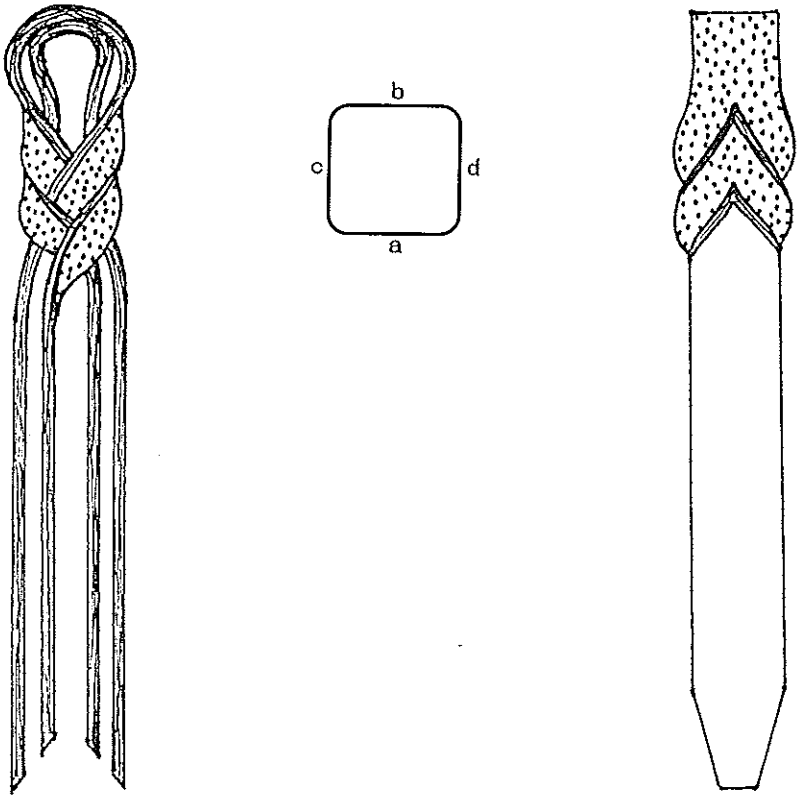

Fig. 762 — A braided slit braid made from two straps.

The braid may be continued for any length by repeating the steps beginning with the step shown in Fig. 763, top row left, and ending at the completion of any half periodic sequence.

The braided slit braid can easily be extended to a three or more strap braid. It will again have a square cross-section as shown in the centre of Fig. 764 for a three strap braided slit braid. If side 'a' has the appearance shown to the left of the cross-section view in Fig. 764, then side 'b' will be the mirror-image of side 'a'. If side 'c' has the appearance shown to the right of the cross-section view in Fig. 764, then side 'd' will be identical to side 'c'.

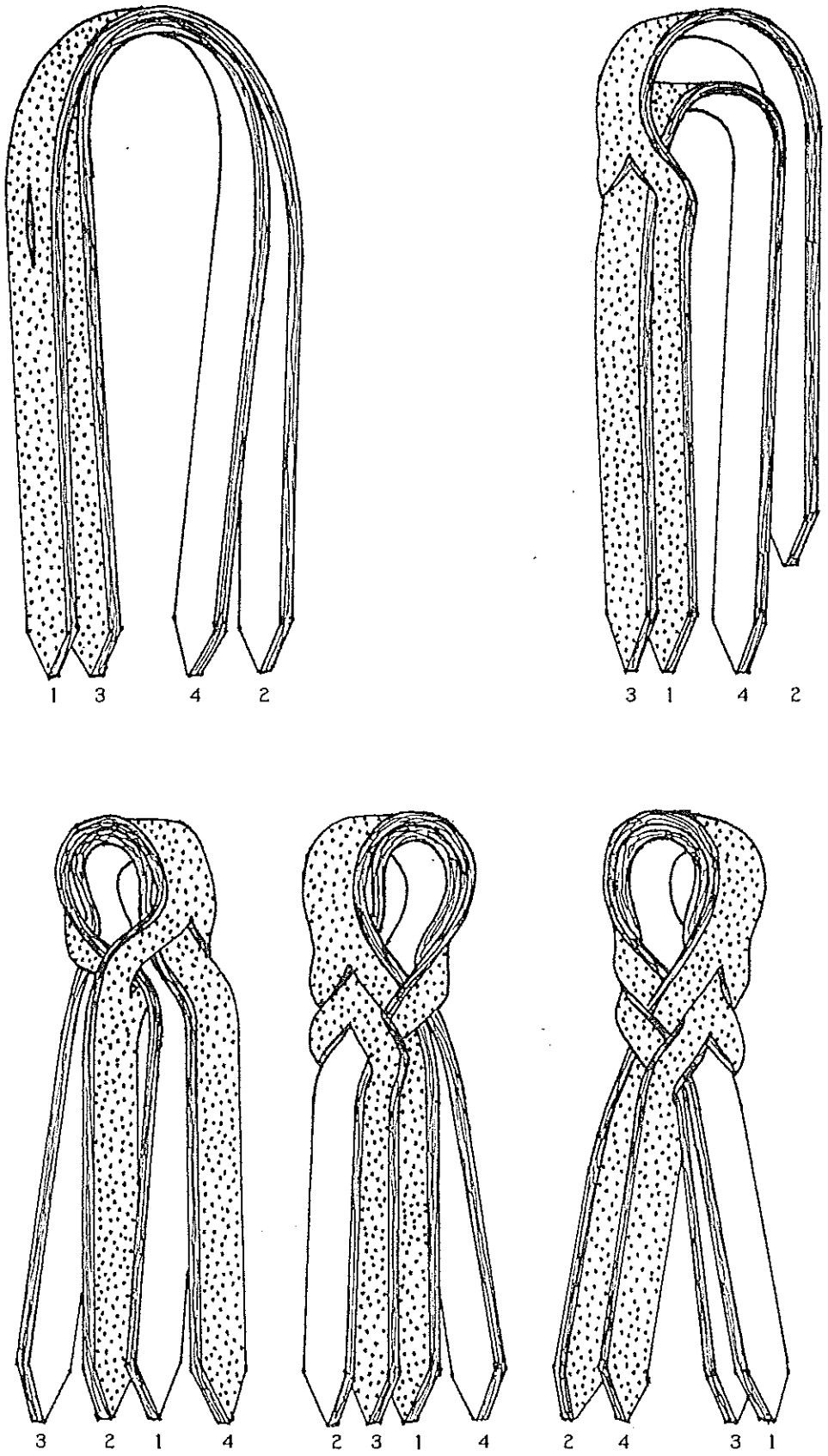

Fig. 763 — Braiding the first half periodic sequence of a two strap braided slit braid.

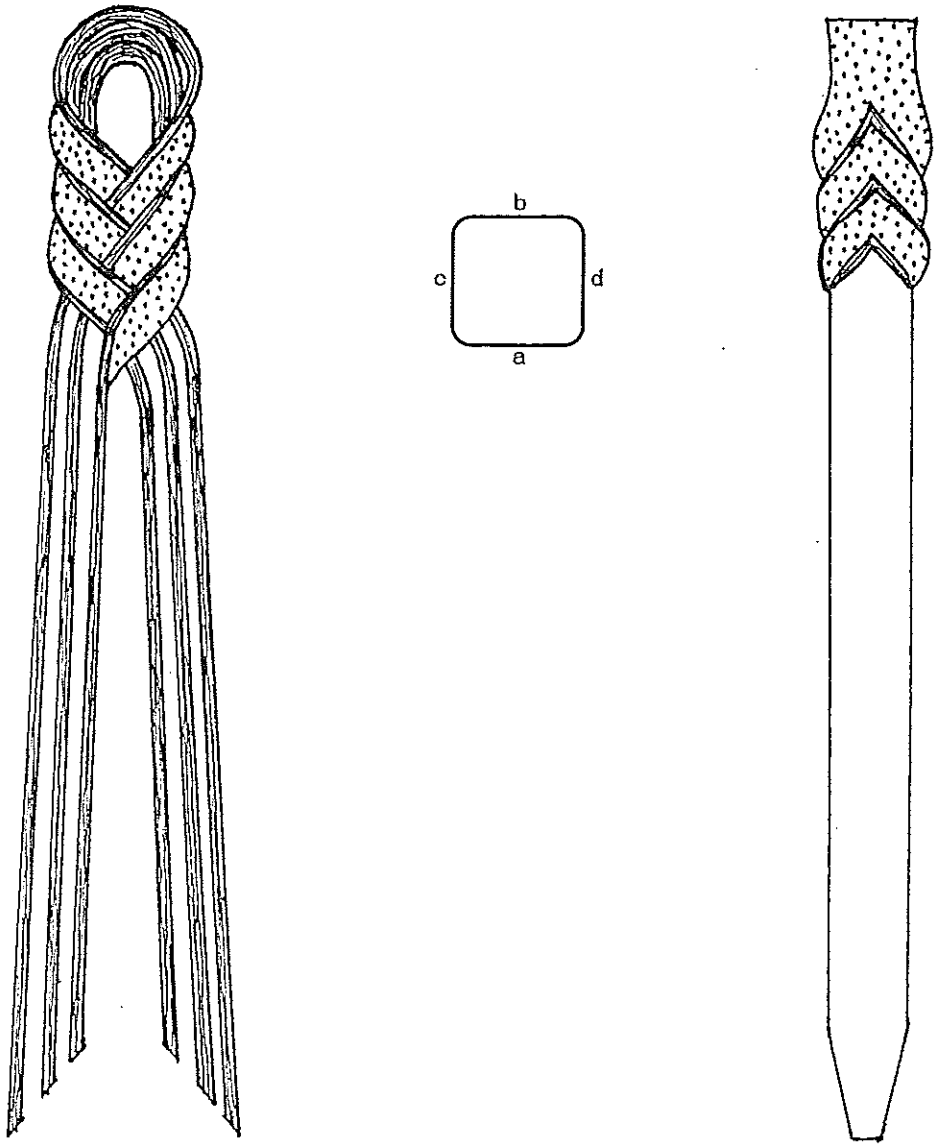

Fig. 764 — A braided slit braid made from three straps.

This three strap braided slit braid may be made as follows:

In the leftmost drawing of Fig. 765 the outermost strap is on the left labelled and identified as strand 1 while on the right it is labelled and identified as strand 2. The middle strap is on the left labelled and identified as strand 3 while on the right it is labelled and identified as strand 4. The innermost strap is on the left labelled and identified as strand 5 while on the right it is labelled and identified as strand 6. This gives an initial left to right strand order of 1–3–5–6–4–2. Strand 1 is shown with its initial slit cut in for braiding to begin. The braiding proceeds as follows:

Fig. 765, central drawing — Pass strand 3 and then strand 5 through the slit made in strand 1. This will result in the left to right strand order 3–5–1–6–4–2. Cut a slit in strand 2.

Fig. 765, rightmost drawing — Pass strand 4 then strand 6 then strand 1 through the slit made in strand 2. This will result in the left to right strand order 3–5–2–1–6–4. Cut a slit in strand 3.

— Pass strand 5 then strand 2 through the slit made in strand 3. This will

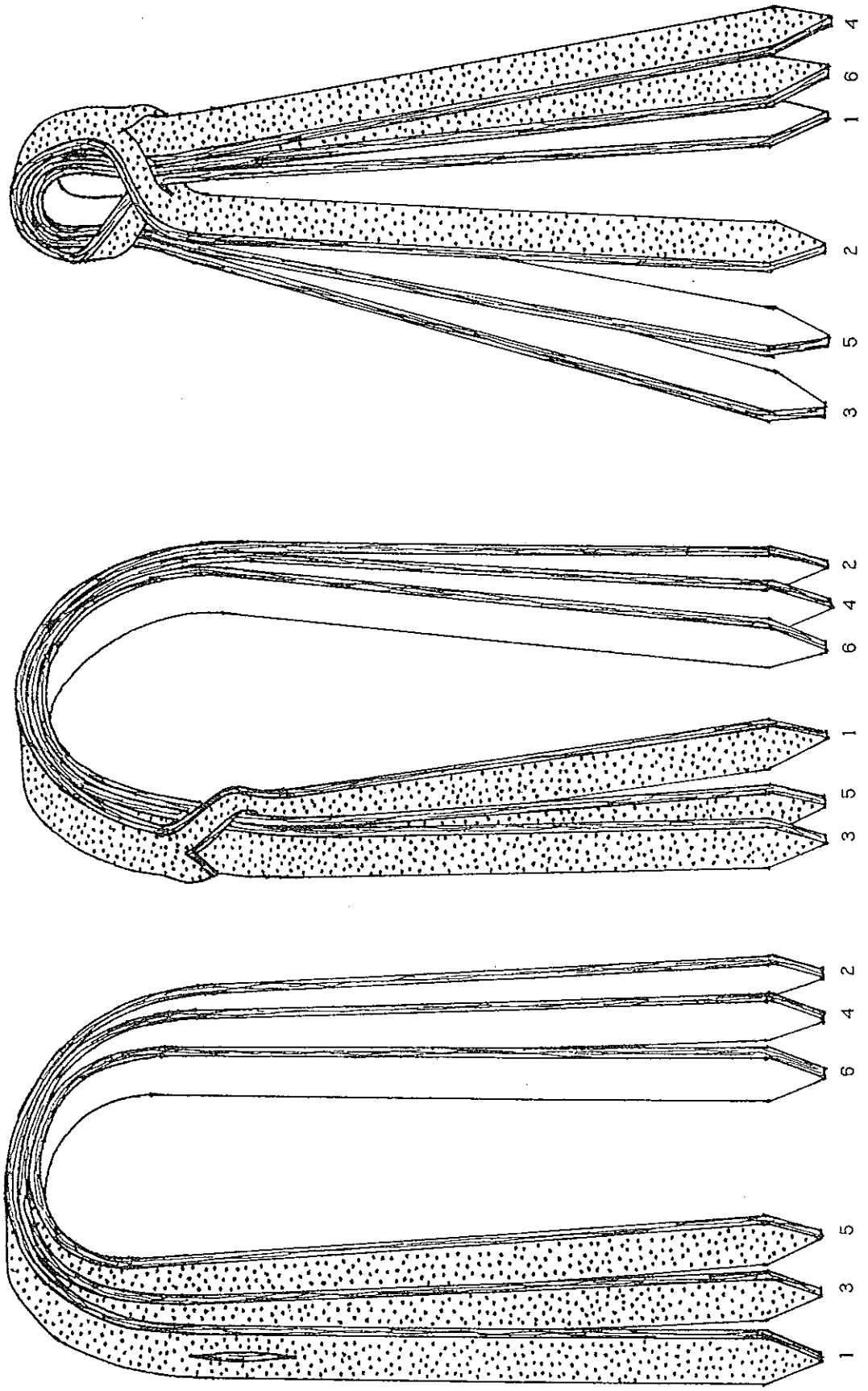

Fig. 765 — The initial steps in braiding the first half periodic sequence of a three strap braided slit braid.

result in the left to right strand order 5–2–3–1–6–4. Cut a slit in strand 4.
— Pass strand 6 then strand 1 then strand 3 through the slit made in strand 4. This will result in the left to right strand order 5–2–4–3–1–6. Cut a slit in strand 5.
— Pass strand 2 then strand 4 through the slit made in strand 5. This will result in the left to right strand order 2–4–5–3–1–6. Cut a slit in strand 6.
— Pass strand 1 then strand 3 then strand 5 through the slit made in strand 6. This will result in the left to right strand order 2–4–6–5–3–1.

This completes half a periodic sequence of the braid. If the flesh-side of the leather or rawhide is outermost on the three straps at the beginning of the braid as depicted in the leftmost drawing of Fig. 765 then at the completion of the first half periodic sequence of the braid, the braid will have the appearance of Fig. 764 where the braided portion has the flesh-side outermost while the remainder of the lash-strands will have the hair-side outermost.

To continue the braid through the next half periodic sequence we begin by cutting a slit in strand 2. Then:

1. — Pass strand 4 then strand 6 through the slit made in strand 2. This will result in the left to right strand order 4–6–2–5–3–1. Cut a slit in strand 1.

2. — Pass strand 3 then strand 5 then strand 2 through the slit made in strand 1. This will result in the left to right strand order 4–6–1–2–5–3. Cut a slit in strand 4.

3. — Pass strand 6 then strand 1 through the slit made in strand 4. This will result in the left to right strand order 6–1–4–2–5–3. Cut a slit in strand 3.

4. — Pass strand 5 then strand 2 then strand 4 through the slit made in strand 3. This will result in the left to right strand order 6–1–3–4–2–5. Cut a slit in strand 6.

5. — Pass strand 1 then strand 3 through the slit made in strand 6. This will result in the left to right strand order 1–3–6–4–2–5. Cut a slit in strand 5.

6. — Pass strand 2 then strand 4 then strand 6 through the slit made in strand 5. This will result in the left to right strand order 1–3–5–6–4–2.

This completes the consecutive (the second) half periodic sequence of the braid, and hence a full periodic sequence of the braid has been completed. The final left to right strand order 1–3–5–6–4–2 is identical to that shown in the leftmost drawing of Fig. 765. The second half periodic sequence will have doubled the length of the braided portion shown in Fig. 764, but the additional braided portion will have the hair-side outermost. The remainder of the lash-strands will now have the flesh-side outermost.

The braid may be continued for any length by repeating the steps beginning with the step shown in the leftmost drawing of Fig. 765, and ending at the completion of any half periodic sequence. Also at the end of any half periodic sequence we can begin the basic slit braid as shown on pg. 201, figs. 1 , 2 and 3 in Grant's *Encyclopedia of Rawhide and Leather Braiding* using three strands in each braid. Then the braid will appear as used on the Mexican quirt and shown in Fig. 761.

We can also make similar quirt lashes by making the braided slit braid reversed to what is normal procedure. Such a braid is every bit as good as the braids shown above.

As in all braided slit braids a careful placement of the slits is critical to the appearance of the finished product. Smooth face pliers are very useful in making these reversed braided slit braids lie properly.

For a two strap lash the braid will again have a square cross-section as shown in the centre of Fig. 766.

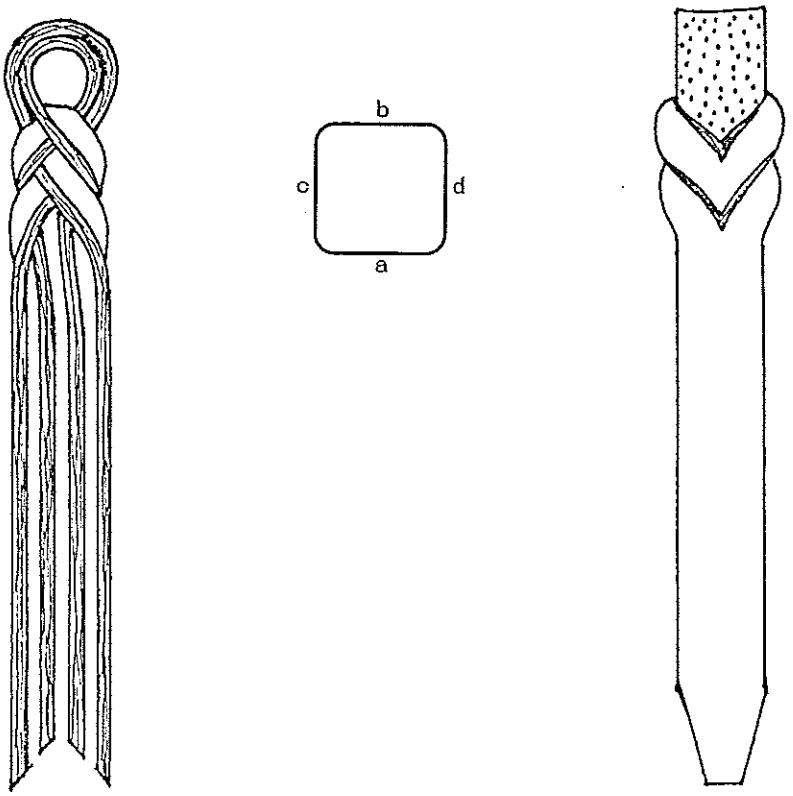

Fig. 766 — A reversed braided slit braid made from two straps.

If side 'a' has the appearance shown to the left of the cross-section view in Fig. 766, then side 'b' will be the mirror-image of side 'a'. If side 'c' has the appearance shown to the right of the cross-section view in Fig. 766, then side 'd' will be identical to side 'c'.

This braided slit braid may be made as follows using two straps of material. In Fig. 767, top row left, the innermost strap is on the left labelled and identified as strand 1 while on the right it is labelled and identified as strand 2. The outermost strap is on the left labelled and identified as strand 3 while on the right it is labelled and identified as strand 4. This gives an initial left to right strand order of 3–1–2–4. Strand 1 is shown with its initial slit cut in for braiding to begin. The braiding proceeds as follows:

Fig. 767, top row right — Pass strand 2 then strand 4 through the slit made in strand 1. This will result in the left to right strand order 3–2–4–1. Cut a slit in strand 2.

Fig. 767, bottom row left — Pass strand 3 through the slit made in strand 2. This will result in the left to right strand order 2–3–4–1. Cut a slit in strand 3.

Fig. 767, bottom row centre — Pass strand 4 then strand 1 through the slit made in strand 3. This will result in the left to right strand order 2–4–1–3. Cut a slit in strand 4.

Fig. 767, bottom row right — Pass strand 2 through the slit made in strand 4. This will result in the left to right strand order 4–2–1–3.

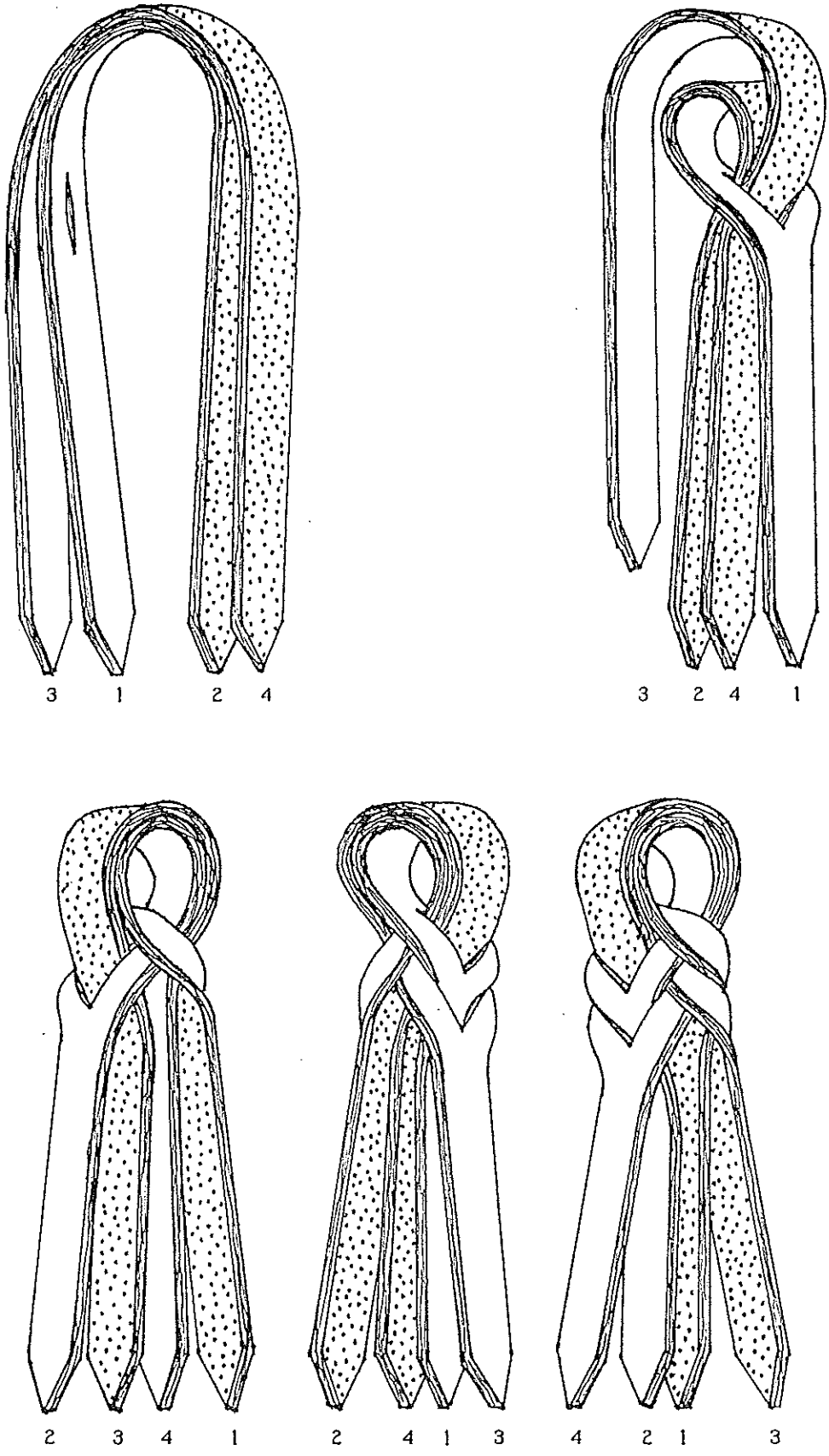

Fig. 767 — Braiding the first half periodic sequence of a two strap reversed braided slit braid.

This completes half a periodic sequence of the braid. If the flesh-side of the leather or rawhide is outermost on the two straps at the beginning of the braid as depicted in Fig. 767, top row left, then at the completion of the stage depicted in Fig. 767, bottom row right, the braid will have the appearance of Fig. 765 where the braided portion and the remainder of the lash strands have the hair-side outermost.

To continue the braid beyond the stage depicted in Fig. 767, bottom row right, we begin by cutting a slit in strand 2. Then:

1. — Pass strand 1 then strand 3 through the slit made in strand 2. This will result in the left to right strand order 4–1–3–2. Cut a slit in strand 1.
2. — Pass strand 4 through the slit made in strand 1. This will result in the left to right strand order 1–4–3–2. Cut a slit in strand 4.
3. — Pass strand 3 then strand 2 through the slit made in strand 4. This will result in the left to right strand order 1–3–2–4. Cut a slit in strand 3.
4. — Pass strand 1 through the slit made in strand 3. This will result in the left to right strand order 3–1–2–4.

This completes the consecutive half periodic sequence of the braid, and hence a full periodic sequence of the braid has been completed. The final left to right strand order 3–1–2–4 is identical to that shown in Fig. 767, top row left. The second half periodic sequence will have doubled the length of the braided portion shown in Fig. 766, but the additional braided portion as well as the remainder of the lash strands will have the flesh-side outermost.

The braid may be continued for any length by repeating the steps beginning with the step shown in Fig. 767, top row left, and ending at the completion of any half periodic sequence.

The reversed braided slit braid can easily be extended to a three or more strap braid. It will again have a square cross-section as shown in the centre of Fig. 768 for a three strap reversed braided slit braid. If side 'a' has the appearance shown to the left of the cross-section view in Fig. 768, then side 'b' will be the mirror-image of side 'a'. If side 'c' has the appearance shown to the right of the cross-section view in Fig. 764, then side 'd' will be identical to side 'c'.

This three strap braided slit braid may be made as follows:

In the leftmost drawing of Fig. 769 the innermost strap is on the left labelled and identified as strand 1 while on the right it is labelled and identified as strand 2. The middle strap is on the left labelled and identified as strand 3 while on the right it is labelled and identified as strand 4. The outermost strap is on the left labelled and identified as strand 5 while on the right it is labelled and identified as strand 6. This gives an initial left to right strand order of 5–3–1–2–4–6. Strand 1 is shown with its initial slit cut in for braiding to begin. The braiding proceeds as follows:

Fig. 769, central drawing — Pass strand 2 then strand 4 then strand 6 through the slit made in strand 1. This will result in the left to right strand order 5–3–2–4–6–1. Cut a slit in strand 2.
Fig. 765, rightmost drawing — Pass strand 3 then strand 5 through the slit made in strand 2. This will result in the left to right strand order 2–5–3–4–6–1. Cut a slit in strand 3.
— Pass strand 4 then strand 6 then strand 1 through the slit made in strand 3. This will result in the left to right strand order 2–5–4–6–1–3. Cut a slit in strand 4.
— Pass strand 5 then strand 2 through the slit made in strand 4. This will result in the left to right strand order 4–2–5–6–1–3. Cut a slit in strand 5.

— Pass strand 6 then strand 1 then strand 3 through the slit made in strand 5. This will result in the left to right strand order 4–2–6–1–3–5. Cut a slit in strand 6.
— Pass strand 2 then strand 4 through the slit made in strand 6. This will result in the left to right strand order 6–4–2–1–3–5.

This completes half a periodic sequence of the braid. If the flesh-side of the leather or rawhide is outermost on the three straps at the beginning of the braid as depicted in the leftmost drawing of Fig. 769 then at the completion of the first half periodic sequence of the braid, the braid will have the appearance of Fig. 768 where the braided portion and the remainder of the lash strands will have the hair-side outermost.

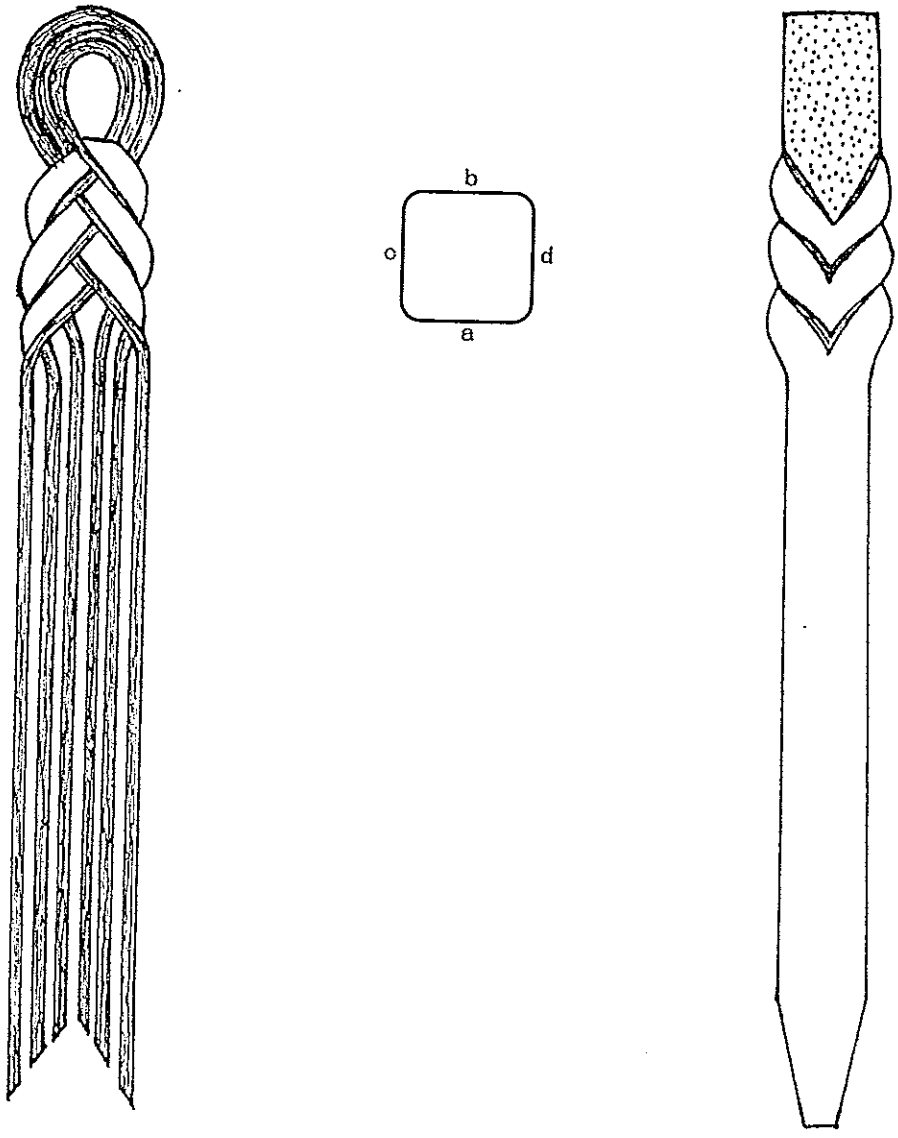

Fig. 768 — A reversed braided slit braid made from three straps.

To continue the braid through the next half periodic sequence we begin by cutting a slit in strand 2. Then:

1. — Pass strand 1 then strand 3 then strand 5 through the slit made in strand 2. This will result in the left to right strand order 6–4–1–3–5–2. Cut a slit in strand 1.
2. — Pass strand 4 then strand 6 through the slit made in strand 1. This

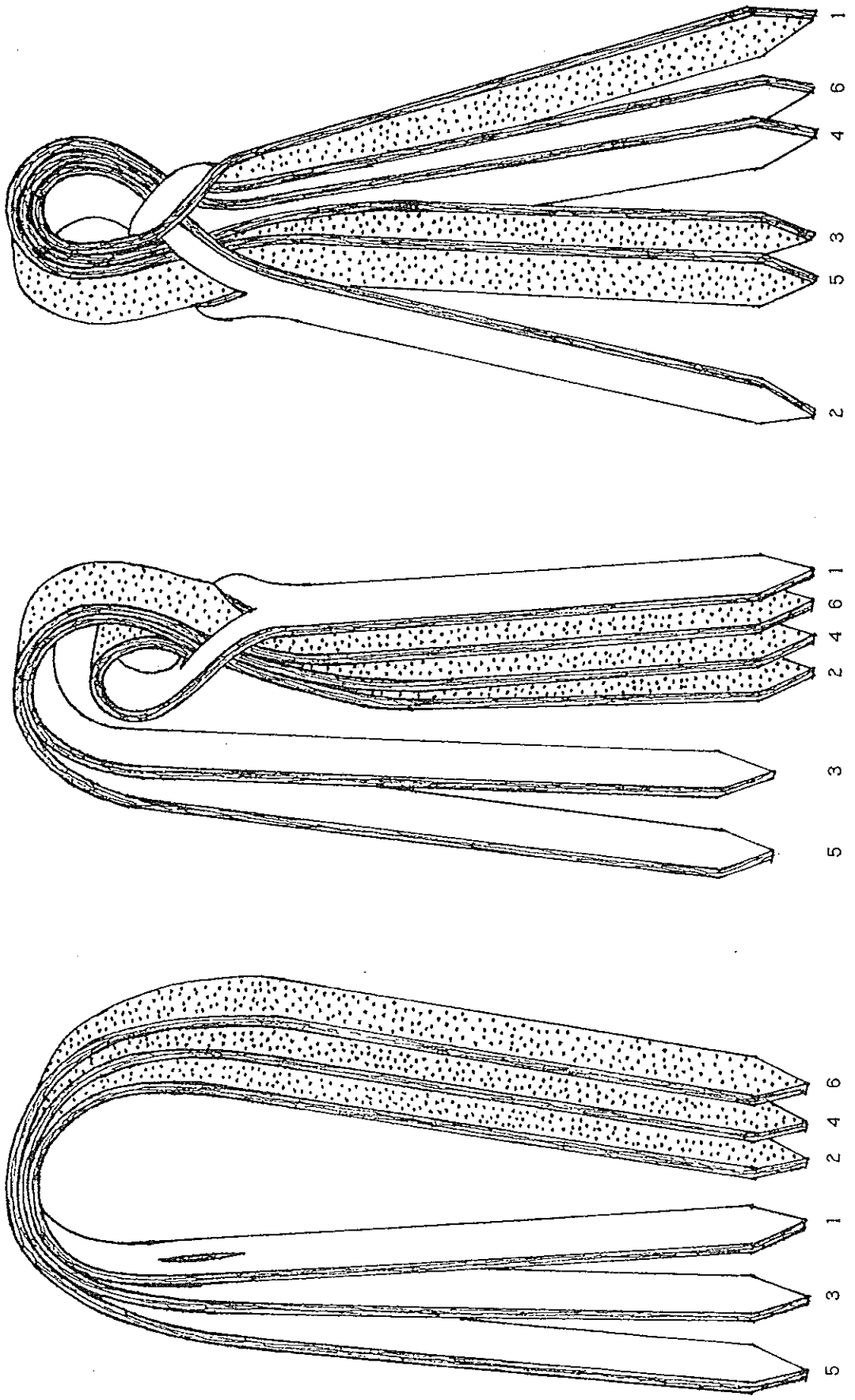

Fig. 769 — The initial steps in braiding the first half periodic sequence of a three strap reversed braided slit braid.

will result in the left to right strand order 1–6–4–3–5–2. Cut a slit in strand 4.

3. — Pass strand 3 then strand 5 then strand 2 through the slit made in strand 4. This will result in the left to right strand order 1–6–3–5–2–4. Cut a slit in strand 3.

4. — Pass strand 6 then strand 1 through the slit made in strand 3. This will result in the left to right strand order 3–1–6–5–2–4. Cut a slit in strand 6.

5. — Pass strand 5 then strand 2 then strand 4 through the slit made in strand 6. This will result in the left to right strand order 3–1–5–2–4–6. Cut a slit in strand 5.

6. — Pass strand 1 then strand 3 through the slit made in strand 5. This will result in the left to right strand order 5–3–1–2–4–6.

This completes the second consecutive half periodic sequence of the braid, and hence a full periodic sequence of the braid has been completed. The final left to right strand order 5–3–1–2–4–6 is identical to that shown in the leftmost drawing of Fig. 769. The second half periodic sequence will have doubled the length of the braided portion shown in Fig. 768, but the additional braided portion will have the flesh-side outermost. Also the remainder of the lash-strands will now have the flesh-side outermost.

The braid may be continued for any length by repeating the steps beginning with the step shown in the leftmost drawing of Fig. 769, and ending at the completion of any half periodic sequence.

All of these lash braids are most easily formed with the loop above the braid, fitting snug around an object. Arrangements of straps of different colours can be used for colour-patterns in the braided portions of the braids.

The Components of Semi-Perfect Herringbone Pineapple Knots

The overall string-run of all the components combined is characterised by either $y = A - 1$ or by $y = A + 1$.† Since $\Delta = A - 1$ for $y = A - 1$, and $\Delta = 1$ for $y = A + 1$ for these knots, the first-return string-run of a component visits each bight-boundary once (since g.c.d. $(A, \Delta) = 1 = \gamma$; hence since $\gamma = 1$, it follows that $\alpha = A$).‡ Since $\alpha = A$, the number of components $\lambda =$ g.c.d. (B^*, P_{total}) in a Semi-Perfect Herringbone Pineapple Knot are identical, and hence the Standing-End of each component can be placed at left bight-boundary 1. Consequently, the consecutive λ components have their Standing-Ends in consecutive nests at left bight-boundary 1. Note that the string-run of a component consists of one or more first-return string-runs ($\frac{B^*}{\lambda}$ first-return string-runs per component).

Let the λ components be divided into z sets, such that the string-run of a set is regularly distributed in the overall string-run of the knot. Hence when the components of a set have a colour that differs from the colour of the components of another set or

† See *The Braider*, Issue No. 28, pp. 644–645.

‡ See *The Braider*, Issue No. 25, pg. 570.

from the colour of the components of some other sets, we obtain a regularly distributed colour-pattern. Note that each of the z sets of components consists of $\frac{\lambda}{z}$ components, and that when $z = 1$ there is no regular distributed colour-pattern since all components have then the same colour.

If the Standing-End of the first component of a set is at left bight-boundary 1 of nest m, where $1 \leq m \leq B^*$, then the string-run of this set visits left bight-boundary 1 of nests $|m + nz|_{B^*}$, where n is a natural number. Hence the regular distribution of the string-run of a set must take place in z consecutive nests, thus in z consecutive nests the string-run of a set must visit each bight-boundary once.

Fig. 770 schematically shows two consecutive nests. Observe that $A = (r+1)z + t$, where $r = 0, 1, 2, 3, \cdots$ for $A \geq 3$. Note that either $2t - z = 0$, hence $z = 2t$, or that $2t - z = z$, hence $z = t$. When $z = t$, the two consecutive nests are identical and hence z must be 1; consequently there cannot be a regular distributed colour-pattern. When $z = 2t$, there are only two different consecutive nests, hence z must be 2 and $t = 1$, consequently A must be odd and λ must be even (hence B^* must be even).

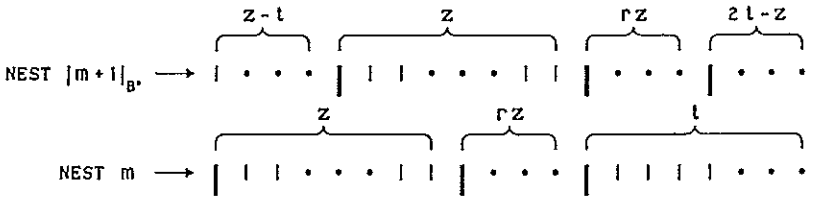

Fig. 770 — Two consecutive nests.

From the coding of an A-pass Semi-Perfect Herringbone Pineapple Knot, which requires $y = A - 1$ or $y = A + 1$ for its string-run, it follows that only two regular distributed colour-patterns are possible. Their appearance is that of spiralling zigzags with a left helix for $y = A + 1$, or with a right helix for $y = A - 1$ (see for example Fig. 771; for the two components the string-run and coding are shown on the right).

The string-run of each of the two component sets is that of a Periodic Regular Nested Cylindrical Braid (see *The Braider*, Issue No. 34) with $A_{l_1} = A_{r_1} = \frac{A+1}{2}$ and $A_{l_2} = A_{r_2} = \frac{A-1}{2}$. Since for the Semi-Perfect Herringbone Pineapple Knot $k = \left|\frac{x-A-1}{2}\right|_A$ when $y = A - 1$, or $k = \left|\frac{x-A-3}{2}\right|_A$ when $y = A + 1$, it follows that for each of the two component sets $k_{cs} = k$ and $x_{cs} = \frac{x}{2}$, furthermore that $y_{cs} = \left|\frac{x}{2} - (k+1)\right|_{2A}$ when $k = odd$ or that $y_{cs} = \left|\frac{x}{2} + A - (k+1)\right|_{2A}$ when $k = even$. The string-run specification for each of the two Periodic Regular Nested Cylindrical Braids is thus as follows:

$$(111\cdots1/\tfrac{x}{2}/111\cdots1)\{(1)_1\,(A-1)_A\,(A-3)_{(A-1)}\,(A-5)_{(A-2)}\,\cdots\,(4)_{(A_{l_1}+2)}$$
$$(2)_{(A_{l_1}+1)}\,(A)_{(A_{l_1})}\,(A-2)_{(A_{l_1}-1)}\,\cdots\,(5)_{(3)}\,(3)_{(2)}\,/$$
$$(k)_{(1)}\,(k+2)_{(2)}\,(k+4)_{(3)}\,\cdots\,(2A_{r_2}-1)_{(A_{r_2}-\frac{k-1}{2})}\,(2A_{r_2}+1)_{(A_{r_2}+1-\frac{k-1}{2})}$$
$$(2)_{(A_{r_2}+2-\frac{k-1}{2})}\,(4)_{(A_{r_2}+3-\frac{k-1}{2})}\,\cdots\,(2A_{r_2}-2)_{(2A_{r_2}-\frac{k-1}{2})}\,(2A_{r_2})_{(2A_{r_2}+1-\frac{k-1}{2})}$$
$$(1)_{(2A_{r_2}+2-\frac{k-1}{2})}\,(3)_{(2A_{r_2}+3-\frac{k-1}{2})}\,\cdots\,(k-4)_{(2A_{r_2})}\,(k-2)_{(2A_{r_2}+1)}\}B \text{ for } k = odd, \text{ or}$$

$$(111\cdots1/\tfrac{x}{2}/111\cdots1)\{(1)_1\,(A-1)_A\,(A-3)_{(A-1)}\,(A-5)_{(A-2)}\,\cdots\,(4)_{(A_{l_1}+2)}$$
$$(2)_{(A_{l_1}+1)}\,(A)_{(A_{l_1})}\,(A-2)_{(A_{l_1}-1)}\,\cdots\,(5)_{(3)}\,(3)_{(2)}\,/$$
$$(k)_{(1)}\,(k+2)_{(2)}\,(k+4)_{(3)}\,\cdots\,(2A_{r_2}-2)_{(A_{r_2}-\frac{k}{2})}\,(2A_{r_2})_{(A_{r_2}+1-\frac{k}{2})}$$
$$(1)_{(A_{r_2}+2-\frac{k}{2})}\,(3)_{(A_{r_2}+3-\frac{k}{2})}\,\cdots\,(2A_{r_2}-1)_{(2A_{r_2}+1-\frac{k}{2})}\,(2A_{r_2}+1)_{(2A_{r_2}+2-\frac{k}{2})}$$
$$(2)_{(2A_{r_2}+3-\frac{k}{2})}\,(4)_{(2A_{r_2}+4-\frac{k}{2})}\,\cdots\,(k-4)_{(2A_{r_2})}\,(k-2)_{(2A_{r_2}+1)}\}B \text{ for } k = even.$$

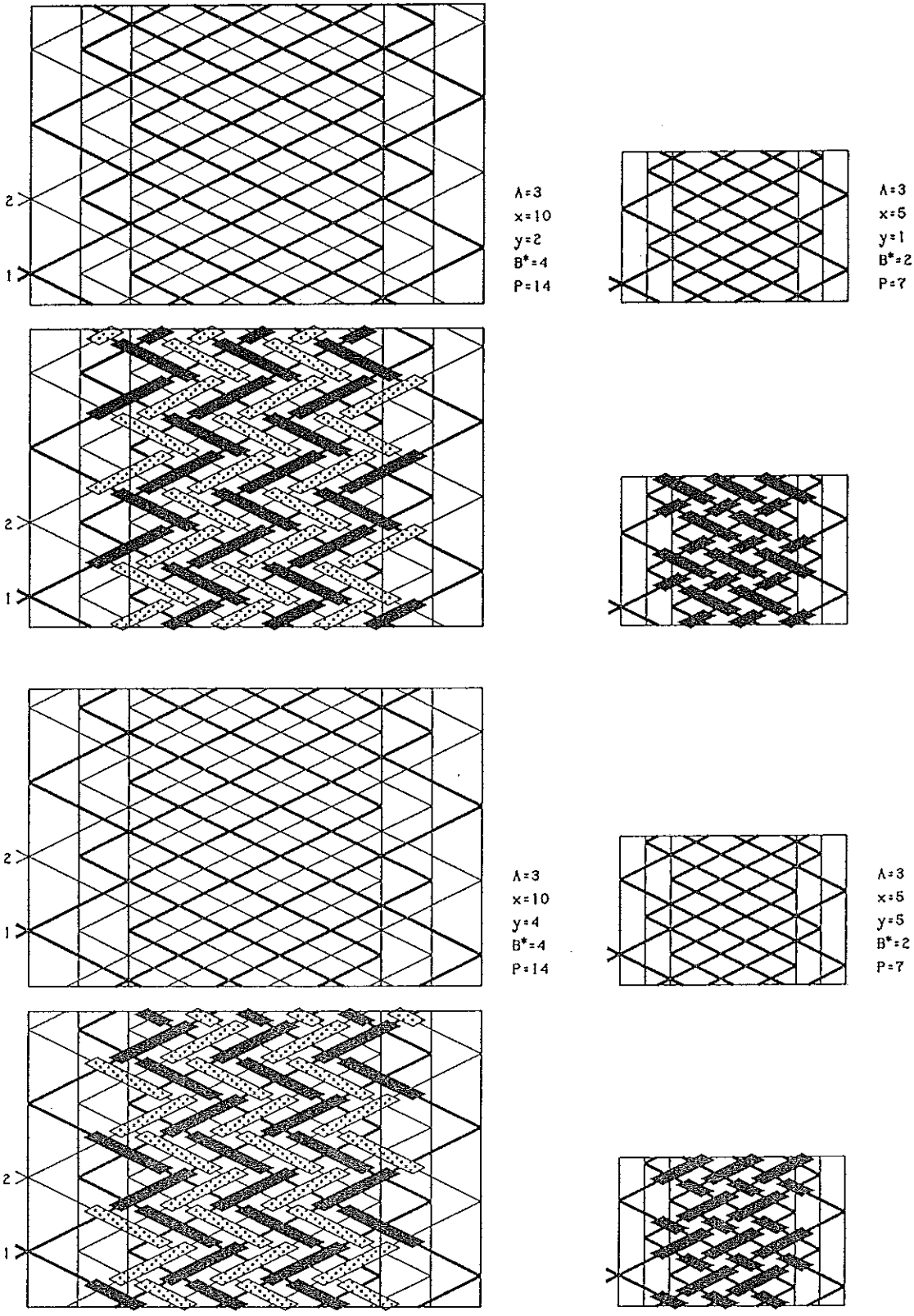

Fig. 771 — Two Semi-Perfect Herringbone Pineapple Knots.
Upper diagrams for $y = A - 1$; lower diagrams for $y = A + 1$.

The lowermost string-run diagram in Fig. 772 shows the string-run of a two component Regular Nested Cylindrical Braid on which a Herringbone Pineapple coding can be superimposed ($y = A - 1$). The third diagram from the top shows the string-run of each Periodic Regular Nested component. This string-run can be thought to be derived (via the second diagram from the top) from the string-run of the Regular Nested Cylindrical Braid shown in the uppermost diagram. This Regular Nested Cylindrical Braid consists of three Periodic Regular Nested components.

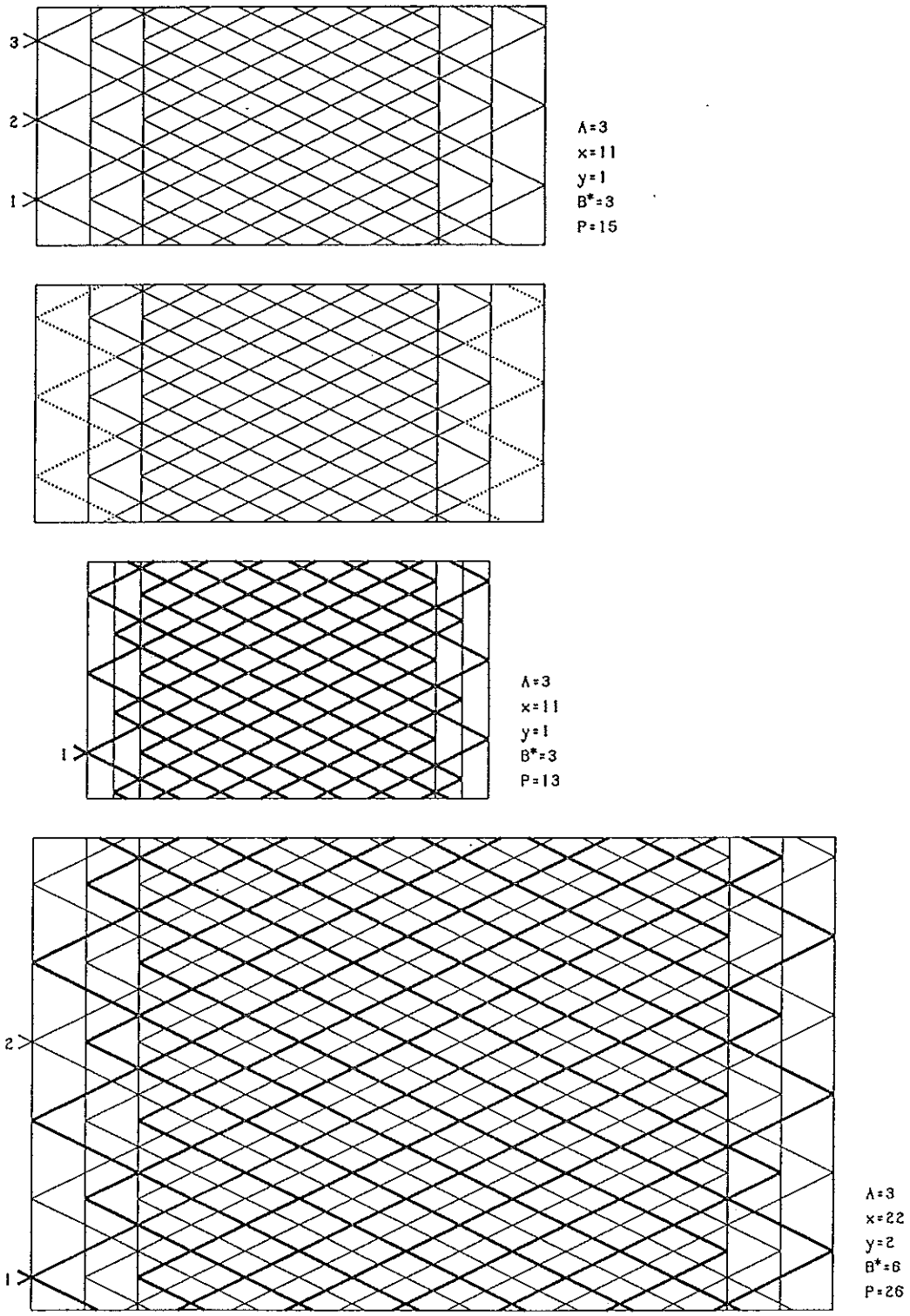

Fig. 772 — A two component Regular Nested Cylindrical Braid.

The lowermost grid-digram in Fig. 773 shows a Semi-Perfect Herringbone Pineapple Knot consisting of six interbraided Regular Knots. If we divide these six interbraided Regular Knots into two sets of three each (1, 2, 3 and 4, 5, 6), then with the components of a set having all the same colour, but different to the colour of the components of the other set, we obtain a spiralling zigzag colour-pattern with a right helix. Each set of three components can be thought to be derived from the Perfect Regular Nested Knot shown in the uppermost grid-diagram (see the string-run diagrams in Fig. 774).

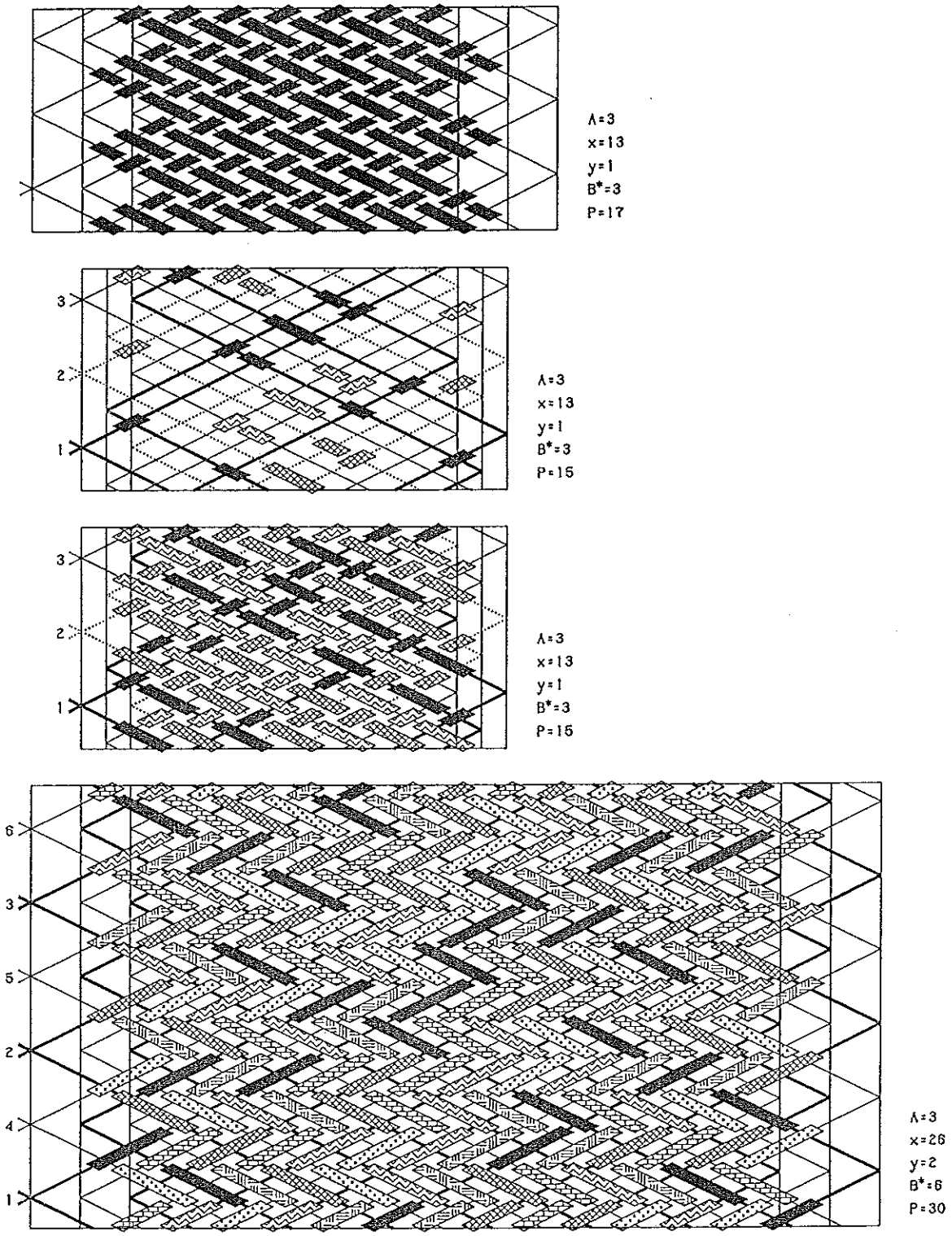

Fig. 773 — A six component Semi-Perfect Herringbone Pineapple Knot.

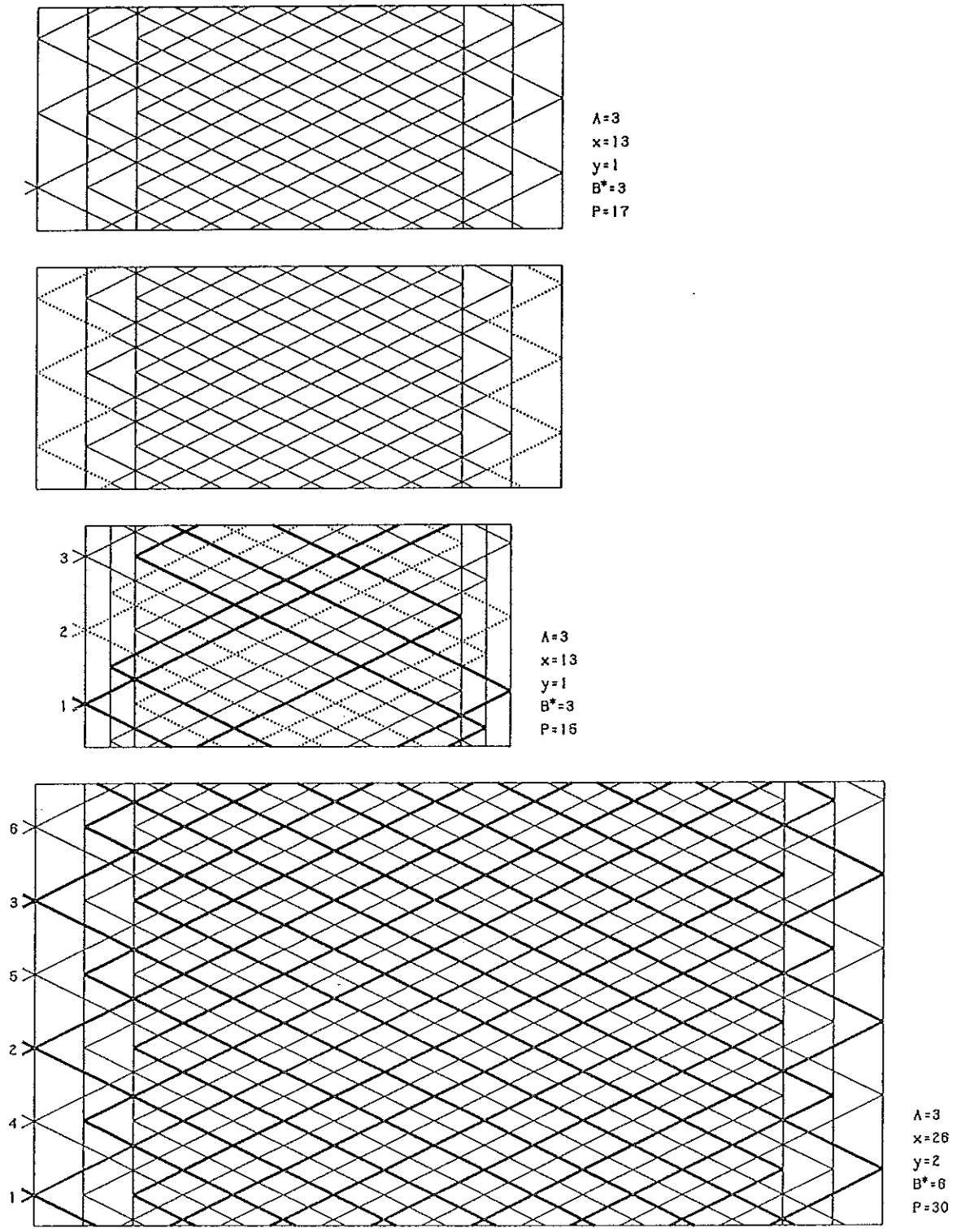

Fig. 774 — The string-run diagrams associated with the grid-diagrams in Fig. 773.

The lowermost string-run diagram in Fig. 775 shows the string-run of a two component Regular Nested Cylindrical Braid on which a Herringbone Pineapple coding can be superimposed ($y = A-1$). The third diagram from the top shows the string-run of each Periodic Regular Nested component. This string-run can be thought to be derived from the string-run of the Perfect Regular Nested Knot shown in the uppermost diagram.

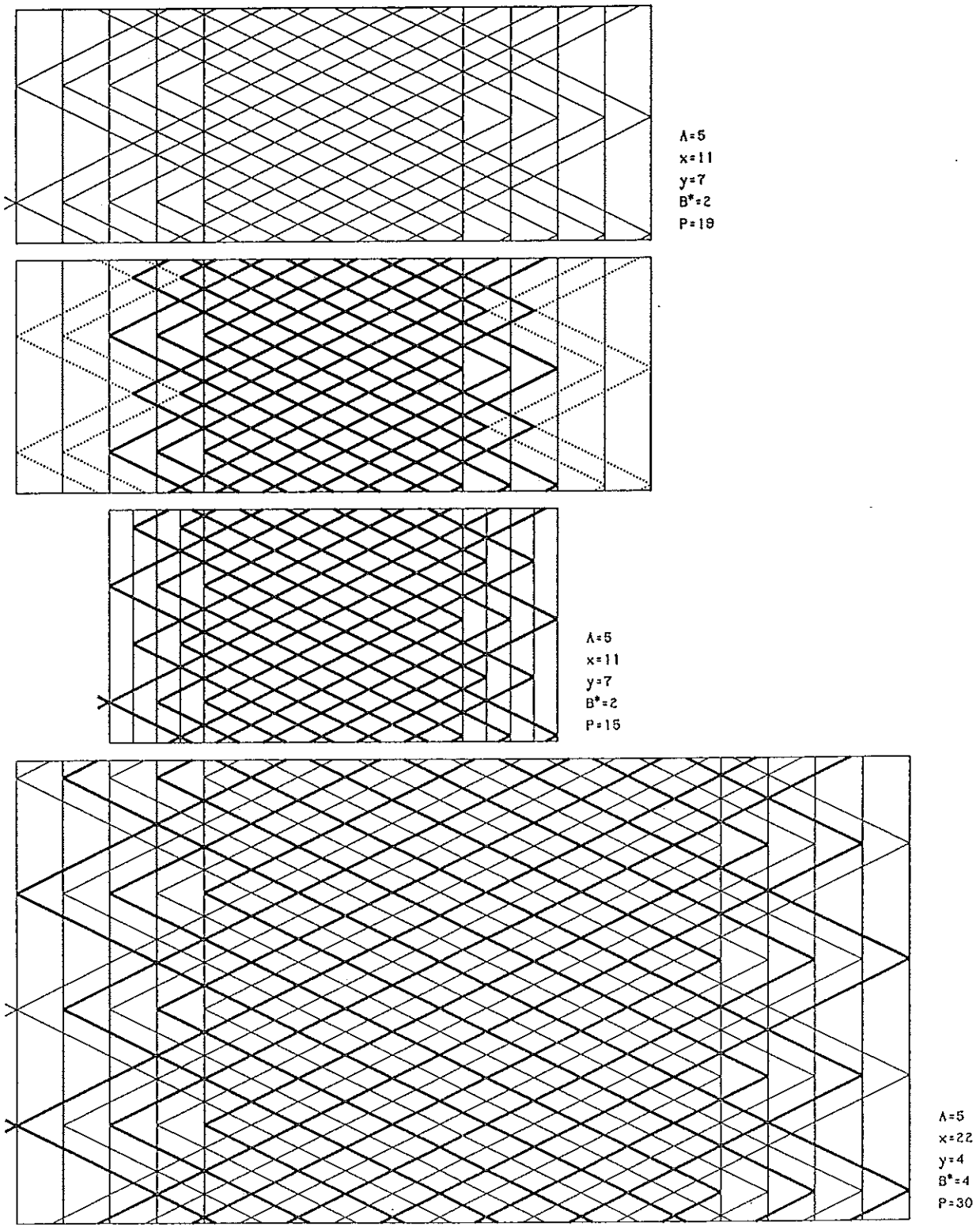

Fig. 775 — A two component Regular Nested Cylindrical Braid.

In Fig. 776 the string-runs associated with another two component Regular Nested Cylindrical Braid are shown on which a Herringbone Pineapple coding can be superimposed ($y = A - 1$). Each component is again a Perfect Periodic Regular Nested Knot and can be thought to be derived from the string-run of the Perfect Regular Nested Knot shown in the uppermost diagram.

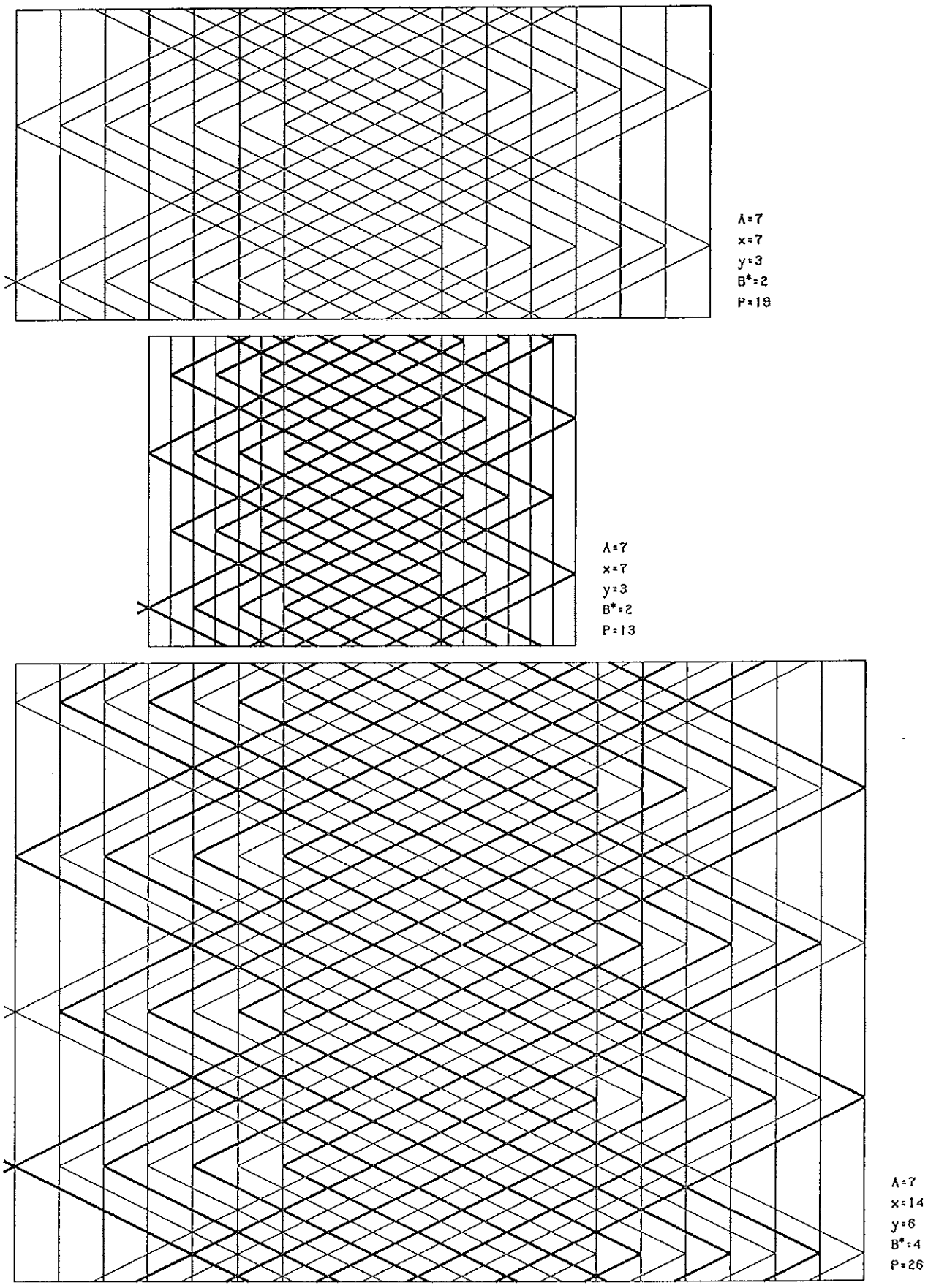

Fig. 776 — A two component Regular Nested Cylindrical Braid.

Fig. 777 shows a Semi-Perfect Herringbone Pineapple Knot consisting of six interbraided Perfect Nested Knots. If we divide these six interbraided Perfect Nested Knots into two sets of three each (1, 2, 3 and 4, 5, 6), then with the components of a set having all the same colour, but different to the colour of the components of the other set, we obtain a spiralling zigzag colour-pattern with a right helix. Each interbraided set of three components is a Periodic Regular Nested Cylindrical Braid.

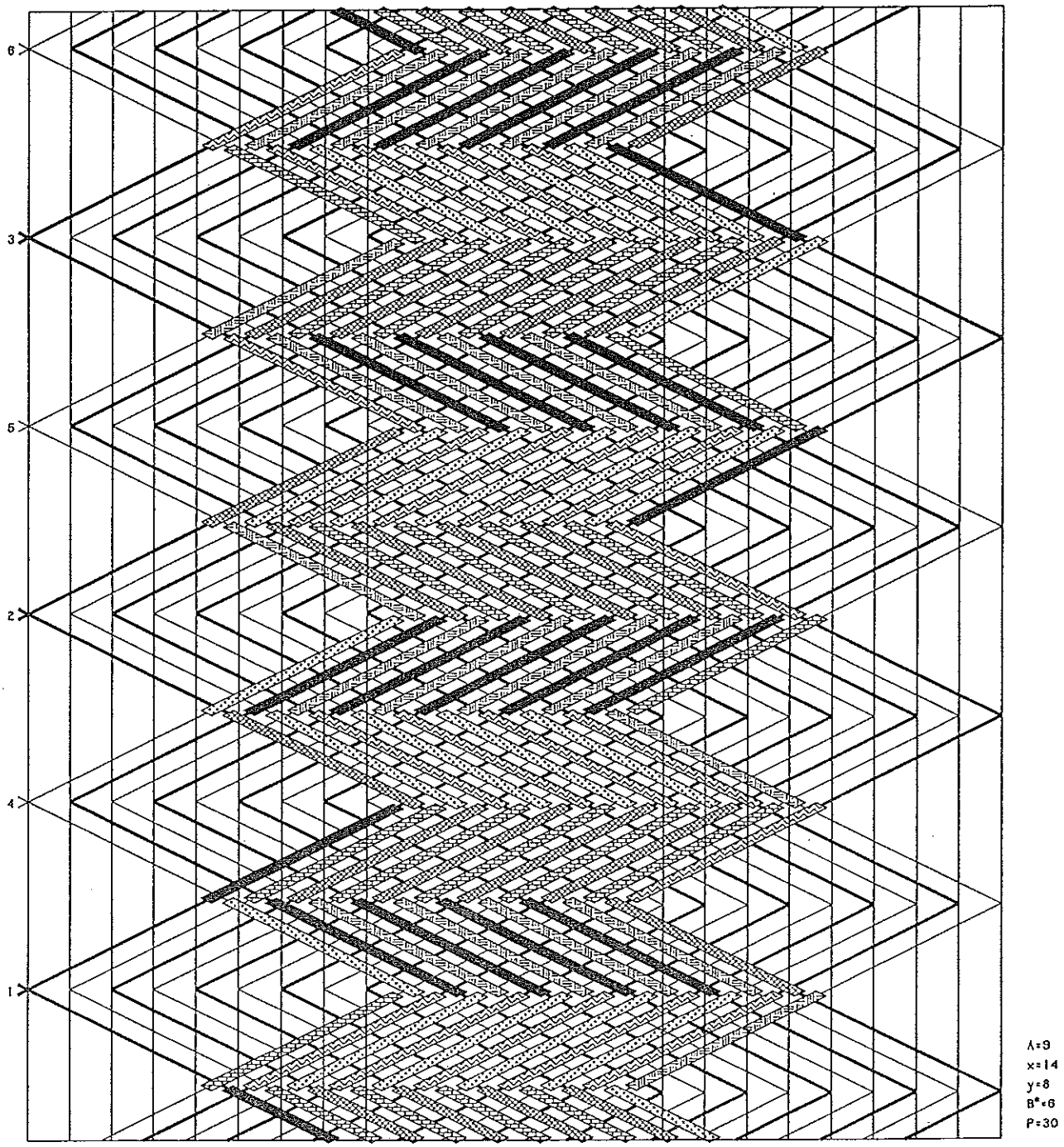

Fig. 777 — A six component Semi-Perfect Herringbone Pineapple Knot.

The lowermost diagram in Fig. 778 shows the string-run of a component set of three Perfect Nested components, while the uppermost diagrams in Fig. 778 show the string-run diagram and the grid-diagram of a Perfect Nested component.

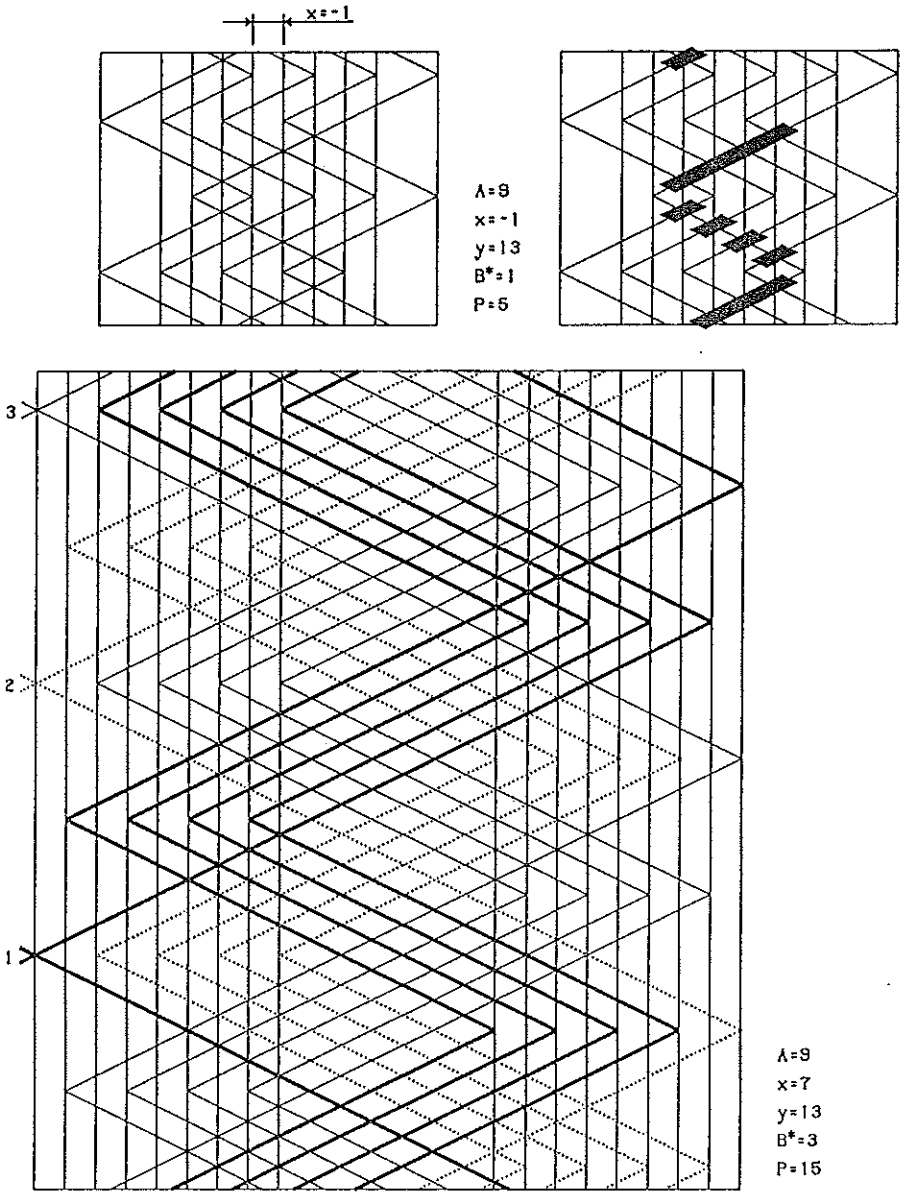

Fig. 778 — The string-run diagrams associated with the grid-diagram in Fig. 777.

The leftmost string-run diagram in Fig. 779 shows the string-run of a three component Regular Nested Cylindrical Braid on which a Herringbone Pineapple coding can be superimposed ($y = A - 1$). The lowermost right-hand diagram shows the string-run of each Periodic Regular Nested component. This string-run can be thought to be derived from the string-run of the three component Regular Nested Knot shown in the central right-hand diagram. Each component in this string-run diagram is the string-run of a Perfect Periodic Regular Nested Knot.

It is not possible to obtain for the string-run of the leftmost diagram in Fig. 779 a superimposed Herringbone Pineapple coding with a regular distributed colour-pattern since we cannot form two sets of interbraided components, each having an identical number of interbraided components ($\lambda = 3$, and since the natural number z must divide into 3, z can only be equal to 1, but when $z = 1$ a regular distributed colour pattern is not possible).

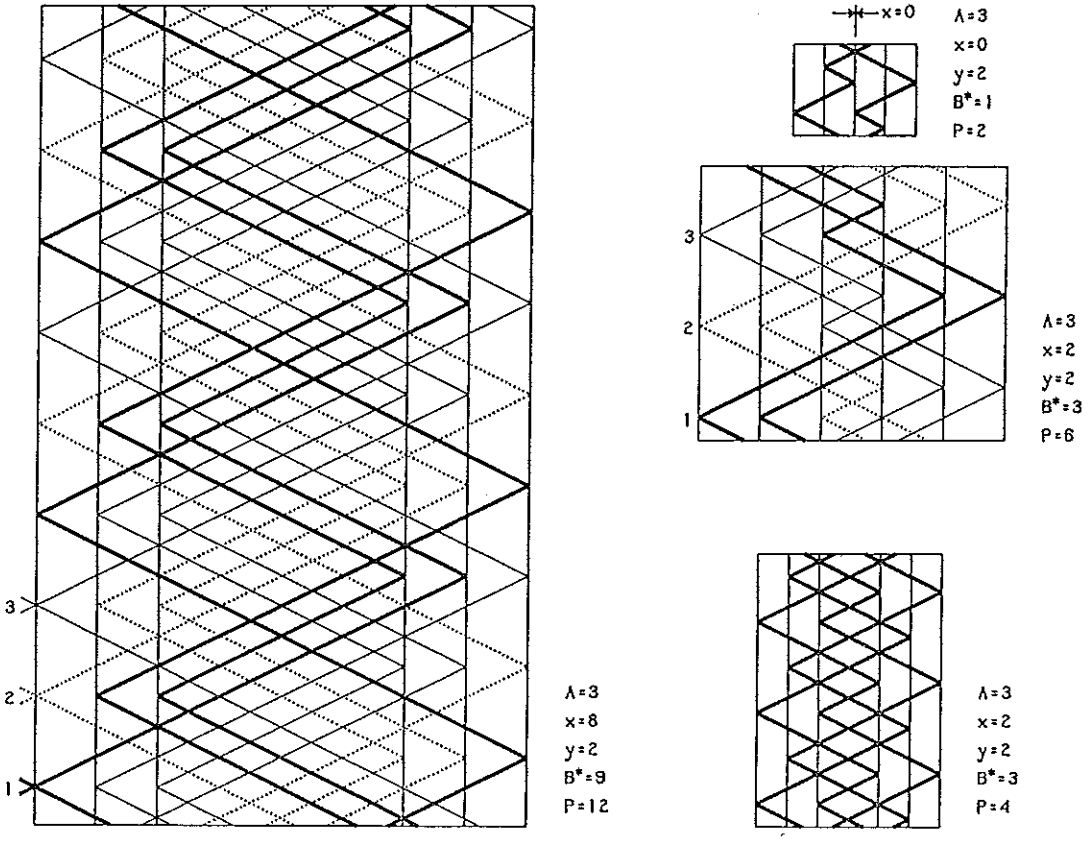

Fig. 779 — The string-run of a three component Semi-Perfect Herringbone Pineapple Knot with $A = 3$; $x = 8$; $k = 2$; $B^* = 9$.

With $z = 2$ and hence $t = 1$ the layout of the two consecutive nests m and $|m+1|_{B^*}$ in Fig. 770, pg. 994, becomes as shown in Fig. 780.

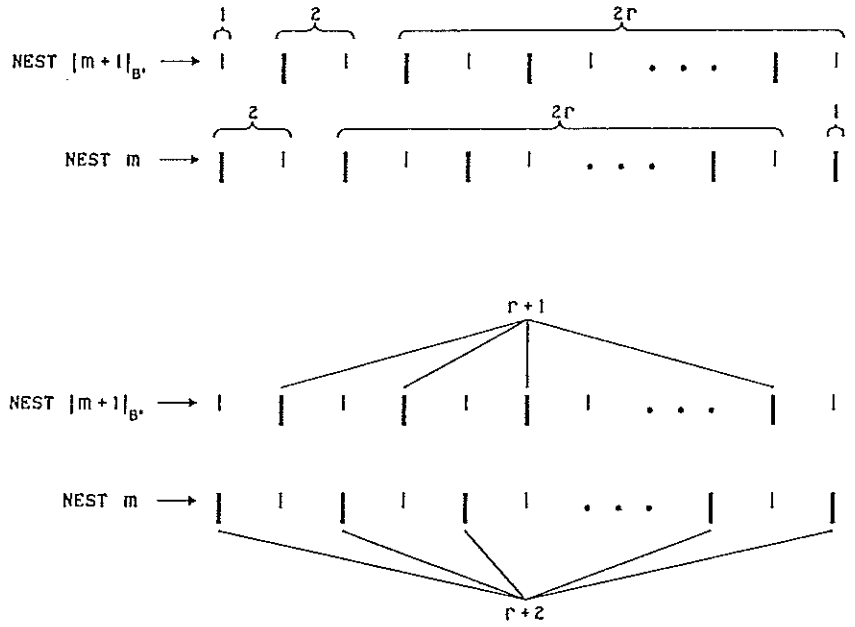

Fig. 780 — The layout of two consecutive nests with $z = 2$.

From this layout it will readily be seen that $A \geq 3$ and hence $r \geq 0$, consequently $A = odd$. From the lowermost layout in Fig. 780 it follows that each of the two component sets is a Periodic Regular Nested Cylindrical Braid with $A_{l_1} = A_{r_1} = \frac{A+1}{2}$ and $A_{l_2} = A_{r_2} = \frac{A-1}{2}$.

As we have seen, a regular distributed colour pattern in Semi-Perfect Herringbone Pineapple Knots consist of alternately coloured zigzag left (when $y = A + 1$) or right (when $y = A - 1$) helixes, where all the helixes of the same colour belong to a set (≥ 1) of components whose string-run is that of a Periodic Regular Nested Cylindrical Braid with $A_{l_1} = A_{r_1} = \frac{A+1}{2}$ and $A_{l_2} = A_{r_2} = \frac{A-1}{2}$. Note that this Periodic Regular Nested Cylindrical Braid is a special one since $A_{l_1} - A_{l_2} = A_{r_1} - A_{r_2} = 1$.

Once again we like to stress that various coding arrangements can be superimposed on a particular string-run, hence a particular string-run cannot tell us which coding form should be superimposed on it. However, a particular coding form may require a particular string-run. Here, for example, the string-run of each of the two component sets (the string-run of a Periodic Regular Nested Cylindrical Braid with $A_{l_1} - A_{l_2} = A_{r_1} - A_{r_2} = 1$) does **not** determine its superimposed coding and hence does **not** determine the colour-pattern of the overall braid, but the overall coding-pattern of the braid with its overall string-run particulars does determine the colour-pattern of the overall braid and the string-run of its components. Hence the alternately coloured zigzag left (when $y = A + 1$) or right (when $y = A - 1$) helix pattern of the overall braid determines its overall string-run particulars, its overall coding, the string-run particulars of the component sets and their coding, but the string-run particulars of the component sets do **not** determine their coding, hence do **not** determine the overall coding and colour-pattern.

It is therefore surprising that we still encounter in that Dutch braiding publication *Het Knoopeknauwertje* the question whether those alternately coloured zigzag helix patterns in certain Semi-Perfect Herringbone Pineapple Knots are due to Periodic Regular Nested Cylindrical Braids (*Het Knoopeknauwertje*, Issue No. 21, pg. 5), although its editor is well aware of the fact that a string-run does **not** determine the coding we can superimpose on it. More seriously, the question was raised on account of the results obtained from:

(*i*). Modifying the string-run of the Regular Nested Knot with the specification $(22/3/22)\{132/312\}6$, hence with $A = 3$; $x = 3$; $k = 3$; $B^* = 2$, into the string-run of the Periodic Regular Nested Knot with the specification $(11/3/11)\{1_1 2_3 3_2 / 1_1 3_2 2_3\}6$. Both these knots require one essential string.

(*ii*). Interbraiding the two string-runs of two Periodic Regular Nested Knots, each with the specification $(11/3/11)\{1_1 2_3 3_2 / 1_1 3_2 2_3\}6$, in order to obtain the string-run of the Regular Nested Knot with the specification $(22/6/22)\{132/312\}12$, hence with $A = 3$; $x = 6$; $k = 3$; $B^* = 4$.

Since $y = |x - 2(k+1)|_{2A} = 4 = A + 1$ for the Regular Nested Knot with the specification $(22/6/22)\{132/312\}12$, we can superimpose on its string-run a Herringbone Pineapple coding.

The Semi-Perfect Herringbone Pineapple Knot $(22/6/22)\{132/312\}12$ is a 3-pass knot only, hence its two components, the Periodic Regular Nested Knots with specification $(11/3/11)\{1_1 2_3 3_2 / 1_1 3_2 2_3\}6$, have a string-run from which we cannot draw general conclusions about the type of Periodic Regular Nested Cylindrical Braids involved.