M & W WAVE PATTERNS

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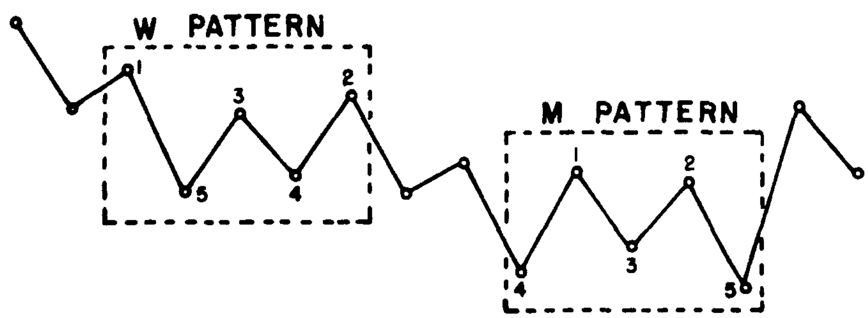


Aim:

Consider the zigzag movements of stock prices, ignoring minor fluctuations. Pick any five consecutive turning points. If the first of the four swings is upward, the pattern forms an M. If the first swing is downward, the pattern is a W.

Are some of the four swing patterns bullish? Are some bearish? How big was the swing following the pattern?

Robert Levy has attacked this problem for individual stocks[1]. He measured the performance in the 4, 13 and 26 weeks following each pattern. The paper which follows considers the market as a whole, as measured by the Dow Jones Industrials, ignoring swings of less than 5%. The extent of the swing following each pattern was measured and averaged.

Classification:

Levy suggested identifying the pattern by ranking the five points from highest to lowest, then reading the ranks from left to right. In the example above, the W pattern is number 15342; the M pattern is 41325.

We have separated the 32 possible patterns into 16 M patterns and 16 W patterns.

[1] *"Predictive Significance of Five Point Chart Patterns", Robert A. Levy, Journal of Business, U. of Chicago July 1971.*

Method:

The data source is "Filtered Waves, Basic Theory", which lists all D.J. Industrial turning points, using a 5% filter, from March 25, 1898. There are 688 turning points in the span to February 28, 1979, forming 342 complete M and 342 W patterns.

A computer program was designed to identify the patterns and to measure the extent of the swing following each pattern. It was designed for T159 programmable calculator, and had 476 instructions. This program was applied to the 688 turning points.

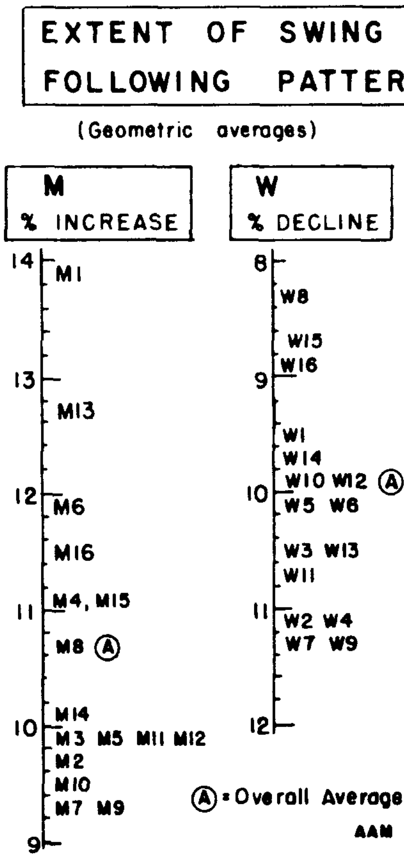
Geometric averages were calculated for the extent (percent rise or percent decline) of the swing following each pattern classification.

In addition, the patterns were identified at the top of all bull markets and at the bottom of all bear markets since 1989.

Results:

The average extent of the swing following the various patterns is noted in the chart which follows. These rankings may be interesting but should not be considered conclusive, since only the M1 average is far enough from the overall average to rate a good significance score (for M1: $t = 2.50$, deg. of freedom = 27).

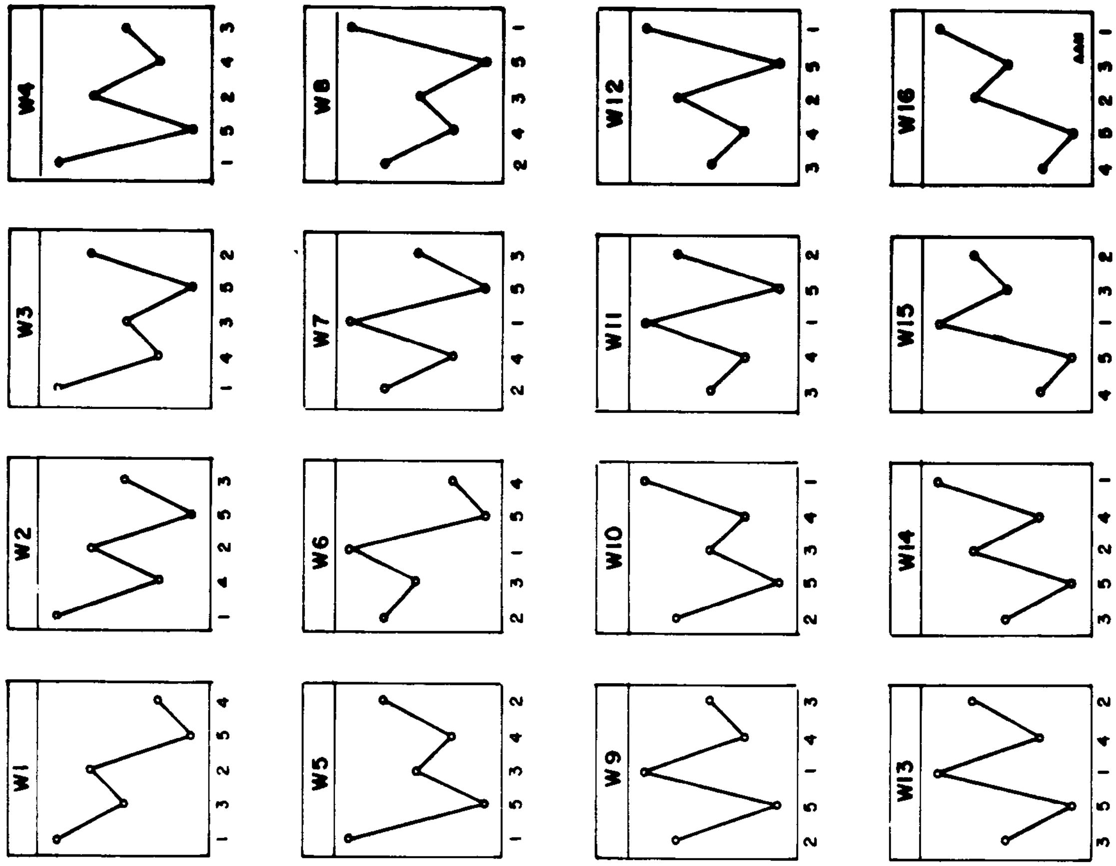
The patterns at the top of bull markets and at the bottom of bear markets are noted on the following pages.



In the pages which follow,

n = the number of times the pattern was found in the 342 M or 342 W patterns since March 25, 1898.

% rise: this is the percent rise average (geometric) in the swing immediately following an M pattern, or the percent decline in the swing following a W pattern. It is compared with the overall average of all swings, using a 5% filter.


W1
W2
W3
W4
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W6
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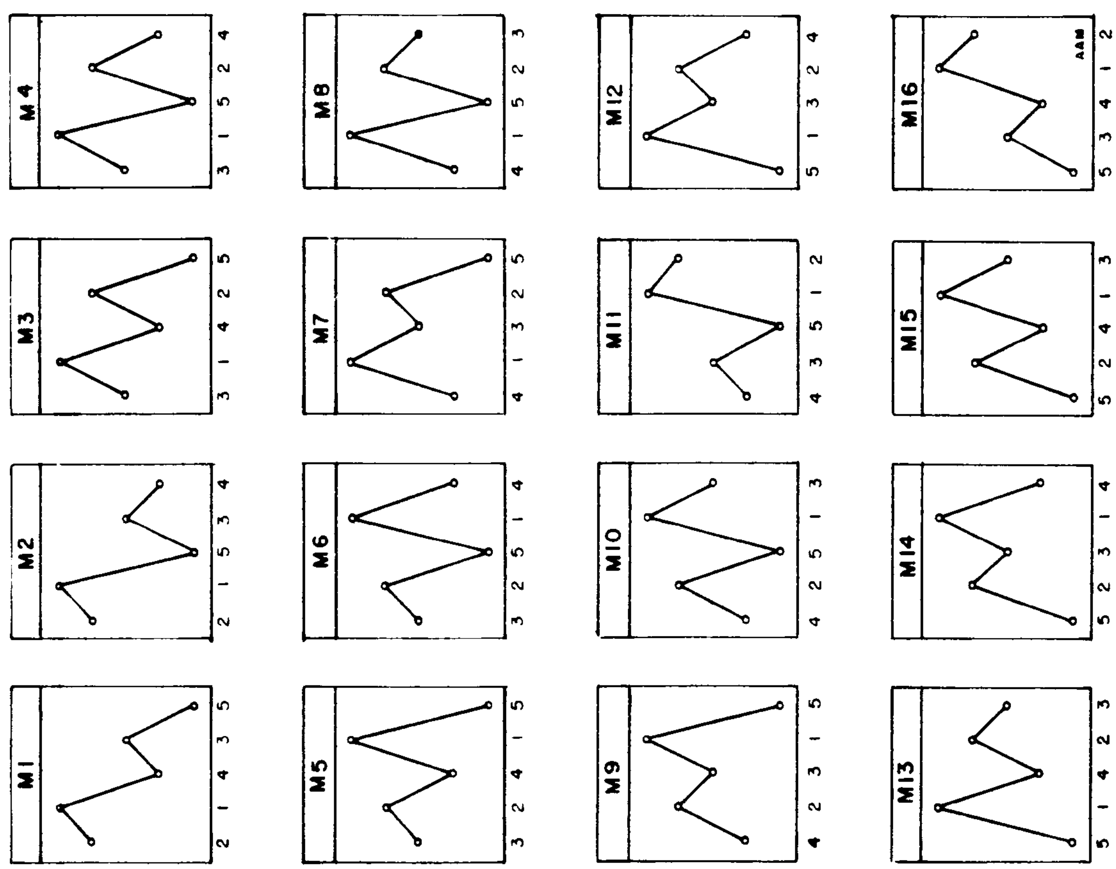
W8
W9
W10
W11
W12
W13
W14
W15
W16
AAM


M1
M2
M3
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M15
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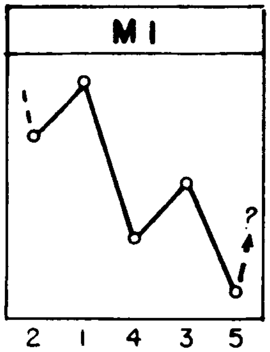
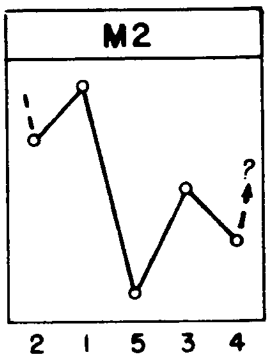
AAM

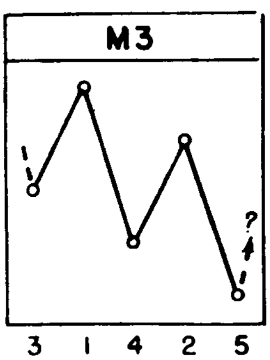


M1 n=28 (no. of occurrences: the total for the M patterns is 3.42)
Aver. rise (swing following pattern): 13.89% This is the highest of all the M patterns, and is the only one that has a truly significant difference for the overall average.
Bear market bottoms: This pattern appeared at the end of seven of the fifteen bear markets since 1898. The fifth point of the pattern was the low point of the bear. Is this a confirmation of the selling climax idea? It certainly indicates an oversold condition.
Bull market tops: This pattern appears at the top of four bull markets, initiating the new bear with a sharp downtrend.



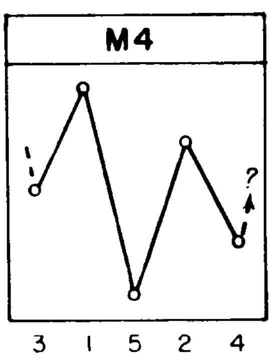
M2 n=16
Aver. rise: 9.69% This is one of the lowest.
Bear market bottoms: two
Bull market tops: none

This is a downward zigzag followed by an upward zigzag. These reversals of zigzags have been called "head and shoulders". Several patterns exhibit this reversal.



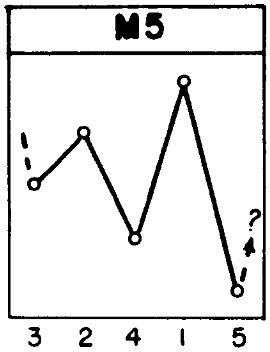
M3 n= 43 This is the second most popular of the M patterns.
Aver. rise: 9.08% This is below the overall average.
Bear market bottoms: four
Bull market tops: three (including the 1929 top)

This is a downtrend, but not as steep as M1.



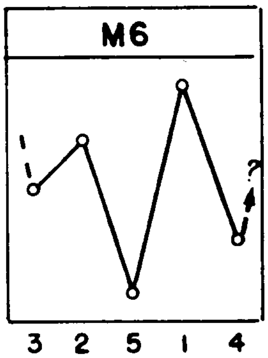
M4 n= 16
Aver. rise: 11.12% This is close to the average.
Bear market bottoms: three
Bull market tops: none

This is another reversal from a downward zigzag to an upward zigzag.



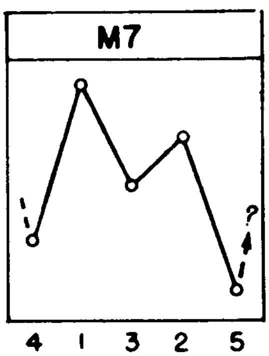
M5 n=13
Aver. rise: 9.94% This is below average.
Bear market bottoms: one
Bull market tops: none

This is a "broadening formation". The swings get larger from left to right.



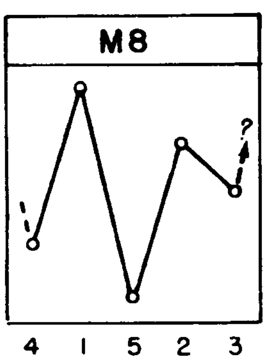
M6 n=6 This one of the rarest of the patterns.
Aver. rise: 11.86% This is the third best.
Bear market bottoms: one
Bull market tops: none

This is a downward zigzag followed by a sharp rise and decline.



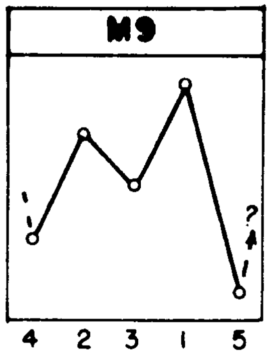
M7 n=28
Aver. rise: 9.29% One of the lowest.
Bear market bottoms: two
Bull market tops: six This is tied with M15 for the most tops.

This pattern begins with a sharp rise followed by a downward zigzag.



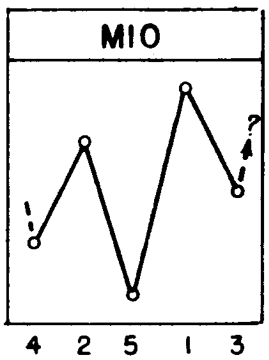
M8 n=4
Aver. rise: 10.65% This is average.
Bear market bottoms: none
Bull market tops: none

This is a wide swing downward zigzag followed by an upward zigzag.



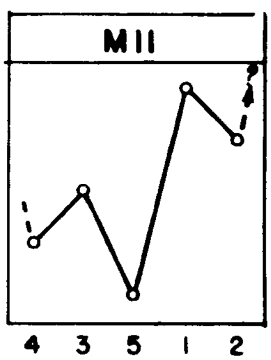
M9 n=15
Aver. rise: 9.24% This is one of the lowest.
Bear market bottoms: one
Bull market tops: three

This is an upward trend followed by a steep downswing, breaking through the preceeding low point.



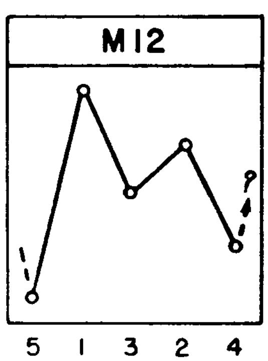
M10 n=18
Aver. rise: 9.55% This is one of the lowest.
Bear market bottoms: one
Bull market tops: one

This is another downward zigzag followed by an upward zigzag. It occurred recently; March 1, 1978 was the third point of this pattern.



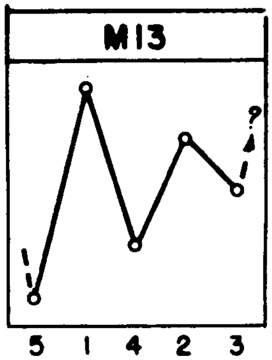
M11 n=20
Aver. rise: 9.95% This is low.
Bear market bottoms: eight This ties with M15 for the highest frequency.
Bull market tops: one

Another downward zigzag followed by an upward zigzag.



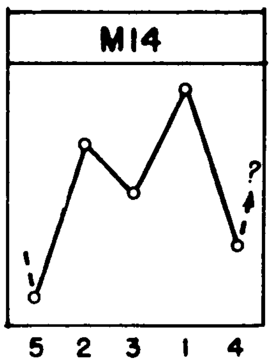
M12 n= 15
Aver. rise: 9.80% This is below average.
Bear market bottoms: one
Bull market tops: three

A sharp rise which changed into a downward zigzag.



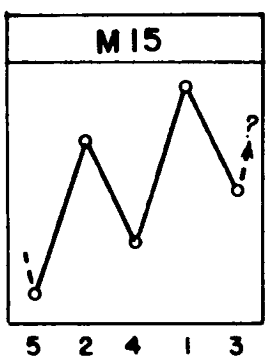
M13 n=12
Aver. rise: 12.79% This is the second best of the M patterns.
Bear market bottoms: one
Bull market tops: none

This is a triangle with upward breakout.



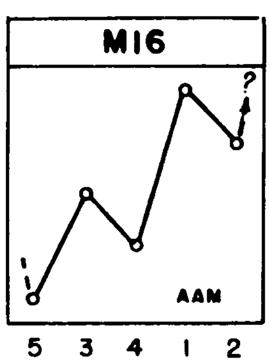
M14 n=24
Aver. rise: 10.12%
Bear market bottoms: one
Bull market tops: four (including 1929)

This pattern begins with a promising uptrend, but concludes with a bad break.



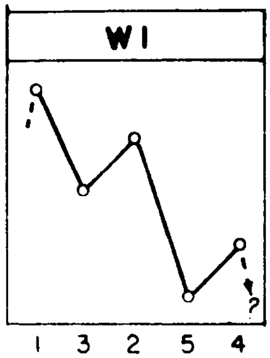
M15 n=44 This is the most frequent of the M patterns.
Aver. rise: 11.15% This is close to average.
Bear market bottoms: eight This is tied with M 11 for maximum frequency.
Bull market tops: six This is tied with M16 for top frequency.

This pattern occurred recently. February 28, 1979 was the fifth point of this pattern. It's a fine uptrend.

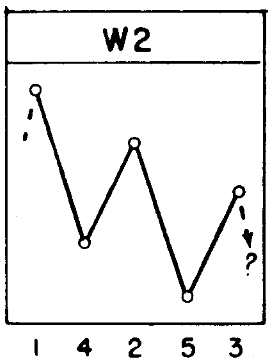


M16 n=40 This is the third most frequent.
Aver. rise: 11.50% This is the fourth best.
Bear market bottoms: four
Bull market tops: one

This is a sharp uptrend. Compare it to M15.

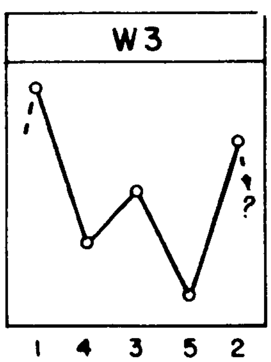


W1 n=28
Aver. decline: 9.53% This isn't far from the overall average.
Bear market bottoms: two
Bull market tops: seven This is tied with M16 for top frequency. This pattern can be found at the 1929 peak. The sharp downtrend initiated the super bear market.



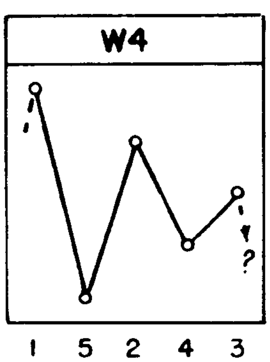
W2 n=43 This is the second most frequent pattern.
Aver. decline: 11.06% One of the deepest.
Bear market bottoms: three
Bull market tops: six

This is a downtrend, but not as steep as W1.



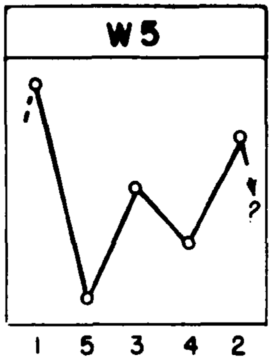
W3 n=17
Aver. decline: 10.65% This is deeper than average.
Bear market bottoms: two
Bull market tops: three

This is a downtrend which ends in a steep rise. It occurred at the March 1, 1978 bottom.



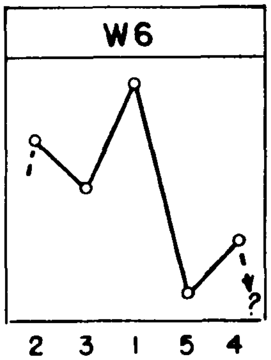
W4 n= 9
Aver. decline: 11.09% This is one of the deepest.
Bear market bottoms: one
Bull market tops: none

This is a triangle with downward breakout.



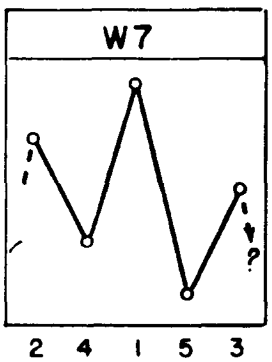
W5 n=21
Aver. decline: 10.07% Close to average.
Bear market bottoms: three
Bull market tops: none

This pattern begins with a sharp drop but ends with an uptrend.



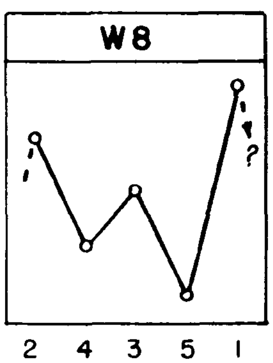
W6 n=16
Aver. decline: 10.17% Close to average.
Bear market bottoms: none
Bull market tops: four

This is an upward zigzag followed by a downward zigzag.



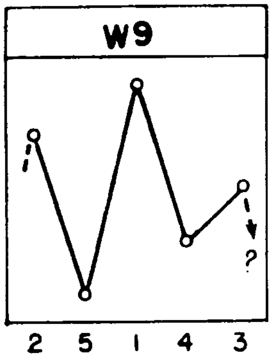
W7 n=17
Aver. decline: 11.22% This is one of the deepest.
Bear market bottoms: none
Bull market tops: three (including 1929)

This is another upward zigzag followed by a downward zigzag.



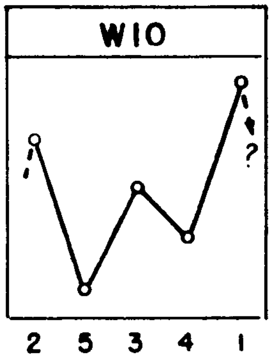
W8 n=24
Aver. decline: 8.31% This is the best of the W averages.
Bear market bottoms: six
Bull market tops: one

This is a downtrend followed by a sharp recovery.



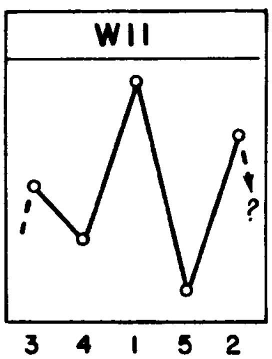
W9 n=10
Aver. decline: 11.23% This is one of the deepest.
Bear market bottoms: none
Bull market tops: three

Wide fluctuations were followed by a very weak rally.

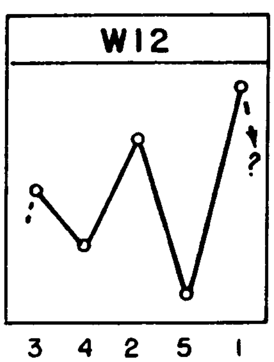


W10 n=19
Aver. decline: 9.94% This is close to average.
Bear market bottoms: one
Bull market tops: two

A sharp downswing followed by a strong upward zigzag.

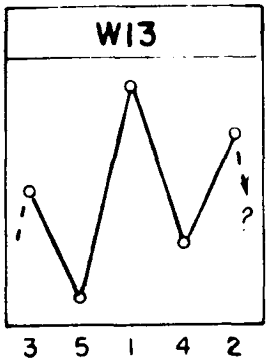


W11 n=3 This is the rarest of the W patterns.
Aver. decline: 10.77% This is below average, but the number is low.
Bear market bottoms: none
Bull market tops: none.



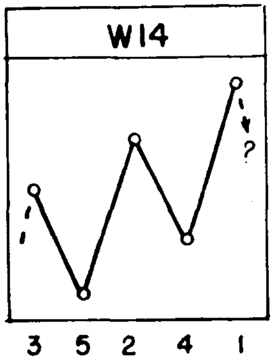
W12 n=16
Aver. decline: 9.92% This is average.
Bear market bottoms: two
Bull market tops: one

There is a broadening formation, with the swings increasing in magnitude from left to right.



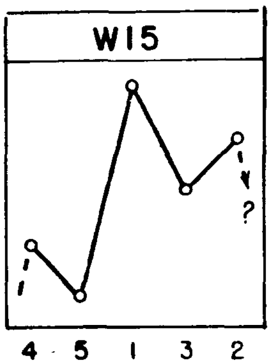
W13   n=22
Aver. decline: 10.54% This is deeper than average.
Bear market bottoms: none
Bull market peaks: four

This is another upward zigzag followed by a downward zigzag.



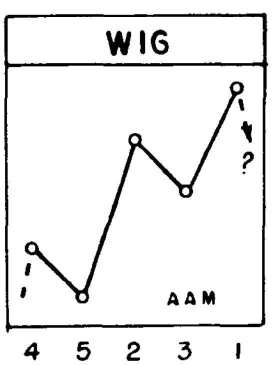
W14   n=36 This is the third highest in frequency.
Aver. decline: 9.67% This is better than average.
Bear market bottoms: two
Bull market tops: five

This is a fine uptrend. It occurred recently; March 1, 1978 had this pattern.



W15   n=13
Average decline: 8.47% This is second best.
Bear market bottoms: one
Bull market tops: two

A strong upward zigzag is followed by a minor downward zigzag.



W16   n=48 This is the most frequent W pattern.
Aver. decline: 8.97% This is the third best.
Bear market bottoms: seven
Bull market tops: seven (including 1929)

This uptrend is steeper than W14.