

**NEW
CONCEPTS
IN
TECHNICAL
TRADING
SYSTEMS**

J. Welles Wilder Jr.

NEW CONCEPTS IN TECHNICAL TRADING SYSTEMS . . .



Welles Wilder is known world-wide for his innovative and original concepts for technical trading systems. His revolutionary book, *New Concepts in Technical Trading Systems* is legendary, in technical circles. *FORBES MAGAZINE* (Oct. '80) singled Mr. Wilder out as "The premier technical trader publishing his work today." *FORBES* goes on to say, "For those of you who have seen all the conventional systems, this book is the place to start."

Wilder's "Relative Strength Index" (RSI) is monitored daily by many big brokerage firms and is charted by most chart services for each commodity. His "Directional Movement" system and "Parabolic Time/Price" system have become bywords to technical traders world-wide. Most computer trading systems in use today utilize some of Wilder's originally published concepts.

Mr. Wilder is an active trader and advisor on technical trading systems and methods. He has authored many articles on trading techniques and makes appearances on radio and television programs. Around the world, there are probably more traders using Mr. Wilder's systems and methods than any other single discipline.

Mr. Wilder has presented his methods and systems at technical trading seminars in Asia, Australia, Canada, the U.S. and the capitals of Europe. Mr. Wilder's company, Trend Research, Ltd., McLeansville, N.C. develops computer trading programs and computer software, and distributes his book.

NEW CONCEPTS IN TECHNICAL TRADING SYSTEMS

J.WELLES WILDER, JR.

TREND RESEARCH
P.O. BOX 450
GREENSBORO, N.C. 27402

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To Richard C. Meekins who devoted many hours to the perfection of the graphs, work sheets and diagrams presented in the book.

To my "Gal Friday", Carol Lawson, who kept the coffee hot and battled pages of manuscript to the final draft.

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INTRODUCTION

The concepts, methods and systems presented in this book are the result of many years of study and research in the market. The approach is strictly technical and the results are definitive. The purpose of this book is not to entertain, but rather to equip the reader with specific concepts, tools and indexes to use in trading the markets.

Nothing in this book has been taken from a previous author's work. What you are about to read is original. I have tried to present the material in such a way that it will be readily understandable to the beginning trader as well as the seasoned professional who is familiar with systems technology. This is a difficult task. I realize that the beginner may find himself reading through the text several times in order to completely comprehend the material and the computer whiz kids will find the information overly simplified; however, I think the average trader will find the material set out in a way that is reasonably easy to follow.

The programmable calculator, due to its relatively inexpensive cost, is readily becoming an indispensable tool for the technical trader. All of the systems and indexes in this book can be programmed on most of the programmable calculators now on the market. Usually the dealer who sells programmable calculators also has personnel capable of writing programs to be used in the calculator and it should be easy for this person to program your calculator for any or all systems in this book.

Following any of these systems with a programmable calculator is extremely simple. Just punch in the latest price data, push the compute key and the answer will appear either on a register or on a printout in less than a second.

Most programmable calculators also have the capacity to store a particular program and data on a magnetic card; thus, by changing magnetic cards, you can go from one system to another in a matter of a few seconds.

The systems in this book have been programmed for the Hewlett Packard hand-held programmable calculator, HP-41 CV, the Apple II (+ & E) computers and the IBM-PC computer. A brochure is available upon request describing the NEW CONCEPTS software package for each of these computers from Trend Research, Ltd. P.O. Box 128, McLeansville, N.C. 27301. Telephone (919) 698-0500.

DIVISION OF CONCEPTS

This book is divided into ten different sections. The reason for this division is that each section can be studied independently of any previous or following section, except for Section I.

Section I should be read first, as it pertains to certain basic tools and definitions which apply to all following sections. For instance, if your initial interest is in directional movement, you may read Section I first and then skip to Section IV without having to first read Sections II and III.

However, **before beginning to trade** any of these systems, be sure to read Sections IX and X. The Table of Contents classifies the sections as described above.

WORK SHEETS

For each index and system presented in this book, a daily work sheet has been developed to facilitate following the method on a daily basis.

With the exception of the **Relative Strength Index**, which is a chart interpretation technique, all other indexes and systems can be followed using only the daily work sheets. It is not necessary to construct charts, although some traders may want to use charts as visual aids.

At the end of each section, an example of the index or system is worked out using the daily work sheet. If reading through the text does not give you an immediate grasp of the method, then it will all fall into place when you follow the example on the daily work sheet.

A blank copy of each work sheet is provided in the Appendix so it can be reproduced on any standard office copier and used in following the particular system on a daily basis.

CHARTS

Although it is not necessary to construct charts to follow the systems in this book, most technical traders subscribe to a good chart service.

I prefer the COMMODITY PERSPECTIVE charts because each commodity and currency is printed on a separate sheet 13 inches high and 10 inches wide. Ample space is provided after the last price bar to up-date the chart for the following week. These charts are received each Monday morning and are updated through the previous Friday.

An example of the COMMODITY PERSPECTIVE chart is presented with the **Relative Strength Index** in Section VI. If interested in using this type of chart, a subscription is available from:

Investor Publishing, Inc.
327 South La Salle
Chicago, Illinois 60604

PARAMETER RANGES

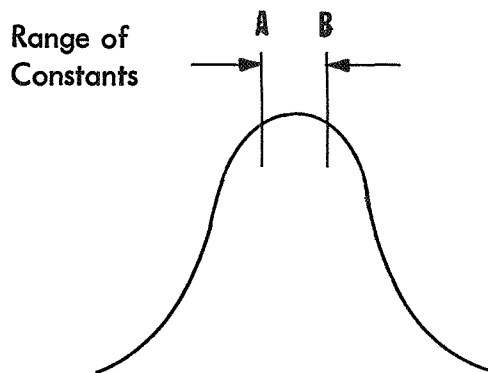
(An Infinite number of systems)

One of the problems in presenting a definitive technical system to a number of traders is the fear of the trader that others are trading the same system, causing a concentration of orders at the exact same point; thereby resulting in bad fills. This problem has been alleviated where possible by giving a range of parameters. Each trader can choose his own parameters and constants to use with the system **within the range given**. The differences in the end result will be insignificant.

For an example of this, suppose that a parameter for a hypothetical system states that a *Long* trade is to be exited on a 30% retracement from a new High to point P. The constant is then .30. In other words, measure the vertical distance from hypothetical point P to the highest point reached while in the *Long* trade. By taking 30% of that distance and subtracting it from the highest point, the stop price is determined.

How did the author of this system determine 30% to be the absolute best distance to use? If he determined the constant using only eight trades on one particular commodity or stock, he would have found that varying the distance just slightly could result in one bad trade and his overall result would be decreased significantly. However, if he determined this constant using 400 trades on each of 20 different commodities, he would have found that the results would be virtually the same if he had used 29% or 31%. There would be very little variation if he had used 28.4% or 31.6%. By using 27% or 33%, he would begin to see a small decrease in the overall profit. By using 20% or 40%, he might see a drastic reduction in his profit.

The results of this hypothetical situation can be compared to a 'bell curve.'



Point A represents the lower end of the range at 28%; Point B represents the higher end of the range at 32%. As long as the trader uses a constant between 28% and 32%, the results over the long run will be about the same.

The 'bell curve' analogy would be applicable to the range of constants given (where possible) for the systems in this book.

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SECTION I

BASICS

BASIC TOOLS

The following bar will quickly be recognized by most traders as that period of time representing one trading day.

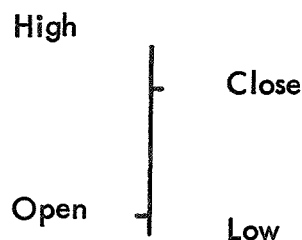


Fig. 1.1

The top of the bar represents the highest price at which the stock or commodity was traded during the day. The low extreme of the bar represents the lowest price at which the stock or commodity was traded during the day. The hash mark on the left side of the bar represents the opening price; the hash mark on the right side represents the closing price.

Reference will be made throughout the book to what is called a LOP and a HIP. LOP is an abbreviation used for LOW POINT. A LOP is any time bar which has a time bar immediately before it, and immediately after it with a higher low.

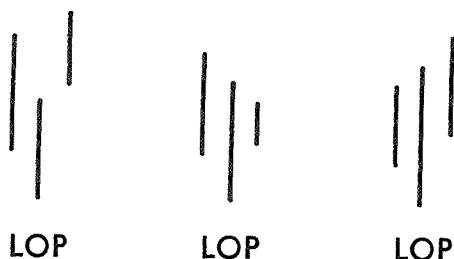


Fig. 1.2

A HIP signifies a HIGH POINT and is defined as any time bar which has a time bar immediately before it, and immediately after it, with a lower high.

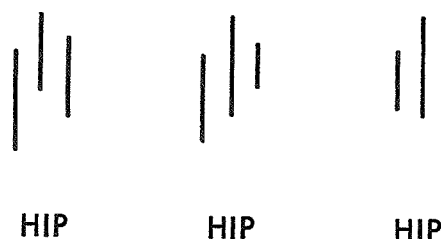


Fig. 1.3

Another configuration which will be used constantly is a SIGNIFICANT POINT which is abbreviated SIP. A SIP must be defined as either a HI SIP or a LO SIP. The HI SIP is defined as being the highest price reached while in a *Long* trade. The LO SIP is defined as the lowest price reached while in a *Short* trade.

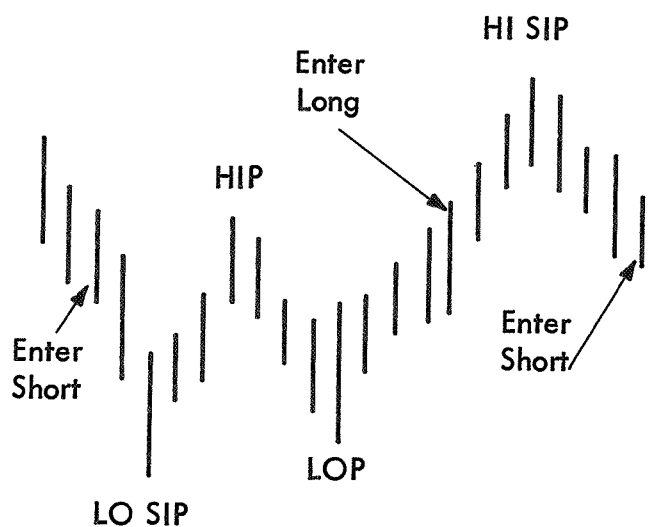


Fig. 1.4

SIC is the abbreviation for SIGNIFICANT CLOSE. The SIC is defined as the extreme favorable CLOSE made while in the trade. If *Long* the SIC is the HIGH SIC which is the highest close made while in the trade. If *Short*, the LOW SIC is the lowest close made while in the trade.

SAR stands for STOP AND REVERSE. This is the point at which a *Long* trade is exited and a *Short* trade is entered, or vice versa. These basic configurations will be referred to repeatedly in the text that follows.

THE MISSING PART OF MOST TECHNICAL TRADING PLANS

Most technical trading plans have two parts:

- (1) A technical trading system
- (2) A capital management technique

Most technical trading systems are trend-following systems. I believe a trend-following method is the most profitable method to use in trending markets. However, a trend-following method invariably gives back a good part of its profit when the market changes to non-directional sideways movement.

An anti-trend, congestion phase system is profitable in a sideways, non-trending market. However, the profits are smaller, the trades are more frequent and the commissions become a significant factor. When the market changes to a trending mode, the anti-trend system tends to become unprofitable.

In all the years I have spent developing and analyzing technical trading methods, I have yet to see any *one* system that is **consistently** profitable **in all markets**.

The answer then is to devise a rating scale upon which all commodities of interest to the trader can be rated as to whether trending or non-trending. This concept is explained in Section IV entitled THE DIRECTIONAL MOVEMENT INDEX.

There are several other things to consider also. The most profitable trending markets are usually the **volatile** trending markets; that is, the markets that are moving the fastest. This concept is explained in Section III entitled THE VOLATILITY INDEX.

Also, margin requirements and commission charges are factors to be considered.

All four of these factors are **appropriately weighted** and combined in THE COMMODITY SELECTION INDEX (CSI) explained in Section IX. The highest commodities on the CSI scale will be those which:

- (1) Are high in directional movement,
- (2) Are high in volatility,
- (3) Have reasonable margin requirements relative to volatility and directional movement, and
- (4) Have reasonable commission rates.

The missing part of most technical trading plans then, is a method for evaluating and determining **which** commodities to trade **when**. The answer presented in this book is THE COMMODITY SELECTION INDEX.

Before we take up some of the heavier concepts such as Directional Movement, Volatility, Momentum, etc., I want to present a relatively simple system which is also very profitable when used in a moving market. It is one of my favorite systems because it squeezes more profit out of an intermediate move (which lasts for two or three weeks) than any method I know. I call it the PARABOLIC TIME/PRICE SYSTEM.

SECTION II

THE PARABOLIC TIME/PRICE SYSTEM

The Parabolic Time/Price System derives its name from the fact that when charted, the pattern formed by the stops resembles a parabola, or if you will, a French Curve. The system allows room for the market to react for the first few days after a trade is initiated and then the stop begins to move more rapidly. The stop is not only a **function of price**, but is also a **function of time**. The stop never backs up. It moves an incremental amount every day, only in the direction in which the trade has been initiated.

For example, if you are *Long*, the stop will move UP every day regardless of the direction the price is moving. This is the TIME function. The stop is also a function of PRICE because the distance the stop moves up is relative to the favorable distance the price has moved . . . specifically, the most favorable price reached since the trade was initiated. This TIME/PRICE concept is most intriguing. In effect, it allows just so much time for the price to move favorably. If the move does not materialize or goes the other way, the stop reverses the position and a new time period begins. This concept is illustrated in the hypothetical illustration. Fig. 2.1.

Notice that the price is moving up exactly the same amount each day. Notice also the pattern formed by the stops. The stop accelerates gradually at first, but then begins to move up rapidly. On the 10th day, the stop is no longer accelerating but becomes a function of price only.

First let's look at the concept of this system by learning how the stops were calculated in the illustration. Let's say that we entered this *Long* trade on Day 4. The stop for the first day in the trade, Day 4, is the SIP. (We have previously defined the SIP as the extreme price point reached while in the previous trade.) Let's

assume that our previous trade was *Short* and we are now reversing to *Long* on Day 4. The stop, then, is 50.00 for the day of entry.

This system is a true reversal system; that is, every stop point is also a **reverse point**. We will therefore call each stop point a SAR, which stands for **Stop and Reverse**. On the first day of entry, our SAR is the SIP. We are now ready to calculate the SAR for Day 5.

Take the **highest price** reached on Day 4, subtract from this price the SAR for Day 4 and multiply this distance by the acceleration factor, .02, and then add this amount back to the SAR for Day 4. The result becomes the SAR for Day 5. The equation is as follows:

$$SAR_5 = SAR_4 + AF (H_4 - SAR_4)$$

Substituting in the above equation:

$$SAR_5 = 50.00 + .02 (52.50 - 50.00)$$

$$SAR_5 = 50.00 + .02 \times 2.50$$

$$SAR_5 = 50.00 + .05$$

$$SAR_5 = 50.05$$

The SAR for Day 5 then, is 50.05. The ACCELERATION FACTOR (AF) is one of a progression of numbers beginning at .02 and ending at .20. **The AF is increased by .02 each day that a new high is made.** In this example, a new high is made every day; therefore the AF is increased by .02 every day. The SAR for Day 6 would be calculated as follows:

$$SAR_6 = SAR_5 + AF (H_5 - SAR_5)$$

$$SAR_6 = 50.05 + .04 (53.00 - 50.05)$$

$$SAR_6 = 50.05 + .04 \times 2.95$$

$$SAR_6 = 50.05 + .12$$

$$SAR_6 = 50.17$$

The general equation, then, is as follows:

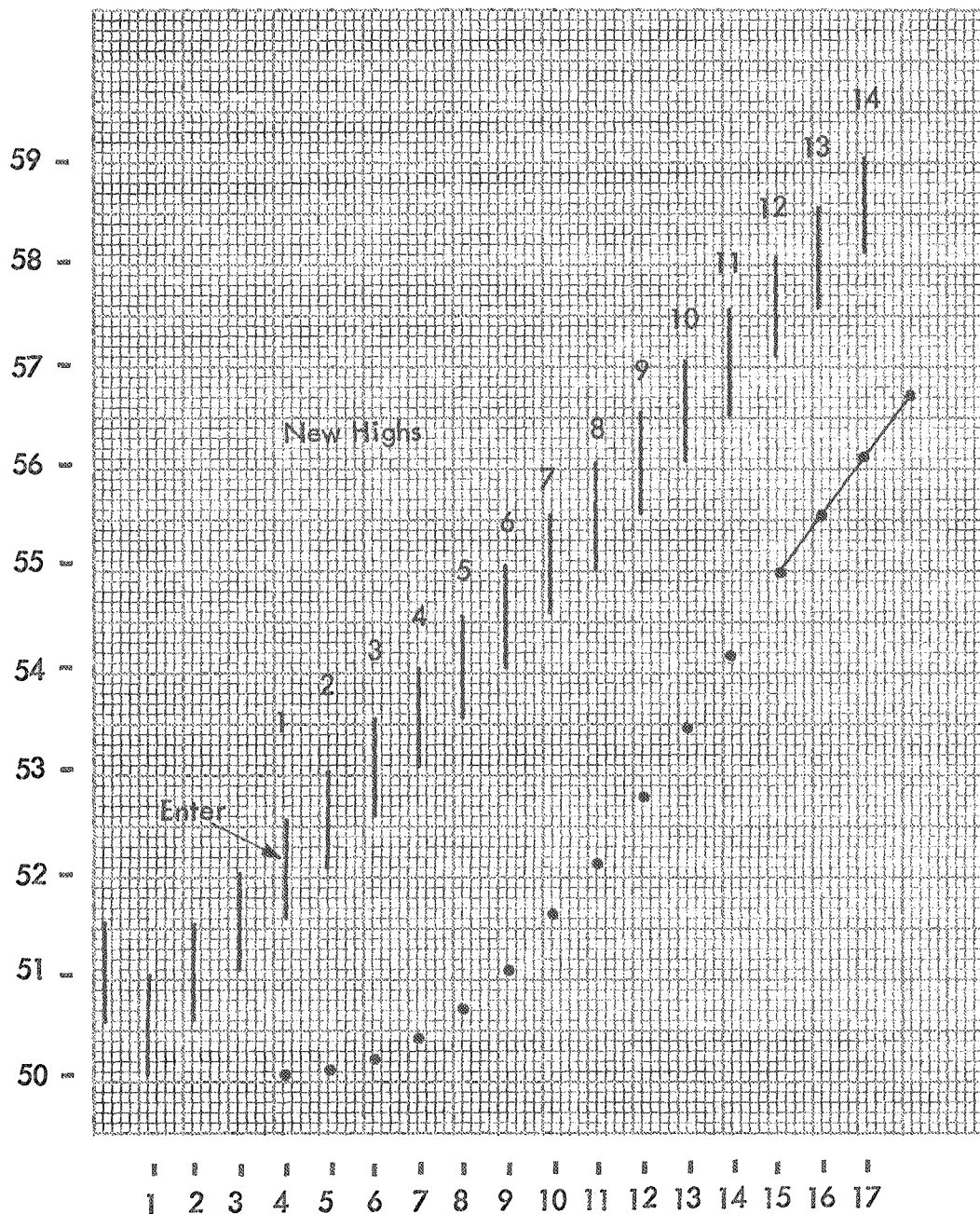


Fig. 2.1

$$SAR_{\text{Tomorrow}} = SAR_{\text{Today}} + AF (EP_{\text{Trade}} - SAR_{\text{Today}})$$

Where AF begins at .02 and is increased by .02 until a value of .20 is reached; EP_{Trade} = Extreme Price Point for the trade made so far (If Long, EP is the extreme high price for the trade; if Short, EP is the extreme low price for the trade.)

The equations for the SAR for Days 7 through 12 on the chart are as follows:

$$SAR_7 = 50.17 + .06 (53.50 - 50.17) = 50.37$$

$$SAR_8 = 50.37 + .08 (54.00 - 50.37) = 50.66$$

$$SAR_9 = 50.66 + .10 (54.50 - 50.66) = 51.04$$

$$SAR_{10} = 51.04 + .12 (55.00 - 51.04) = 51.52$$

$$SAR_{11} = 51.52 + .14 (55.50 - 51.52) = 52.08$$

$$SAR_{12} = 52.08 + .16 (56.00 - 52.08) = 52.71$$

Now that we understand the concept upon which this system is based, let's state the rules to be used in trading the system.

RULES PARABOLIC TIME/PRICE SYSTEM

ENTRY:

A position is entered when a price penetrates the SAR.

STOP AND REVERSE (SAR):

A. For the first day of entry, the SAR is the previous SIP (Significant Point).

1. If entered *Long* the SIP is the **lowest** price reached while in the previous *Short* trade.
2. If entered *Short*, the SIP is the **highest** price reached while in the previous *Long* trade.

B. For the second day and thereafter, the SAR is calculated as follows:

1. If *Long*:

- a. Find the difference between the highest price made while in the trade and the SAR for today. Multiply the difference by the AF and add the result to the SAR today to obtain the SAR for tomorrow.
- b. Use .02 for the first AF and increase its value by .02 on every day that a **new high** for the trade is made. If a new high is not made, continue to use the AF as last increased. **DO NOT INCREASE THE AF ABOVE .20.**

2. If *Short*:

- a. Find the difference between the lowest price made while in the trade and the SAR for today. Multiply the difference by the AF and subtract the result from the SAR today to obtain the SAR for tomorrow.
- b. Use .02 for the first AF and increase its value by .02 on every day that a **new low** for the trade is made. If a new low is not made, continue to use the AF as last increased. **DO NOT INCREASE THE AF ABOVE .20.**

C. Never move the SAR into the previous day's range or today's range.

1. If *Long*, never move the SAR for tomorrow above the **previous day's low or today's low**. If the SAR is calculated to be above the previous day's low or today's low, then **use the lower low** between today and the previous day as the new SAR. Make the next day's calculations based upon this SAR.
2. If *Short*, never move the SAR for tomorrow below the **previous day's high or today's high**. If the SAR is calculated to be below the previous day's high or today's high, then **use the higher high** between today and the previous day as the new SAR. Make the next day's calculations based upon this SAR.

Now let's look at a hypothetical example on the work sheet which is illustrated on the following chart Fig. 2.2. For this example, we will assume that we were reversed from a *Short* position to a *Long* position on Day 4. On the initial day of entry, we can give our broker the SAR without making any calculations because we know the **lowest point reached while in the previous *Short* trade was 50.00** (which was the LOW SIP). We are now ready to calculate the SAR for the following day.

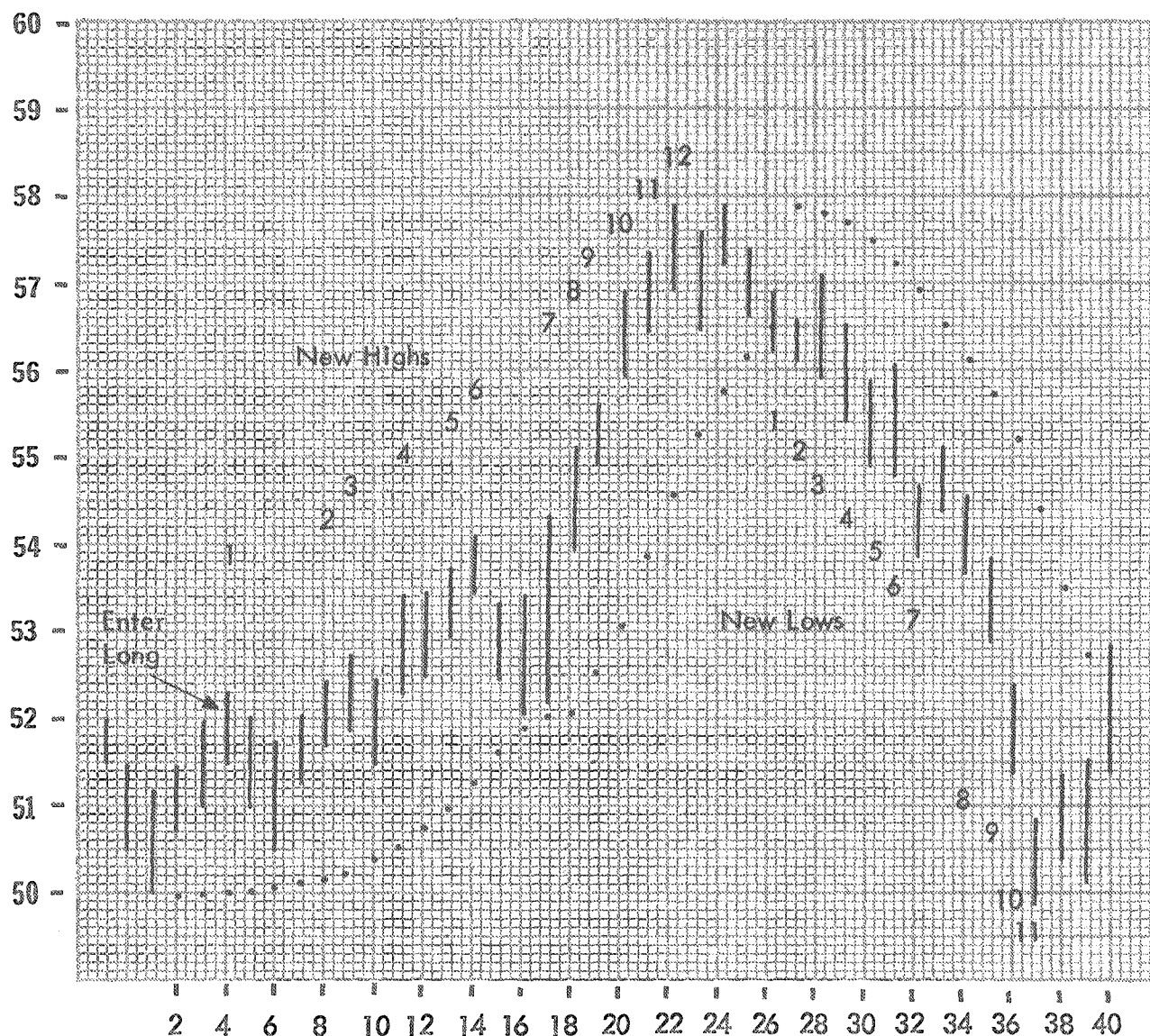


Fig. 2.2

On the worksheet, we have filled out only the High and Low columns for simplicity. In actually following the system, you would want to fill in the Open and Close columns also.

On Day 4, we insert the high of 52.35 and the low of 51.50. Under Column #1, we insert the SAR for today, which, for the first day in the trade is always the previous SIP, so we put 50.00 in Column #1.

Our Extreme Price for the first day in the trade is the high made during that day, and we put 52.35 in Column #2 under EP (Extreme Price.) We then take the difference between 50.00

DAILY WORK SHEET

PARABOLIC TIME / PRICE SYSTEM

DATE	OPEN	HIGH	LOW	CLOSE	(1) SAR	(2) EP	(3) EP±SAR	(4) AF	(5) AF X DIR	EN
4		52.35	51.50		50.00	52.35	2.35	.02	.05	L-5
5		52.10	51.00		50.05	52.35	2.30	.02	.05	
6		51.80	50.50		50.10	52.35	2.25	.02	.05	
					50.15					
7		52.10	51.25			52.35	2.20	.02	.04	
8		(52.50)	51.70		50.19	52.50	2.31	.04	.09	
9		(52.80)	51.85		50.28	52.80	2.52	.06	.15	
					50.43					
10		52.50	51.50			52.80	2.37	.06	.14	
11		(53.50)	52.30		50.57	53.50	2.93	.08	.23	
12		53.50	52.50		50.80	53.50	2.70	.08	.22	
13		(53.80)	53.00		51.02	53.80	2.78	.10	.28	
14		(54.20)	53.50		51.30	54.20	2.90	.12	.35	
15		53.40	52.50		51.67	54.20	2.55	.12	.31	
16		53.50	52.10		51.96	54.20	2.24	.12	.27	
17		(54.40)	53.00		52.10	54.40	2.30	.14	.32	
18		(55.20)	54.00		52.10	55.20	3.10	.16	.50	
19		(55.70)	55.00		52.60	55.70	3.10	.18	.56	
20		(57.00)	56.00		53.16	57.00	3.84	.20	.77	
21		(57.50)	56.50		53.93	57.50	3.57	.20	.71	
22		(58.00)	57.00		54.64	58.00	3.36	.20	.67	
23		57.70	56.50		55.31	58.00	2.69	.20	.54	
24		58.00	57.30		55.85	58.00	2.15	.20	.43	
25		57.50	56.70		56.28	58.00	1.72	.20	.34	S-5
					56.62					
26		57.00	(56.30)		58.00	56.30	1.70	.02	.03	
27		56.70	(56.20)		57.97	56.20	1.77	.04	.07	
28		57.50	(56.00)		57.90	56.00	1.90	.06	.11	
29		56.70	(55.50)		57.79	55.50	2.29	.08	.18	
30		56.00	(55.00)		57.61	55.00	2.61	.10	.26	
31		56.20	(54.90)		57.35	54.90	2.45	.12	.29	
32		54.80	(54.00)		57.06	54.00	3.06	.14	.43	
33		55.60	54.50		56.63	54.00	2.63	.14	.37	
34		54.70	(53.80)		56.26	53.80	2.46	.16	.39	
35		54.00	(53.00)		55.87	53.00	2.87	.18	.52	
36		52.50	(51.50)		55.35	51.50	3.85	.20	.77	
37		51.00	(50.00)		54.58	50.00	4.58	.20	.92	
38		51.50	50.50		53.66	50.00	3.66	.20	.73	
39		51.70	50.20		52.93	50.00	2.93	.20	.59	L-5
		53.00	51.50		52.34					

COMMODITY _____ CONTRACT MONTH _____

[illegible]

and 52.35 (i.e., the difference between Column #1 and Column #2) and insert this value, 2.35, in Column #3.

Our first acceleration factor is always .02 and we insert this in Column #4. We now multiply .02 times the difference, 2.35 (Column #3) and obtain .05 to place in Column #5.

Now we are ready to calculate the SAR for tomorrow. Add Column #5 to Column #1 and obtain 50.05. Put this number in Column #1 for the **next day**. This is the SAR for Day 5. Now let's see what happened on Day 5.

The high was 52.10, and the low was 51.00. A **new high was not made for the trade**, so we continue to use the same AF, which is .02. Notice in Column #2, we always put the Extreme Price which, so far, is 52.35. We take the difference between Column #1 and Column #2 and insert 2.30 in Column #3. Multiply Column #3 by Column #4 and obtain .05. We then add this to the SAR for the day, 50.05, and obtain 50.10 as the SAR for tomorrow, Day 6.

Now let's skip to Day 8. On this day, we have a new high of 52.50. We therefore increase our AF for that day by .02 and insert the new AF, .04, in Column #4. We take the extreme high price for the trade, EP, which is 52.50, and subtract our SAR for that day, 50.19. We multiply the difference, 2.31 by .04 and obtain .09. We add this to 50.19 and obtain the SAR for tomorrow, 50.28.

Now skip to Day 16 and let's calculate the SAR for Day 17. The high is 53.50 and the low is 52.10. We take the difference between the EP, 54.20 and the SAR, 51.96 and obtain 2.24. We multiply 2.24 times the AF of .12 and get .27. Add .27 to the SAR of 51.96 and we get 52.23. **However, the low for Day 16 is 52.10.** Since we cannot move the SAR for tomorrow into yesterday's range or today's range, we must back up the SAR to **today's low** which is 52.10. We put 52.10 in Column #1 and use this SAR for tomorrow's calculations.

On the following day, Day 17, we must still hold the SAR at 52.10 because we cannot move the SAR higher than either today's range or yesterday's range.

Every day that we have a **new high**, we will increase the AF by .02 until we get to an AF of .20, at which point we stop increasing the AF. No matter how many new highs are made thereafter, we do not increase the Acceleration Factor beyond .20. Notice on Day 20 the AF reaches .20 which is maintained for the duration of the trade.

Now let's look at what happens when we are reversed to *Short*. On Day 26, our SAR is penetrated and we reverse to *Short* at 56.62. We know that on the day we are reversed, our SAR is the previous HIGH SIP which is the **highest point** reached while in the *Long* trade.

On Day 26, we write down our high of 57.00 and low of 56.30. Under Column #1, we put our SIP which is 58.00. Now, since we are *Short*, we are looking for the **Extreme Low Price (EP)** while in the *Short* trade. For the first day, the EP would be the **low** for the day, so we put 56.30 in Column #2. As before, we take the difference between Column #1 and Column #2 and insert this value, 1.70, in Column #3. We now **start over again** with the AF at .02. Multiply .02 times the difference, which is 1.70, and obtain .03. We now **subtract** .03 from our SAR for today, 58.00 and obtain a SAR for tomorrow of 57.97.

On Day 27, we have a new low for the trade, 56.20. We take the difference between this EP, which we enter in Column #2, and the previous SAR of 57.97 and obtain 1.77. This is the second new low for the trade, so our AF has now jumped to .04. We multiply .04 times 1.77 and

obtain .07. We then **subtract** .07 from our SAR that day of 57.97 and obtain a SAR for tomorrow of 57.90. Again, we never increase our AF beyond .20.

One last thing to consider . . . where do we begin trading in this system. Since each entry point is a reverse from a previous trade, where does the first trade start?

If the market is in a general UP trend, go back several weeks to a HI SIP on your chart and make a paper trade *Short* entry on the most significant down day **within** three or four days after the HI SIP. Follow this trade on the chart until you are reversed to a *Long* trade. Make the first market entry at this point, which will usually be in the direction of the general trend.

If the market is in a general DOWN trend, then pick the LO SIP several weeks back and follow the same procedure as above for a *Long* paper trade so that your first market entry will be the next *Short* trade in the direction of the trend.

An alternate way to trade this system is in accordance with the DIRECTIONAL MOVEMENT INDEX explained in Section IV. If directional movement is UP, take only the *Long* trades. If directional movement is DOWN, take only the *Short* trades.

In essence, that is the system. It is very simple to calculate the SAR (stop and reverse point) and it is very easy to follow. Notice that the number used for the AF is always the number of **new highs** (or **new lows**, if *Short*) multiplied by two. For instance, on the sixth new high, the Acceleration Factor is .12; on the eighth new high, the AF is .16, etc.

Although this system is very simple, it is an extremely profitable system in a moving market. Technicians have spent many hours devising moving average systems which would make allowance for reactions at the beginning of the move but would accelerate as the move began to top out. **This system does just that.** By moving the initial stop back to the SIP when a trade is initiated, the system prevents being whipsawed until the price begins to move directionally.

Study the following charts and you will get a good feel for the way this system handles a volatile market. Notice especially the pattern made by the SARs.

I have tried many different acceleration factors on this system and have found that a consistent increase of .02 works best overall; however, if you desire to individualize this system in order to vary the stop points from what others may be using, the range for the incremental increase is between .018 and .021. Any constant increase within this range will work well. Use the number of increases it takes to reach at least .20, but do not exceed .22.

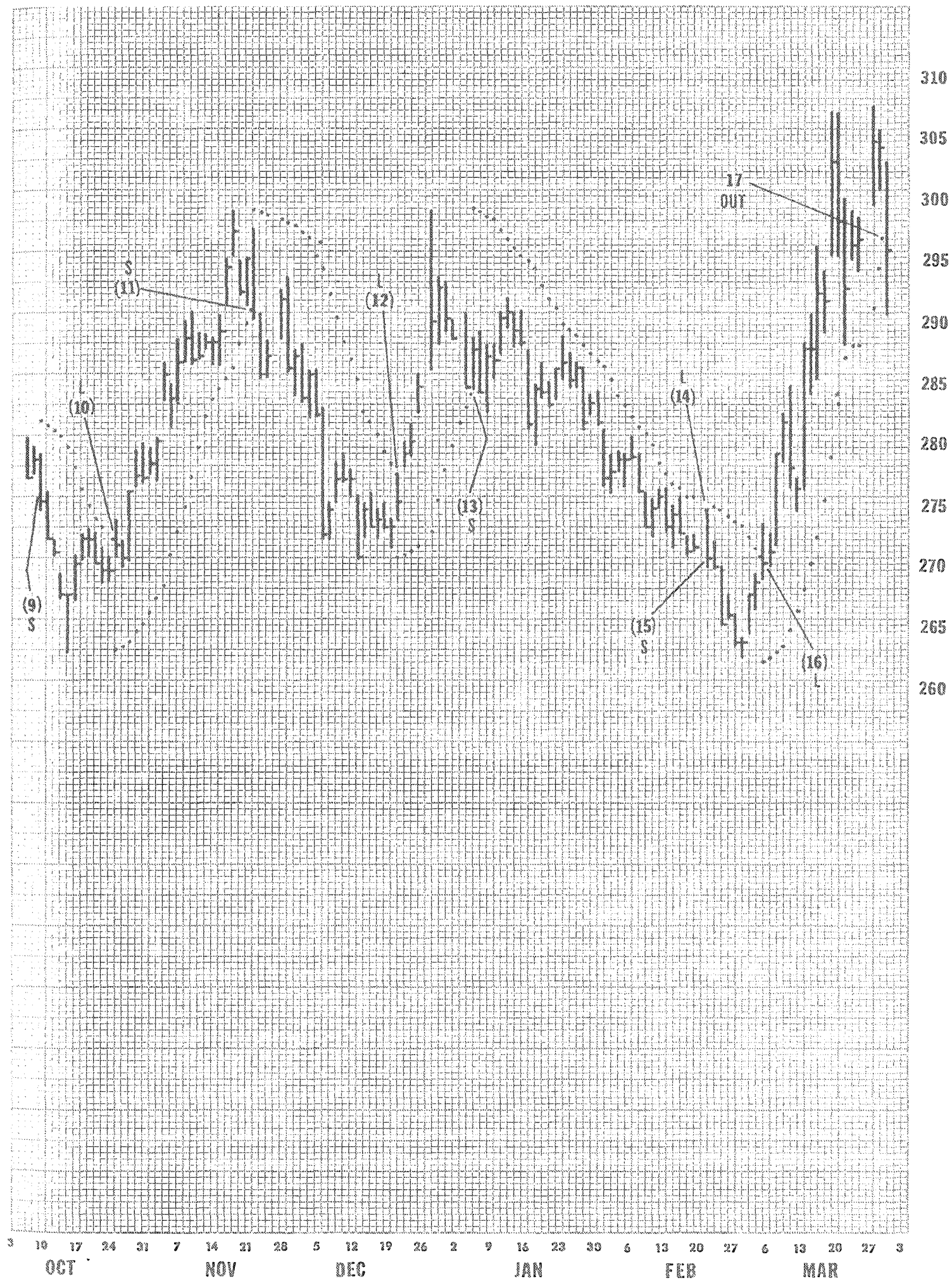
This system should be used primarily in a directional market which can be determined by using THE DIRECTIONAL MOVEMENT INDEX or THE COMMODITY SELECTION INDEX explained in other sections in the book.

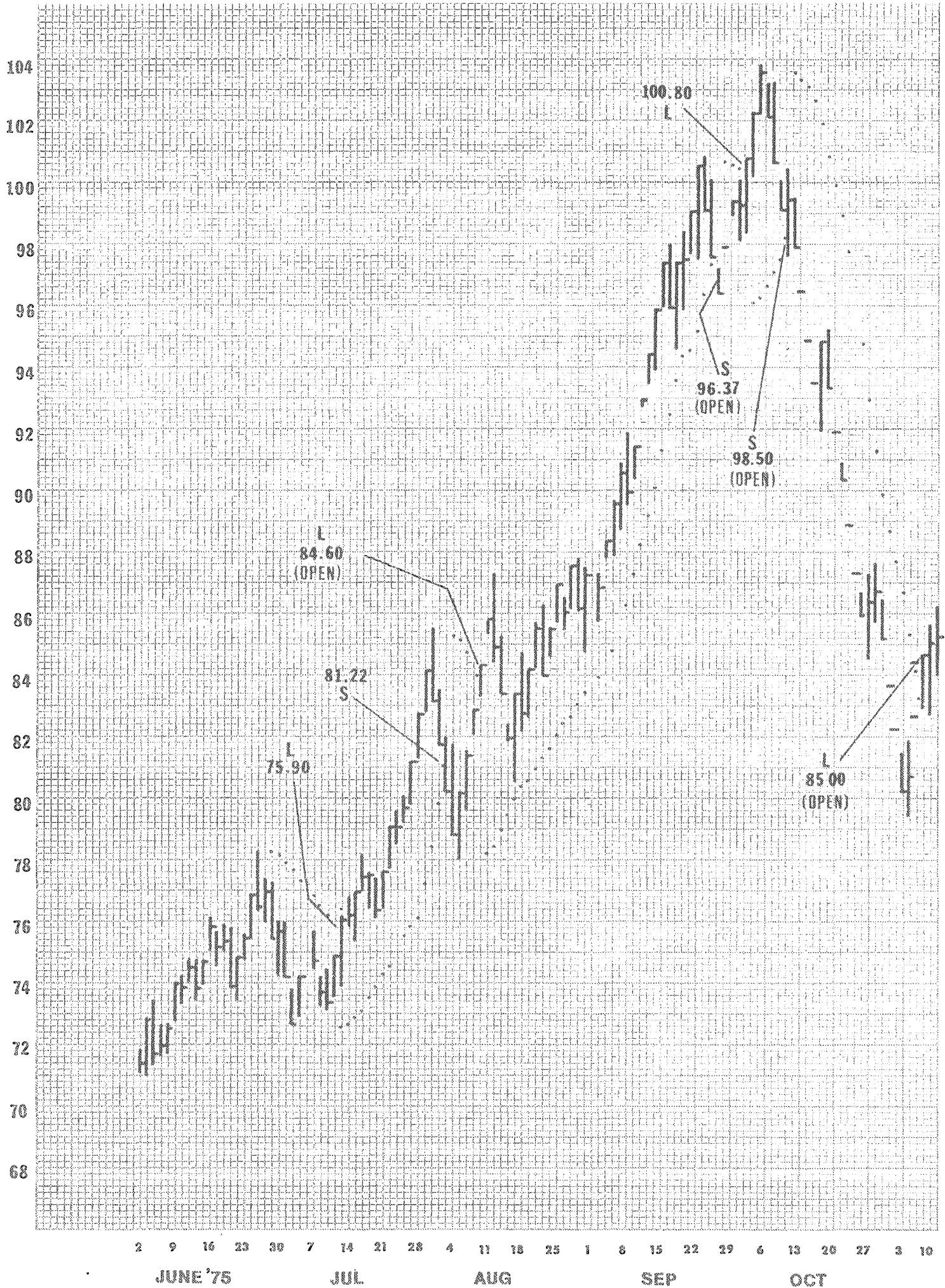
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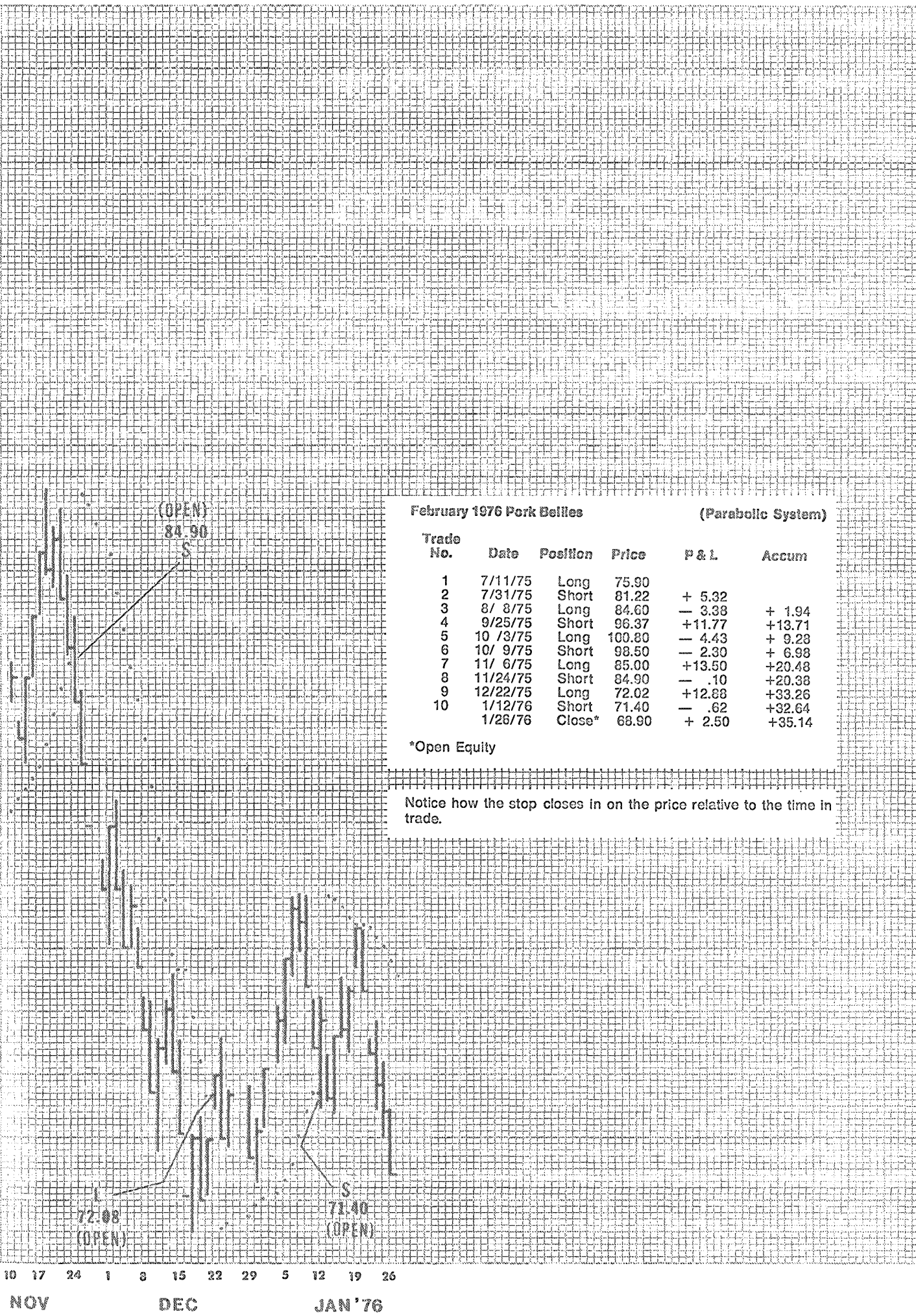
December 1977/July 1978 Chicago Wheat (Parabolic System)

Trade No.	Date	Position	Price	P & L	Accum
(December 1977)					
1	4/12/77	Long	296.75		
2	4/21/77	Short	291.75	- 5.00	
3	5/24/77	Long	268.00	+23.75	+18.75
4	5/28/77	Short	262.25	- 5.75	+13.00
5	6/20/77	Long	259.50	+ 2.75	+15.75
6	7/ 3/77	Short	255.00	- 4.50	+11.25
7	8/24/77	Long	229.25	+25.75	+37.00
8	10/ 7/77	Out	255.00	+25.75	+62.75
(July 1978)					
9	10/ 7/77	Short	276.00		
10	10/24/77	Long	272.00	+ 4.00	+ 66.75
11	11/21/77	Short	290.75	+18.75	+ 85.50
12	12/20/77	Long	277.50	+13.25	+ 98.75
13	1/ 4/78	Short	284.25	+ 6.75	+105.50
14	2/21/78	Long	274.50	+ 9.75	+115.25
15	2/21/78	Short	270.50	- 4.00	+111.25
16	3/ 5/78	Long	270.50	0.00	+111.25
17	3/29/78	Out	296.75	+26.25	+137.50

11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25 1 8 15 22 29 5 12 19 26 3 10
APRIL MAY JUN JULY AUG SEP







February 1976 Pork Bellies

(Parabolic System)

Trade No.	Date	Position	Price	P & L	Accum
1	7/11/75	Long	75.90		
2	7/31/75	Short	81.22	+ 5.32	
3	8/ 8/75	Long	84.60	- 3.38	+ 1.94
4	9/25/75	Short	96.37	+11.77	+13.71
5	10 /3/75	Long	100.80	- 4.43	+ 9.28
6	10/ 9/75	Short	98.50	- 2.30	+ 6.98
7	11/ 6/75	Long	85.00	+13.50	+20.48
8	11/24/75	Short	84.90	- .10	+20.38
9	12/22/75	Long	72.02	+12.68	+33.26
10	1/12/76	Short	71.40	- .62	+32.64
	1/26/76	Close*	68.90	+ 2.50	+35.14

*Open Equity

Notice how the stop closes in on the price relative to the time in trade.

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SECTION III

VOLATILITY

THE VOLATILITY INDEX

What is volatility? Most traders will define volatility in terms of market action. If a market is very active, it is volatile. If a market is inactive, it is considered non-volatile. It is easy enough to look at a chart and point out a very volatile market or a very non-volatile market, but how does the trader get a handle on volatility? How can volatility be defined?

The one thing that is directly proportional to volatility is **range**. Range can be defined as the distance the price moves per increment of time.

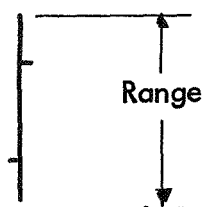


Fig. 3.1

In the time bar Fig. 3.1, it is obvious that the range is simply the distance from the highest point to the lowest point of the bar.

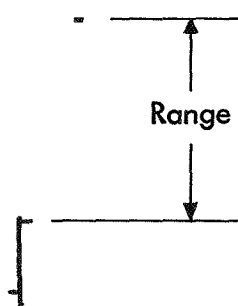


Fig. 3.2

Suppose, however, that as in time bar Fig. 3.2, the price is limit; i.e., either limit up or limit down. In this case, all trades for the day, if any, were made at one price. Would the range then, for a limit day, be zero? Obviously not. If the price has

moved as far as it can move in a time period, it certainly would not have a value of zero. The real price range is, in this case, the distance from the previous close to the limit price. By using this distance, we have given the range for time bar Fig. 3.2 the largest value it could have, which is appropriate. It follows then, that the **TRUE RANGE** to use in describing volatility is the maximum range that the price moved — either during the day or from yesterday's close to the extreme point reached during the day. Therefore, the **TRUE RANGE** is defined as the **greatest** of the following:

- (1) The distance from today's high to today's low.
- (2) The distance from yesterday's close to today's high, or
- (3) The distance from yesterday's close to today's low.

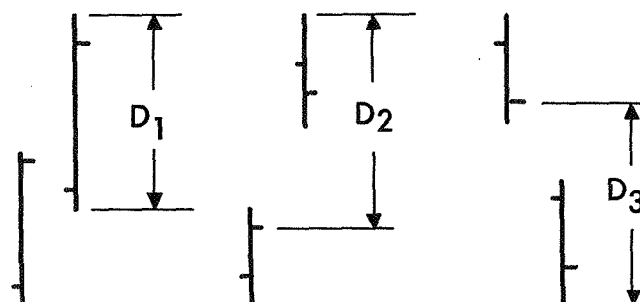


Fig. 3.3

In order for range to be a meaningful tool as a measure of volatility, more than one day's range must be considered. The answer is to consider an **average** of the true range **made per day** over a number of days. A volatility indicator will be fast or slow, depending on the number of days used to obtain the average daily true range. How many days should be used to obtain the average daily true range? After extensive testing, I have found that about 14 days gives the best indicator of volatility to use for the **VOLATILITY INDEX**.

The VOLATILITY INDEX (VI) is used along with the Directional Movement Index to compute the Commodity Selection Index.

The equation for the VOLATILITY INDEX is:

$$VI_{\text{Today}} = \frac{13 \times VI_{\text{Previous}} + TR_1}{14}$$

Where TR_1 is today's true range

The numerator in this equation is also used in the Directional Movement Index and the same

equation with different constants is explained in the Volatility System which follows.

In the Volatility System, we use a seven day true range average (rather than a 14-day true range average) because this system needs a faster acting average true range than the Volatility Index. The procedure for solving this equation is the same regardless of the number of days used for the average. We will therefore explain in detail the procedure for solving the seven day equation in the next chapter.

THE VOLATILITY SYSTEM

The Volatility System is a trend-following system. It is also a true reversal system which means that the position is reversed at every stop. This system is extremely simple to follow.

Before we discuss the mechanics of the Volatility System, we must learn to calculate the AVERAGE TRUE RANGE. The ATR is the basic unit of measurement for the system. The ATR is based upon seven day's TRUE ranges. We learned how to obtain the TRUE RANGE for one day (TR_1) in the previous chapter. We will now learn how to calculate the AVERAGE TRUE RANGE (ATR.)

The equation for the AVERAGE TRUE RANGE is as follows:

$$ATR_{Latest} = \frac{6 \times ATR_{previous} + \text{Today's True Range}}{7}$$

or

$$ATR_L = \frac{6 \times ATR_p + TR_1}{7}$$

To get the ATR **Initially**, add the true range, as defined, for the past seven days and divide by seven. The answer from this will be used as the ATR_p in the equation for the next day. The following table will illustrate how to calculate the ATR on a daily basis:

Table 3.4

Date	Open	High	Low	Close	Range	ATR	
1/1	50.00	51.20	49.80	50.90	1.40	10.00 7 = 1.43	high to low
1/2	50.70	51.80	50.30	51.50	1.50		high to low
1/3	51.70	52.90	51.70	52.80	1.40		close to high
1/4	52.50	53.70	52.30	53.50	1.40		high to low
1/5	53.60	54.80	53.50	54.70	1.30		high to low
1/6	54.40	54.40	52.90	53.00	1.80		close to low
1/7	52.90	53.20	52.00	52.00	1.20		high to low
1/8	52.00	52.70	52.00	52.20	.70	1.33	high to low

Starting **Initially**, we add the True Ranges for the first seven days and obtain a total of 10.00.

$$9.90 \div 7 = 1.43 \text{ which is the ATR for day 1/7}$$

From now on, we use the ATR equation:

$$ATR_L = \frac{6 \times ATR_p + TR_1}{7}$$

At the end of Day 1/8, the previous ATR is 1.41; therefore:

$$ATR_L = \frac{6 \times 1.43 + .70}{7} = \frac{8.58 + .70}{7} = 1.33$$

Now let's review the procedure for calculating the ATR (Average True Range) on a daily basis. Initially, the ATR is obtained by taking the sum of the ranges for the first seven days and dividing this entire quantity by seven. This gives the ATR for the seventh day. For the eighth day; and thereafter, simply use the ATR for the previous day, multiply it by six, add the true range for the latest day and divide this quantity by seven. By obtaining the ATR in this manner, we only have to keep up with data for the previous day.

Now that we know how to obtain the ATR, there is one thing left to do to make this quantity usable in the Volatility System, and this is to multiply the ATR by a constant (C).

I have found that the multiplier that works best is about 3.0. The range for this constant is 2.8 to 3.1. If you wish to individualize this system (as set out in the Introduction) any constant within this range will work quite well. By multiplying this constant, 3.00, times the ATR, we obtain a number which we will call the ARC (Average Range times Constant). Note that the ARC is directly proportional to the ATR and therefore is directly proportional to volatility. As volatility increases, the ARC increases, and as volatility decreases, the ARC decreases.

In Table 3.4, the open price was listed with the high, low and close prices; however, it was not used in any of the calculations. In following the system on a daily basis, it will be helpful to tabulate the open price which may be pertinent in the case of a gap opening.

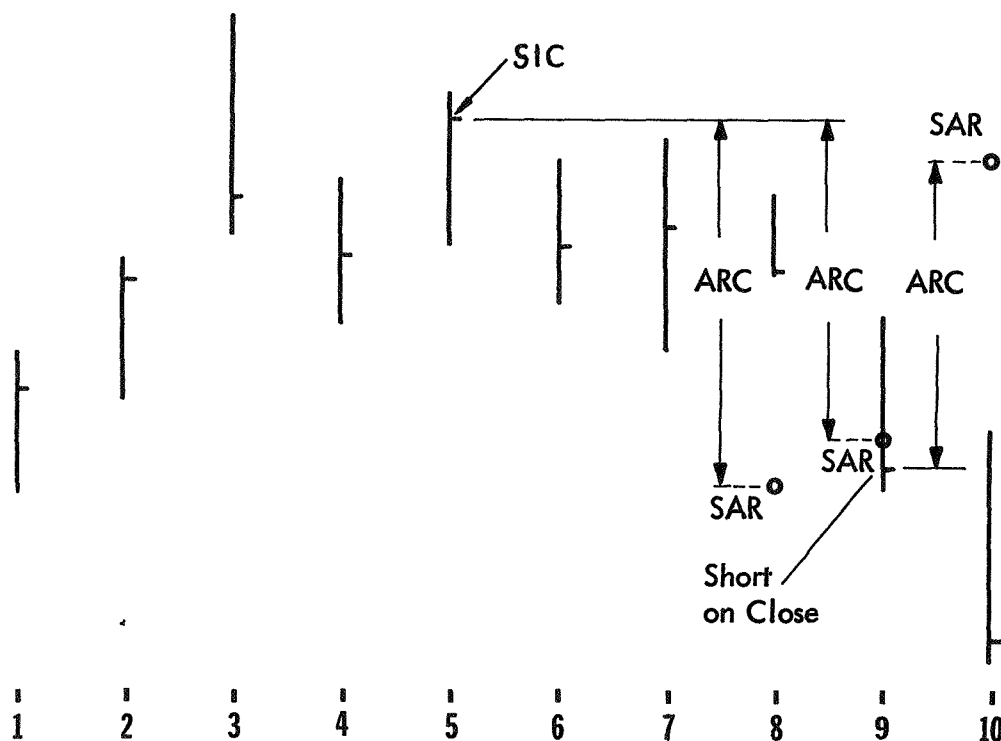


Fig. 3.5

Now let's define the Volatility System:

A position is exited and reversed at a distance of one ARC from the SIC (extreme favorable CLOSE reached while in a trade.)

In Fig. 3.5, the price is going up and making new highs almost every day. We obtain for the previous seven days, the high, low and close prices for the particular contract we want to follow. With this information, the ARC is calculated for the seventh day. Next we take the high CLOSE for the seven day period, the SIC, and **subtract** from it the numerical value of the ARC for that day. This will be the SAR (Stop and Reverse point) to use for the **eighth** day. Let's say that on the ninth day, the price retraces and closes

below the SAR, reversing us to a *Short* position. We **add** the ARC distance to the close price (as it is the lowest close since entering the trade) and obtain the SAR for the *Short* trade for the tenth day.

Now let's assume that the *Short* trade moves in our favor and the price continues to go down. We continue to use the ARC distance from the **lowest close** made while in the trade as the SAR until we are stopped and reversed on the first close **above** the ARC distance point (SAR).

Suppose the volatility increases and we are not stopped out of the trade. The ARC distance could increase more than the previous day's ARC distance and push the stop further away from the price. This is okay — when the volatility increases, the system automatically compensates and pushes the stop further away from the extreme favorable close point. This is the nice thing about this system — it is relative both to the extreme close price reached while in the trade and also relative to volatility. If the price becomes very volatile, the SAR compensates by lengthening relative to the increased volatility, yet it remains a function of the most extreme close price reached while in the trade. Conversely, when the market cools down, the volatility decreases and the stop moves closer to the trading price.

To continue with the *Short* trade, let's say the price moves favorably for two or three weeks and then closes above the ARC distance SAR. The new SAR for the *Long* position for the next day is then the ARC distance below the most favorable close . . . in this case, the close at which we reversed.

In trading this system on a daily basis, it is not necessary to draw charts. All the information needed is on the work sheet. I find it helpful to put parenthesis around the Significant Closes (SICs) as a point of reference.

That's all there is to the VOLATILITY SYSTEM. However, don't let the simplicity of the system fool you. The key point, which is the SAR (Stop and Reverse) is relative to the extreme close price and also relative to volatility. It compensates automatically when the price slows down or speeds up. The Constant, C, multiplier of the Average True Range, ATR, is gauged to keep the trader in the trade as long as the trend is intact. It allows for retracements or reactions but it is also gauged to reverse the position when the price has reacted enough to indicate a change in direction of the major trend. If the trend should resume in the same direction, the trader is automatically reversed at the ARC SAR and put right back in the direction of the trend.

Following are the rules set out for quick reference. An example worked out on the work sheet and a corresponding chart are also included. By following the work sheet and chart, a complete understanding of the system should be grasped very quickly.

THE VOLATILITY SYSTEM

DEFINITIONS:

1. TRUE RANGE is the greatest of the following:
 - A. Today's high to today's low.
 - B. Today's high to yesterday's close, or
 - C. Today's low to yesterday's close.
2. ATR — AVERAGE TRUE RANGE
 - A. Initially obtained by adding the true ranges for seven days and dividing by seven.
 - B. The latest ATR is obtained by multiplying the previous ATR by six, adding today's true range and then dividing the total by seven.
3. C — CONSTANT Any number between 2.80 and 3.10.
4. ARC — The ATR multiplied by the Constant C.
5. SIC — The Significant Close; the extreme favorable close price reached while in a trade.
6. SAR — The Stop and Reverse point; a point defined by the ARC distance from the SIC.

RULES

1. ENTRY is made on the Close when the price closes contrary to the SAR.
2. STOP AND REVERSE (SAR)
 - A. From *Long* to *Short*: on the Close when the close is below the ARC distance point from the highest close made while in the trade. That is, when the close is **below** the SAR.
 - B. From *Short* to *Long*: On the Close when the close is above the ARC distance point from the lowest close made while in the trade. That is, when the close is **above** the SAR.

DAILY WORK SHEET

VOLATILITY SYSTEM

COMMODITY**CONTRACT MONTH**

DATE	OPEN	HIGH	LOW	CLOSE	TR ₁	ATR	ARC	SAR	ACTION and ORDER
1	52.80	53.00	52.50	52.70	.50	4.05 ÷ 7 = .58			
2	52.60	52.75	52.25	52.55	.50				
3	52.00	52.35	51.85	(52.30)	.70				
4	52.20	52.45	52.15	52.40	.30				
5	52.10	52.35	51.75	51.90	.65				
6	51.90	52.10	51.50	51.65	.60				
7	51.50	51.80	51.00	(51.10)	.80		.58	1.74	
8	51.15	51.60	51.25	51.55	.50	.57	1.71	52.84	
9	51.50	51.70	51.40	51.65	.30	.53	1.59	52.81	
10	51.60	51.60	51.10	51.15	.55	.53	1.59	52.69	
11	51.00	51.40	50.75	(50.75)	.65	.55	1.65	52.69	
12	51.35	51.75	51.35	51.65	1.00	.61	1.83	52.40	
13	51.70	51.90	51.40	51.80	.50	.59	1.77	52.58	
14	51.60	51.70	51.15	51.55	.65	.60	1.80	52.52	
15	51.55	51.80	51.50	51.80	.30	.56	1.68	52.55	
16	51.90	52.50	51.80	52.50	.70	.58	1.74	52.43	L- 52.50
17	52.40	52.70	52.10	(52.70)	.60	.58	1.74	50.76	
18	52.20	52.45	52.00	52.10	.70	.60	1.80	50.96	
19	52.00	52.65	51.50	52.65	1.15	.68	2.04	50.90	
20	52.50	52.95	52.40	52.90	.55	.66	1.98	50.66	
21	53.10	53.60	53.05	53.55	.70	.67	2.01	50.92	
22	53.95	54.50	53.80	54.50	.95	.71	2.13	51.54	
23	55.20	55.70	55.00	55.55	1.20	.78	2.34	52.37	
24	57.55	57.55	57.55	57.55	2.00	.95	2.85	53.21	
25	57.90	58.55	57.90	(58.55)	1.00	.96	2.88	54.70	
26	57.75	57.75	57.30	57.65	1.25	1.00	3.00	55.67	
27	57.50	58.05	57.15	57.95	.90	.99	2.97	55.53	
28	57.80	57.90	57.45	57.80	.50	.92	2.76	55.58	
29	58.00	58.30	57.85	58.20	.50	.86	2.85	55.79	
30	58.45	58.65	57.75	58.65	.90	.87	2.61	55.97	
31	57.80	57.80	57.00	57.30	1.65	.98	2.94	56.04	
32	57.00	57.15	56.25	56.60	1.05	.99	2.97	55.71	
33	56.30	56.35	55.35	56.30	1.25	1.03	3.09	55.68	
34	56.20	56.60	56.05	56.60	.55	.96	2.88	55.56	
35	56.50	57.25	56.40	57.25	.85	.94	2.82	55.77	
36	57.25	57.50	57.00	57.50	.50	.88	2.64	55.83	
37	57.50	57.50	57.25	57.25	.25	.79	2.37	56.01	
38	57.00	57.15	56.50	56.60	.75	.78	2.34	56.28	
39	56.50	56.60	56.25	56.45	.35	.72	2.16	56.31	
40	56.50	56.90	56.45	56.90	.45	.68	2.04	56.49	
41	57.00	57.25	56.75	57.10	.50	.65	1.95	56.61	
42	57.40	57.60	57.00	57.40	.60	.64	1.92	56.70	
43	57.20	57.25	56.90	57.05	.50	.62	1.86	56.73	
44	57.25	58.00	57.25	57.90	.95	.67	2.01	56.79	
45	58.00	58.50	57.00	57.00	1.50	.79	2.37	56.64	
46	56.50	56.50	55.50	56.05	1.50	.89	2.67	56.22	S- 56.05
47	56.00	56.35	55.75	55.85	.60	.85	2.55	58.72	
								58.40	

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52.50

56.05

WORK SHEET EXAMPLE

(1) (4) (7) (10) (13) (16) (19) (22) (25) (28) (31) (33) (36) (39) (42) (45) (48)

WORK SHEET EXAMPLE

- Day 7** The sum of the True Ranges for the first seven days equals 4.05; divided by 7 equals .58, times 3.00 equals 1.74. Since the market is in a down trend, we are looking for a point to go *Long*. Therefore, assuming a present *Short* trade, we add 1.74 to the lowest close of 51.10, giving a SAR of 52.84 which we put in the SAR column for Day 8.
- Day 8** Using the ATR equation, we multiply the previous ATR by 6, add TR_1 , which is .50 and obtain 3.98. We divide 3.98 by 7 and obtain the ATR of .57 times 3.00 which equals 1.71. Adding 1.71 to the lowest close of 51.10 gives 52.81 as the SAR for Day 9. We repeat this procedure until the price closes above the SAR, at which point we will take a *Long* position.
- Day 16** The price closes above the SAR and we go *Long* on the close at 52.50. After the market closes, we calculate the ARC and subtract it from the highest close (the HI SIC) since entering the trade, which is the close today of 52.50. The SAR for Day 17 is $52.50 - 1.74 = 50.76$.
- Day 33** The price penetrated the SAR but closed above the SAR, so we are still *Long*. Notice how the SAR backs up to compensate for increased volatility after a new high has been made. Notice also that the SAR moves **in the direction** of the trade to compensate for decreased volatility.
- Day 46** The price closed below the SAR and we reversed the position to *Short* on the close at 56.05. We compute the ARC and add it to 56.05 to obtain the SAR for Day 47 of 58.72.

On the following pages are charts showing this system in actual markets. This system does not make as many trades as the other systems in this book. The VOLATILITY SYSTEM is designed to pick up and hold on to the long-term moves.

It should be traded in those markets that are high on the COMMODITY SELECTION INDEX (Explained in Section IX).

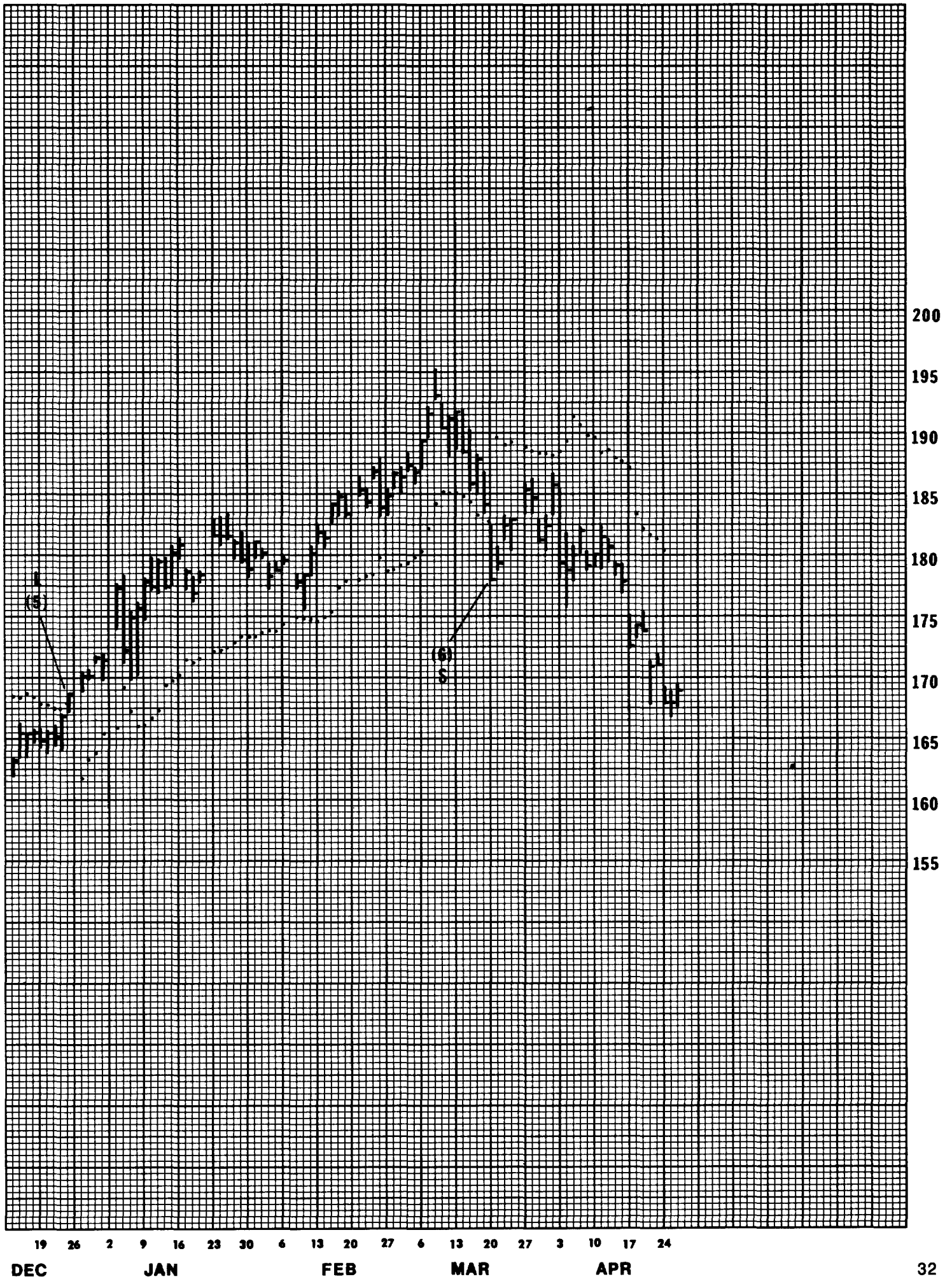
June 1978 Comex Gold

(Volatility System)

Trade No.	Date	Position	Price	P & L	Accum
1	7/13/77	Long	151.90		
2	8/12/77	Short	150.30	- 1.60	
3	8/26/77	Long	153.00	- 2.70	- 4.30
4	11/16/77	Short	164.60	+11.60	+ 7.30
5	12/23/77	Long	169.00	- 4.40	+ 2.90
6	3/20/78	Short	178.50	+ 9.50	+12.40
Open equity on close 4/26/78			169.40	+ 9.10	+21.50

Notice how the stop moves away from the price to compensate for increased volatility and then closes in toward the price when the range decreases.





April 1978 Live Cattle

(Volatility System)

Trade No.	Date	Position	Price	P & L	Accum
1	4/27/77	Short	44.82		
2	6/20/77	Long	42.05	+ 2.77	
3	7/12/77	Short	40.32	- 1.73	+ 1.04
4	9/ 8/77	Long	37.97	+ 2.35	+ 3.39
5	3/28/78	Out	53.67	+15.70	+19.09

Trade was exited on close on the last trading day for April Cattle.

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APR '77

MAY

JUN

JUL

AUG

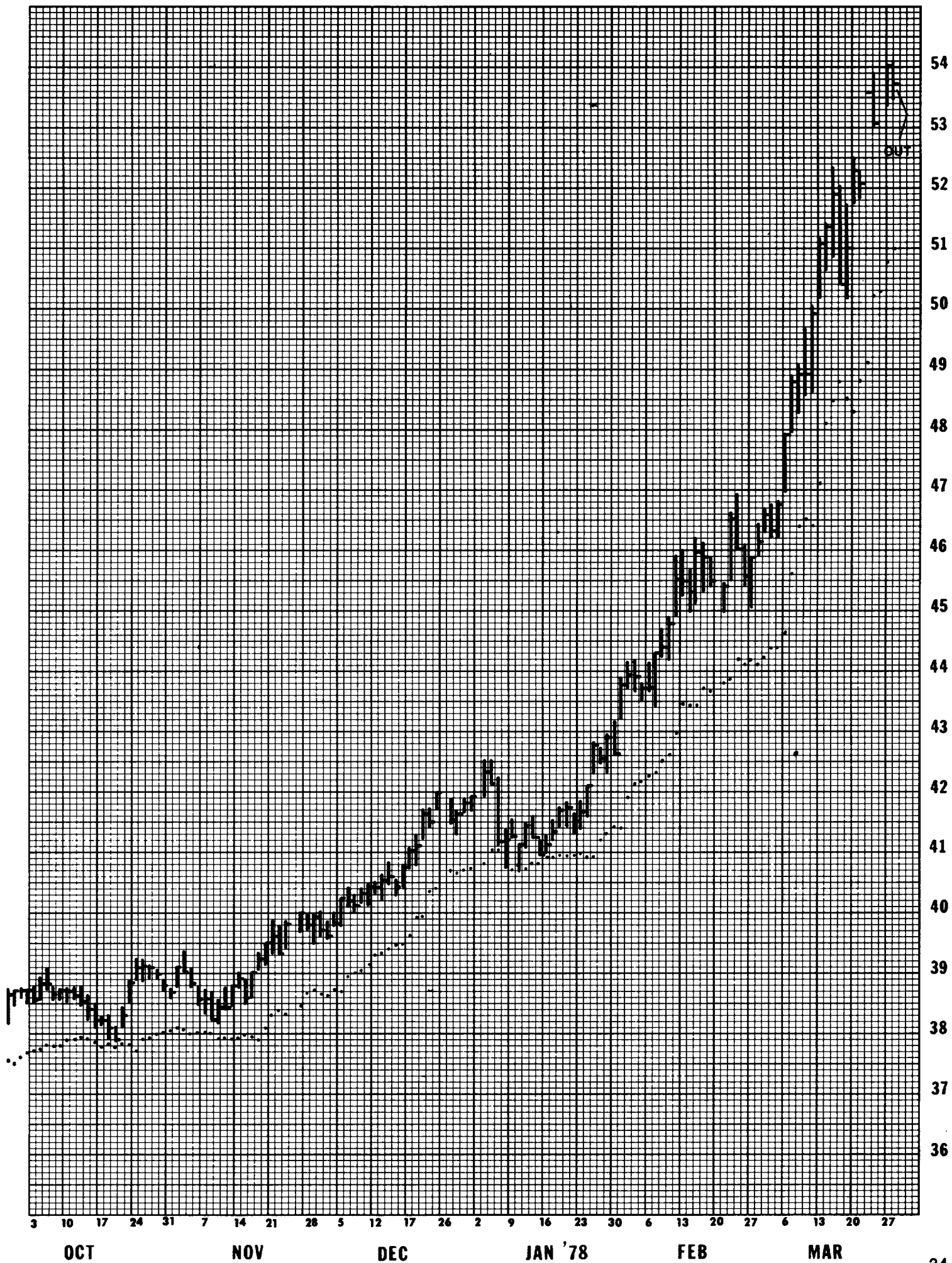
SEP

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