CYCLIC FINGERINGS FOR ARPEGGIOS AND SCALES
FOR THE VIOLIN

by

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Director of Thesis Date
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## CYCLIC FINGERINGS OF ARPEGGIOS (Major and Minor Triads)

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There has long been a need for some simple devising which would permit bowed string instrumentalists to take advantage of repetitive or cyclic maneuvers, by the octave, in extended scales and arpeggios.

The prevalent fingerings for such passages through two or three octaves has each octave fingered differently and with great variety of place of shifting and of the shifting intervals. The "muscle memory" required to do any three octave scale or arpeggio on a bowed string instrument is quite a feat. The precise physical and aural controls for each pitch and each shift are most demanding. If the time element requires great speed the problem approaches the impossible.

Every musician wishes to be able to "get over" his instrument with celerity. But life and patience are too short for most of us to have time to acquire good scale and arpeggio technic from the usual instructions. It is notable that a very low percentage of violin students progress to an ability equal to the needs of elementary solos, ensembles or orchestras. There can be a multiplicity of reasons why any particular student drops his instrument; but a very common cause could be attributed to lack of technical promise from failures to manage prescribed but not too well organized fingerings. The study of an instrument as intimate and difficult as the violin demands success of satisfactory accomplishment from the drudgery of practicing endlessly the conventional fingerings as exemplified by Schradieck, Hrimaly and a host of others.

This harassing situation has long persisted.
The writer has been in charge of school and college music departments for many years and feels that the foregoing technical difficulties explain to some extent why good school and college orchestras are so few, and the elimination of potentially able students is so frequent.

The writer's many years of teaching gave him cause and opportunity to get violin students and orchestras over their instruments.

The devices here listed have been successfully used with individuals and groups. Written descriptions or explanations can not have the merits of personal demonstrations nor of prescriptions to fit needs as they appear.

This thesis does not pretend to be a panacea for all the troubles of violinists. If it removes, for some, one set of stumbling blocks and discouragements it will have served its purpose.

ARGUMENT

The fingerings and shiftings here listed are conventional with the exception of some uses of "extensions."

The groupings of those fingerings and shiftings together with applications in ways of doing arpeggios and scales are original. Another claim to originality and ingenuity is the compact way in which many of the materials and problems are tabulated.

Protests from those instructors and players who were reared in the "old school" are anticipated. The condemnation of anything at variance with respectable age and habits is to be expected.

(It is hoped that the examples are adequate for this type of thesis. It is my intent to expand the examples and copyright the materials herein for publication.)
CYCLIC FINGERINGS of ARPEGGIOS for the VIOLIN

A - ROOT POSITION MAJOR and MINOR TRIADS:

(A-I) with the First Finger on the ROOTS and Chord Fifths, and with Direct Shifts by the First Finger.

(Roman numerals refer to strings, Arabic figures refer to fingers.)

(I---- The string remains firmly stopped by the numbered finger to the end of the line.)

(I) The finger stops two strings to the lines end.

(I) - Means to shift. The finger glissandos with firm and steady pressure.

Note 1. All direct shift major and minor triads done with this type of cyclic fingering require perfect fourth shifts. Preliminary exercises for each of the four fingers are indicated, using the perfect fourth about which to devise original exercises. A few samples follow.

Note 2. Though difficult for most violinists, true perfect fifths are "musts" for major and minor triads. It is suggested that the following examples first be checked for intonation. Afterwards, each finger should be examined in its tip's placement on the strings. In most cases the reason for faulty fifths will be obvious.

Note 3. One reason for bad fifths is that many finger tips when pressed upon two strings have elliptical shaped pads which do not have their axes at right angles to the strings.

One remedy is to put more pressure on the place for the pitch which seems too low. This causes the tip to spread at that place covering more string, thus raising the pitch.

Another effective remedy is to elevate the left wrist, in which posture the fingers will strike the strings at an angle towards the palm of the hand. This will stretch the lower string, raising its pitch.
The spreading of the strings towards the bridge makes double stop perfect fifths extremely difficult in the higher positions. For them, large finger tips have advantage. A possible remedy for this is to have the nut and the bridge so notched that the strings are not so divergent.

Note. 4. The above examples should be done with exactly the same fingers and on the same strings as the triad on page (1). All root position major and minor triads, starting with the violin’s low Ab and up to the second line G, should be done in this manner. Practical interest may be maintained by using a variety of tempi, rhythms and bowings. Slurs across the shift are almost necessary for first practice, as the string length of the shift is thus checked.

In the above examples, the fingers’ spread or span (1st to 3rd fingers) varies greatly. The second measures’ span being near two thirds that of the first measures. The third measures’ span are not quite one half that of the first measures. This of course for each triad.

Preliminary double stop perfect fifth exercises may be devised.
Second finger on the roots and chord fifths.
Direct shifts with the second finger
(The ideas of (A-I) apply.)
(A-3) Third finger on the roots and chord fifths.

In order to comply with an implication in (A-1) and (A-2), that the fifths be done as double stops, it will be necessary in this type to finger the chord thirds with the extended fourth finger.
(A-4) Third finger on the roots and chord fifths. This manner does not use the extended fourth finger nor are the roots and fifths done as double stops.
Each of the cyclic fingerings, just given, has a pitch spread of two octaves and a fifth.

Note 5. A departure from the cyclic fingerings, just given, permits a chord pitch spread of three full octaves. In each case a perfect fourth is added above the cycle.

For type (A-1) the fourth finger is added.
For type (A-2) The fourth finger is extended.
For types (A-3) and (A-4) a double fourth finger extension is necessary.

One example of each type follows.
Double Stop octaves, perfect fifths, major and minor thirds and major and minor sixths are contained in the finger arrangements of \((A-1.8;3,4\) and 5).

Examples:

\[
\begin{align*}
\text{(A-6)} & \quad \text{Double Stop octaves, perfect fifths, major and minor thirds and major and minor sixths are contained in the finger arrangements of (A-1.8;3,4 and 5).}
\end{align*}
\]
Fourth finger on roots and chord fifths. This type does not permit the double stop fingerings of the perfect fifths in single voice arpeggios.

Examples:

(B) FIRST INVERSION MAJOR and MINOR TRIADS.
(B-I) With the first finger on the chord thirds. With direct shifts on the third finger.
(B-8) With the second finger on the chord thirds.
With direct shifts on the fourth finger

(B-9) With the third finger on the chord thirds.
With direct shifts on the first finger.
(B-4) With the fourth finger on the chord thirds.
With direct shifts on the second finger.

(C-I) With the first finger on the chord fifths and roots.
With direct shifts on the first finger.
(C-2) With the second finger on the chord fifths and roots. With direct shifts on the second finger.

(C-3) With the third finger on the chord fifths and roots. With direct shifts on the third finger.
With the fourth finger on the chord fifths and roots.
With direct shifts on the fourth finger.

(D) "DOUBLE STOP" POSSIBILITIES from the fingering arrangements in sections
(A,B and C).

Models.
All of the twelve models repeat in the octave and the double octave above. The only double stops possible with these fingering patterns are octaves, perfect fifths, major thirds and minor thirds.

(E) RESUME and SIMPLIFICATION of SECTIONS (A, B, C and D) of Cyclic Fingerings (by the octave) of Major and Minor Triads for the Violin.

Twelve fingering arrangements have been cited, together with suggestions of practice needs of attention to intonation, rhythms etc., which may be expected to improve recognition, tempi and assurance.

All of these fingering arrangements have in common the direct shift of the perfect fourth. The perfect fourth is not a problem for beginners.

(Some surprising results have been had, using cyclic fingerings, with children who have had as little as six months instruction on violin. Example:—Any one of the twelve arrangements was drilled for a few moments; the pupil was asked to repeat the pattern upwards; and the thing was done. In this scheme aural recognition and physical adaptability are miles ahead of the visual recognition or understanding of the note symbols.)

Simplification:—Only four control groups are necessary, for the above problems if considerations of rhythmic groupings are dropped, as the following will show.

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<td>(8)</td>
<td>Fingerings 3 I 3 S 3</td>
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Another simplification would be to give the most active attention to the need of a direct shift on each interval of a perfect fourth. This method is simpler for beginners who do not have to contend with fast tempi.
The use of "HELP TONES" in CYCLIC FINGERINGS for ASCENDING ARPEGGIOS

IN MAJOR and MINOR TRIADS.

will be used here as the symbol for the help tones.

In these examples the "help tone" should be made in each case with the same finger which made the last note in the old position. It is advisable that each shift to a help tone be a diatonic perfect fourth; as those fourths will be less disturbing and more certain to be correctly heard than augmented fourths.

The "help tones" will fall upon either the notes a degree above the chord fifths or a degree above the chord thirds.

A random choice of triads for the examples follows in this order.

Root position—triads starting with first, second, third, fourth finger.
First inversion triads
Second inversion triads

This is diatonic but awkward.
(G) THE USE of "HELP TONES" in CYCLIC FINGERINGS for DECENDING ARPEGGIO
in MAJOR and MINOR TRIADS.

The "help tones" will fall upon the note a degree below the chord third or the degree below the chord root.
(H) DOUBLE STOPS USING the SHIFTING and FINGERING explained in sections (F) and (G), are confined to perfect fourths, major and minor thirds and major and minor sixths. A few examples follow.
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(1) DIATONIC SCALES and CYCLIC FINGERING by the octave.

ASCENDING MAJOR SCALES.
Examples will suffice if they are an octave or more in extent.

To keep within the plan (thus far) of using only perfect fourth shifts, the shift may start on any tone except the subdominant.

The scale passage may start on any note of the scale, the shifts can be made with the third or fourth fingers.

This little chart represents fifteen major keys, with three fingerings for each key. Some of the keys will not give perfect fourth shifts as marked; for example, the first shift listed will give an augmented fourth in the keys of (A) and (Ab).

The same applies to the three following charts for which any key signature may be used...
(I-2) DESCENDING MAJOR SCALE.

The remarks of (I) apply, except that the shifts are to be made with the first and second fingers.

(I-3) MELODIC MINOR SCALE.

The preceding notes apply. If the shifts are to be diatonic perfect fourths, the shape of the scale form dictates that in the ascending melodic form shifts from the mediant, sub-dominant and the leading tone are not usable; and in the descending form the shift from the supertonic is not usable.

(I-4) HARMONIC MINOR SCALE.

In this scale form it is to be noted that the ascending scale has augmented fourths on the subdominant and the submediant and a diminished fourth on the leading tone; the descending scale has augmented fourths below the supertonic and the leading tones and a diminished fourth below the mediant.

(I-5) Examples of cyclic fingerings for diatonic scales which are extended.
The fingering cited for the above ascending melodic uses the lower submediant as a help tone. This may be done as reasonable borrowing without disturbing the tonality.

The MILD MAJOR MODE ascending, permits diatonic perfect fourth shifts from the tonic, supertonic, dominant and leading tone; descending, diatonic perfect fourth shifts are permitted from the tonic, dominant, subdominant and mediant.

The PENTATONIC SCALE: Using the pentatonic scale with diatonic perfect fourth shifts permits the shifts in the ascending scale, to be from the 2nd, 3rd, 4th and fifth notes; descending, from the 2nd, 1st, 5th and 4th notes.
CYCLIC FINGERINGS FOR DIATONIC SEVENTH CHORDS.

(1) For the present all shifts are to be diatonic perfect fourths.
(2) Because of awkward extra changes of strings the first finger will not be used as a shifting finger in ascending seventh chord arpeggios; nor will the fourth finger be used as a shifting finger in descending seventh chord arpeggios.
(3) The second finger can not be used as shifting finger in ascending from the chord sevenths; nor can the third finger be used as the shifting finger in descending from the chord roots.
(4) Some seventh chords have several shiftings and comply with (1), (2) and (3). The preference may be for the one which has a help tone that is also a chord tone.

(I-I) SEVENTH CHORDS of the MAJOR MODE.

(Diatonic perfect fourth shifts can not be made from the underscored scale numbers.) (In this chart the conventional symbols will be used for the seventh chords.)

<table>
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<th>Ascending Arpeggios</th>
<th>Descending Arpeggios</th>
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<td>Scale Numbers</td>
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<td>I-7th</td>
</tr>
<tr>
<td>II-7th</td>
<td>II-7th</td>
</tr>
<tr>
<td>III-</td>
<td>III-</td>
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<tr>
<td>IV-</td>
<td>IV-</td>
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<tr>
<td>V-</td>
<td>V-</td>
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<td>VI-</td>
<td>VI-</td>
</tr>
<tr>
<td>VII-</td>
<td>VII-</td>
</tr>
</tbody>
</table>

Examples:

```
\begin{align*}
\text{Ascending Arpeggios:} & \quad \text{Descending Arpeggios:} \\
I-7th & \quad \text{I-7th} \\
II-7th & \quad \text{II-7th} \\
III- & \quad \text{III-} \\
IV- & \quad \text{IV-} \\
V- & \quad \text{V-} \\
VI- & \quad \text{VI-} \\
VII- & \quad \text{VII-} \\
\end{align*}
```
(J-2) SEVENTH CHORDS of the HARMONIC MINOR MODE.

(Diatonic perfect fourth shifts can not be made from the underscored scale numbers.)

Ascending Arpeggios.

Scale Numbers.

I—  7th  I  3  5  7
II— "       2  4  6  1
III— "       3  5  7  2
IV— "       4  6  1  3
V— "       5  7  2  4
VI— "       6  1  3  5
VII— "       7  2  4  6

Examples.

\[
\begin{align*}
&I: 4 3 1 3 4 3 2 4 2 3 2 1 3 1 2 \\
&II: 4 2 4 4 3 4 3 1 3 2 4 2 1
\end{align*}
\]

Descending Arpeggios.

Scale Numbers.

I—  7th  1  5  3  1
II— "       1  6  4  2
III— "       2  7  5  4
IV— "       3  1  6  4
V— "       4  2  7  5
VI— "       5  1  7  6
VII— "       6  4  2  7

Examples.

\[
\begin{align*}
&I: 4 3 1 3 4 3 2 4 2 3 2 1 3 1 2 \\
&II: 4 2 4 4 3 4 3 1 3 2 4 2 1
\end{align*}
\]
(J-3) SEVENTH CHORDS OF THE MELODIC MINOR MODE.

(Diatonic perfect fourth shifts can not be made from the underscored scale numbers.)

Ascending Arpeggios of the ascending scale form.

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<tr>
<th>Scale Numbers</th>
<th>Descending Arpeggios of the descending scale form.</th>
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<td>I --- 7th</td>
</tr>
<tr>
<td>II --- &quot;</td>
<td>II --- &quot;</td>
</tr>
<tr>
<td>III --- &quot;</td>
<td>III --- &quot;</td>
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<tr>
<td>IV --- &quot;</td>
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<td>V --- &quot;</td>
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<tr>
<td>VI --- &quot;</td>
<td>VI --- &quot;</td>
</tr>
<tr>
<td>VII --- &quot;</td>
<td>VII --- &quot;</td>
</tr>
</tbody>
</table>

Examples.

(J-4) SEVENTH CHORDS OF THE MILD P MAJOR MODE.

(Diatonic perfect fourth shifts can not be made from the underscored scale numbers.)

Ascending Arpeggios

<table>
<thead>
<tr>
<th>Scale Numbers</th>
<th>Descending Arpeggios</th>
</tr>
</thead>
<tbody>
<tr>
<td>I --- 7th</td>
<td>I --- 7th</td>
</tr>
<tr>
<td>II --- &quot;</td>
<td>II --- &quot;</td>
</tr>
<tr>
<td>III --- &quot;</td>
<td>III --- &quot;</td>
</tr>
<tr>
<td>IV --- &quot;</td>
<td>IV --- &quot;</td>
</tr>
<tr>
<td>V --- &quot;</td>
<td>V --- &quot;</td>
</tr>
<tr>
<td>VI --- &quot;</td>
<td>VI --- &quot;</td>
</tr>
<tr>
<td>VII --- &quot;</td>
<td>VII --- &quot;</td>
</tr>
</tbody>
</table>

Examples.
CYCLIC FINGERINGS FOR DIATONIC AUGMENTED TRIADS. (Ascending.)

(8) These chords fall on the mediants of the harmonic and the ascending melodic minor scales.

Extensions of augmented triads give no perfect fourths.

The following examples use perfect fourth diatonic help tones.

Note differences in help tones in the two modes.

Harmonic Minor. (The description above each stave on pages 23 & 84 refer to mode.)

| 4 4 3 2 1 4 3 3 2 4 3 2 3 2 1 3 3 2 1 |

Ascending Melodic Minor

| 4 2 2 1 4 3 3 2 4 4 3 2 1 3 3 2 1 |

CYCLIC FINGERINGS FOR DIATONIC DIMINISHED TRIADS. (Ascending.)

(1) These triads fall on the super tonics of the harmonic, descending melodic and the milder major modes and on the leading tones of the major, and the harmonic and ascending minor modes.

Extensions of these triads give no perfect fourths.

The following examples use diatonic perfect fourth shifts.

Note differences in help tones in the several modes.

Harmonic Minor.

| 4 4 3 2 1 4 3 3 2 4 3 2 3 2 1 none. |

Descending Melodic Minor.

| 4 4 3 2 1 4 3 3 1 4 3 2 3 2 1 |

Milder Major.

| 4 4 3 2 1 4 3 3 2 4 3 2 3 2 1 |

Major.

| 4 4 3 2 1 4 3 3 2 4 3 2 3 2 1 |

Ascending Melodic Minor.

| 4 4 3 2 1 4 3 3 2 4 3 2 3 2 1 |

none.
CYCLIC FINGERINGS FOR DIATONIC AUGMENTED TRIADS. (Descending.)

(M) See (K).

Harmonic Minor.

Ascending Melodic Minor.

CYCLIC FINGERINGS FOR DIATONIC DIMINISHED TRIADS. (Descending.)

(N) See (L)

Harmonic Minor.

Descending Melodic Minor.

Milder Major

Major

Harmonic Minor.

Ascending Melodic Minor.
Help tones are abominations. However, these necessary evils have advantages. Among others, the player using them knows precisely where the left hand is. (Carl Flesch in "The Art of Violin Playing" devotes some columns to help tones, which he divides into general types. For the purpose of this paper the one type already explained seems adequate.)

The copious examples thus far have depended upon diatonic perfect fourth shifts; and they indicate the coverage and advantages of that practice. The examples also show that the perfect fourth is the only shift to effect cyclic fingerings leaves much to be desired. Because of melody, individual strings' tone color etc., it would seem desirable to be able to shift from any tone of a chord or scale to make the cycle. Two limitations hamper, -we have but four fingers, - and the shift should either be direct-or if help tones are used, the help tones should be diatonic, otherwise the tonality is disturbed. Nothing can be done about the first limitation. However the second one may be satisfied if two more shifting intervals are added; -eg-the augmented and diminished fourths.

Augmented and diminished fourths will need drilling with close attention to be brought under mental control. Perhaps the best way to drill and check them is with the voice (not the instrument). When all several fourth intervals are under mental control, the possibilities for cyclic fingerings of diatonic scales and chords has only the limitation of four fingers. (This limitation for scales was mentioned in I. A similar awkwardness appears for arpeggios.)

The following examples indicate how the application of augmented and diminished fourth shifts adds to the possibilities of cyclic fingerings.

### Major and Minor Triads.

- (A—augmented shift.) (D—diminished shift.) (P—perfect fourth shift.)

#### Harmonic Minor Scale.

#### Milder Major Scale.

Diatonic Seventh Chords.

The underscored symbols on pages 20, 21 and 22 are all usable as tones from which shifting may be done using diminished and augmented fourths. Predicaments such as the following example of the dominant seventh arpeggio of D minor offer, are solved by using augmented and diminished shifts. (Argument: For cyclic fingerings of ascending seventh chord arpeggios the first finger can not serve as a shifting finger. In this example one can not shift from either A or E.—The shift from G is diminished and the shift from F is augmented.)
P- AUGMENTED AND DIMINISHED FOURTH DIRECT SHIFTS.

Augmented and diminished triads will cycle if use is made of augmented and diminished fourth shifts.

Q- CYCLIC ARPEGGIOS AND SCALES WITH EMBELLISHMENTS.

(a) Auxiliary notes above the fourth finger and below the first finger are awkward in that they have different tone quality than the principal tones and they require rapid changes of the bow's planes.

(b) The direct shifts which were listed for cycling triads need not be affected.

c Auxiliary notes offer some additional notes from which to shift.
Scale chains of auxiliary notes contain the difficulty mentioned in a, no matter where the shift is placed, if conventional fingerings are used. The following device solves the problem.

(Q-2) Trills on cyclic arpeggios and scales have the same difficulties as auxiliary notes.
See (Q-I-a,b and c.)

(Q-3) Appoggiaturas.
Chains of--
See (Q-I-a and c.)

It is sometimes convenient to shift directly from a chord tone to an appoggiatura in arpeggios with appoggiaturas.

(Q-4) Surrounding Tones groups are most easily done if the first or the second finger stops the lowest note.
A shift of a fourth is convenient to cycle.

(Q-5) Passing Notes.
Passing notes in triad arpeggios between the chord root and third and between the chord third and fifth do not need to change the direct shift for cycling.
Passing notes may be shifted from in order to cycle as in scales.
See (I and Oj.)
Passing notes between the chord fifth up to the root and from the root down to the chord fifth make help tones necessary to cycle.

\[
\begin{array}{cccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 \\
\hline
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12
\end{array}
\]

Passing tones in seventh chord arpeggios can be managed like scale tones in section (I).

(Q-6) Added Tones.

The added tone above the root for a single voice part in arpeggio arrangement is the same for the violinist as a passing note between the chord's root and third.

In arpeggios the violinist will stop the added sixth tone as though it were part of a seventh chord.

R-CYCLIC FINGERINGS FOR SCALES IN DOUBLE STOPS.

Most considerations of doublestop scales for bowed string instruments would elide all except those in thirds, sixths, octaves and tenths. However in this day anything can happen and passages may be expected in seconds, sevenths and nineths; which, with scales in octaves, do not lend themselves to cyclic fingerings similar to the types of problems already solved. Double stop scales in fourths and in fifths will cycle if the devise of extentions, which follows for thirds and sixths, is used.

(R-I) Cyclic Fingerings for Scales in Thirds and Sixths.

Diatonic scales in thirds and in sixths will cycle with a single shift of a fourth if extentions are used.

For the following example in thirds the hand remains in the second position until the shift at S. For the first finger's first note that finger is extended backwards. (The same maneuver is used for the notes g and b.) The note f in the lower voice is done with the extended fourth finger. For the example in sixths both the third and the fourth fingers are extended for the pair of notes, a and f.
SUMMARY

The fingerings in this thesis have the following advantages:

1. They permit cyclic maneuvers by the octave.
2. The tone material covered includes diatonic scales and triad and seventh chord arpeggios and their embellishments and double stop diatonic scales. (The table of contents gives a complete descriptive list.)
3. The number of shifts necessary for extended scale and arpeggio passages of three octaves or more is reduced to one shift per octave.
4. The variety of shifts is reduced to the intervals of fourths, with one exception.
5. Many tables or charts which show at a glance numerous cyclic fingering possibilities are given.
6. The topics and problems are presented in order of progressive difficulty. The first sections have suggestions for practicing which have been found helpful. To keep within a reasonable bulk the later sections have fewer examples; also, lists of compositions in which the schemes would be practical are elided.

The first four above numbered items result in much relaxation from strain of memory effort; (2) less necessary attention to digital and left arm motions because these are fewer in number and simplified as to variety; (3) less effort of aural attention in measurement of shifts; also because shifts are less often used and are confined to fourths; all of which makes for confidence, composure and satisfaction.

Reducing the number and variety of motions at the same time reduces the number of possible errors and results in greater precision and speed and finer interpretations.