AARON COPLAND'S SYMPHONIC USE OF BRASS INSTRUMENTS

THESIS

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF MUSIC

By

Patrick R. Hasty, B. M.

Denton, Texas

August, 1965

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CHAPTER I

TRADITIONAL ORCHESTRAL USES OF BRASS INSTRUMENTS

Traditions in orchestration can be described by relating the practices of most of the important composers of a particular time. This was done with great success by two composers of the nineteenth century, Hector Berlioz[1] and Nicolai Rimsky-Korsakov[2], in their books on orchestration. These texts are the basis for the traditional uses of brass instruments appearing in this chapter.

The French Horn

One of the basic considerations involved in writing any orchestral part is knowing the notes that can be played on the instrument. Before the invention of valves, it was necessary to use many horns of different sizes which included tube lengths giving instruments in "all keys"[3], the choice of which was determined by the key of the piece and range needed.

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[1]Hector Berlioz, A Treatise on Modern Instrumentation and Orchestration, translated by Mary C. Clarke (London, 1882).

[2]Nicolai Rimsky-Korsakov, Principles of Orchestration, translated by Edward Agate (New York, 1912).

[3]Berlioz, op. cit., p. 130.

Another problem with valveless horns included the difference in open and stopped tones. Chromatic notes were obtained by stopping, lipping, or by combining the two techniques, resulting in very uneven scales. "The old masters limited themselves, in general, to the use of the open sounds; which they wrote--it must be owned--very clumsily."[4]

Since the turn of the century, it has been common for horn players to use one or two valved horns and to transpose. But certain traditions developed through the use of open horns have remained in the writing of French horn parts for the orchestra. Horn music is generally written without a key signature. Richard Strauss[5] noted that composers still write for horns in different keys to keep from using accidentals and to make the score look less complicated. Also four horns in at least two different keys were used to take care of any modulation and to include a large number of open tones in all the horn parts. The use of four horns in an orchestra remains quite traditional although the differences in key do not.

The range of the French horn necessarily must be considered with respect to the valved horn. Berlioz stated in 1844: "The sounds of the horn with valves do not materially differ from those of the ordinary horn. This instrument is already in general use throughout Germany, and,

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[4]Berlioz, op. cit., p. 131.

[5]Hector Berlioz, Treatise on Instrumentation, enlarged and revised by Richard Strauss, translated by Theodore Front (New York, 1948), p. 279.

without doubt, will soon become so everywhere.[6]

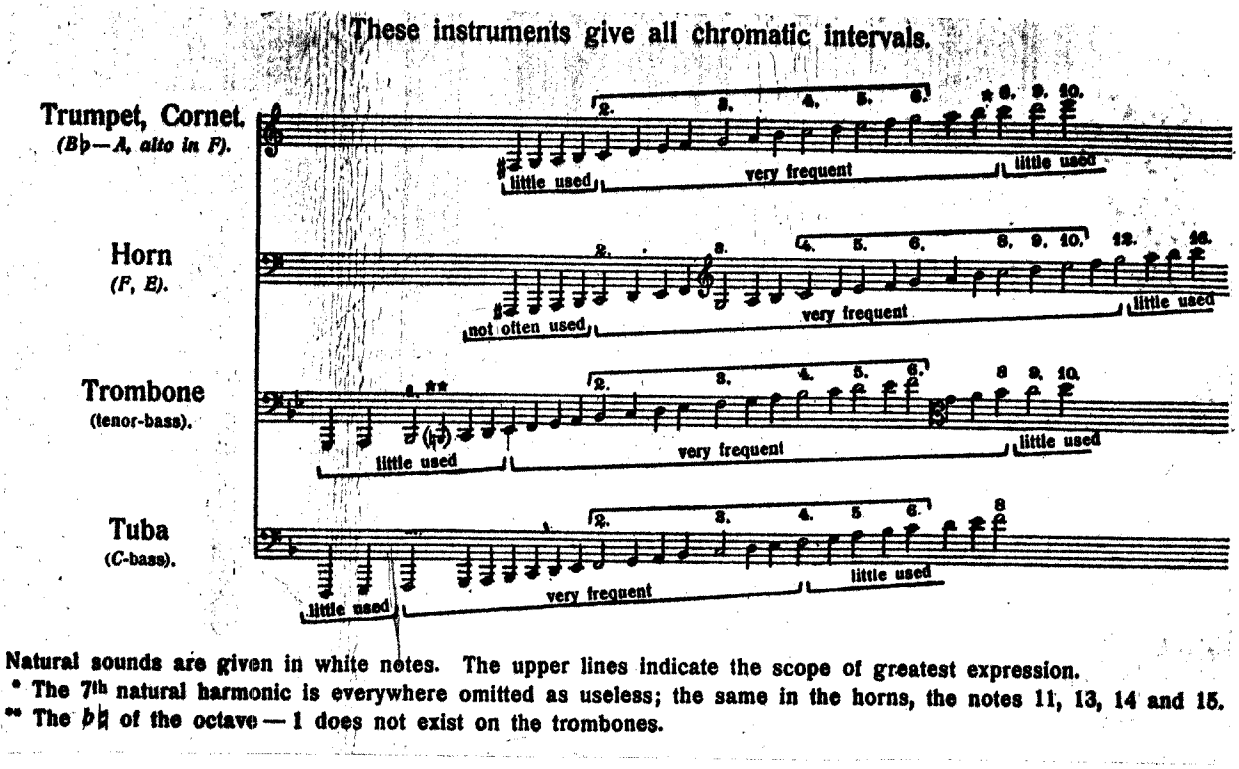

Fig. 1 -- Ranges of the modern brass instruments*

*Rimsky-Korsakov, op. cit., p. 25.

This prediction was validated by 1900, although some composers continued to write "as though for natural horns even when they knew the valve horn would be employed."[7] The range of the French horn in Figure 1 includes the traditional bass clef notation for a horn part--the horns in F would sound a perfect fourth higher than written while the notes in the

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[6]Berlioz, Treatise on Instrumentation, translated by Mary Clarke, p. 142.

[7]Walter Piston, Orchestration (New York, 1955), p. 231.

treble clef would sound a perfect fifth lower than written.

> Modern composers have tried to correct this illogical notation by writing notes in the bass clef in their proper octave, but when this is done, a note should be given in the score--horn in the bass clef sound a fifth lower than written--to avoid misunderstanding."[8]

The horn range given by Rimsky-Korsakov (Figure 1) represents standard use up to the beginning of the twentieth century. Berlioz considered the low C, the second harmonic (marked with a number "2" in Figure 1), the lowest practical note on a valved horn of one of the intermediate keys (E natural, F, G, and A flat);[9] but he did not point out that the high register, above G (the twelfth harmonic), was little used. Berlioz did mention that the high register was easier to perform on a larger horn of a lower key.[10]

Traditional brass sections in an orchestra include four horns. But throughout the nineteenth century and the beginning of the twentieth century the even numbered combinations from four through ten could not be considered uncommon: Berlioz's Symphony Fantastique uses four horns; Holst's The Planets, six horns; Wagner's Die Götterdämmerung, eight horns; and Schoenberg's Gurrelieder, ten horns.

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[8] Ibid., p. 228.

[9] Berlioz, Treatise on Instrumentation, translated by Mary Clarke, p. 141.

[10] Ibid., p. 129.

Rimsky-Korsakov describes the horn as having a tone that is "soft, poetical, and full of beauty" and whose middle notes "resemble those of the bassoon." Therefore the horn acts as a link between the brass and the woodwind. He adds that the horn has "little mobility and would seem to produce its tone in a dark and languid manner."[11]

Traditionally solo and soli horn passages include a large number of fanfares (Figure 2) utilizing the middle and upper registers.

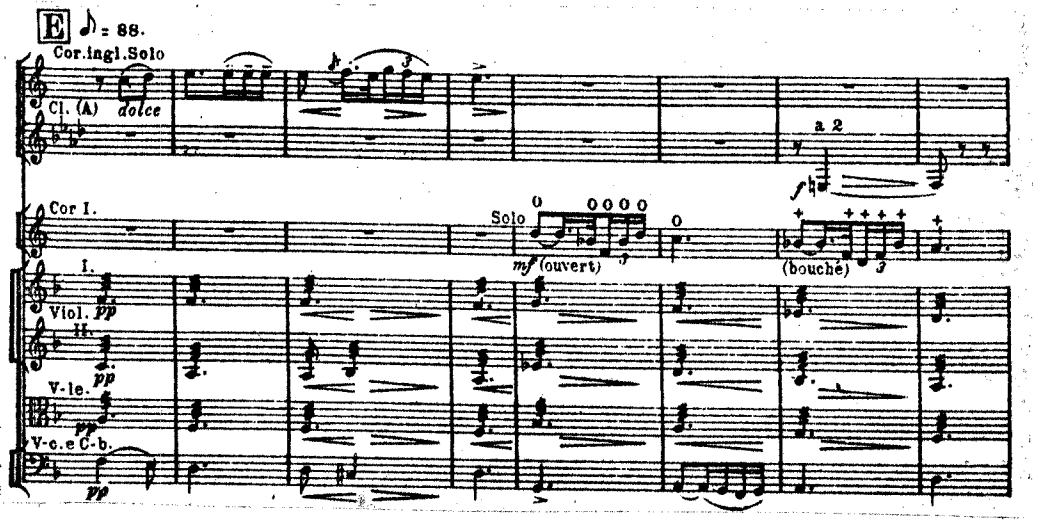

Fig. 2 -- Rimsky-Korsakov, Capriccio Espagnol, II, measures 41-48.

This example also shows the difference in color available by stopping the horn ("bouché"). Generally chromatic melodies are not suited to the brass instruments and brass instruments usually are not "called upon for a wide range of expression."[12]

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[11]Rimsky-Korsakov, op. cit., p. 24.

[12]Ibid., Part I, p. 55.

The combination of four horns and three trombones is common in unison passages as is the use of horns doubling the tuba at the octave giving a sonorous, dark sound. When notes other than the unison or the octave are given to the horns in combination with other brass the horn parts need to be written at least one dynamic marking louder or with doubling in order to balance the other brasses. The horns' doubling the trombones or trumpets tends to soften the timbre of the louder instruments.

As was mentioned previously the horn's similarity to the bassoon offers a very homogeneous combination. The horns can be doubled at the octave by clarinets, oboes, or flutes instead of trumpets especially when a "rich tone" in the upper octave is wanted.[13]

Of the string group the viola offers the best success in a horn-string combination mainly because of their similar registers. Horns and cellos, "frequently employed, produce a beautifully blended, soft quality of tone."[14]

Generally the harmony in the brass section should be of close order with no empty spaces in the intervals except in the low register. Four horns are often used in four part harmony with the bassoon used to double the bass an octave lower. The combination of horns, trombones and tuba also gives a balanced sound if two horns are used on a chord tone to balance the more resonant trombones.

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[13]Ibid., Part I, p. 57.

[14]Ibid., Part I, p. 61.

The Trumpets

As with the horns there existed natural (valveless) trumpets in every key, the use of which depended on the range and key needed. The playing of notes between the natural harmonics was done by stopping and lipping, which resulted in uneven dynamics and poor tone quality. The limitations of these trumpets probably was the reason Berlioz had to note their poor use in orchestral compositions:

> In spite of its proud and distinguished timbre, the trumpet has been degraded as few other instruments. . . . Up to the time of Beethoven and Weber, all composers--not even excepting Mozart--limited its use to the low sphere of mere filling-in voices or to a few commonplace rhythmic formulas, as vapid as they are ridiculous, and usually contrary to the character of the piece in which they occur.[15]

He went on to say that the trumpet had reached a place of prominence in the orchestra (1844, date of publication of this work) in regard to a variety of uses.[16] Part of this improvement was due to the adoption of the trumpet with pistons or cylinders[17] of which Berlioz commented, "they will soon come into general use."[18]

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[15]Berlioz, Treatise on Instrumentation, revised by R. Strauss, translated by T. Front, p. 288.

[16]Ibid., p. 288.

[17]The word "valve" will be used in place of piston or cylinder from now on due to its use in present vernacular.

[18]Berlioz, Treatise on Instrumentation, revised by R. Strauss, translated by T. Front, p. 288.

The range of the valved trumpet is shown in Figure 1 with exceptions similar to those of the horn. The high register is easier on the larger trumpets and the low notes are easier on the smaller instruments. Berlioz notes that the pedal C (one octave below the written middle C) is possible and practical only on the three high trumpets, those in F, G flat, and G natural.[19]

Berlioz recommended the use of valved trumpets and cornets in different keys, but not for solving any difficulties of range. His choice of keys was made to facilitate simple key signatures (those of one sharp or flat). Richard Strauss stated that Berlioz's chapter on trumpets was obsolete, and also noted that Wagner usually had the trumpet parts in C regardless of the key of the piece. It was the responsibility of the player to transpose and/or use a suitable trumpet.[20]

Rimsky-Korsakov describes the trumpet tone as "clean and fairly penetrating" and "stirring and rousing in forte passages." He goes on to say that the traditional use of trumpets (as with the whole brass sections) is mainly in fanfare-like phrases with the "passionate sentiments" sounding "sickly and insipid when confided to the brass."[21]

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[19]Berlioz, Treatise on Instrumentation, translated by Mary Clarke, p. 143.

[20]Berlioz, Treatise on Instrumentation, revised by R. Strauss, translated by T. Front, p. 281.

[21]Rimsky-Korsakov, op. cit., Part I, p. 55.

Figure 3 shows a good example of the "rousing" and diatonic nature of traditional trumpet solos.

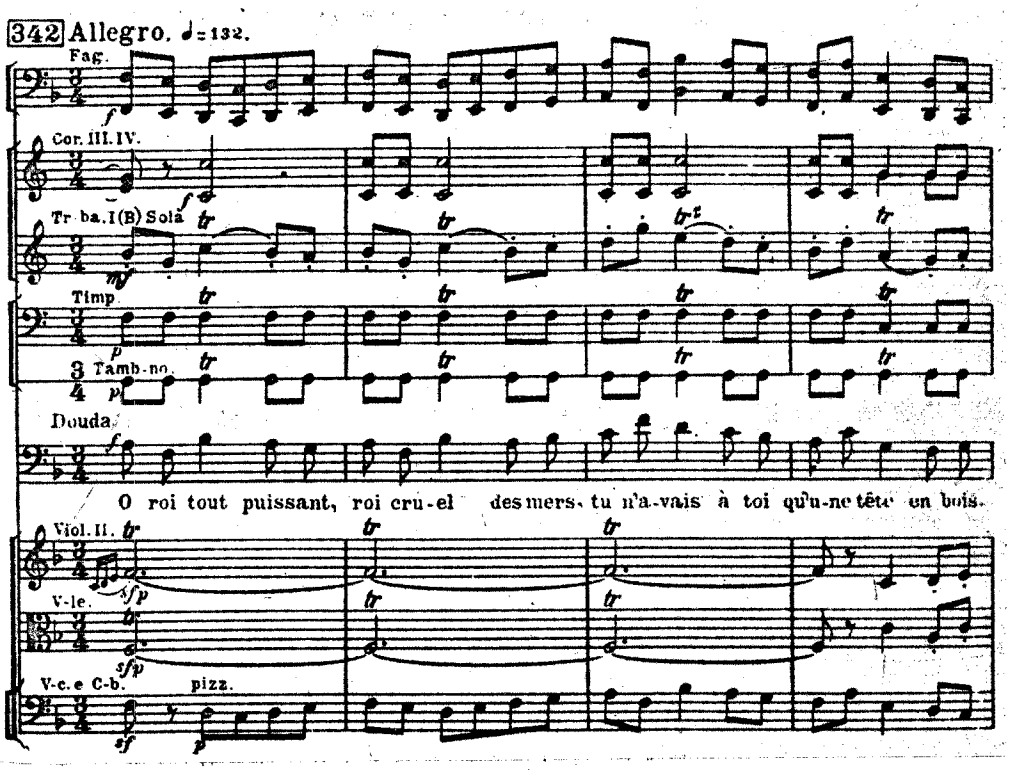

Fig. 3 -- Rimsky-Korsakov, Sadko, measures 342-345.

Trumpets appear frequently in unison passages giving extreme power and brilliance. (See Figure 4, page 10.)

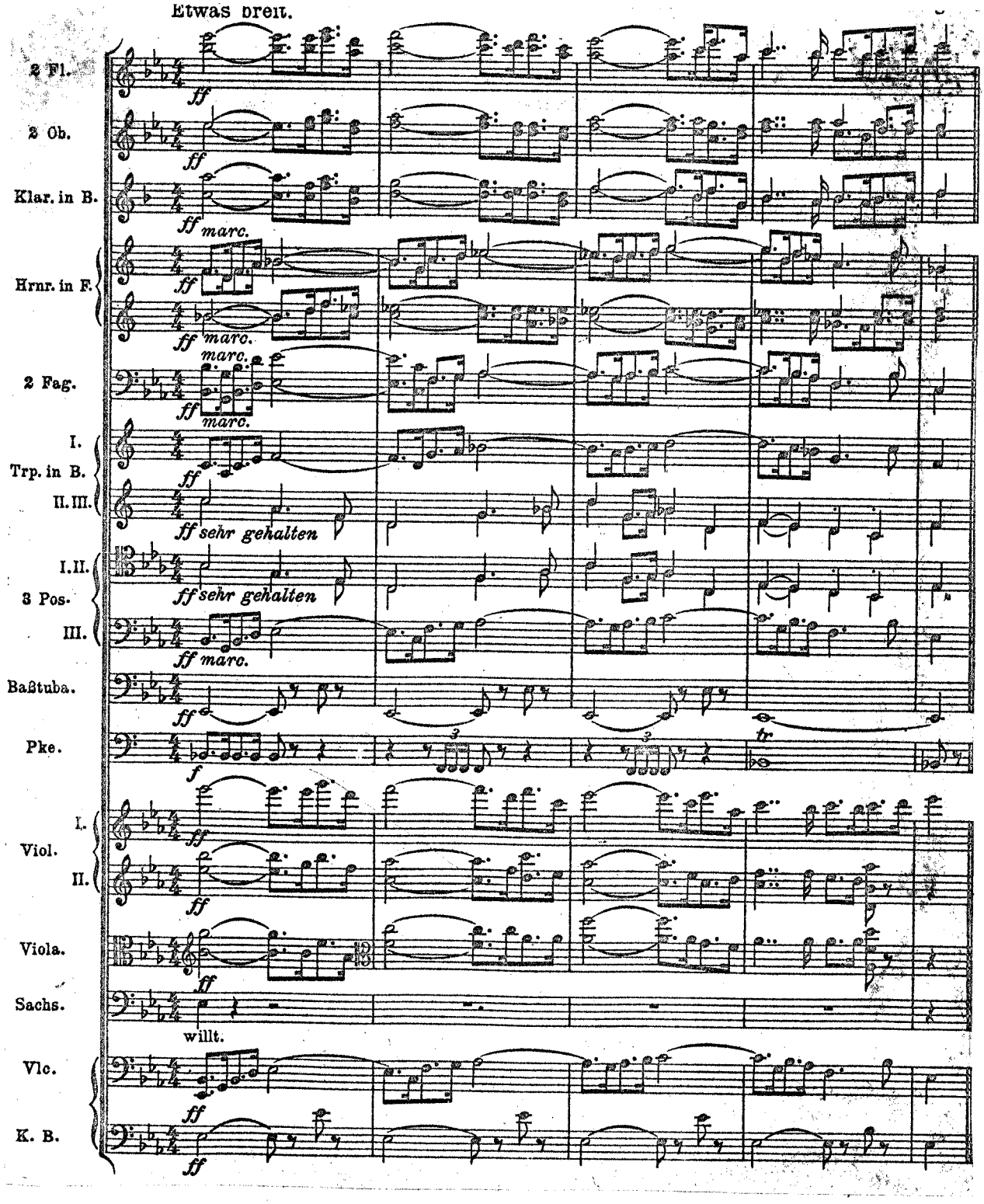

Fig. 4 -- Wagner, Meistersinger, Act III, Overture.

Parts in octaves were often used in powerful passages, but Figure 5 shows how Beethoven achieved delicacy with this combination.

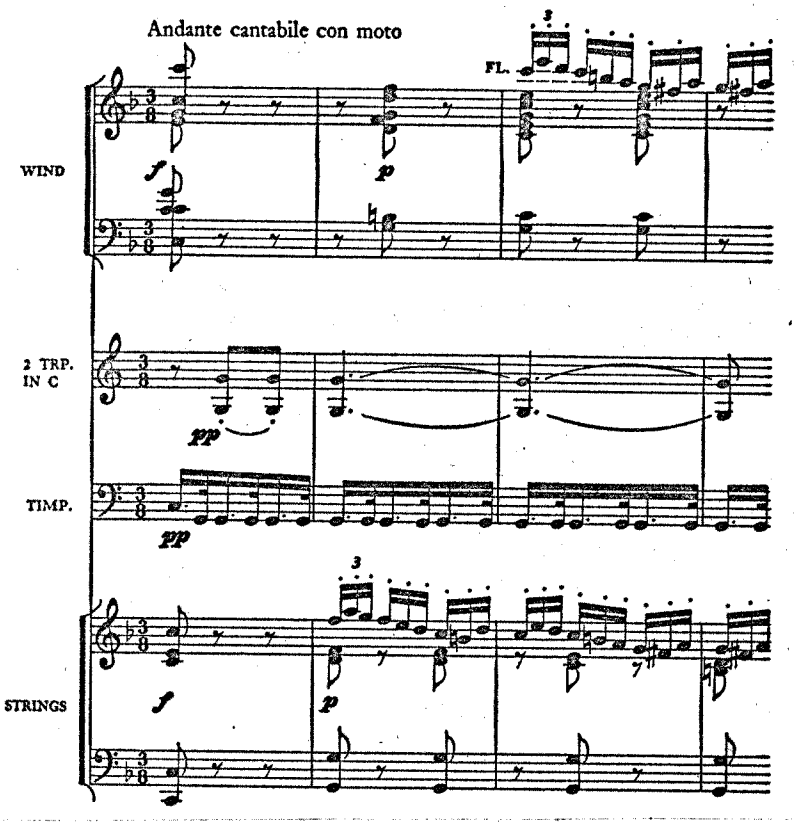

Fig. 5 -- Beethoven, Symphony No. 1, II, measures 54-57.

Combinations of instruments of the same family (all trumpets, all horns, etc.) in thirds and sixths are generally good. It should be noted here that most orchestral scores call for three trumpets[22] which lend themselves logically to the performance of triads.

The trumpets usually take the upper parts when the whole brass section is playing, but the horns can be used in unison to soften the

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[22]Rimsky-Korsakov, op. cit., Part I, p. 22.

brilliant trumpet timbre. When the trumpet parts are separated by the horns, Rimsky-Korsakov suggests having two horns on a part to balance the stronger trumpets.[23] Also he lists possible varied combinations using the trumpet: trumpet, oboe, flute, clarinet; trumpet, violin; trumpet, violin, oboe.

An example of a combination of trumpet with strings and woodwinds is shown in Figure 6. The effect of the trumpet in such a combination is added depth and subdued power.

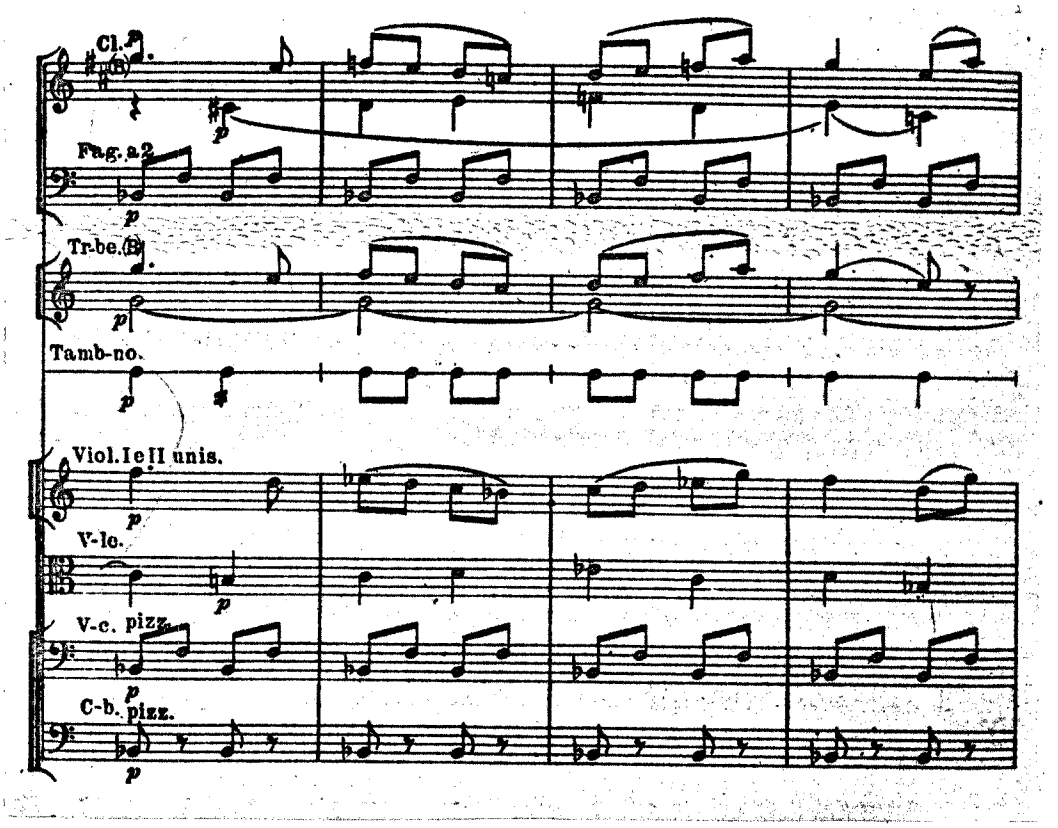

Fig. 6 -- Rimsky-Korsakov, Sniegourotchka, p. 271.

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[23] Ibid., p. 82.

The Trombone

Berlioz describes four trombones in his text: soprano, alto, tenor and bass, "each of which bears the name of the human voice to which it has the nearest resemblance in quality of tone and compass."[24] All but the soprano trombone were in general use during the nineteenth century except in France where only the tenor trombone was in complete acceptance.

The range given in Figure 1 represents the notes practical on the tenor trombone which was the most popular, if not the most used, trombone of the nineteenth century. Berlioz considered it "undoubtedly the best of all the trombones"[25] while Rimsky-Korsakov practically ignored the soprano and alto instruments in his text. Berlioz also considered the upper note of the trombone range to be the C and octave above middle C, and he added the pedal B flat to the lower extreme. (The notes between this B flat and the E natural immediately above were considered impractical on a standard tenor trombone.)

The bass trombone in E flat, as described by Berlioz, is built with its fundamental harmonic a fifth below the tenor instrument and its

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[24]Berlioz, Treatise on Instrumentation, translated by Mary Clarke, p. 151.

[25]Berlioz, Treatise on Instrumentation, revised by R. Strauss, translated by T. Front, p. 298.

total range also a fifth lower.[26] It supplied the brilliant brass (trumpets and trombones) with an adequate bass. The tuba's softer sound better completed the horn choir. The large size of the bass trombone (bore and length) made it quite difficult to play. Berlioz mentioned the invention of a valve attached to the tenor trombone and operated by the player's left hand which lowered the range of the instrument (chromatically) a fourth (from E natural to B natural). He added that "all orchestras should have at least one of these fine instruments."[27] Presently most third trombone players use a tenor trombone of a rather large bore and bell and with the attached valve (commonly called an "F attachment").[28]

The trombones are usually written in threes with the two tenor parts in the tenor clef. Berlioz noted that it was difficult to determine the maximum speed at which a trombone player could perform, but he did state, "in 4/4 time of an allegro moderato, a passage in simple eighth notes is practicable on the bass trombone." He also noted that the tenor trombones could execute triplet eighth notes without much trouble at the same tempo.[29]

"In three-part harmony and particularly in their medium range, the trombones have in forte an expression of heroic splendor, full of

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[26] Ibid., p. 299. [27] Ibid.

[28] "F attachment"--There are also valves which lower the fundamental tone to E and G, but F is most common.

[29] Berlioz, Treatise on Instrumentation, revised by R. Strauss, translated by T. Front, p. 298.

majesty and pride, which could be weakened and destroyed only by the prose of a vulgar melody."[30] Berlioz went on to say that in three-part harmony the bass trombone tended to be prominent so that a difference in dynamic markings may be necessary.

Strauss disagreed with Berlioz on the subject of separated trombone passages. The latter stated that "one single trombone always seems more or less out of place in an orchestra" and that it "needs harmony or at least unison with other members of its family." Strauss gave, as an example of a very good use of polyphonic treatment of brasses, an excerpt from the third act of Wagner's Meistersinger. (See Figure 4.) The third trombone and the first trumpet quite successfully handled the counter melody to the other trombones and trumpets.[31]

In unison or octave passages at a fortissimo the trombones give the allusion of menacing power especially when in minor keys as in the chorus of Furies in the second act of Gluck's Iphigenie en Aulide. (See Figure 7.)

An alto trombone with valves was mentioned by Berlioz, but its use and practicality were somewhat disputed. Its only advantage over the slide trombone is in the execution of very rapid passages or trills. Strauss added that tenor trombones with valves were used quite successfully by Wagner.

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[30] Ibid., p. 314.

[31] Ibid., p. 302.

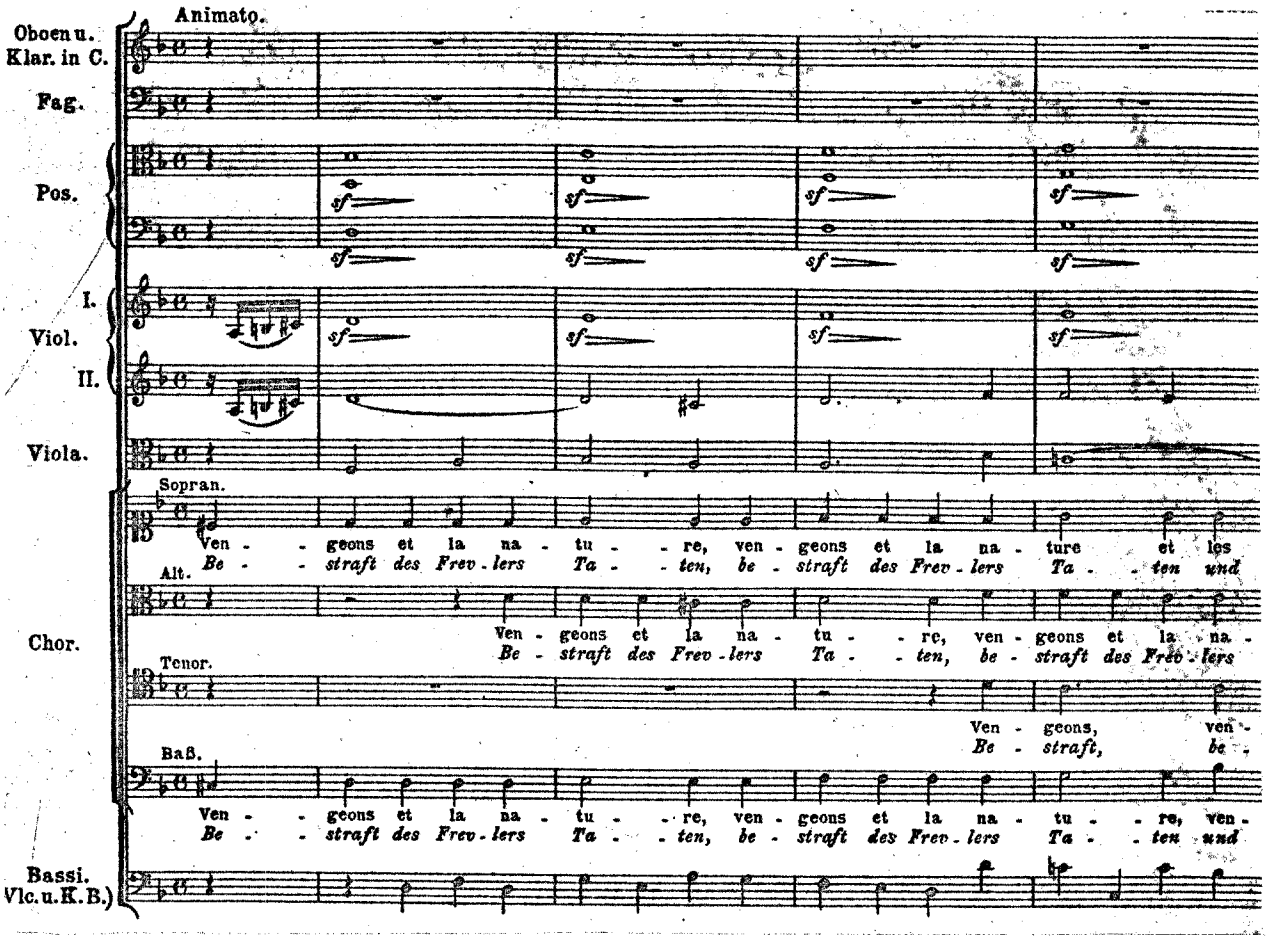

Fig. 7 -- Gluck, Iphigenie en Aulide, Act II.

The Tubas

The modern symphony orchestra normally utilizes one bass tuba in the brass section; but a discussion of the traditional use of brasses would be incomplete without mention of the Wagner tubas or the other large brass instruments, the ophicleides and the bombardon.

"To enrich the ensemble of brass instruments in his Nibelung cycle, Wagner devised . . . a quartet of tubas furnished with horn mouthpieces

and to be played by horn players."[32] There were two tenor tubas in B flat with a range from the C an octave below middle C to the G, two octaves and a fifth above (sounding one tone lower). The two bass tubas were in F with a range from low F (an octave and a fifth below middle C) to D (a ninth above middle C). These sounded a fifth lower than written. The Wagner tubas were used essentially as legato instruments.[33]

The ophicleides are the altos and basses of the bugle family, another group of brass instruments not used in the modern orchestras. Berlioz considered them excellent for "sustaining the lowest part of massed harmonics,"[34] and noted that they should rarely be used without the cover of other instruments. Intonation problems and a "generally unpleasant" tone are the probable reasons why these instruments have fallen into disuse.

The bombardon was an instrument of very low range, two octaves plus a fifth below middle C up to middle C. It had three cylinders and was the predecessor of the bass tuba (called "double B flat bass" or "contra-bass" tuba) that is used in modern orchestras.

The bass tuba has been generally treated as a nontransposing instrument with a range of three octaves plus a fifth (see Figure 1). Berlioz adds three notes to the low register (A, B flat, and C) but notes that these are "clearly audible only if doubled in the higher

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[32]Ibid., p. 330. [33]Ibid. [34]Ibid., p. 337.

octave by another bass tuba."[35] The instrument is best used on broad and slow moving melodies or for supporting the bass of the orchestra in powerful passages. Figure 8 shows the tuba in one of Wagner's "noble and gloomy" melodies.

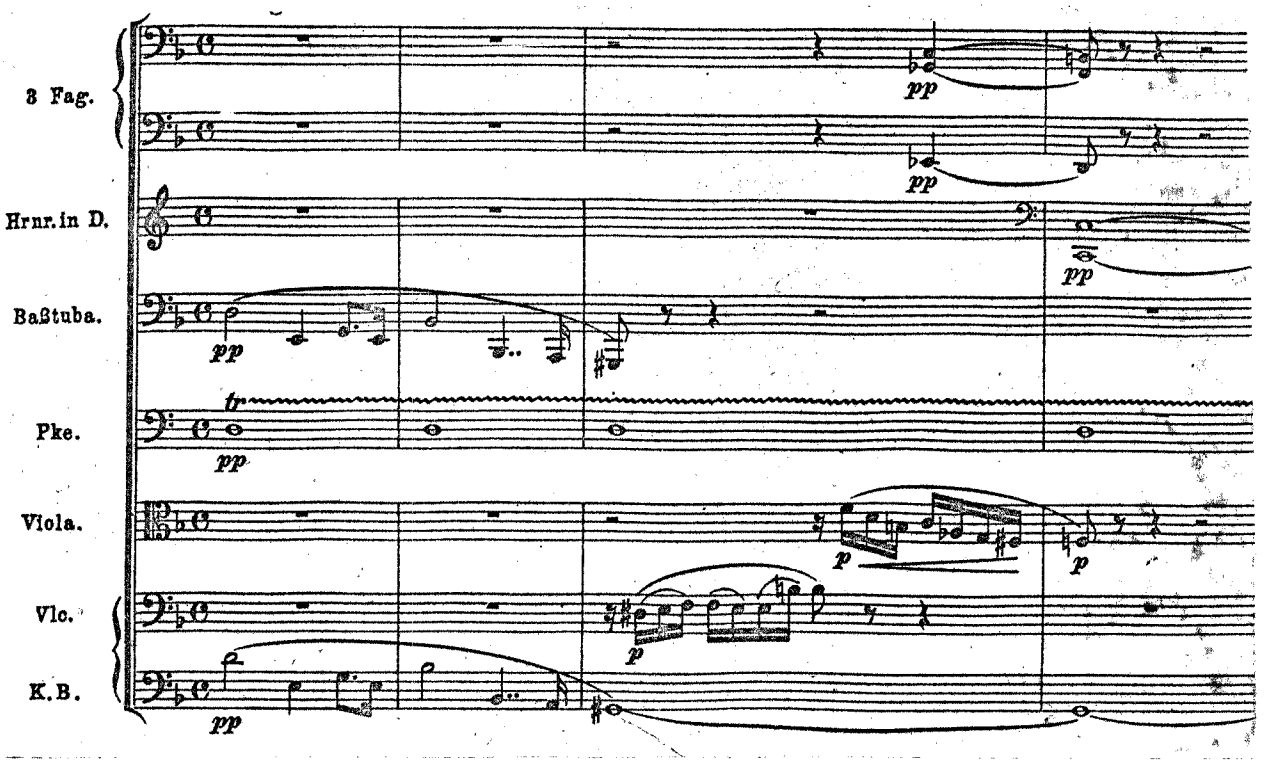

Fig. 8 -- Wagner, Faust Overture.

Strauss cited an example from Wagner's works (Figure 8) and noted that the "bass tuba, reinforcing the double basses, is bearable only in large orchestras and if it is played not louder than mf."[36] Figure 9 on the following page shows the solo use of the tuba.

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[35]Ibid., p. 339.

[36]Ibid.

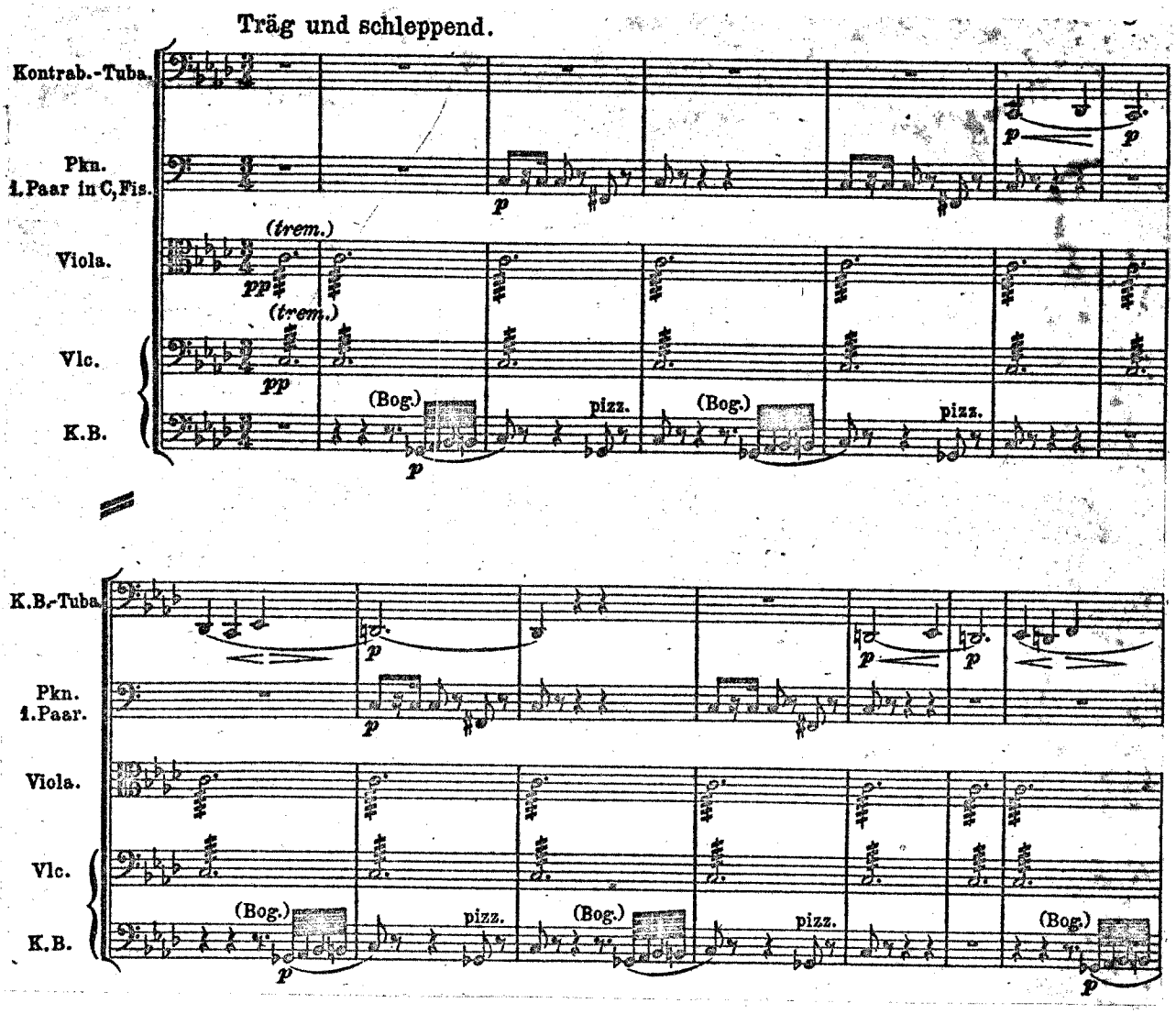

Fig. 9 -- Wagner, Siegfried, Act II, Measures 1 - 14.

CHAPTER II

AARON COPLAND

Aaron Copland, the youngest of five children, was born in Brooklyn, New York, on November 14, 1900. He attended public schools and worked in his father's department store. His training in music began at the age of eleven when he had his first piano lesson; his sister was the teacher. Eventually he studied with Leopold Wolfsohn, Rubin Goldmark and Victor Wittgenstein and included the study of harmony, counterpoint and composition. Goldmark "was the leading composition teacher in America at that time" (1915-1920).[1] Also during this time Copland attended as many concerts as possible. His interests included the New York Philharmonic Orchestra, operas at the Metropolitan, and many recitals. There is no doubt that his ear for orchestration was beginning to form during these young years.

In the summer of 1921 he went to France to study with Paul Vidal at the "American School of Music" at Fountainbleau. He met Nadia Boulanger in Paris, and decided to stay two years in France to study composition, orchestration, and score reading with her. This meeting turned out to be Copland's beginning as a recognized composer. Mlle. Boulanger

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[1]Julia Smith, Aaron Copland (New York, 1955), p. 27.

needed a new work to play on the organ during a tour of the United States in 1925, and she asked Copland to write it. The result was Symphony No. 1, for organ and orchestra. (An arrangement for large orchestra without organ was written by the composer in 1928.)[2] Boulanger's influence on the American's composition (including orchestration) is probably best expressed by Copland's answer when asked what was the most important musical event of his life: "My introduction to Nadia Boulanger and her acceptance of me as a pupil."[3]

Copland's second symphony was completed in 1933 and was dedicated to a friend and fellow composer, Carlos Chavez.[4] The major part of this work was written in Mexico and contains much of the exciting Latin American rhythm and brilliance.

Peter Hansen[5] classifies Copland's music in three stylistic periods--"French Jazz" (1925-1929), "Abstract" (1929-1935), and "American Folk Song" (after 1935). The influences during the first period are rather obvious; American jazz was popular among the French composers in the 1920's and Copland was living and listening in Paris from 1921 to 1924. During the "Abstract" period Copland was more aware of Igor Stravinski's

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[2]Aaron Copland, First Symphony for Large Orchestra, (New York, 1931).

[3]Julia Smith, op. cit., p. 45.

[4]Aaron Copland, Short Symphony (No. 2), (New York, 1955).

[5]Peter S. Hansen, 20th Century Music (Boston, Mass., 1961), p. 307.

music and began using some of the "clean" dissonances (doubled 7th's and minor 9th's) and octave transposition of melody notes that were so typical of Stravinski at this time.

The last period mentioned includes program music like El Salon Mexico (1938), Lincoln Portrait (1942), a ballet, Billy the Kid (1938), and Appalachian Spring (1944). These works contain melodies from songs of the people; but even the more absolute works of this period included a "folk-song" atmosphere.

The first movement of Symphony No. 3 (1946) begins with a melody similar to the Shaker hymn, "The Gift to Be Simple," which appears in Appalachian Spring.[6] The last movement begins with the "Fanfare to the Common Man," a piece written in 1942 for the brass section of an orchestra. Hansen states that the third symphony was "written without the external condition provided by ballet or movie scenario, . . . it is one of Copland's most personal statements."[7] An expression of a similar opinion is made by David Ewen:

> Even in a work like the Third Symphony, which made no attempt to absorb materials from outside sources, the tendency towards simplification is still present, and the influence of American folk music is continually suggested in subtle overtones of expression.[8]

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[6]Donald Jay Grout, A History of Western Music (New York, 1960), p. 623.

[7]P. S. Hansen, op. cit., p. 311.

[8]David Ewen, The Complete Book of 20th Century Music (Englewood Cliffs, N. J., 1960), p. 64.

His other works include music for ballet, radio, movies, and school ensembles, besides the writing of several books. He has been quite active in furthering the recognition of American composers.

CHAPTER III

COPLAND'S USE OF BRASS

The three symphonies to be discussed represent important phases in each of Copland's compositional periods: First Symphony for Large Orchestra (1928), "French Jazz" period; Short Symphony (No. 2, 1934), "Abstract" period; and Third Symphony (1946), "American Folk Song" period.

TABLE I

COPLAND'S BRASS SECTIONS

First Symphony	Short Symphony (No. 2)	Third Symphony
8 French Horns in F	4 French Horns in F	4 French Horns in F
5 Trumpets in C	2 Trumpets in C	4 Trumpets in B flat
3 Trombones		2 Tenor Trombones
		1 Bass Trombone
1 Tuba		1 Tuba

His brass instrumentation is not out of the ordinary for the twentieth century[1], excepting possibly the limited brass section of the Short Symphony. His experimentation during the "Abstract" period is probably the reason for this, together with the very nature of the piece which is, in all respects, a smaller work than either of the other symphonies.

[1]Adam Carse, The History of Orchestration, (London, 1925), p. 333.

There was no specification for using a bass trombone in his first symphony, [2] and actually no need for this. The third trombone part never went lower than the F, an octave plus a fifth below middle C. Having studied in France and having written the symphony in Paris, Copland easily could have adopted the French tradition of using three tenor trombones in the orchestra.

TABLE II

BRASSES, AMOUNT OF USE BY COPLAND

Instrumentation	1st Symphony	2nd Symphony	3rd Symphony
Total No. of Measures	656	517	1041
Use of Brass (total)	372 (57%)	332 (64%)	665 (64%)
Horn (one)	65 (10%)	67 (13%)	70 (7%)
Horns (more than one)	255 (39%)	208 (40%)	417 (40%)
Trumpet (one)	50 (8%)	88 (17%)	74 (7%)
Trumpets	164 (25%)	99 (19%)	394 (38%)
Trombone	23 (4%)	Not Used	47 (5%)
Trombones	135 (21%)	Not Used	330 (32%)
Tuba	143 (22%)	Not Used	209 (20%)

Table 2 shows the number of measures in which each member of the brass section was used in relation to the total number of measures in the piece. The significance of the table will be discussed in succeeding sections of this chapter.

[2] Aaron Copland, First Symphony (New York, 1931).

First Symphony for Large Orchestra

The brass section in Table I for this symphony can be misleading in that only the third movement contains eight horns and five trumpets. Also the "Prelude" (Movement I) contains brass parts for only three horns and two trumpets. The gradual increase in instrumentation (Table III) is a logical way to emphasize the progress of a work.

TABLE III

BRASSES IN COPLAND'S FIRST SYMPHONY

I. "Prelude"	II. "Scherzo"	III. "Finale"
3 French Horns in F	4 French Horns	8 French Horns
2 Trumpets in C	3 Trumpets	5 Trumpets
	3 Trombones	3 Trombones
	1 Tuba	1 Tuba

Use of the French Horn

In the "Prelude" the horns (or horn) generally supply sustained background or slow countermelodies. The solo horn predominates in the orchestra for eight measures at one point with a quietly flowing melody of medium high tessitura. (See Figure 10.)

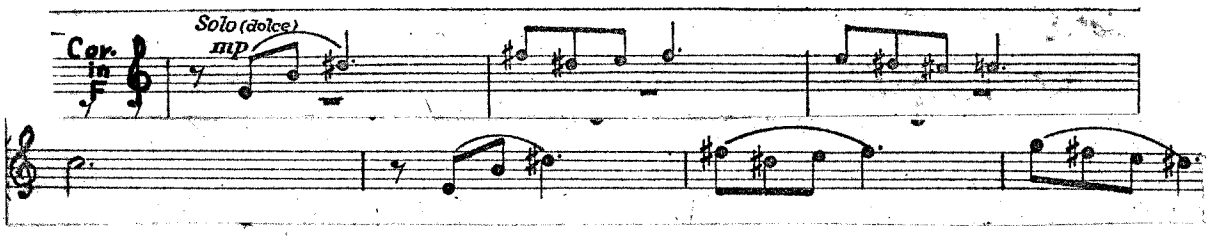

Fig. 10 -- Copland, Symphony No. 1, "Prelude," measures 43-50

The French horn is frequently combined with the woodwinds in accordance with traditional use. Figure 11 shows a common instrumentation--horn, bassoon, and clarinet--playing a background for the oboe solo. The horn, being the dynamically strongest instrument, takes the lowest note of the chords while the bassoon plays a third higher and the clarinet plays the top notes. It is interesting to note that this instrumentation is almost the same as that of the standard woodwind quintet--

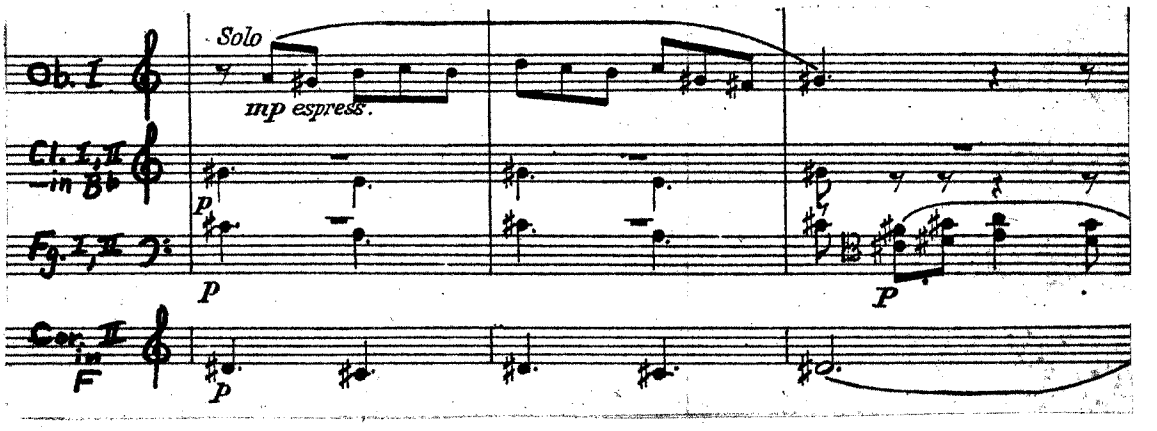

Fig. 11 -- Copland, Symphony No. 1, "Prelude," measures 18-20

flute, oboe, clarinet, bassoon and horn.[3]

Copland evidently understood some of the physical problems of brass playing, because he alternated most long horn passages between the first and second players. Also there are not many large intervals (greater than a fifth) used melodically. The largest melodic interval in the first movement is an ascending perfect fifth; a major ninth occurs once in the second movement, but its performance is made easier because the whole orchestra is playing the same interval; and the difficulty of the eleventh occurring in the third movement is also minimized by the use of many players and loud dynamics. (See Figure 12.)

Figure 12 also shows a typical use of the bass clef for the horn. Copland observed the tradition of writing the bass-clef horn part a fourth lower than it sounds, rather than staying consistently with the practice of writing horns a fifth higher than their actual pitch. Cecil Forsyth[4] commented that this method of notation was "old-fashioned" as did Walter Piston in his text of 1955.[5] There was no note in the score regarding the performance of the bass-clef horn parts; but certain phrases would be virtually impossible if all the notes were to sound a fifth lower than written. (See Figure 12, page 29, French horns V, VI, VII, and VIII.)

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[3]Roy Houser, "Catalogue of Chamber Music for Woodwind Instruments," (Indiana University School of Music, Bloomington), pp. 84-97.

[4]Cecil Forsyth, Orchestration (London, 1929), p. 109.

[5]Piston, op. cit., p. 231.

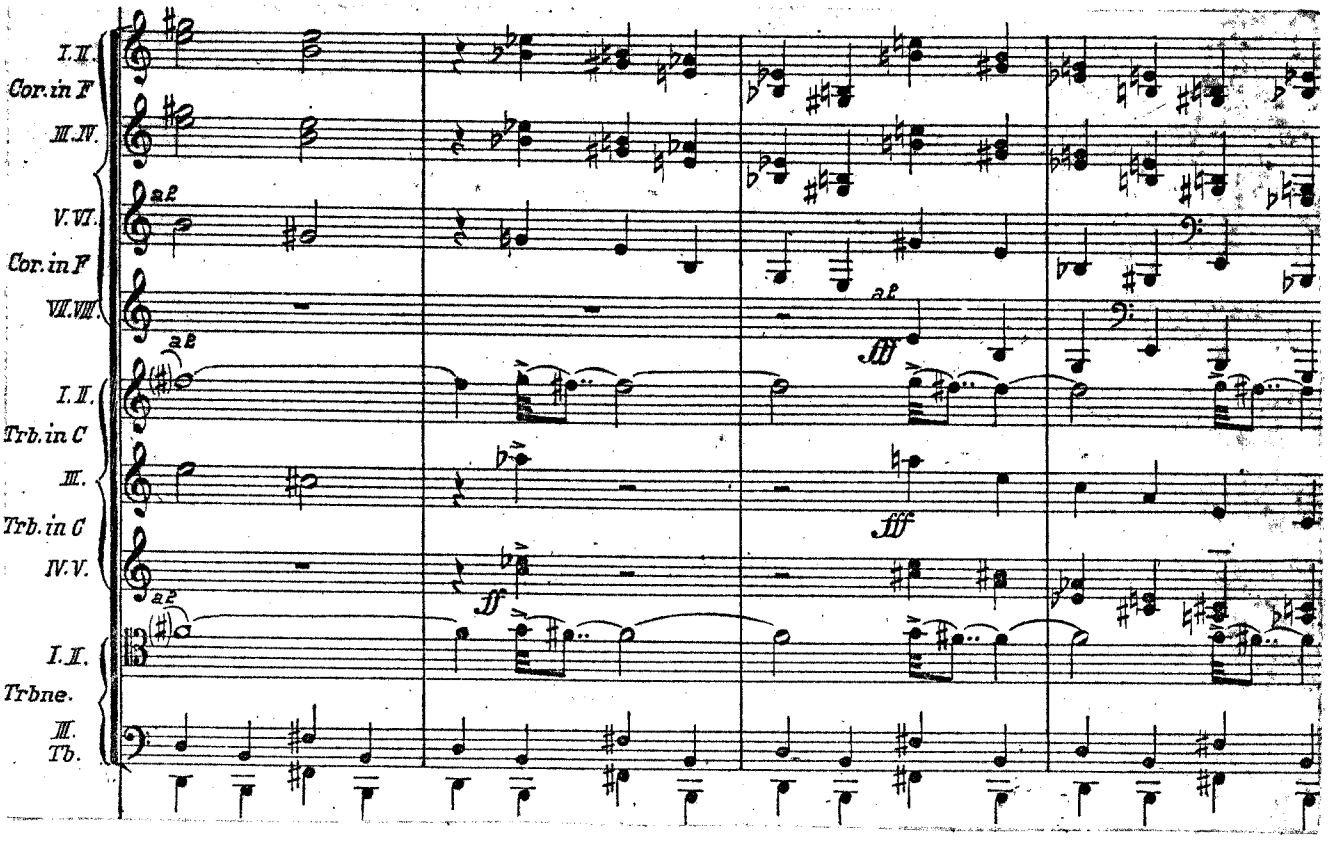

Fig. 12 -- Copland, Symphony No. 1, "Finale," measures 120-123

An example of the fanfare-like French horn solo appears in Figure 13 where the horns repeat an arpeggiated staccato passage introduced earlier by the woodwinds. The third and fourth horns imitate the first and second horns one-half beat later in "hocket" fashion. The fifth, sixth and seventh parts consist of a chordal background in quarter notes while the eighth part finishes a pedal note that has lasted through the previous four measures. This polyphonic use of horns is decidedly more complex than the example shown in an excerpt from Wagner's Meistersinger. (See Figure 4, Chapter I.) Copland is noted for his

polyphony. [6]

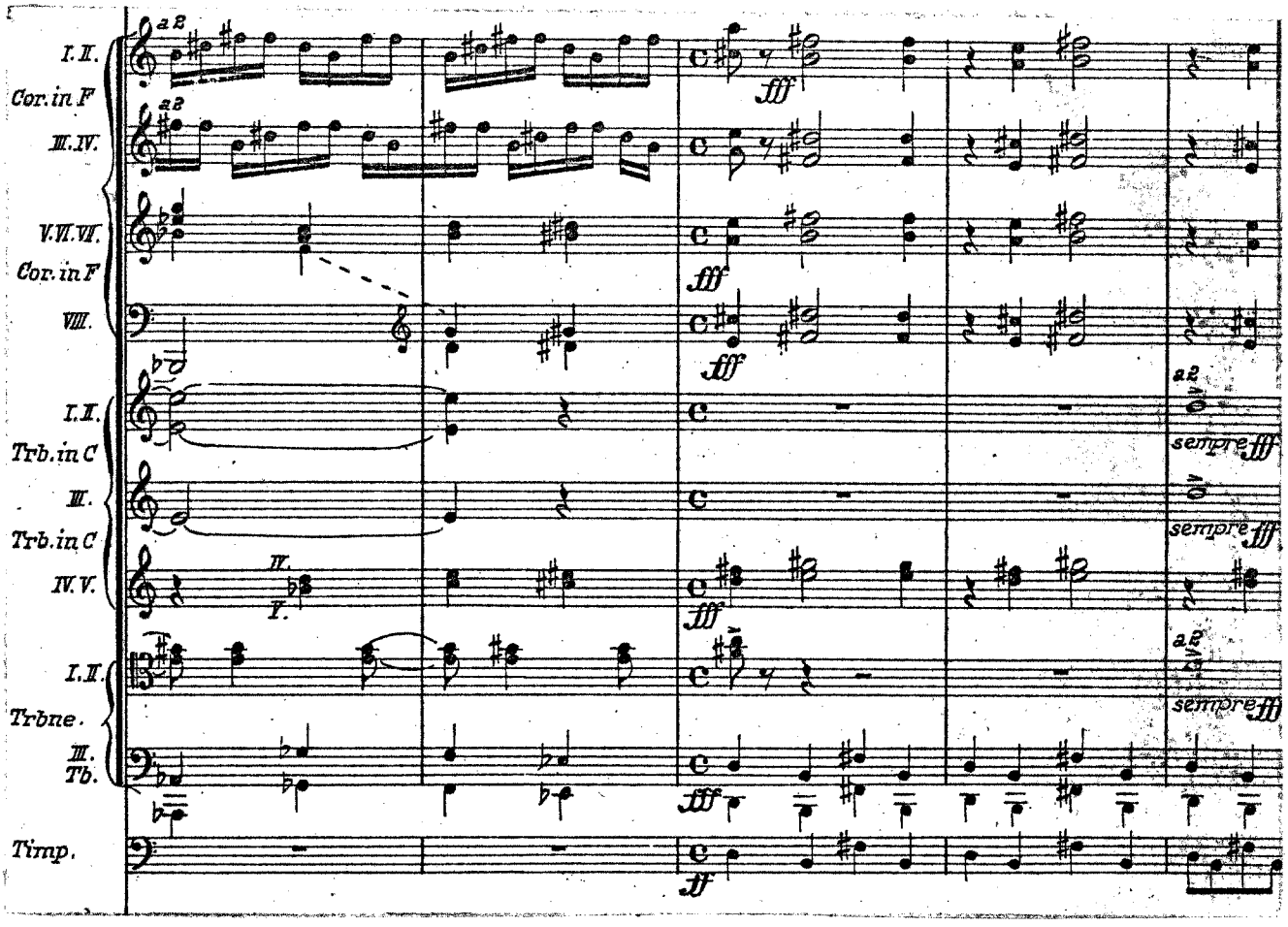

Fig. 13 -- Copland, Symphony No. 1, "Finale," measures 233-237

The chordal passage immediately following this counterpoint shows some traditional voicing for a horn section. The first third, fifth, and seventh parts are designated as "high" while the parts in even numbers are "low."

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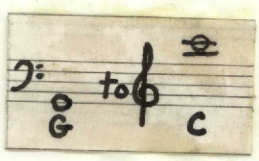
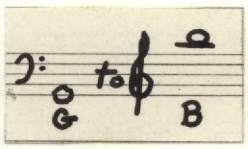
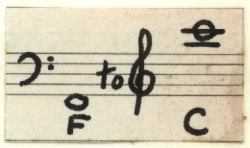
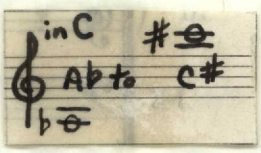
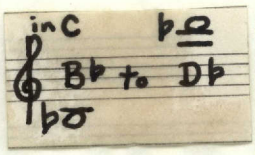
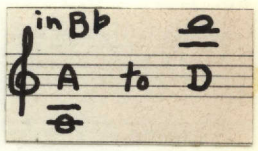
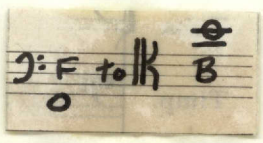
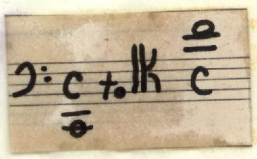
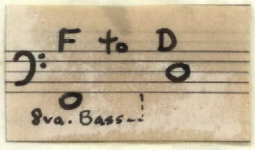
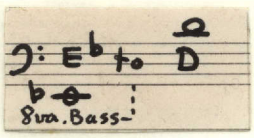
[6]Homer Ulrich, Symphonic Music (New York, 1952), p. 323.

The overall range encompassed by the horns in Symphony No. 1 is three octaves plus a fourth. (See Table IV.) This does not mean that each horn player must have this capability; in fact French horn players usually specialize so that they are either "high" or "low" performers. The low parts (evenly-numbered) rarely go above C (the third space of a treble staff).

TABLE IV

VARIATIONS IN THE RANGES OF THE BRASSES
IN COPLAND'S SYMPHONIES

Instruments	1st Symphony	2nd Symphony	3rd Symphony
French Horn in (F) (Sounds 5th lower than written)			
Trumpets			
Trombones (Including bass trombone)		not used	
Tuba		not used	

Use of the Trumpet

Trumpets are used very little in the first movement of Symphony No. 1 and then only to add a slightly different color to a simple rhythmic background. One trumpet alone appears in three measures while two appear in a total of five measures.

One of the most notable aspects about Copland's use of the trumpet in the "Scherzo" is the utilization of the muted trumpet for most of the instrument's solo passages (twenty-four measures out of the total of thirty in which a solo trumpet is used).

In the passages where harmony is involved for the trumpets, the parts are generally in close position as was recommended by Berlioz and Rimsky-Korsakov. (See Figure 14.)

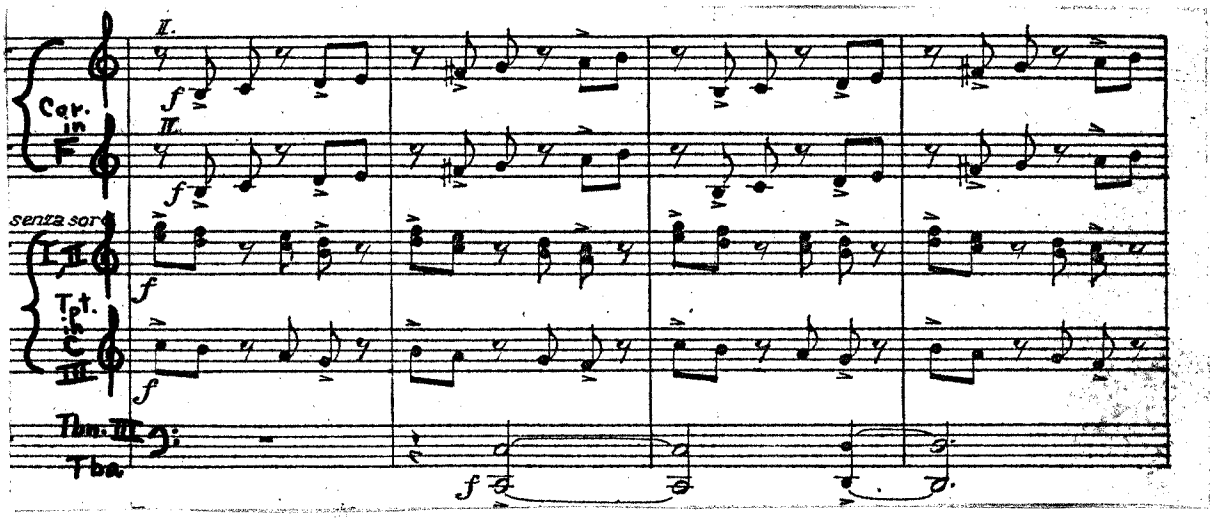


Fig. 14 -- Copland, Symphony No. 1, "Scherzo," measures 249-252

Figure 14 also shows the predominant rhythm of the movement as stated by the overlapping trumpets and horns giving the sound of constant eighth notes with frequent accents. The tempo indicated by Copland was 160 quarter notes per minute. Julia Smith considers this rhythmic writing in the "Scherzo" to be Copland's first use of jazz in a large work.[7] Later a blues-type melody consisting of the enlargement of a minor triad together with jazz-like grace notes by the trumpets and trombones is used. (See Figure 15.)

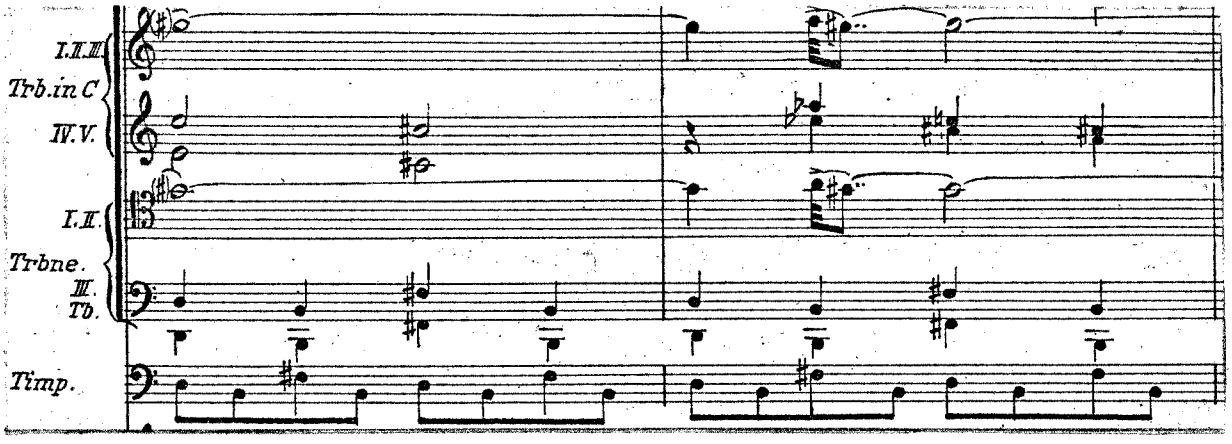


Fig. 15 -- Copland, Symphony No. 1, "Finale," measures 249-250

The dynamic of this passage, "sempre fff", is typical of Copland's brass writing with doubling. Three trumpets and two trombones are indicated for the line containing grace notes (this is the last two measures of an augmented form of one of the main themes).

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[7]Smith, op. cit., p. 66.

The range encompassed by all the trumpets in the First Symphony is two octaves and a fourth. (See Table IV.) Frequently the second, third and fourth parts are given the top voice so that the first trumpeter can rest. Also there are many passages written with two or three players on a part.

Use of the Trombone

The "Prelude" contains no parts for trombones, but its first entrance in the "Scherzo" utilizes its unique capability among the family of brass instruments--the glissando. (See Figure 16.) It is combined with the first trumpet and first and third horns an octave higher playing the same interval with the aid of valves in sixteenth-note triplets.

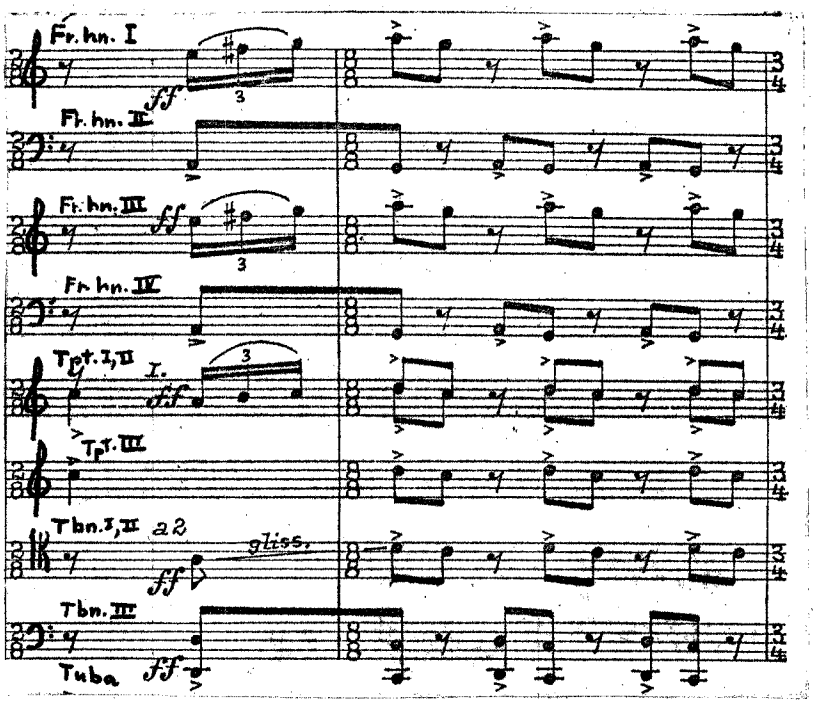

Fig. 16 -- Copland, Symphony No. 1, "Scherzo," measures 84-85

The trombone glissando is traditionally used in rather light or popular pieces of music.

Generally the articulation in the "Scherzo" is like that of the trumpets and horns, using accented eighth notes at a tempo of 160 quarter notes per minute. This is a bit faster than the triplet eighth notes at an allegro moderato suggested as a maximum speed for trombone by Berlioz. (See page 14, Chapter I.)

Throughout the symphony the trombones are used to solidify the louder passages either in unison or in octaves or in close harmony (except when the section is used in the low register). One of the exceptions appears in Figure 13 where the first and second trombones add to the polyphony with their syncopated rhythm.

Figure 13 also shows one of the many places in the symphony where the third trombone doubles the tuba an octave higher. A similar example is seen in Figure 15 where the combination is used as an augmentation of the melody played by the timpani.

The range of the trombones in this symphony covers two octaves plus an augmented fourth. (See Table IV.) As was mentioned previously, all the trombone parts could be performed on tenor trombones. The third part encompasses a range of an augmented twelfth, from F (just below the bass clef) to middle C sharp.

The first and second trombones often double the first trumpets, an octave lower, solidifying the brilliant, almost shrill trumpet sound.

(See Figure 15.) This style of trumpet-trombone doubling was done by Wagner. (See Figure 4, Chapter I.)

Use of the Tuba

No specification was made in the score concerning the type of tuba to be used in this symphony. The range used by Copland includes a low F (see Table IV) which could be played on a double B flat bass tuba or on an E flat bass tuba which has four valves. The choice of the former would probably be made because the upper extreme of the total range of the tuba part is only the D (a minor seventh below middle C), and the larger instrument (BB flat bass tuba) could supply a bit more power to the bass of such a large brass section.

The tuba is used mostly when the orchestra is at a dynamic level of "forte" or louder and therefore does not appear at all in the quiet "Prelude."

When the instrument is used, the tessitura is generally in the middle register. (See Figure 1, Chapter I.) The only place where a technical difficulty might be encountered is in the performance of a continuous, sustained melody which lasts for thirteen measures at a dynamic level of forte. Figure 14 contains the beginning of the long phrase in which no breath marks appear. The example also shows how the tuba usually appears--in octaves with the bass trombone. (See also Figures 12, 13, 15, and 16.) Its effect is to soften the sound of the bass trombone and

to lose any voice of its own in this symphony. This represents quite a contrast with Wagner's use of the bass tuba. (See Figures 8 and 9, Chapter I.)

The only instruments appearing lower than the tuba in this symphony are the stringed basses and the contra-bassoon. Generally, the brass bass is used only in very powerful passages and then it usually doubles the low strings and woodwinds.

Short Symphony (No. 2)

As was mentioned previously this symphony is a smaller work than either of the other symphonies and thus uses a smaller brass section--four French horns and two trumpets. This work contains frequent meter changes (see Figures 17, 18, 19, etc.) and seldom does the rhythm outline simple strong and weak accents.

Use of the French Horn

In the score of the Short Symphony[8] Copland noted that the bass-clef horn parts sound a fourth higher than written--a recurrence of the traditional notation.

The range encompassed by the horns, low G to high B, is quite similar to the range used in the First Symphony. (See Table IV.) Generally the melodic lines contain large leaps and are in syncopated

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[8]Aaron Copland, Short Symphony, (New York, 1955), title page.

rhythms. One of these skips is made more difficult to perform because it is written for two horns playing a major second apart. (See Figure 17.)

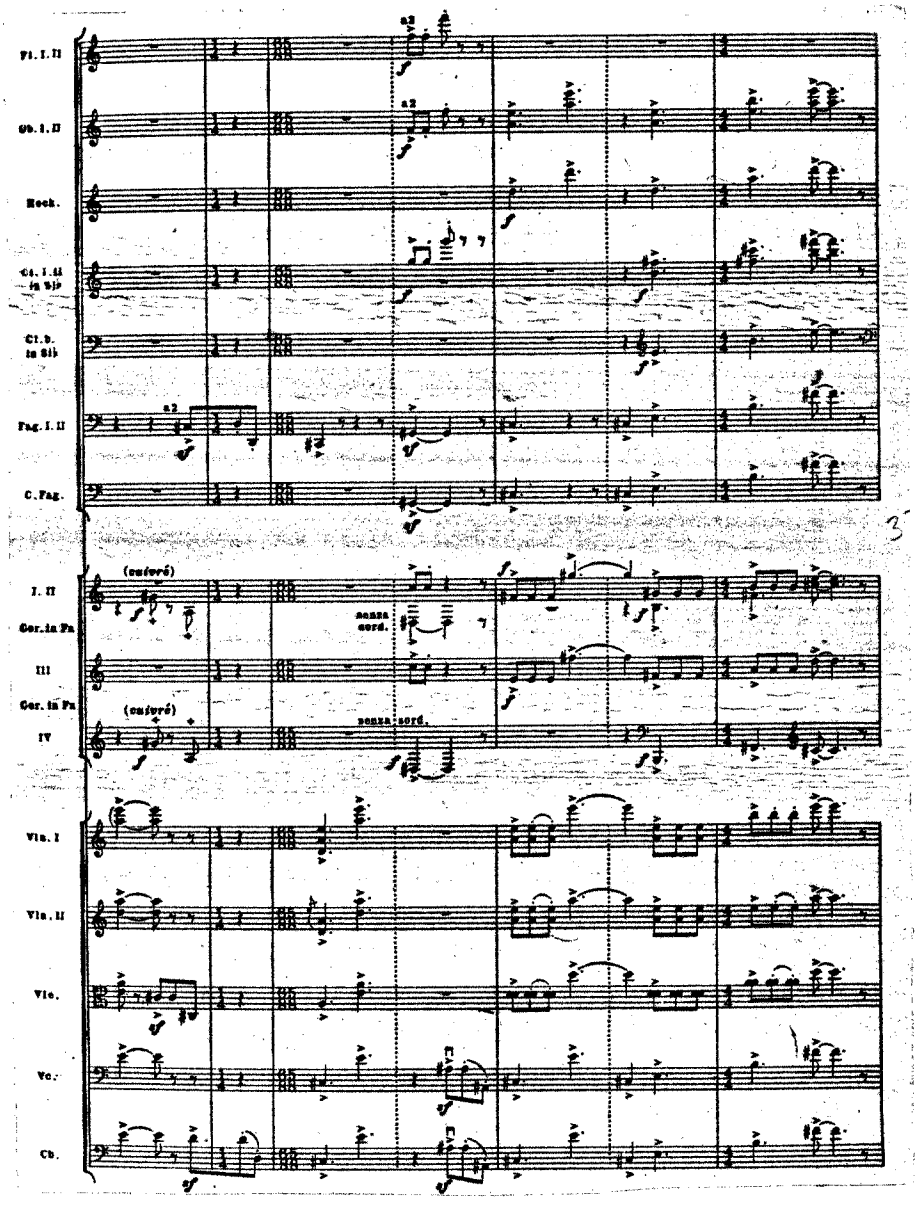

Fig. 17 -- Copland, Symphony No. 2, I, measures 31-37

Figure 17 also shows one of the frequent occurrences of the "cuivré" ("brassy") marking along with a definite split of the horn section. The

first and third play the high parts while the second and fourth play the low parts. The combinations with the rest of the orchestra are also quite interesting. The low horns are combined with the woodwinds and the low strings while the high horns play with the violins and violas. This separation in the horn section is not traditional.

Figure 18 is an excellent example of Copland's polyphonic writing for horns and trumpets. The first rhythm pattern,  , appears as a fragment five measures before this imitative sequence is begun. Similar passages can be found throughout the first and third movements of this symphony.

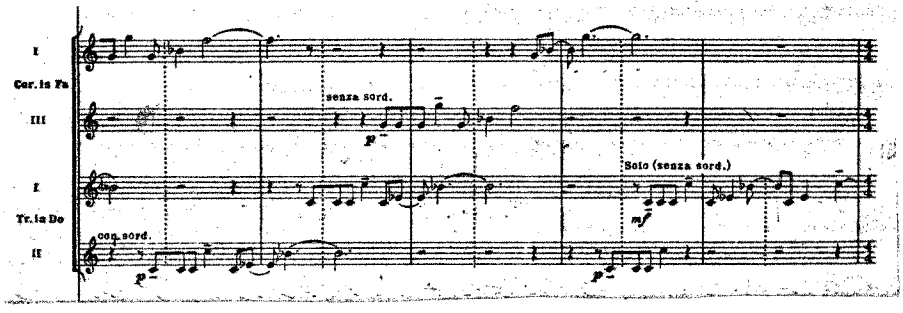

Fig. 18 -- Copland, Symphony No. 2, I, measures 141-145

The horns, being the lowest brass, occasionally support the bass of the orchestra and are used in some sustained passages. At one place in the third movement the first and second horns hold an E flat for seventeen measures. Copland notated the alternation of these two players in the music.

A passage necessitating the use of double-tonguing occurs also in the third movement. (See Figure 19.)

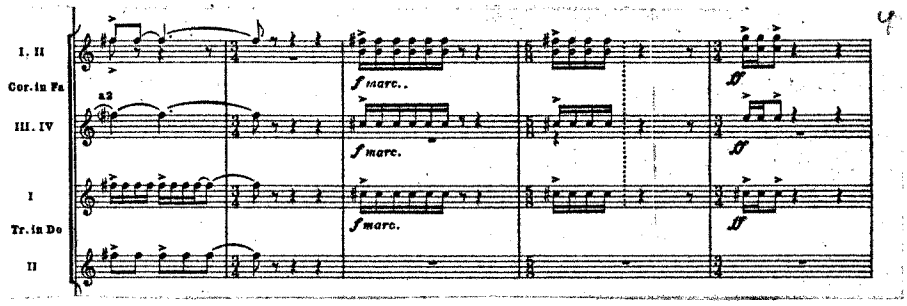

Fig. 19 -- Copland, Symphony No. 2, III, measures 88-92

The difference in timbre between the horns and trumpets is used to good advantage in Figure 20, where the horns repeat an expanding harmonic passage similar to one first stated by the trumpets.

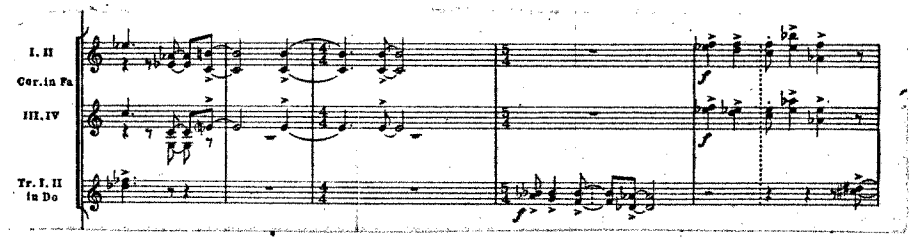

Fig. 20 -- Copland, Symphony No. 2, III, measures 20-24

Muted, stopped, and partially stopped ("cuivré") horns are used in various places, usually playing accents or forte-piano (fp, sfp, etc.) articulations. Even more percussive effects in the horns are achieved by Copland in using two instruments on the initial attack of the note and only having one sustain the tone.

Use of the Trumpet

Following the traditions of brass notation the trumpet and horn parts were written without key signatures in all of Copland's symphonies. This, however, is where the traditional notation and use ends. The Third Symphony is the only one in which Copland uses key signatures in any of the other parts. Also no attempt was made to minimize the number of accidentals by using trumpets (or horns) of different keys.

The solo trumpet is used in a larger per cent of the measures in this symphony than in either of the other two. (See Table II.) Also many of the solos are muted and characterized by frequent skips. (See Figure 18.)

The example in Figure 21 shows Copland's voicing of both the trumpets and horns. Traditional practices were partially observed: the first and third horns are playing the upper notes of the horn choir, and the brilliant first trumpet commands the top chord tone. Also the trumpets and horns are written in close position after the first measure of the example. The open position of the first two chords gives variety to the phrase.

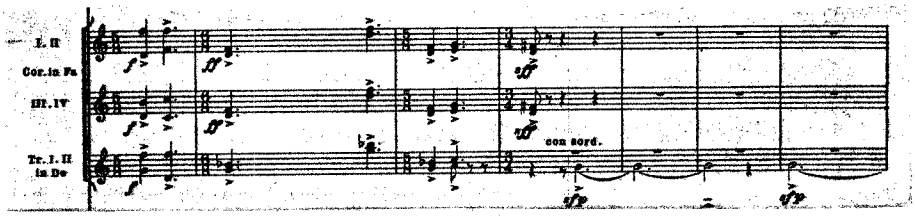

Fig. 21 -- Copland, Symphony No. 2, I, measures 76-82

Having only two trumpet players necessitated sudden changes in muting, as in this example. The articulation, "sfp", occurring in the fourth measure of the excerpt is common. The sustained note by the second player is a rather traditional use of the trumpet. (See Figure 6, ChapterI; the second trumpet sustains a G while the first is playing the melody.)

The more powerful passages in the symphony usually contain the two trumpets in unison, a practice utilized frequently in the past. (See Figure 4, ChapterI.) Copland uses the brass in the dissonant melody in Figure 22 while the rest of the orchestra supplies the accents. The horns are also in unison, but sound a major seventh lower than the trumpets. This combination is quite overpowering especially at a dynamic level of forte.

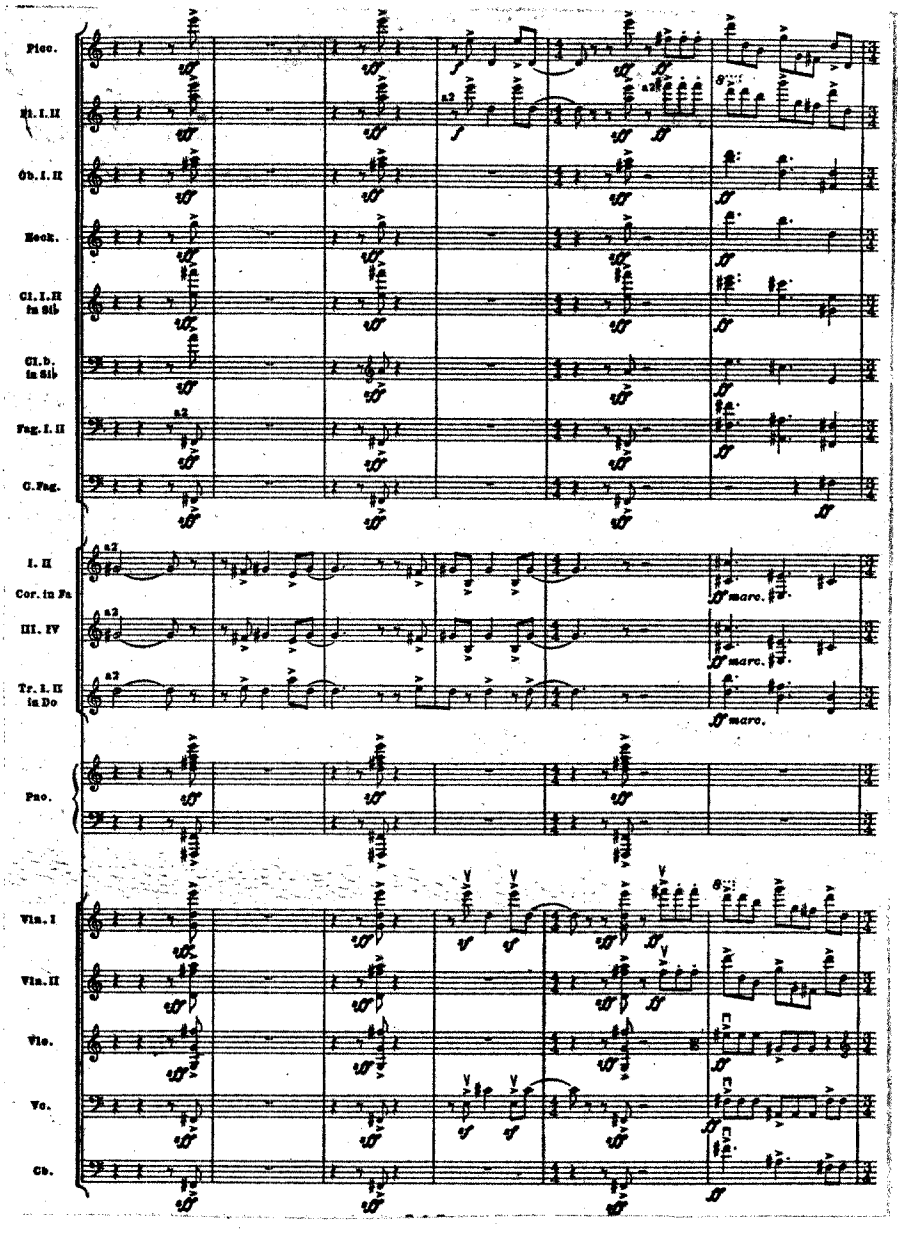

Fig. 22 -- Copland, Symphony No. 2, I, measures 156-162

Third Symphony

Copland's Third Symphony contains, in the words of Peter Hansen, one of his "most personal statements."[9] His writing for brass in this

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[9]P. S. Hansen, op. cit., p. 311.

work also includes this dynamic quality. The "Fanfare to the Common Man," which is used as an introduction to the last movement, is written for the brass and percussion and is probably the best example of Copland's "personal statements" in brass. Figure 23 is an excerpt from the fanfare.

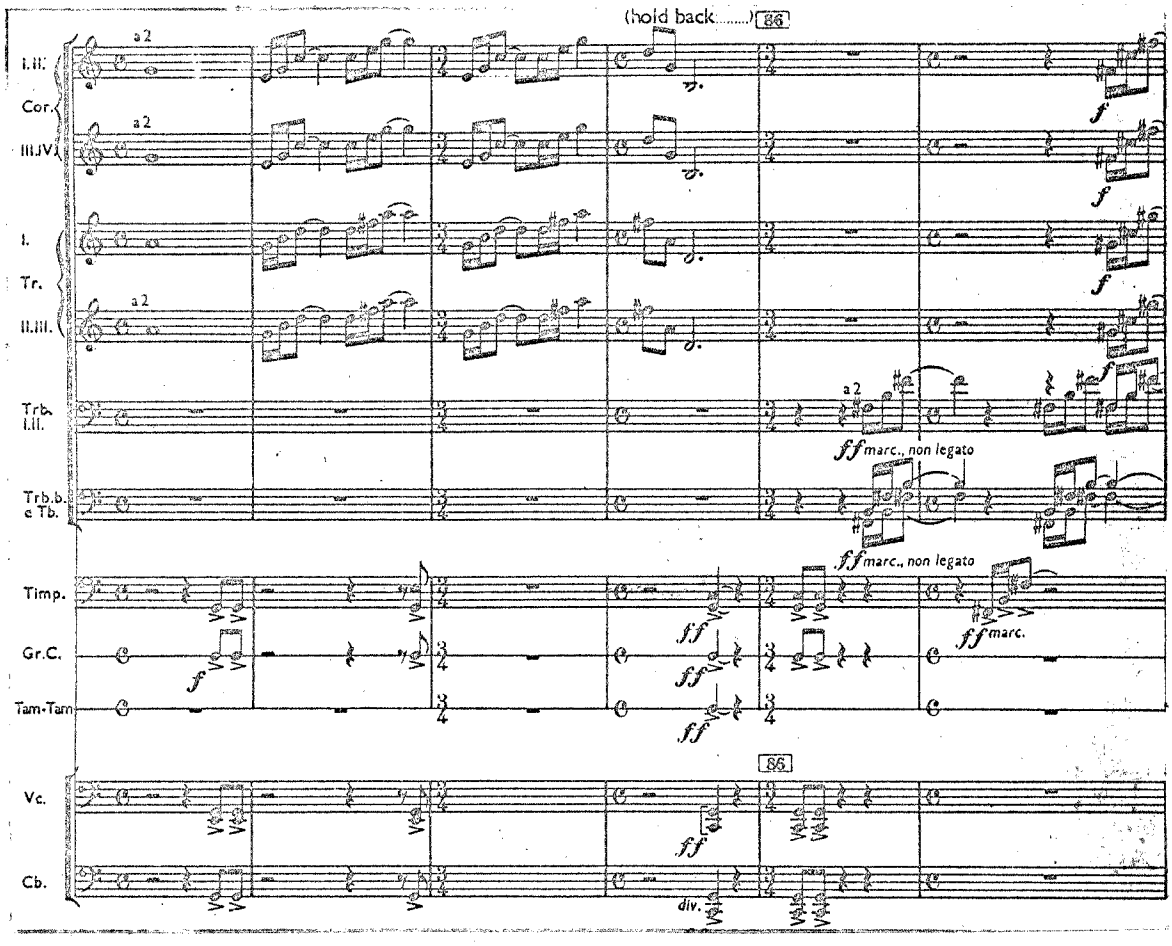

Fig. 23 -- Copland, Symphony No. 3, IV, measures 14-20

The instrumentations shown in Table I are complete only in their presentation of the total number of brasses in each symphony. A study

of Table V will show especially that the general character of the third movement could not be as powerful, using only two brass instruments, as one of the other movements which include all the brasses.

TABLE V

BRASSES IN COPLAND'S THIRD SYMPHONY

I	II	III	IV
4 French horns in F	4 French Horns	1 French Horn	4 French Horns
4 Trumpets in B flat	4 Trumpets	1 Trumpet	4 Trumpets
2 Tenor Trombones	2 Tenor Trombones		2 Tenor Trombones
1 Bass Trombone	1 Bass Trombone		1 Bass Trombone
1 Tuba	1 Tuba		1 Tuba

Use of the French Horn

The horn and trumpet parts are the only ones without key signatures in this symphony, which allows for enharmonic notation when simplicity merits it. The first entrance of the horns demonstrates a traditional combination of muted horns, bassoons, and bass clarinet (Figure 24). The phrase is repeated two measures later. The combination is used as a connecting device during a lull in the pastoral melody played by the strings and high woodwinds.

It is interesting to note that the horns are marked "piano", while the three woodwinds are marked "pianissimo." The horn parts do cover the tones of the chord, and it appears that the woodwinds are added to soften the timbre of the muted horns giving an almost ethereal sound.

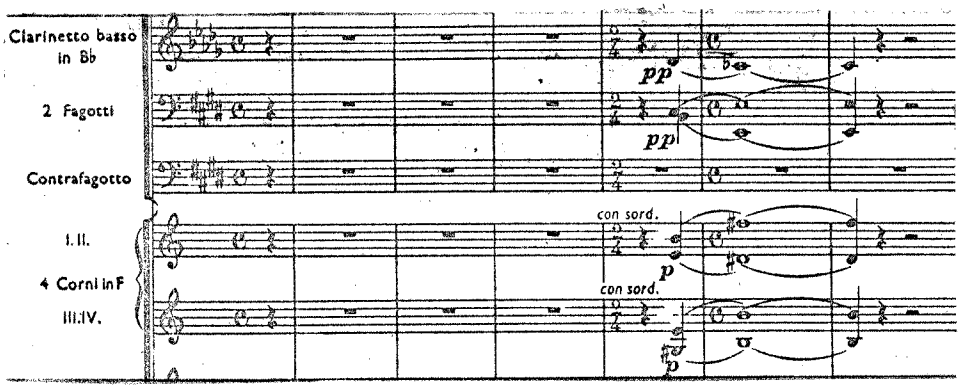

Fig. 24 -- Copland, Symphony No. 3, I, measures 4-6

Traditional voicing of the horns is observed throughout this symphony, and the overall range is approximately that of the other works. (See Table IV.) The low register of the horns was not used as frequently as in the other symphonies, but the low range was extended by a whole tone.

The second movement contains some of the most exciting horn passages in the presentation of the scherzo theme by the horns. Figure 25 includes the primary melodic fragment of the theme in the first measure. Also noteworthy are overlapping parts in that measure and the imitation of the fragment by the trumpets and trombones in succeeding measures.

Beginning in the fourth measure of the example the horns dominate the orchestra with a unison marcato passage. Unison writing such as this occurs frequently in this work.

One French horn is used in the third movement, and then only little, in a total of twenty-three measures.

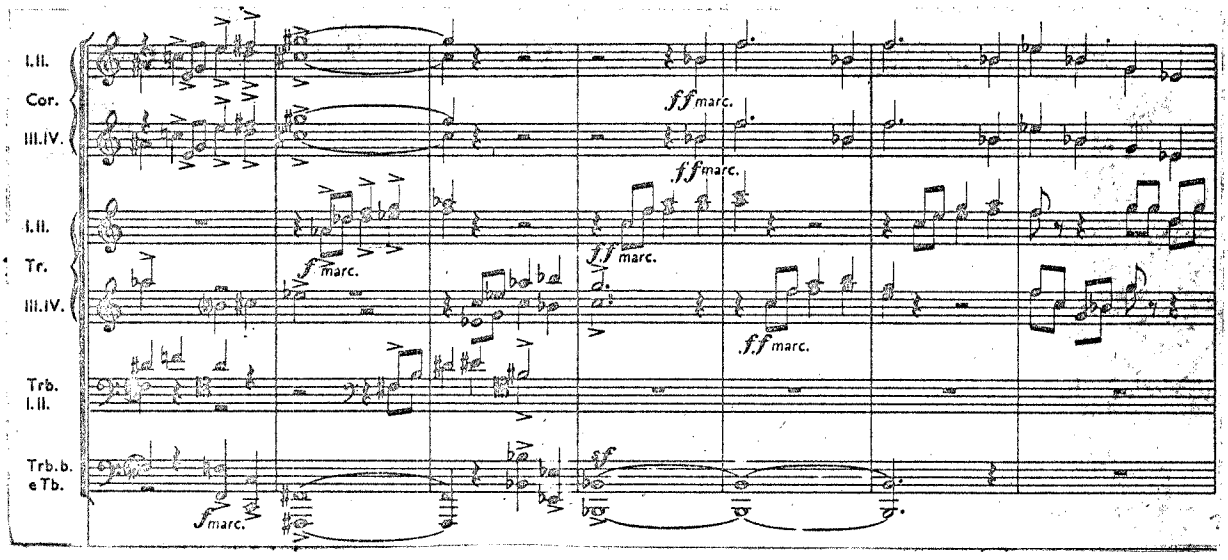

Fig. 25 -- Copland, Symphony No. 3, II, measures 16-22

Five of these measures include some unusual voicing for horns and trumpets. (See Figure 26.) The horn is written a minor third above the trumpet, giving the combination a sound similar to two cornets.

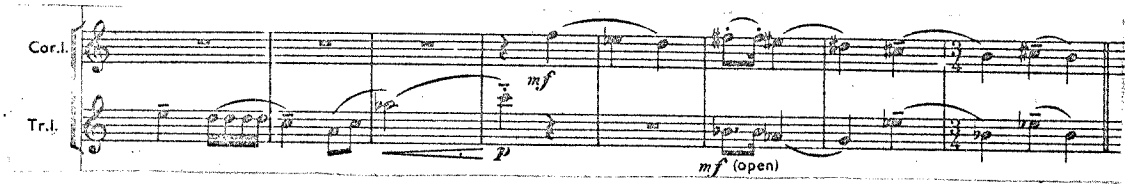

Fig. 26 -- Copland, Symphony No. 3, III, measures 129-136

A more common voicing is used in Figure 14 where the unison trumpets are a sixth or a fifth above the unison horns. The power derived from this open harmony is striking.

Generally the articulation of the horns includes frequent accents with the occasional use of the half-stopped "cuivre" technique. Figure 27 shows the only occurrence of a flutter tongue in any of Copland's symphonies.

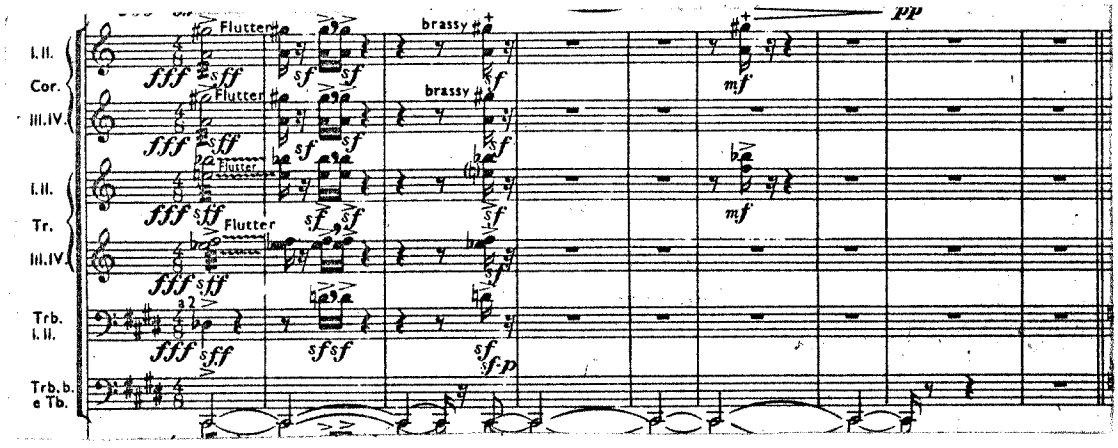

Fig. 27 -- Copland, Symphony No. 3, IV, measures 306-314

Use of the Trumpet

There is less use of the solo trumpet in this symphony than in the others, but decidedly more use of the section. (See Table II.) Most of the appearances of the trumpet section come in particularly strong passages. However, Copland did use the softer qualities of the instrument near the beginning of the first movement. Figure 28 shows how two trumpets and a trombone can be used to balance quiet strings. The open chord position used helps to keep the pastoral quality of the beginning. This use compares favorably with Beethoven's pianissimo trumpets in his first symphony. (See Figure 5, Chapter I.)

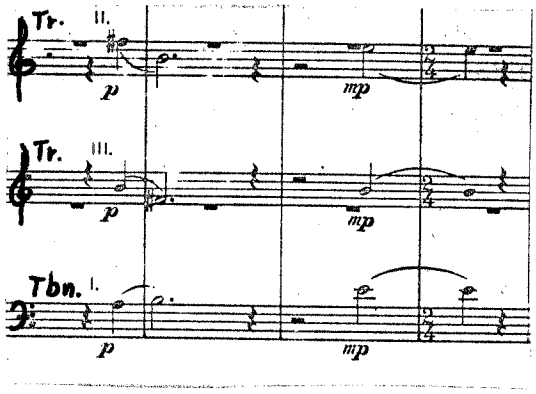

Fig. 28 -- Copland, Symphony No. 3, I, measures 12-15

Although the trumpet range utilized in this symphony does not differ greatly from the others there are frequent passages where the first player stays in a high tessitura. The example in Figure 29 shows the beginning of one such passage. This one does not have a sustained melody and is therefore somewhat easier to perform. The passage also demonstrates Copland's polyphonic writing for brass as does Figure 25.

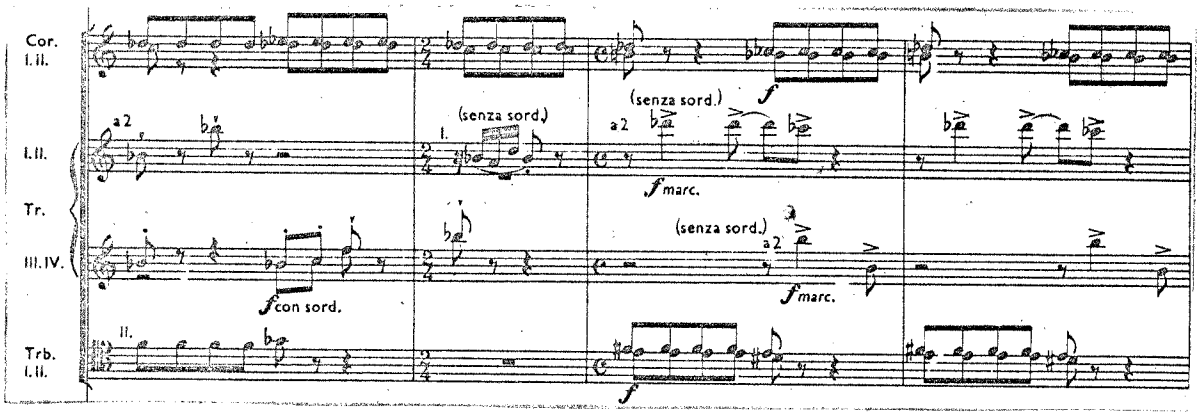

Fig. 29 -- Copland, Symphony No. 3, II, measures 98-101

Quite often Copland alternated the parts of the trumpet section so that one player would not be left with an over-fatiguing performance.

The importance of the brass section in this symphony is shown by Copland's introduction of thematic material: the tenor trombones in unison introduce the second theme of the first movement (Figure 31); the horns begin the scherzo-like second movement with a fragment of the main theme (Figure 25); the entire brass section takes part in the main statement of the fanfare in the fourth movement (Figure 23); and the trumpets introduce the rhythmic second theme of the fourth movement (Figure 30).

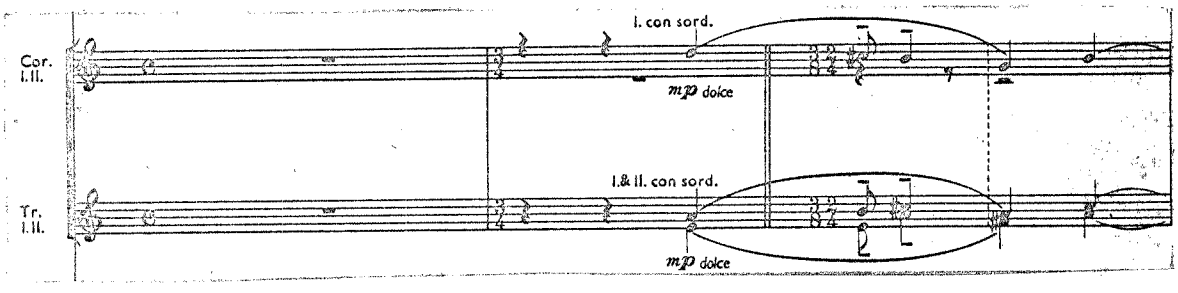

Fig. 30 -- Copland, Symphony No. 3, IV, measures 172-175

Use of the Trombone

The overall range of the trombones in this symphony necessitates the employment of a bass trombone (or a large tenor trombone with an "F attachment") due to the use of notes below E natural. (See Table IV.) The upper extreme, high C, is not unusual even when compared with the traditional ranges suggested by Rimsky-Korsakov and Berlioz. (See

Table I, Chapter I.)

The thematic materials given to the trombones are not out of the ordinary. The example in Figure 31 fits the powerful, majestic nature of the instrument.

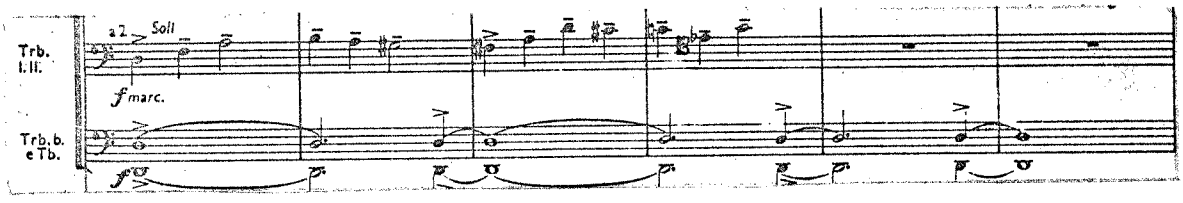

Fig. 31 -- Copland, Symphony No. 3, I, measures 54-59

Copland uses the solo trombone in an entirely different type of passage in the example at the beginning of the development of the quiet first theme. (See Figure 32.) A flute plays the inversion of this theme at the same time. Rimsky-Korsakov in particular thought that any brass used in this manner would sound "sickly and insipid."[10]

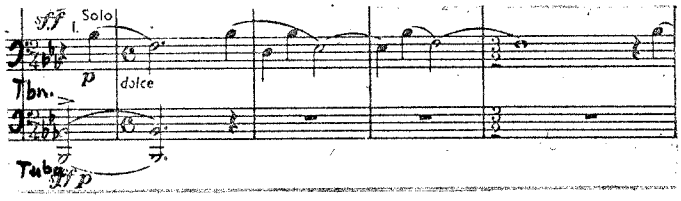

Fig. 32 -- Copland, Symphony No. 3, I, measures 92-96

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[10]Rimsky-Korsakov, op. cit., Part I, p. 55.

The percussive qualities of the brass instruments are used in Figure 29 where the trombones and horns alternate in sounding major seconds.

The bass trombone is used mostly as the brilliant half of the brass bass in the orchestra, usually doubling the tuba at the octave. (See Figures 16 and 18.) Its other use is to complete the trombone-trumpet choir when the tuba is paired with the softer horns. Figure 23 demonstrates a variation of this use; the bass trombone appears between the tenor trombones and the tuba, an octave lower.

Use of the Tuba

Again the tuba in Copland's symphonies has no solo voice. It is used primarily in the louder passages to give power to the bass of the orchestra and remains the least used brass instrument.

The most unusual aspect of the tuba part is the use of a mute in one section of the fourth movement. Figure 33 shows that it is used for only two notes with the marking "secco," quite appropriate for the dry sound of a muted tuba.

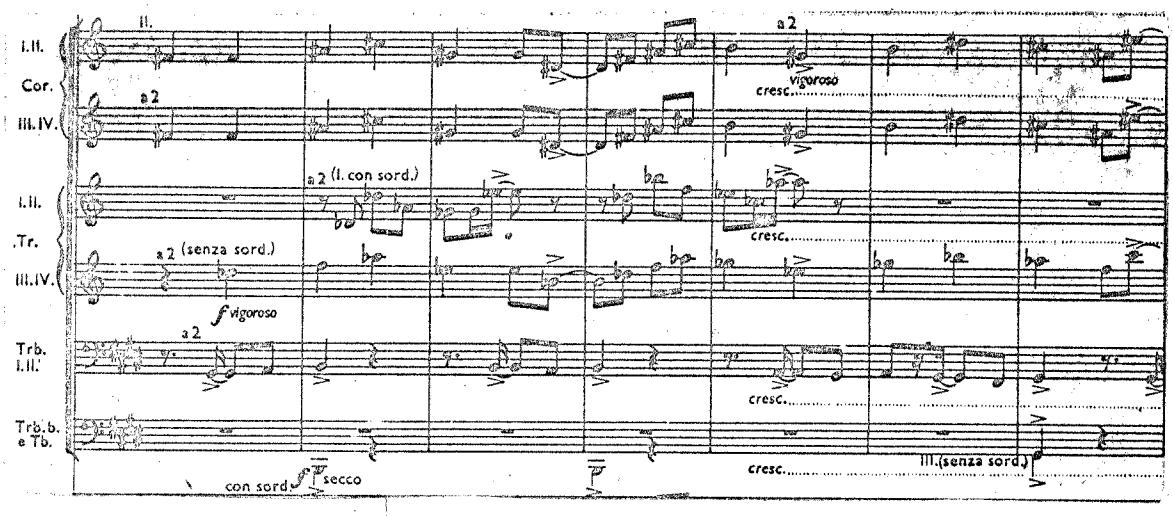

Fig. 33 -- Copland, Symphony No. 3, IV, measures 293-299

CHAPTER IV

SUMMARY AND CONCLUSIONS

Copland's uses of brass instruments in his symphonies by no means represent his complete outlook on the possibilities of these instruments. His compositions for movies, radio, ballet, and school ensembles necessarily utilize some aspects of brass playing that have not yet been incorporated into one of his symphonic works. An example of one of these techniques is his inclusion of jazz mutes (the harmon and cup mutes) in Music for the Theatre.[1] Nevertheless these three symphonies do represent an important phase of his endeavors in pure music.

The instrumentation used in Copland's symphonies, though not representing a classical orchestra, does fit in with the practices of the early twentieth century. A comparison of the ranges described by Rimsky-Korsakov (Figure 1, Chapter I) and the ranges used by Copland (Table IV, Chapter III) will show numerous similarities. The primary exceptions are the latter composer's slight extensions, which seem reasonable when one considers that the history of instrumental development is made of such extensions.

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[1]Julia Smith, op. cit., p. 66.

Copland's use of the brass section differs somewhat from tradition in that the section is given an individual voice at times rather than always supporting the rest of the orchestra in strong passages. Also individual brass instruments are used in frequent solos and in combinations with single instruments of the other sections of the orchestra. The tuba, which Copland ignores as a solo instrument, is one exception. The muted trumpet, almost over-used in the early twentieth century, finds frequent utilization in Copland's symphonies.

The composer's intervallic melodic style sounds very pleasing on brass instruments, but is more tiring to the player than styles involving more step-wise passages.

Copland's use of frequent and varied accents extends the standard articulation for brass instruments, along with such techniques as the flutter tongue and use of the tuba mute (a rather uncommon device). The rhythmic complexities of Copland's works, especially in the Short Symphony, give the brass a particular chance to dominate the orchestral accents.

Aaron Copland's use of brass represents his characteristic combination of "leanness and grandiosity"[2] which permeates most of his compositional endeavors. "He is adept at obtaining new sounds from simple chords by instrumental color and spacing."[3]

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[2]Arthur Berger, Aaron Copland, p. 40.

[3]D. J. Grout, op. cit., p. 624.

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