

PERKINS

CAPITAL

MANAGEMENT, INC.

January 26, 2000

Dear PCM Client:

On December 31, 1999 Perkins Capital Management finished its 15th year in business as an investment manager. As we enter our 16th year we hope we can have as much fun and do as well as we have the past 15 years.



Perk and Dan started the firm after Perk resigned from an 18½-year career at Piper Jaffray and Hopwood. As you may know, Perk and Mort Silverman started Piper Jaffray's research and institutional sales department in May 1966 and it grew and grew and grew. Perk and Mort called clients in the morning (prospecting at first), companies in the afternoon, and wrote research reports in the evening. As it grew, associates were hired. In 1970, Perk started traveling to the United Kingdom and Continental Europe, offering research on Upper Midwest companies. At about that time the department had grown large enough to split it into the traditional research and sales departments, rather than a research/sales boutique. Perk opted to stay with sales, while Mort and others went the research route. Later George Meeks joined him, from what was then Dain Bosworth, and they covered the foreign accounts together. Perk had several other partners assisting him with domestic accounts, but Rob Gilman was the young man who really spent more years with Perk than anyone else. The foreign team continued to grow through the addition of Robin Gibson and Bruce Aamoth, and there were others who joined domestic sales. Likewise, additional analysts were hired and both research and sales grew and grew and grew. As the department expanded there were more meetings and the necessity to work within a more structured environment as opposed to the more entrepreneurial mode of

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INVESTMENT MANAGEMENT

doing it all - - research and sales. But Perk is more comfortable as a big frog in a small pond. His son, Dan, who had graduated from the University of Colorado, and then went to work for Modern Merchandising as an auditor, had gone back to the University of Minnesota for a masters degree after Modern had been sold to Best Products and the headquarters moved to the East. When he graduated in the spring of 1984, they decided to start an asset management firm. Perk resigned from Piper Jaffray on October 1 and the doors of Perkins Capital Management opened January 2, 1985 in about 1,250 feet of office space. And it grew too, with a move to 2,500 square feet a few years later and to our own 5,000 square foot building in November 1993. Perk's other son, Dick, joined the firm in June of 1990. He had graduated from Colby College, worked with General Mills as a grain trader and had a 12-year career at Piper Jaffray in investments. Harry Lindberg, a vice president and portfolio manager joined the firm in 1987; Harry had started his investment career with Merrill Lynch. Chris Dvorak, our technical analyst, who worked with Perk at Piper Jaffray, came aboard early on, and Nancy Lindberg (now Harry's wife), was also at Piper Jaffray and an early Perkins Capital employee, when her last name was Stendahl. As you can see we had an office romance, and the Lindbergs are now blessed with two handsome young boys, Tommy (age 9) and Andy (age 6). And we grew some more.

We have had our days in the sun, especially 1991, and 1995 and again in the last quarter of 1999 and on into the year 2000. There have also been days of disappointment, when we were down in 1993 and 1994 and more recently in 1997 and 1998. Now, however, we are in clover again, as the stocks that we specialize in are for the most part doing very well and look to us as though they can continue their uptrends for some time to come.

We started Perkins Capital with a handful of non-institutional individual accounts which Perk had at Piper Jaffray, many of which were given to him when his friend Dick Spurzem retired at age 50, nearly 25 years ago. When we started the value of the accounts was less than \$10 million. We won't mention the names of those clients, but they are all still with us - - through the good times and the bad and when they read this they will know who they are. We thank them, and all of the others who put their trust in us by putting the management of their money into our hands. We work hard, but make mistakes too. Going forward into our next 15 years, we pledge to do the very best that we can.

THE DECOY AUCTION OF THE CENTURY

We assume most of our readers are aware of Perk's passion for decoy collecting. He goes to 3, 4 or 5 auctions each year, and has long ago run out of space to keep them. He has them all over PCM's office, throughout his house and they are now overflowing to Dumbbell Lodge, the Perkins' Northern Minnesota hideaway. Many folks are not aware of decoy folk art, a huge area of collectibles. Many decoys, especially those of old well recognized carvers, in good condition, and limited numbers, command very high prices. Perk witnessed the sale of a shorebird for \$335,000 at a July 1998 auction at Ogunquit, Maine. The most important auction of all time took place in New York City at Sotheby's on January 22 and 23. Perk was there and saw a Canadian goose sell for \$682,000. This was an exceptional goose (it really was) carved about 1917 by A. Elmer Crowell of East

Harwick, MA. Crowell was one of many exceptional carvers in an era long gone by, commissioned by wealthy individuals to carve life-like decoys for their hunting spreads. They were called "counterfeit wildfowl" and became essential when the use of live decoys was prohibited. This particular goose was in a sleeping position, the only such goose ever carved by Crowell. And despite its age, it was in pristine condition, hence the high price. Like coins, stamps, art or any other collectible it's the condition, age and artist that determines the price. Also, perhaps, the "heat" of the auction moment!

This Sotheby's auction, conducted jointly with the premier decoy auction firm, Guyette & Schmidt, consisted of the collection of Dr. James McCleery, a pathologist from Pasadena, TX, who had been confined to a wheelchair during his entire career, but whom, nonetheless, had become so successful in his practice that he had the money and the time to amass the finest collection of decoys in the world. Dr. McCleery died in January 1999 and his family decided to sell his collection to other enthusiasts who will enjoy them. Did Perk buy any? That's a secret, but when he left he said he wasn't going to because they would sell at "New York" prices and just that alone would lift the value of his collection.

At Perkins Capital we have acquired a new decoy - - actually a hanging sculpture - - a life-sized Trumpeter Swan, sporting an 8' 6" wingspread. It was carved by Mike Valley of Prairie Du Chien, WI, and Perk bought it to hang in the PCM vaulted entryway. Stop by to view it sometime.

THE MARKET YEAR 2000

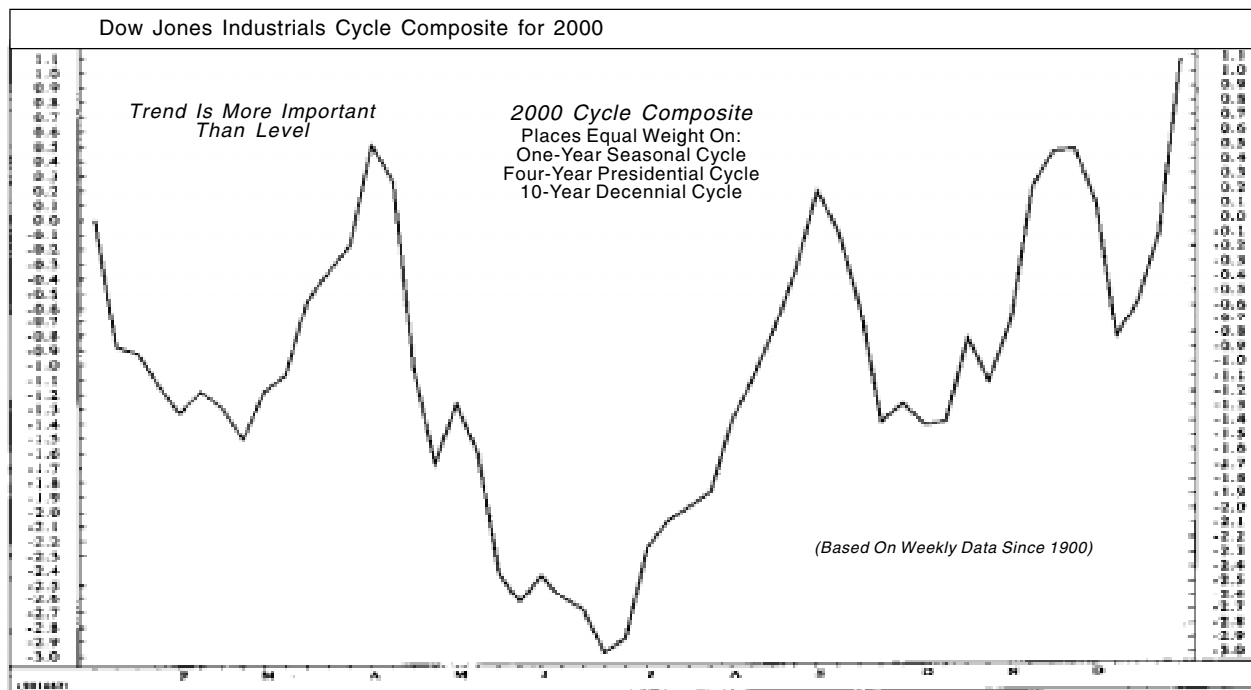
The professional investment community is traditionally divided into two distinct camps - - fundamentalists and technicians - - or, if you wish, fundamental analysts and technical analysts. And there are subdivisions of each of those, e.g., fundamental value analysts, fundamental growth analysts and so on. Technical analysis has its subdivisions into momentum followers, chartists, wavers, etc. The dean of the fundamental analysts was Benjamin Graham, who, along with David L. Dodd and Sidney Cottle, wrote *Security Analysis* many years ago in 1934. The most famous practitioner of Graham's methods is Warren Buffett, who in fact once worked for the master. On the technical front, John Magee is considered to have written the bible, *Technical Analysis of Stock Trends*, with Robert Edwards in 1948. Chart formations, it seems, repeat similarly whether in 1900, 1950 or 2000; theoretically the knowledge and information available to all who invest or trade determine the repetitive patterns, through the expression of all that is known or unknown, including the emotions of the participants. Perk never met Ben Graham, but visited Buffett when he was an analyst/salesman in the late 60s, covering accounts in Omaha for Piper Jaffray. He knew the late John Magee and traveled to Springfield, MA, many times to see him. John always worked in a windowless office because he didn't want anything outside, such as nice weather or bad weather, to influence his decisions. Other famous technical wizards were Charles Dow, W.D. Gann, George Lindsay and Edson Gould, all of whom are now deceased, and of course, Robert Prechter, the Elliott Wave Theorist, who is very much alive. Dow, of course, was the originator of The Dow Theory, and Gann was famous for his ability to predict events through his Gann Square.

DECLINES INTO 10 th YEARS & FOLLOWING RISES				
<u>Start Of Decline</u>	<u>% Decline</u>	<u>End Of Decline</u>	<u>Next High</u>	<u>% Rise</u>
5/17/1890	-22.6%	12/8/1890	3/4/1892	+30.3%
9/5/1899	-31.8%	9/24/1900	6/17/1901	+47.8%
11/19/1909	-26.8%	7/26/1910	6/19/1911	+18.3%
11/3/1919	-44.2%	12/21/1920	5/5/1921	+19.9%
9/3/1929	-58.7%	12/16/1930	2/24/1931	+23.4%
9/12/1939	-28.3%	6/10/1940	11/9/1940	+23.5%
6/12/1950	-13.5%	7/13/1950	1/5/1953	+48.8%
1/5/1960	-17.4%	10/25/1960	12/13/1961	+29.8%
7/3/1969	-28.8%	5/26/1970	4/28/1971	+50.6%
2/13/1980	-16.0%	4/21/1980	4/27/1981	+34.9%
7/17/1990	-21.2%	10/11/1990	1/31/1994	+68.2%
Averages				
1/14 of 10 th yrs	-28.1%	9/03 of 10 th yrs	13.9 Mos.	+36.0%

Source: Growth Fund Research, Inc.

Following that decline, which has averaged 28% since 1890, a rise into the next year has occurred in seven instances, averaging 36%. Will we get a 10th year decline in 2000? We think there is little doubt about it. When will it start? Probably in June, if the three peaks and a domed house pattern is able to predict the top of this market. If this all does come to pass we would likely see a decline that would end sometime in 2000, with then a rally back into 2001, and another decline sometime during that year, another rally, and then a final decline into a bottom in 2002, in keeping with the Captain and the Kings theory.

Usually in our January letter we print the market prognostication of market guru Ned Davis. His prediction is a combination of the one-year, four-year and ten-year cycles, and is shown below. It looks to be close to our forecast, although his top is at the end of March and his bottom in June. We like our scenario better.



Our readers probably won't be surprised to learn that we don't buy the idea that January 1, 2000 was the beginning of the new millennium. That has been reserved for January 1, 2001. Just look at the table of years shown below, which we borrowed from the *New York Times* and reduced in size to the point where you almost can't read it, but if you squint and look really hard you will see that the first year in this millennium was 1 001. Therefore, the first year of this coming millennium must be 2001. How else could it be? The very first year of all was not "O" - - it was "1." So, indulge us. We are going to have our own millennium party at the end of 2000, probably at the time of Perk's 70th birthday, which is on Friday, December 29, the last business day of this millennium. Stay tuned.

THE 1000 YEAR COUNTDOWN

1001	1061	1121	1181	1241	1301	1361	1421	1481	1541	1601	1661	1721	1781	1841	1901	1961
1002	1062	1122	1182	1242	1302	1362	1422	1482	1542	1602	1662	1722	1782	1842	1902	1962
1003	1063	1123	1183	1243	1303	1363	1423	1483	1543	1603	1663	1723	1783	1843	1903	1963
1004	1064	1124	1184	1244	1304	1364	1424	1484	1544	1604	1664	1724	1784	1844	1904	1964
1005	1065	1125	1185	1245	1305	1365	1425	1485	1545	1605	1665	1725	1785	1845	1905	1965
1006	1066	1126	1186	1246	1306	1366	1426	1486	1546	1606	1666	1726	1786	1846	1906	1966
1007	1067	1127	1187	1247	1307	1367	1427	1487	1547	1607	1667	1727	1787	1847	1907	1967
1008	1068	1128	1188	1248	1308	1368	1428	1488	1548	1608	1668	1728	1788	1848	1908	1968
1009	1069	1129	1189	1249	1309	1369	1429	1489	1549	1609	1669	1729	1789	1849	1909	1969
1010	1070	1130	1190	1250	1310	1370	1430	1490	1550	1610	1670	1730	1790	1850	1910	1970
1011	1071	1131	1191	1251	1311	1371	1431	1491	1551	1611	1671	1731	1791	1851	1911	1971
1012	1072	1132	1192	1252	1312	1372	1432	1492	1552	1612	1672	1732	1792	1852	1912	1972
1013	1073	1133	1193	1253	1313	1373	1433	1493	1553	1613	1673	1733	1793	1853	1913	1973
1014	1074	1134	1194	1254	1314	1374	1434	1494	1554	1614	1674	1734	1794	1854	1914	1974
1015	1075	1135	1195	1255	1315	1375	1435	1495	1555	1615	1675	1735	1795	1855	1915	1975
1016	1076	1136	1196	1256	1316	1376	1436	1496	1556	1616	1676	1736	1796	1856	1916	1976
1017	1077	1137	1197	1257	1317	1377	1437	1497	1557	1617	1677	1737	1797	1857	1917	1977
1018	1078	1138	1198	1258	1318	1378	1438	1498	1558	1618	1678	1738	1798	1858	1918	1978
1019	1079	1139	1199	1259	1319	1379	1439	1499	1559	1619	1679	1739	1799	1859	1919	1979
1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	1620	1680	1740	1800	1860	1920	1980
1021	1081	1141	1201	1261	1321	1381	1441	1501	1561	1621	1681	1741	1801	1861	1921	1981
1022	1082	1142	1202	1262	1322	1382	1442	1502	1562	1622	1682	1742	1802	1862	1922	1982
1023	1083	1143	1203	1263	1323	1383	1443	1503	1563	1623	1683	1743	1803	1863	1923	1983
1024	1084	1144	1204	1264	1324	1384	1444	1504	1564	1624	1684	1744	1804	1864	1924	1984
1025	1085	1145	1205	1265	1325	1385	1445	1505	1565	1625	1685	1745	1805	1865	1925	1985
1026	1086	1146	1206	1266	1326	1386	1446	1506	1566	1626	1686	1746	1806	1866	1926	1986
1027	1087	1147	1207	1267	1327	1387	1447	1507	1567	1627	1687	1747	1807	1867	1927	1987
1028	1088	1148	1208	1268	1328	1388	1448	1508	1568	1628	1688	1748	1808	1868	1928	1988
1029	1089	1149	1209	1269	1329	1389	1449	1509	1569	1629	1689	1749	1809	1869	1929	1989
1030	1090	1150	1210	1270	1330	1390	1450	1510	1570	1630	1690	1750	1810	1870	1930	1990
1031	1091	1151	1211	1271	1331	1391	1451	1511	1571	1631	1691	1751	1811	1871	1931	1991
1032	1092	1152	1212	1272	1332	1392	1452	1512	1572	1632	1692	1752	1812	1872	1932	1992
1033	1093	1153	1213	1273	1333	1393	1453	1513	1573	1633	1693	1753	1813	1873	1933	1993
1034	1094	1154	1214	1274	1334	1394	1454	1514	1574	1634	1694	1754	1814	1874	1934	1994
1035	1095	1155	1215	1275	1335	1395	1455	1515	1575	1635	1695	1755	1815	1875	1935	1995
1036	1096	1156	1216	1276	1336	1396	1456	1516	1576	1636	1696	1756	1816	1876	1936	1996
1037	1097	1157	1217	1277	1337	1397	1457	1517	1577	1637	1697	1757	1817	1877	1937	1997
1038	1098	1158	1218	1278	1338	1398	1458	1518	1578	1638	1698	1758	1818	1878	1938	1998
1039	1099	1159	1219	1279	1339	1399	1459	1519	1579	1639	1699	1759	1819	1879	1939	1999
1040	1100	1160	1220	1280	1340	1400	1460	1520	1580	1640	1700	1760	1820	1880	1940	2000
1041	1101	1161	1221	1281	1341	1401	1461	1521	1581	1641	1701	1761	1821	1881	1941	
1042	1102	1162	1222	1282	1342	1402	1462	1522	1582	1642	1702	1762	1822	1882	1942	
1043	1103	1163	1223	1283	1343	1403	1463	1523	1583	1643	1703	1763	1823	1883	1943	
1044	1104	1164	1224	1284	1344	1404	1464	1524	1584	1644	1704	1764	1824	1884	1944	
1045	1105	1165	1225	1285	1345	1405	1465	1525	1585	1645	1705	1765	1825	1885	1945	
1046	1106	1166	1226	1286	1346	1406	1466	1526	1586	1646	1706	1766	1826	1886	1946	
1047	1107	1167	1227	1287	1347	1407	1467	1527	1587	1647	1707	1767	1827	1887	1947	
1048	1108	1168	1228	1288	1348	1408	1468	1528	1588	1648	1708	1768	1828	1888	1948	
1049	1109	1169	1229	1289	1349	1409	1469	1529	1589	1649	1709	1769	1829	1889	1949	
1050	1110	1170	1230	1290	1350	1410	1470	1530	1590	1650	1710	1770	1830	1890	1950	
1051	1111	1171	1231	1291	1351	1411	1471	1531	1591	1651	1711	1771	1831	1891	1951	
1052	1112	1172	1232	1292	1352	1412	1472	1532	1592	1652	1712	1772	1832	1892	1952	
1053	1113	1173	1233	1293	1353	1413	1473	1533	1593	1653	1713	1773	1833	1893	1953	
1054	1114	1174	1234	1294	1354	1414	1474	1534	1594	1654	1714	1774	1834	1894	1954	
1055	1115	1175	1235	1295	1355	1415	1475	1535	1595	1655	1715	1775	1835	1895	1955	
1056	1116	1176	1236	1296	1356	1416	1476	1536	1596	1656	1716	1776	1836	1896	1956	
1057	1117	1177	1237	1297	1357	1417	1477	1537	1597	1657	1717	1777	1837	1897	1957	
1058	1118	1178	1238	1298	1358	1418	1478	1538	1598	1658	1718	1778	1838	1898	1958	
1059	1119	1179	1239	1299	1359	1419	1479	1539	1599	1659	1719	1779	1839	1899	1959	
1060	1120	1180	1240	1300	1360	1420	1480	1540	1600	1660	1720	1780	1840	1900	1960	

HOW NOW NEW DOW?

When Charles Dow created the Dow Jones Average in May 1896, it consisted of 12 stocks. Only one of those stocks is still in the average today, General Electric. But even GE was dropped for awhile, in 1898, but put back in later as a replacement for Tennessee Coal and Iron. There was also a time when there were 15 stocks and another time when there were 20; it has consisted of 30 stocks since 1928. Some of the large, famous companies came along over time, as General Motors joined in 1915, and Sears in 1924. A latecomer, Disney, was added in 1991. Each time a name was added one had to be eliminated. In March of 1997, there was a big shift in the dynamics of the Dow when Hewlett Packard, Johnson & Johnson, Travelers and Wal-Mart replaced Bethlehem Steel, Texaco, Westinghouse Electric and Woolworth. This was the largest change in the DJIA in recent history. However, big change came again in November 1999 when Microsoft, Intel, Home Depot and SBC Communications were added; Microsoft and Intel were the first non-NYSE stocks ever admitted to the Dow. This was an attempt to replace Old Economy stocks (Chevron, Goodyear, Sears and Union Carbide were tossed out) with New Economy stocks. But what does this do to the Dow? Well, for one thing, it changes the P/E ratio as the average P/E of the New Economy stocks added is about 42, while the P/E of the Old Economy stocks leaving is about 30. Ditto for yield. Each of the stocks leaving paid a dividend resulting in a yield for the four of 2.8%; of the additions, Microsoft pays no dividend and Home Depot and Intel only a token one, resulting in a yield of less than 1% for the four. But the most visible result of this change might be to make the Dow more volatile. Why? Because the Dow is not a weighted average like all the others. Each component stock carries the same weight. To calculate the Dow the prices of all the component stocks are added up and divided by a "divisor," which originally was the number of stocks in the average. However, as changes were made in the composition of the average over the past 103 years the divisor has been adjusted each time to take price differences into account; the divisor is also adjusted when there is a stock split or stock dividend in a component company. Today the divisor is less than one (0.20145268), so it's actually a multiplier. Thus, every \$1 move in any Dow stock moves the average by 5 points. If all 30 stocks move \$1, the average moves about 150 points. Now it follows that higher priced stocks move up and down in larger dollar increments and since the new stocks sell at prices that are higher than the old ones the Dow could become more volatile.

Then there's another aspect also. What about the actual level of the Dow? *The New York Times* has calculated if the four new stocks had been added on March 14, 1997, when Bethlehem Steel, Texaco, Westinghouse Electric and Woolworth were replaced by Hewlett Packard, Johnson & Johnson, Travelers and Wal-Mart it would have been about 1500 points higher at the time of these new changes in November. All of this prompts us to repeat some of what we wrote in our April, 1997 letter when we commented about the March 17, 1997 change in the Dow's composition. We said then that there had been 30 changes in the composition of the Dow over the past 50 years, but many of them turned out to be real mistakes. We mentioned that one of the worst switches was the removal of RCA in May 1932 at the low of the market following the great crash and the substitution of Nash Motors. RCA, which had plunged from \$500 to \$5 ultimately went on to be one of the great electronic companies of this century, whereas Nash Motors went out of business

30 years later. Where would the Dow be today if that substitution had not been made? Obviously much higher. The all-time record for poor stock timing took place March 14, 1939 when IBM was taken out of the average and was replaced by AT&T. But on June 29, 1979 IBM had become such a success that it was put back into the average after a 40-year absence. During this period AT&T rose only 104%, where as IBM was up 21,843%. If that 1939 change had not been made, the Dow would have been at 14,000 rather than the 9,800 it was at back in March 1997. The point of all of this, of course, is that it remains to be seen whether these recent changes turn out to be good or bad for the Dow's performance. Maybe it is all academic anyway; we should be looking at weighted averages for honest performance numbers, not the lonely unweighted one.

RECENT E-MAIL

Thanks to the innovation of e-mail, we get many jokes and other stories/items of interest. One of the best of late is the following:

Things We Can Learn From A Dog

Never pass up the opportunity to go for a joyride.
 Allow the experience of fresh air and the wind in your face to be pure ecstasy.
 When loved ones come home, always run to greet them.
 When it's in your best interest, practice obedience.
 Let others know when they've invaded your territory.
 Take daily naps and always stretch after rising.
 Run, romp, and play daily.
 Eat with gusto and enthusiasm.
 Be loyal.
 Never pretend to be something you're not.
 If what you want lies buried, dig until you find it.
 When someone is having a bad day, be silent, sit close by, and nuzzle them gently.
 Thrive on attention and let people touch you.
 Avoid biting when a simple growl will do.
 On hot days, drink lots of water and lay under a shady tree.
 When you're happy, dance around and wag your entire body.
 Delight in the simple joy of a long walk.
 Bond with your pack.
 No matter how often you're scolded, don't buy into the guilt thing and pout ... run right back and make friends.

Remember, try to be as good as your dog thinks you are.

Here is another one. A first grade teacher collected well known proverbs. She gave each child in the class the first half of the proverb, and asked them to come up with the rest. What they came up with is overleaf.

First Grade Wisdom

People in glass houses shouldn't run around naked.
 Better to be safe than punch a 5th grader.
 Strike while the bug is close.
 It's always darkest before daylight savings time.
 Never underestimate the power of termites.
 You can lead a horse to water but how?
 Don't bite the hand that looks dirty.
 No news is impossible.
 A miss is as good as a Mr.
 You can't teach an old dog math.
 If you lie down with dogs, you will stink in the morning.
 Love all, trust me.
 The pen is mightier than the pigs.
 An idle mind is the best way to relax.
 Where there is smoke, there's pollution.
 Happy is the bride who gets all the presents.
 A penny saved is not much.
 Two is company, three's the Musketeers.
 None are so blind as Helen Keller.
 Children should be seen and not spanked or grounded.
 If at first you don't succeed get new batteries.
 You get out of something what you see pictured on the box.
 When the blind lead the blind get out of the way.
 There is no fool like Aunt Edie.
 Laugh and the whole world laughs
 with you. Cry and you have to blow your nose.

THE BOOGIE MAN THAT WASN'T

Y2K came and went with no apocalypse. Banks didn't fail, airplanes didn't crash and electricity continued to flow. So who got us all fired up about this event in the first place? Was it the "fixit" companies, the government alarmists or the companies who wanted to sell generators? Dennis Olson in Hudson, WI (just across the river from St. Paul) installed a \$13,000 generator, laid in a supply of 600 rolls of toilet paper, 200 cans of tuna, 250 pounds of beans and 175 pounds of pasta, all part of a \$25,000 expenditure. Just to be safe, he cranked up the generator before midnight December 31 and, of course, kept all of his neighbors awake! His vocation? Software engineer!

Our addendum this time is a collage of cartoons dealing with the Y2K subject. The one showing a Y2Ker trying to return 80 gallons of water and 450 cans of Spam is not far off the mark from Dennis Olson. Many stockpilers have tried to return huge amounts of supplies, and to their chagrin, they find that many stores will not accept them. At Northern

PCM Clients

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January 26, 2000

Hydraulics, one of our large local retailers of equipment such as generators, they anticipated this by displaying a prominent sign last year: ALL GENERATOR SALES FINAL.

We have not had an opportunity to run a Clinton cartoon for several quarters. The one at the end of this letter is very appropriate at this time.

Sincerely,

Richard W. Perkins, C.F.A.
President
Senior Portfolio Manager

Daniel S. Perkins, C.F.A.
Vice President
Portfolio Manager

Richard C. Perkins, C.F.A.
Vice President
Portfolio Manager

RWP:DSP:RCP/jah



