[] Dendrochronology Program Library Run ROXB Program COF 14:19 Fri 02 Feb 2007 Page 1

[] P R O G R A M C O F E C H A Version 6.06P 26332

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QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

Title of run: Roxbury Corr4-30

File of DATED series: roxbury\_compact\_corr4.dta

1 Cubic smoothing spline 50% wavelength cutoff for filtering

32 years

2 Segments examined are 30 years lagged successively by 15 years

3 Autoregressive model applied A Residuals are used in master dating series and testing

4 Series transformed to logarithms Y Each series log-transformed for master dating series and testing

5 CORRELATION is Pearson (parametric, quantitative)

Critical correlation, 99% confidence level .4226

6 Master dating series saved N

7 Ring measurements listed Y

8 Parts printed 1234567

9 Absent rings are omitted from master series and segment correlations (Y)

Time span of Master dating series is 1861 to 2006 146 years

Continuous time span is 1861 to 2006 146 years

Portion with two or more series is 1861 to 2006 146 years

>> 123b 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 123b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 124a 1999 absent in 2 of 40 series, but is not usually narrow: master index is .280

>> 124a 2001 absent in 4 of 40 series, but is not usually narrow: master index is -.089

>> 124a 2002 absent in 2 of 40 series, but is not usually narrow: master index is -.030

>> 124a 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 124a 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 124a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 124b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 129a 2002 absent in 2 of 40 series, but is not usually narrow: master index is -.030

>> 131a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 131b 1897 absent in 1 of 19 series, but is not usually narrow: master index is .580

>> 131b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 132a 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 132a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 132b 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 132b 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 132b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 133a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 133b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 134a 1993 absent in 3 of 40 series, but is not usually narrow: master index is -.174

>> 134b 1932 absent in 1 of 34 series, but is not usually narrow: master index is -.395

>> 135a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 135b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 136a 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 136a 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 136a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 136b 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 136b 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 136b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 137a 1993 absent in 3 of 40 series, but is not usually narrow: master index is -.174

>> 137a 2001 absent in 4 of 40 series, but is not usually narrow: master index is -.089

>> 137b 1993 absent in 3 of 40 series, but is not usually narrow: master index is -.174

>> 137b 2001 absent in 4 of 40 series, but is not usually narrow: master index is -.089

>> 138a 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 138a 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 138a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 138b 1957 absent in 1 of 36 series, but is not usually narrow: master index is -.035

>> 138b 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 138b 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 138b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 139a 2001 absent in 4 of 40 series, but is not usually narrow: master index is -.089

>> 139a 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 139a 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 139a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 139b 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 139b 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 139b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 140a 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 140a 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 140a 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

>> 140b 1999 absent in 2 of 40 series, but is not usually narrow: master index is .280

>> 140b 2004 absent in 10 of 40 series, but is not usually narrow: master index is .771

>> 140b 2005 absent in 12 of 40 series, but is not usually narrow: master index is .988

>> 140b 2006 absent in 19 of 40 series, but is not usually narrow: master index is .206

ABSENT RINGS listed by SERIES: (See Master Dating Series for absent rings listed by year)

122b 1 absent rings: 2003

123a 1 absent rings: 2003

123b 3 absent rings: 2003 2005 2006

124a 8 absent rings: 1999 2000 2001 2002 2003 2004 2005 2006

124b 1 absent rings: 2006

125b 1 absent rings: 2000

126b 2 absent rings: 2000 2003

129a 1 absent rings: 2002

131a 1 absent rings: 2006

131b 2 absent rings: 1897 2006

132a 2 absent rings: 2005 2006

132b 3 absent rings: 2004 2005 2006

133a 1 absent rings: 2006

133b 1 absent rings: 2006

134a 4 absent rings: 1924 1945 1985 1993

134b 1 absent rings: 1932

135a 1 absent rings: 2006

135b 1 absent rings: 2006

136a 4 absent rings: 2003 2004 2005 2006

136b 3 absent rings: 2004 2005 2006

137a 2 absent rings: 1993 2001

137b 4 absent rings: 1945 1993 2000 2001

138a 4 absent rings: 2003 2004 2005 2006

138b 5 absent rings: 1957 2003 2004 2005 2006

139a 6 absent rings: 1924 2000 2001 2004 2005 2006

139b 3 absent rings: 2004 2005 2006

140a 4 absent rings: 2003 2004 2005 2006 140b 6 absent rings: 1924 1999 2003 2004 2005 2006

76 absent rings 1.813%

Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab

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1900 -2.508 19 1950 -.423 36 2000 -.612 40 5

1901 -.017 19 1951 .951 36 2001 -.089 40 4<<

1902 .451 19 1952 .648 36 2002 -.030 40 2<<

1903 .098 19 1953 -2.508 36 2003 -.646 40 10

1904 1.045 19 1954 -.189 36 2004 .771 40 10<<

1905 .537 19 1955 1.069 36 2005 .988 40 12<<

1906 1.435 19 1956 .435 36 2006 .206 40 19<<

1907 .732 20 1957 -.035 36 1<<

1908 -.161 21 1958 -.049 36

1909 -.493 21 1959 .232 36

1910 .174 21 1960 1.037 36

1861 -.805 2 1911 .746 22 1961 .330 36

1862 1.350 4 1912 -1.154 22 1962 -2.934 36

1863 -.028 4 1913 -1.362 22 1963 1.023 36

1864 -2.796 5 1914 -.336 25 1964 .258 36

1865 .161 6 1915 .824 25 1965 -1.311 36

1866 -.174 8 1916 .857 25 1966 -.358 36

1867 .852 9 1917 -.337 28 1967 .413 37

1868 -1.220 10 1918 1.013 28 1968 -.217 39

1869 -.855 10 1919 -.340 29 1969 1.647 39

1870 1.158 10 1920 1.101 29 1970 .297 39

1871 1.269 11 1921 -1.076 29 1971 -1.354 40

1872 .680 12 1922 .623 29 1972 1.287 40

1873 .764 14 1923 -.820 30 1973 .271 40

1874 .226 14 1924 -2.983 30 3 1974 .345 40

1875 .340 14 1925 -.776 31 1975 -.951 40

1876 -.861 14 1926 .727 32 1976 .473 40

1877 .851 14 1927 1.967 32 1977 -.148 40

1878 -.367 14 1928 1.325 33 1978 1.262 40

1879 -1.073 14 1929 .546 34 1979 -.035 40

1880 -1.127 14 1930 .575 34 1980 .004 40

1881 -1.122 15 1931 .673 34 1981 -.196 40

1882 -.153 15 1932 -.395 34 1<< 1982 1.079 40

1883 1.700 16 1933 -.439 34 1983 -1.886 40

1884 -1.184 16 1934 -.665 34 1984 -1.236 40

1885 1.014 16 1935 .039 35 1985 -1.144 40 1

1886 -.149 16 1936 -1.379 35 1986 .325 40

1887 1.827 16 1937 -.371 36 1987 .440 40

1888 .940 16 1938 -1.231 36 1988 -1.487 40

1889 1.445 17 1939 .574 36 1989 .526 40

1890 -1.234 17 1940 .333 36 1990 .357 40

1891 -.672 17 1941 .377 36 1991 .236 40

1892 -.328 17 1942 .298 36 1992 -.602 40

1893 -.954 18 1943 1.693 36 1993 -.174 40 3<<

1894 .207 18 1944 1.547 36 1994 1.265 40

1895 -1.446 19 1945 -1.655 36 2 1995 -1.146 40

1896 .135 19 1946 -.869 36 1996 .431 40

1897 .580 19 1<< 1947 1.255 36 1997 1.053 40

1898 .502 19 1948 -.569 36 1998 .846 40

1899 -.459 19 1949 -1.647 36 1999 .280 40 2<<

PART 5: CORRELATION OF SERIES BY SEGMENTS: Roxbury Corr4-30 14:19 Fri 02 Feb 2007 Page 5

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Correlations of 30-year dated segments, lagged 15 years

Flags: A = correlation under .4226 but highest as dated; B = correlation higher at other than dated position

Seq Series Time\_span 1860 1875 1890 1905 1920 1935 1950 1965 1980

1889 1904 1919 1934 1949 1964 1979 1994 2009

--- -------- --------- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----

1 121a 1917 2006 .61 .72 .88 .69 .63 .75

2 121b 1919 2006 .56 .63 .85 .86 .68 .59

3 122a 1923 2006 .87 .79 .65 .61 .74

4 122b 1937 2006 .51 .47B .78 .76 Good

5 123a 1914 2006 .76 .81 .63 .68 .75 .69

6 123b 1917 2006 .77 .78 .63 .69 .62 .54

7 124a 1868 2006 .68 .72 .76 .75 .74 .79 .81 .56 .62

8 124b 1873 2006 .66 .66 .69 .80 .87 .93 .87 .69 .76

9 125a 1914 2006 .70 .84 .87 .81 .71 .57

10 125b 1914 2006 .63 .78 .83 .76 .67 .63

11 126a 1907 2006 .76 .82 .83 .76 .70 .70

12 126b 1911 2006 .83 .78 .77 .78 .77 .74

13 127a 1967 2006 .47 .55

14 127b 1968 2006 .51 .64

15 128a 1968 2006 .60 .53

16 128b 1971 2006 .55 .57

17 129a 1895 2006 .85 .82 .80 .75 .64B .48 .59 Good

18 129b 1929 2006 .75 .82 .75 .50 .62

19 130a 1917 2006 .82 .83 .84 .84 .60 .52

20 130b 1871 2006 .64 .63 .64 .54 .63 .77 .74 .56 .55

21 131a 1889 2006 .50 .48 .71 .76 .78 .71 .76 .84

22 131b 1873 2006 .62 .64 .48 .74 .87 .85 .65 .55 .71

23 132a 1926 2006 .80 .80 .60 .67 .63

24 132b 1935 2006 .53 .57 .62 .59

25 133a 1864 2006 .62 .74 .75 .86 .83 .80 .77 .69 .65

26 133b 1861 2006 .80 .82 .76 .77 .74 .79 .80 .74 .65

27 134a 1865 2006 .62 .69 .56 .36A .39A .54 .50 .41A .29A Good

28 134b 1908 2006 .58 .67 .62 .49 .41A .22B

29 135a 1862 2006 .75 .60 .44B .75 .81 .83 .71 .15B .19B ??

30 135b 1861 2006 .70 .60 .51 .70 .67 .72 .56 .26B .43 Seems Good

31 136a 1881 2006 .60 .57 .71 .77 .73 .58 .61 .50

32 136b 1872 2006 .71 .73 .62 .80 .78 .75 .72 .77 .84

33 137a 1862 2006 .69 .60 .52 .60 .59 .62 .64 .43 .20B Good I guess

34 137b 1867 2006 .80 .81 .74 .80 .74 .61 .64 .48 .42A Good

35 138a 1928 2006 .74 .81 .78 .74 .76

36 138b 1925 2006 .67 .64 .48B .50 .56 Good

37 139a 1866 2006 .59 .73 .70 .66 .77 .71 .44B .22B .15B Leave alone

38 139b 1866 2006 .51 .54 .57 .68 .73 .65 .60 .36B .11B Leave alone

39 140a 1883 2006 .39A .36A .68 .88 .77 .65 .61 .63

40 140b 1893 2006 .69 .59 .69 .83 .81 .77 .67

Av segment correlation .67 .65 .61 .70 .75 .75 .68 .58 .57

121a 1917 to 2006 90 years Series 1

[B] Entire series, effect on correlation ( .661) is:

Lower 1971< -.068 1924> -.017 1920< -.015 1919> -.012 1917> -.009 1985> -.006 Higher 1962 .025 1953 .020

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1971 -6.8 SD

121a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1917 169 87 154

1920 50 9 77 40 44 17 95 151 119 82

1930 108 130 90 54 76 145 46 61 87 142

1940 191 155 187 224 224 81 69 154 106 48

1950 105 137 107 46 106 123 114 129 152 129

1960 182 146 54 196 147 93 123 157 134 167

1970 87 21 159 134 156 145 145 141 241 129

1980 181 189 190 82 140 137 133 153 61 116

1990 104 100 93 127 178 60 100 106 163 72

2000 37 48 35 16 49 44 70

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121b 1919 to 2006 88 years Series 2

[B] Entire series, effect on correlation ( .677) is:

Lower 1924> -.032 1919> -.020 1984> -.016 1925< -.014 1920< -.011 1985> -.011 Higher 1962 .043 1953 .010

121b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1919 165

1920 43 13 81 42 63 20 92 132 101 81

1930 109 101 75 57 76 170 57 84 63 124

1940 132 134 152 149 156 56 57 148 105 49

1950 100 185 134 45 113 147 128 127 152 110

1960 146 108 51 176 134 98 130 139 132 183

1970 92 76 200 106 128 133 160 125 212 126

1980 118 152 186 78 175 152 178 179 60 99

1990 109 84 76 98 141 43 113 106 50 52

2000 38 69 53 38 95 99 159

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122a 1923 to 2006 84 years Series 3

[B] Entire series, effect on correlation ( .703) is:

Lower 1971> -.038 1995< -.016 1956< -.015 1990< -.012 1965> -.010 1988> -.009 Higher 1983 .020 1924 .017

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1971 +3.2 SD

122a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1923 71 29 134 136 207 161 152

1930 236 199 108 65 50 52 41 36 36 116

1940 165 134 96 156 150 47 42 130 78 47

1950 54 96 89 26 39 77 35 41 57 48

1960 82 61 27 132 106 82 73 118 124 187

1970 126 171 205 132 130 93 103 77 90 75

1980 69 71 67 37 29 26 45 65 47 48

1990 33 38 37 39 50 19 32 64 75 42

2000 43 58 41 37 105 118 73

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122b 1937 to 2006 70 years Series 4

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1979 6 -.26 .28 -.01 -.34 .05 .00 -.16 .30 .03 -.22 .47|-.33 -.03 .19 -.07 -.27 .50\*-.37 .11 .02 -.11

[B] Entire series, effect on correlation ( .621) is:

Lower 1953> -.078 1956< -.024 1985< -.017 1951< -.011 1994< -.007 1947< -.007 Higher 1983 .040 1988 .016

1950 to 1979 segment:

Lower 1953> -.167 1956< -.059 1951< -.025 1979> -.016 1977< -.011 1968> -.008 Higher 1962 .065 1969 .051

[D] 1 Absent rings: Year Master N series Absent

2003 -.646 40 10

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1953 +4.2 SD

122b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1937 60 54 107

1940 116 90 83 139 134 31 48 68 37 40

1950 26 39 127 124 84 97 16 39 66 67

1960 94 88 35 90 83 33 47 77 105 167

1970 94 53 134 92 103 91 106 69 103 116

1980 93 96 96 47 42 40 80 83 40 53

1990 57 66 35 30 33 20 32 57 25 13

2000 7 1 6 0 14 18 13

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123a 1914 to 2006 93 years Series 5

[B] Entire series, effect on correlation ( .643) is:

Lower 2003< -.064 1984< -.012 1962> -.012 1956< -.007 1917< -.006 2005< -.005 Higher 1927 .011 1988 .009

[D] 1 Absent rings: Year Master N series Absent

2003 -.646 40 10

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2003 -6.5 SD

123a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1914 92 147 149 36 116 45

1920 134 53 111 76 21 71 133 196 140 131

1930 75 81 62 50 32 32 21 14 28 82

1940 29 27 19 55 71 22 41 94 35 25

1950 46 61 51 17 27 42 15 18 23 21

1960 81 56 31 131 112 28 50 92 75 107

1970 91 47 95 70 74 53 78 80 164 102

1980 89 89 90 48 14 43 87 58 28 69

1990 51 58 42 57 76 37 70 69 104 44

2000 32 27 26 0 29 19 18

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123b 1917 to 2006 90 years Series 6

[B] Entire series, effect on correlation ( .661) is:

Lower 1962> -.019 1956< -.019 1984< -.018 2005< -.015 1987< -.014 1994< -.011 Higher 1924 .033 1953 .024

[D] 3 Absent rings: Year Master N series Absent

2003 -.646 40 10

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

123b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1917 52 154 67

1920 143 62 107 79 13 50 99 176 133 100

1930 69 57 53 47 37 58 47 26 25 116

1940 70 93 44 59 55 40 47 99 26 23

1950 57 78 76 14 50 64 15 23 33 39

1960 92 90 47 185 110 30 52 94 116 140

1970 97 49 117 70 83 26 74 69 162 111

1980 118 56 84 38 12 47 78 31 25 69

1990 47 50 29 53 33 18 67 49 91 49

2000 33 50 27 0 9 0 0

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124a 1868 to 2006 139 years Series 7

[B] Entire series, effect on correlation ( .698) is:

Lower 1881> -.011 1999< -.010 1868< -.008 1983> -.008 1925> -.008 1938> -.008 Higher 1924 .016 1953 .013

[D] 8 Absent rings: Year Master N series Absent

1999 .280 40 2 >> WARNING: Ring is not usually narrow

2000 -.612 40 5

2001 -.089 40 4 >> WARNING: Ring is not usually narrow

2002 -.030 40 2 >> WARNING: Ring is not usually narrow

2003 -.646 40 10

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

124a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1868 181 235

1870 257 283 240 256 226 223 179 280 266 144

1880 161 222 152 264 166 226 153 212 192 187

1890 103 135 133 113 152 61 115 151 125 100

1900 55 90 141 187 194 136 265 254 233 157

1910 160 153 68 54 59 76 108 83 142 113

1920 126 69 127 79 21 196 202 263 180 149

1930 146 171 154 96 36 67 48 77 99 149

1940 124 154 43 96 91 18 13 88 37 39

1950 47 98 60 17 57 103 45 60 93 80

1960 84 81 38 132 85 75 60 84 89 237

1970 85 56 115 105 55 68 83 66 134 75

1980 115 145 117 68 41 67 53 49 24 63

1990 100 65 59 46 52 14 41 54 20 0

2000 0 0 0 0 0 0 0

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124b 1873 to 2006 134 years Series 8

[B] Entire series, effect on correlation ( .785) is:

Lower 1884> -.008 1891> -.007 2000< -.007 1932> -.007 1965> -.006 1878> -.006 Higher 1962 .017 1953 .013

[D] 1 Absent rings: Year Master N series Absent

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

124b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1873 334 289 277 215 323 269 190

1880 155 113 127 239 164 199 149 170 153 193

1890 105 161 138 100 163 61 86 112 87 83

1900 61 75 90 134 158 135 193 176 165 132

1910 145 118 70 69 57 104 155 92 139 86

1920 124 55 121 79 40 128 135 212 169 137

1930 117 160 146 90 34 55 21 60 27 61

1940 79 114 69 117 118 17 31 119 56 55

1950 60 117 98 37 117 151 97 103 104 131

1960 126 147 66 197 169 140 119 108 111 219

1970 105 98 211 178 175 131 128 109 209 120

1980 132 168 194 84 51 71 86 122 39 54

1990 68 43 40 30 54 12 39 47 46 40

2000 3 22 10 5 13 11 0

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125a 1914 to 2006 93 years Series 9

[B] Entire series, effect on correlation ( .735) is:

Lower 1965< -.017 1917< -.013 2000< -.012 1924> -.011 1986< -.009 1995> -.008 Higher 1962 .031 1945 .013

125a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1914 140 207 109 15 73 71

1920 144 49 119 58 35 60 135 201 132 85

1930 115 114 47 45 34 96 66 89 52 72

1940 97 127 122 147 142 19 40 114 26 29

1950 67 155 115 44 140 117 109 104 85 88

1960 123 113 32 113 89 21 57 101 105 189

1970 114 65 251 116 165 89 145 154 184 156

1980 169 125 113 31 17 21 16 29 9 52

1990 20 33 26 30 41 27 54 54 54 28

2000 3 14 34 32 27 49 68

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125b 1914 to 2006 93 years Series 10

[B] Entire series, effect on correlation ( .698) is:

Lower 1917< -.019 1924> -.017 1990< -.014 1968> -.012 1925> -.007 1975> -.005 Higher 1945 .015 1962 .014

[D] 1 Absent rings: Year Master N series Absent

2000 -.612 40 5

125b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1914 135 170 100 21 93 78

1920 158 40 119 56 50 131 147 213 179 99

1930 145 97 67 38 23 99 56 83 60 103

1940 92 100 146 146 143 16 33 99 12 23

1950 48 149 101 37 94 96 104 89 111 121

1960 108 76 34 103 68 29 79 116 205 253

1970 110 39 170 126 143 129 167 127 202 115

1980 170 150 169 81 40 62 91 103 20 65

1990 20 42 58 51 62 29 108 86 135 44

2000 0 17 45 18 73 39 15

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126a 1907 to 2006 100 years Series 11

[B] Entire series, effect on correlation ( .758) is:

Lower 1963< -.025 1908< -.017 1978< -.016 2003< -.013 1971> -.012 1934< -.007 Higher 1962 .024 1953 .020

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2003 -4.6 SD

126a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1907 87 49 84

1910 112 135 57 61 113 181 142 61 165 82

1920 178 65 125 70 25 63 83 163 126 103

1930 75 67 58 77 14 27 14 41 25 84

1940 37 70 125 133 90 14 40 93 48 27

1950 52 68 81 21 40 97 74 67 81 93

1960 114 86 36 53 86 75 83 112 127 186

1970 102 102 176 136 134 75 122 94 73 82

1980 128 101 97 55 42 57 90 71 29 70

1990 58 57 34 58 99 40 62 97 77 70

2000 42 85 48 20 64 74 57

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126b 1911 to 2006 96 years Series 12

[B] Entire series, effect on correlation ( .737) is:

Lower 2000< -.031 1945> -.018 1998< -.009 1985> -.008 2003< -.007 1940< -.005 Higher 1924 .011 1988 .007

[D] 2 Absent rings: Year Master N series Absent

2000 -.612 40 5

2003 -.646 40 10

126b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1911 137 72 63 83 159 203 133 199 94

1920 197 84 135 78 15 21 94 172 149 134

1930 113 96 78 72 23 30 17 36 34 81

1940 44 87 116 157 134 69 64 101 69 33

1950 40 121 97 39 45 121 94 84 73 113

1960 141 126 57 102 104 60 67 114 123 136

1970 103 71 108 104 135 73 127 82 106 66

1980 124 122 125 50 36 77 99 72 25 87

1990 79 56 30 56 76 27 42 71 27 32

2000 0 40 31 0 40 33 30

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127a 1967 to 2006 40 years Series 13

[B] Entire series, effect on correlation ( .435) is:

Lower 1969< -.118 1982< -.046 1984> -.032 2000> -.025 1992> -.017 2002< -.015 Higher 1983 .101 1988 .051

127a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1967 399 271 102

1970 276 62 289 401 324 223 305 191 365 265

1980 231 234 166 121 289 222 332 259 120 193

1990 222 189 238 155 242 81 245 189 308 239

2000 213 176 7 14 54 80 31

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127b 1968 to 2006 39 years Series 14

[B] Entire series, effect on correlation ( .528) is:

Lower 1969< -.062 1984> -.042 1985> -.031 1982< -.026 1968> -.017 2002< -.016 Higher 1983 .142 1971 .032

127b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1968 298 139

1970 259 64 195 241 254 168 164 128 194 161

1980 151 128 125 69 197 155 193 156 82 127

1990 154 112 128 87 207 92 191 162 244 191

2000 84 94 27 70 176 245 137

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128a 1968 to 2006 39 years Series 15

[B] Entire series, effect on correlation ( .535) is:

Lower 1984> -.051 2000> -.024 1985> -.023 1975> -.023 2006< -.023 1994< -.013 Higher 1983 .148 1995 .040

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1984 +3.2 SD

128a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1968 197 217

1970 162 154 258 245 249 232 213 186 281 230

1980 254 267 252 110 325 244 280 218 188 268

1990 215 172 205 141 217 116 266 233 538 317

2000 297 255 218 189 213 205 137

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128b 1971 to 2006 36 years Series 16

[B] Entire series, effect on correlation ( .551) is:

Lower 1977< -.047 1984> -.045 1995> -.023 1975> -.017 1987< -.016 1973> -.015 Higher 1983 .148 1988 .031

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1984 +3.1 SD

128b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1971 180 237 238 218 176 174 106 178 149

1980 161 162 168 78 216 147 220 120 107 169

1990 164 145 175 142 235 166 213 215 454 222

2000 147 170 206 153 213 242 177

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129a 1895 to 2006 112 years Series 17

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1950 1979 9 -.39 .02 .30 -.21 -.15 .02 .15 .25 -.25 -.30 .64|-.10 -.26 .03 .11 -.05 .34 -.33 -.08 .71\*-.26

[B] Entire series, effect on correlation ( .701) is:

Lower 1956< -.027 2002< -.023 1983> -.012 1979< -.009 1978< -.009 1965> -.008 Higher 1924 .027 1953 .025

1950 to 1979 segment:

Lower 1956< -.067 1965> -.031 1978< -.024 1971> -.022 1973> -.021 1979< -.018 Higher 1953 .133 1962 .039

[D] 1 Absent rings: Year Master N series Absent

2002 -.030 40 2 >> WARNING: Ring is not usually narrow

129a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1895 108 130 199 150 131

1900 90 125 172 164 209 241 299 230 188 133

1910 106 148 93 73 89 176 250 125 158 69

1920 96 87 133 102 30 98 128 186 160 147

1930 204 213 99 128 115 192 108 106 94 116

1940 172 178 100 168 196 80 56 133 45 46

1950 49 90 91 18 72 116 45 100 85 123

1960 122 98 55 108 112 109 118 115 85 152

1970 113 101 213 186 84 65 86 83 79 51

1980 74 75 97 73 53 64 63 76 57 88

1990 61 79 57 48 62 34 53 92 60 45

2000 21 25 0 17 31 56 27

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129b 1929 to 2006 78 years Series 18

[B] Entire series, effect on correlation ( .703) is:

Lower 1974< -.031 1965> -.017 1986< -.017 1956< -.010 1948> -.009 1971> -.008 Higher 1962 .051 1953 .027

129b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1929 185

1930 219 207 154 134 95 132 90 84 53 82

1940 76 99 85 132 165 76 58 163 125 82

1950 89 155 129 38 92 153 88 84 118 138

1960 150 158 69 178 131 150 156 159 152 243

1970 173 142 205 198 102 97 149 168 160 157

1980 178 173 190 99 71 83 75 91 79 104

1990 132 117 74 55 99 47 91 127 79 95

2000 35 47 20 22 53 140 120

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130a 1917 to 2006 90 years Series 19

[B] Entire series, effect on correlation ( .749) is:

Lower 1980< -.023 2002< -.016 2006< -.012 1982< -.008 1981< -.006 1992> -.006 Higher 1924 .023 1953 .020

130a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1917 178 221 141

1920 264 158 175 126 78 149 176 209 190 214

1930 294 285 174 151 166 229 157 169 121 133

1940 140 155 170 198 192 102 80 155 77 55

1950 75 112 98 34 107 110 118 123 113 129

1960 196 170 78 165 118 82 126 157 91 146

1970 121 74 135 102 90 80 80 87 106 75

1980 34 31 53 44 33 55 78 70 54 126

1990 115 126 117 87 141 63 151 144 134 105

2000 84 97 46 58 90 83 50

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130b 1871 to 2006 136 years Series 20

[B] Entire series, effect on correlation ( .621) is:

Lower 1880> -.016 1920< -.013 1924> -.011 1982< -.009 1905< -.007 1881> -.006 Higher 1962 .029 1953 .013

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1900 -5.4 SD

130b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1871 224 164 159 163 170 132 245 138 105

1880 256 222 161 261 191 266 203 372 210 247

1890 162 244 171 182 251 168 182 203 195 198

1900 106 224 215 212 179 135 158 166 178 138

1910 187 184 97 116 92 169 207 142 165 72

1920 44 41 51 5 46 32 124 205 230 153

1930 163 131 45 66 92 132 89 87 137 161

1940 194 258 290 333 278 154 101 179 109 76

1950 106 191 154 78 226 175 187 168 127 150

1960 141 132 77 162 170 125 180 217 178 243

1970 188 157 169 173 140 88 113 105 172 139

1980 135 96 94 94 106 83 107 83 76 112

1990 87 73 70 74 124 66 116 65 92 49

2000 47 61 48 39 86 68 46

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131a 1889 to 2006 118 years Series 21

[B] Entire series, effect on correlation ( .693) is:

Lower 1902< -.017 1972< -.009 1900> -.009 1933< -.009 1891> -.008 1968> -.007 Higher 1962 .025 1983 .015

[D] 1 Absent rings: Year Master N series Absent

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

131a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1889 32

1890 6 28 33 19 12 10 36 35 38 15

1900 7 57 8 15 79 48 17 10 8 14

1910 45 35 22 18 45 125 95 44 142 61

1920 155 71 191 100 40 86 181 252 168 141

1930 115 100 93 55 85 177 105 116 57 92

1940 143 106 141 290 200 52 54 147 84 31

1950 78 210 141 44 143 157 195 160 107 118

1960 120 82 43 224 128 81 101 133 167 202

1970 103 82 96 77 118 85 142 104 121 79

1980 63 84 98 36 42 61 80 111 38 81

1990 86 70 44 75 99 30 65 80 32 22

2000 11 26 16 20 38 14 0

====================================================================================================================================

131b 1873 to 2006 134 years Series 22

[B] Entire series, effect on correlation ( .677) is:

Lower 1971> -.021 1897< -.012 1877< -.009 1906< -.007 1912> -.007 2006< -.007 Higher 1953 .019 1983 .015

[D] 2 Absent rings: Year Master N series Absent

1897 .580 19 1 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1971 +3.2 SD

131b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1873 100 75 68 62 59 84 40

1880 53 60 99 94 30 118 54 236 63 75

1890 20 20 45 18 12 8 15 0 11 17

1900 13 98 51 21 90 32 18 10 14 19

1910 80 99 45 24 61 95 68 16 79 35

1920 101 34 83 24 11 53 130 179 127 79

1930 87 111 95 54 76 177 85 90 56 109

1940 135 111 147 199 141 41 58 160 106 33

1950 69 143 102 26 82 122 185 170 98 117

1960 161 124 56 257 116 86 98 93 98 132

1970 104 160 141 125 136 86 101 73 85 81

1980 62 71 104 46 73 80 95 114 39 62

1990 64 51 26 52 66 22 37 41 57 39

2000 22 20 14 18 36 14 0

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132a 1926 to 2006 81 years Series 23

[B] Entire series, effect on correlation ( .633) is:

Lower 1971> -.020 1981< -.020 1930< -.016 2005< -.015 1996< -.011 1975> -.008 Higher 1983 .026 1945 .015

[D] 2 Absent rings: Year Master N series Absent

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1983 -4.9 SD

132a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1926 85 164 112 63

1930 24 30 10 21 20 29 10 27 16 36

1940 25 25 38 55 54 8 11 49 15 9

1950 17 38 36 12 14 50 35 12 14 16

1960 19 13 9 46 19 14 22 38 42 62

1970 28 39 48 29 31 32 42 36 35 24

1980 31 12 29 4 17 16 32 34 20 45

1990 50 42 15 20 35 15 9 43 31 58

2000 28 2 19 6 6 0 0

====================================================================================================================================

132b 1935 to 2006 72 years Series 24

[B] Entire series, effect on correlation ( .533) is:

Lower 1985< -.032 1935< -.022 1981> -.014 1961< -.013 2003> -.012 1945> -.012 Higher 1983 .034 1969 .015

[D] 3 Absent rings: Year Master N series Absent

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

132b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1935 48 67 83 57 64

1940 91 68 56 108 127 42 37 110 37 14

1950 36 46 28 11 15 55 57 14 21 34

1960 64 17 9 60 53 33 59 49 59 106

1970 64 50 106 90 107 60 107 91 87 100

1980 91 118 103 21 48 28 48 50 17 24

1990 42 40 24 23 60 12 2 31 26 20

2000 10 3 4 9 0 0 0

====================================================================================================================================

133a 1864 to 2006 143 years Series 25

[B] Entire series, effect on correlation ( .724) is:

Lower 1868> -.019 1865< -.010 1980< -.008 1876> -.006 1997< -.006 1985> -.006 Higher 1962 .019 1924 .018

[D] 1 Absent rings: Year Master N series Absent

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

133a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1864 114 118 160 127 151 118

1870 159 156 122 115 181 201 121 118 79 86

1880 41 43 77 118 26 104 86 137 92 108

1890 31 34 44 42 58 35 49 78 66 29

1900 10 35 90 28 52 70 131 85 24 39

1910 53 78 42 35 54 96 128 33 83 41

1920 104 25 77 31 17 66 85 122 78 80

1930 47 52 62 46 51 55 22 76 35 79

1940 47 38 28 85 81 25 40 76 45 15

1950 50 68 63 15 37 75 46 56 59 66

1960 70 32 14 54 68 33 46 51 45 71

1970 46 46 112 48 77 51 117 56 66 57

1980 42 67 75 25 34 52 47 38 16 57

1990 64 38 20 37 43 11 16 19 44 16

2000 20 19 15 12 36 72 0

====================================================================================================================================

133b 1861 to 2006 146 years Series 26

[B] Entire series, effect on correlation ( .744) is:

Lower 1948> -.011 1903< -.008 1930< -.007 2000> -.007 1874< -.006 1981> -.006 Higher 1962 .009 1900 .008

[D] 1 Absent rings: Year Master N series Absent

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

133b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1861 67 128 48 33 168 101 131 65 89

1870 116 149 136 132 58 84 57 91 75 70

1880 59 58 96 118 35 126 74 159 131 135

1890 45 50 73 47 85 43 46 87 55 33

1900 21 41 58 26 64 78 120 93 39 44

1910 66 75 45 38 90 73 99 38 104 38

1920 114 25 70 31 19 93 108 165 106 75

1930 39 44 61 52 67 62 22 66 32 81

1940 62 49 57 103 115 31 44 66 82 17

1950 49 88 66 24 36 74 71 46 77 69

1960 85 45 17 69 82 12 28 54 66 103

1970 43 34 105 48 56 25 75 47 66 58

1980 55 74 74 27 33 32 27 27 15 40

1990 45 30 13 20 31 9 15 23 21 13

2000 31 4 26 11 43 58 0

====================================================================================================================================

134a 1865 to 2006 142 years Series 27

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1905 1934 0 -.20 .21 -.14 .07 -.14 .04 .29 -.29 .20 -.04 .36\*-.27 -.35 .20 -.07 .07 -.30 -.06 .24 .03 .09

1920 1949 0 -.44 -.12 -.19 .04 -.12 -.11 .13 .01 .34 -.13 .39\* .02 -.13 -.23 -.10 .09 -.12 -.15 .27 .21 .01

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

1965 1994 0 .07 -.12 .14 -.16 .38 -.23 -.15 .18 -.02 -.20 .41\*-.34 .14 .11 -.26 .04 -.20 .01 -.22 -.01 .11

1977 2006 0 .26 -.22 .24 .13 .17 .04 -.18 -.35 -.05 -.28 .29\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .515) is:

Lower 1993< -.031 1988> -.015 1953> -.011 1928< -.008 1947< -.008 1934> -.008 Higher 1924 .041 1945 .015

1905 to 1934 segment:

Lower 1928< -.042 1934> -.039 1917> -.032 1916< -.027 1926< -.022 1923> -.020 Higher 1924 .243 1921 .027

1920 to 1949 segment:

Lower 1934> -.035 1928< -.033 1947< -.032 1944< -.023 1923> -.019 1926< -.017 Higher 1924 .139 1945 .043

1965 to 1994 segment:

Lower 1988> -.074 1993< -.071 1984> -.023 1975> -.022 1972< -.018 1992> -.016 Higher 1965 .056 1969 .054

1977 to 2006 segment:

Lower 1993< -.075 1988> -.070 1995> -.025 2003> -.021 1984> -.020 1997< -.014 Higher 1985 .073 1983 .044

[D] 4 Absent rings: Year Master N series Absent

1924 -2.983 30 3

1945 -1.655 36 2

1985 -1.144 40 1

1993 -.174 40 3 >> WARNING: Ring is not usually narrow

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1988 +3.2 SD

134a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1865 239 284 329 193 215

1870 281 247 182 198 261 199 169 193 147 134

1880 73 67 111 160 60 80 53 96 118 197

1890 67 49 46 27 30 40 130 107 73 60

1900 24 40 52 58 73 53 73 72 52 31

1910 31 80 58 33 52 83 45 67 59 45

1920 72 30 70 58 0 14 33 64 37 41

1930 39 49 50 59 69 63 30 20 28 44

1940 58 55 82 78 37 0 33 41 20 38

1950 44 54 76 53 45 78 123 72 40 59

1960 93 105 34 58 60 9 33 61 24 102

1970 62 39 43 40 90 78 62 69 84 96

1980 90 21 79 37 58 0 59 108 81 47

1990 15 12 38 0 24 30 30 19 17 15

2000 4 18 26 29 38 31 17

====================================================================================================================================

134b 1908 to 2006 99 years Series 28

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1965 1994 0 .12 -.01 .04 -.20 .38 -.21 -.07 -.03 .12 -.16 .41\*-.54 .35 .14 -.06 -.17 -.13 .15 -.08 .05 .04

1977 2006 -10 .40\*-.24 .33 -.16 .23 -.08 -.05 -.16 -.14 -.10 .22| - - - - - - - - - -

[B] Entire series, effect on correlation ( .463) is:

Lower 1968< -.042 1998< -.027 1988> -.024 1934> -.014 1981< -.012 1936> -.011 Higher 1924 .030 1962 .025

1965 to 1994 segment:

Lower 1968< -.108 1988> -.084 1981< -.024 1971> -.019 1993< -.009 1983> -.009 Higher 1969 .036 1978 .033

1977 to 2006 segment:

Lower 1988> -.090 1998< -.087 1999< -.027 1996< -.021 1981< -.017 2002> -.016 Higher 1978 .055 1985 .041

[D] 1 Absent rings: Year Master N series Absent

1932 -.395 34 1 >> WARNING: Ring is not usually narrow

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1968 -5.9 SD; 1988 +3.2 SD

134b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1908 92 44

1910 46 51 29 14 37 70 66 75 46 36

1920 99 41 117 53 7 17 60 67 65 40

1930 44 37 0 39 86 81 58 41 20 43

1940 49 64 72 92 55 8 27 27 6 27

1950 57 52 30 29 84 87 101 69 58 44

1960 54 45 24 72 79 44 69 69 13 86

1970 71 64 96 51 91 34 69 71 99 51

1980 69 8 61 30 32 13 40 83 69 49

1990 30 20 18 7 39 25 18 41 7 8

2000 28 35 60 41 72 44 37

====================================================================================================================================

135a 1862 to 2006 145 years Series 29

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1890 1919 5 -.22 .31 -.27 .18 -.47 -.03 .07 -.21 -.18 -.28 .44| .08 .16 .09 .22 .50\*-.18 -.17 -.09 .04 -.14

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

1965 1994 7 -.08 .11 .11 -.07 .17 -.10 -.05 -.09 -.15 -.29 .15|-.40 .21 .15 .21 -.05 -.13 .27\* .00 .21 .14

1977 2006 -8 .03 -.10 .38\* .11 .00 .10 -.01 -.18 -.25 -.24 .19| - - - - - - - - - -

[B] Entire series, effect on correlation ( .626) is:

Lower 1985> -.014 1983> -.012 1984> -.010 1981< -.010 1971> -.009 1897< -.008 Higher 1962 .024 1924 .022

1890 to 1919 segment:

Lower 1897< -.056 1907< -.039 1904< -.032 1916< -.029 1900> -.029 1913> -.019 Higher 1895 .076 1918 .040

1965 to 1994 segment:

Lower 1985> -.062 1984> -.043 1971> -.035 1965> -.026 1991< -.022 1978< -.020 Higher 1969 .086 1972 .064

1977 to 2006 segment:

Lower 1985> -.072 1984> -.050 1983> -.031 1988> -.027 1991< -.019 2006< -.018 Higher 1994 .035 1992 .031

[D] 1 Absent rings: Year Master N series Absent

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1984 +3.0 SD; 1985 +3.0 SD

135a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1862 288 219 66 143 113 189 127 116

1870 128 140 111 115 100 101 84 147 103 49

1880 66 57 104 102 38 69 69 81 62 73

1890 46 42 60 37 44 25 64 34 72 49

1900 45 91 115 80 50 78 76 42 40 38

1910 44 71 46 60 71 70 53 62 92 53

1920 89 51 97 56 29 71 84 98 91 52

1930 74 73 59 61 58 44 29 39 47 68

1940 57 35 38 65 63 8 43 78 30 28

1950 49 43 94 23 58 89 92 60 69 65

1960 92 90 39 79 72 85 76 87 63 124

1970 120 98 126 58 62 53 55 61 60 45

1980 38 16 85 67 118 122 93 138 75 65

1990 55 31 20 48 74 38 41 58 74 65

2000 20 45 49 12 44 19 0

====================================================================================================================================

135b 1861 to 2006 146 years Series 30

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1965 1994 2 -.19 -.08 -.01 .05 .06 -.16 .04 .16 .12 -.13 .26|-.20 .38\* .02 .22 -.32 -.02 -.08 -.01 -.24 .05

[B] Entire series, effect on correlation ( .542) is:

Lower 2006< -.047 1969< -.023 1895> -.018 1948> -.008 1986< -.008 1871< -.008 Higher 1962 .025 1864 .016

1965 to 1994 segment:

Lower 1969< -.135 1986< -.045 1987< -.035 1973< -.020 1977> -.016 1981< -.016 Higher 1978 .079 1994 .053

[D] 1 Absent rings: Year Master N series Absent

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2006 -6.8 SD

135b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1861 98 224 207 77 175 124 166 119 97

1870 152 107 150 123 85 108 73 96 90 76

1880 94 64 83 119 67 77 72 141 108 102

1890 75 42 50 51 58 97 114 106 81 58

1900 36 44 95 86 76 88 96 69 73 86

1910 78 82 42 52 54 61 78 87 117 58

1920 120 40 64 42 23 61 66 80 87 47

1930 55 43 26 45 66 33 31 44 40 43

1940 31 31 51 86 81 31 69 129 96 43

1950 55 63 70 28 45 54 71 75 80 98

1960 98 71 24 49 41 53 89 81 55 35

1970 66 48 79 32 61 63 79 94 142 91

1980 69 21 62 40 40 32 22 22 33 46

1990 63 54 50 76 84 49 78 47 56 42

2000 19 37 42 25 37 24 0

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136a 1881 to 2006 126 years Series 31

[B] Entire series, effect on correlation ( .609) is:

Lower 1998< -.031 1962> -.021 1891< -.021 1971> -.014 1930< -.013 1934> -.009 Higher 1924 .031 1953 .015

[D] 4 Absent rings: Year Master N series Absent

2003 -.646 40 10

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

136a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1881 179 158 276 138 157 82 147 134 139

1890 56 28 88 65 86 38 35 48 64 43

1900 32 45 37 45 69 68 105 102 29 32

1910 56 54 25 23 13 30 63 56 73 38

1920 60 37 50 40 15 36 56 72 74 61

1930 31 42 43 46 61 38 24 30 36 56

1940 62 52 44 81 74 31 32 37 27 15

1950 22 49 30 10 26 57 58 27 23 29

1960 70 56 41 74 50 37 39 36 23 68

1970 78 81 123 53 38 30 66 53 87 55

1980 45 41 66 36 35 44 37 35 31 53

1990 36 36 24 25 33 16 23 35 10 18

2000 16 4 13 0 0 0 0

====================================================================================================================================

136b 1872 to 2006 135 years Series 32

[B] Entire series, effect on correlation ( .717) is:

Lower 2004< -.022 2005< -.011 1957< -.008 1937< -.008 1971> -.008 1932> -.006 Higher 1924 .016 1953 .016

[D] 3 Absent rings: Year Master N series Absent

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

136b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1872 395 188 170 148 114 173 145 152

1880 95 77 154 255 66 160 92 232 140 186

1890 83 42 117 95 100 84 95 115 101 66

1900 55 78 71 87 135 128 173 117 41 61

1910 79 98 36 43 32 63 107 74 108 69

1920 139 54 106 64 22 47 93 141 97 77

1930 76 112 102 76 73 55 31 27 36 66

1940 67 95 68 60 59 18 45 81 53 38

1950 43 58 48 22 32 56 74 35 46 60

1960 65 63 35 87 52 32 57 48 47 82

1970 85 77 117 67 67 41 74 73 106 91

1980 56 52 104 42 37 21 42 49 32 57

1990 56 44 23 46 66 23 31 40 53 25

2000 9 20 15 14 0 0 0

====================================================================================================================================

137a 1862 to 2006 145 years Series 33

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1977 2006 -2 .20 .04 .16 -.43 .25 -.12 .08 -.22 .35\* .00 .20| - - - - - - - - - -

[B] Entire series, effect on correlation ( .468) is:

Lower 1993< -.072 1879> -.015 1988> -.012 2001< -.009 1995> -.008 1948> -.008 Higher 1864 .018 1962 .013

1977 to 2006 segment:

Lower 1993< -.061 1988> -.045 1995> -.029 1984> -.027 2004< -.019 2003> -.017 Higher 1985 .057 1982 .046

[C] Year-to-year changes diverging by over 4.0 std deviations:

1992 1993 -4.3 SD

[D] 2 Absent rings: Year Master N series Absent

1993 -.174 40 3 >> WARNING: Ring is not usually narrow

2001 -.089 40 4 >> WARNING: Ring is not usually narrow

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1993 -8.7 SD

137a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1862 234 101 27 251 203 245 127 95

1870 242 228 162 211 206 159 173 234 187 234

1880 67 52 116 177 63 159 125 149 146 200

1890 79 95 63 52 66 31 65 78 77 38

1900 48 44 39 24 107 73 117 83 16 23

1910 38 58 21 17 12 34 14 15 15 39

1920 68 26 49 33 4 19 62 59 47 22

1930 15 17 1 18 14 18 19 34 18 29

1940 15 13 4 27 47 2 25 38 32 16

1950 21 38 30 9 21 29 26 17 12 17

1960 33 29 11 37 12 24 23 38 19 45

1970 49 28 35 39 56 28 32 46 43 37

1980 36 23 52 26 41 15 26 32 32 30

1990 26 24 18 0 19 20 18 14 13 24

2000 17 0 23 18 6 19 8

====================================================================================================================================

137b 1867 to 2006 140 years Series 34

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1977 2006 0 .10 -.07 .08 -.07 .09 -.10 -.05 -.36 .12 -.20 .42\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .649) is:

Lower 1981< -.026 1993< -.020 1958< -.008 1995> -.008 1984> -.007 1879> -.007 Higher 1924 .020 1945 .012

1977 to 2006 segment:

Lower 1981< -.070 1993< -.051 1995> -.034 1984> -.032 1982< -.014 1998< -.010 Higher 1978 .059 1994 .040

[D] 4 Absent rings: Year Master N series Absent

1945 -1.655 36 2

1993 -.174 40 3 >> WARNING: Ring is not usually narrow

2000 -.612 40 5

2001 -.089 40 4 >> WARNING: Ring is not usually narrow

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1981 -5.1 SD; 1993 -4.6 SD

137b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1867 278 204 235

1870 276 360 276 216 284 218 186 196 157 184

1880 111 103 150 240 92 192 130 206 149 141

1890 58 68 76 67 76 25 47 94 75 44

1900 41 46 79 63 125 126 155 114 26 49

1910 43 81 34 34 28 65 48 37 68 50

1920 94 32 59 45 8 54 84 118 90 59

1930 30 41 21 44 44 39 36 77 21 57

1940 28 24 23 57 47 0 28 59 41 21

1950 28 34 66 12 28 48 41 36 8 14

1960 42 76 16 31 17 24 41 57 17 54

1970 54 34 73 38 27 16 25 37 77 36

1980 33 7 24 20 36 21 33 47 22 28

1990 24 26 19 0 41 23 46 28 15 17

2000 0 0 3 3 25 88 69

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138a 1928 to 2006 79 years Series 35

[B] Entire series, effect on correlation ( .751) is:

Lower 1945> -.028 1967< -.024 1998< -.019 1968< -.011 1957> -.009 1992> -.006 Higher 1962 .038 1953 .020

[D] 4 Absent rings: Year Master N series Absent

2003 -.646 40 10

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

138a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1928 96 96

1930 111 78 36 23 40 53 24 33 18 44

1940 58 38 68 164 112 51 42 79 34 31

1950 41 76 61 17 38 57 77 89 66 64

1960 64 57 26 57 68 45 56 39 24 97

1970 74 35 107 79 72 49 77 68 64 57

1980 54 48 71 39 35 29 41 52 27 39

1990 71 48 39 57 110 29 26 50 14 6

2000 4 4 3 0 0 0 0

====================================================================================================================================

138b 1925 to 2006 82 years Series 36

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1950 1979 9 -.18 .24 .08 -.35 -.02 -.19 .17 .05 -.21 .08 .48|-.04 -.11 .14 -.30 .04 -.16 -.31 .07 .51\*-.13

[B] Entire series, effect on correlation ( .502) is:

Lower 1957< -.042 1974< -.030 1963< -.016 1928< -.014 1989< -.011 1958> -.011 Higher 1969 .021 1927 .021

1950 to 1979 segment:

Lower 1957< -.096 1974< -.065 1963< -.033 1958> -.025 1951< -.020 1971> -.010 Higher 1969 .071 1953 .065

[D] 5 Absent rings: Year Master N series Absent

1957 -.035 36 1 >> WARNING: Ring is not usually narrow

2003 -.646 40 10

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

138b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1925 102 97 158 102 84

1930 113 117 74 56 35 64 49 47 35 88

1940 85 67 45 90 62 25 51 82 42 27

1950 18 20 34 13 18 48 48 0 100 96

1960 79 55 26 30 50 47 56 73 73 135

1970 75 50 55 65 36 35 59 56 75 59

1980 69 78 76 39 25 12 49 37 31 21

1990 20 31 14 31 69 25 28 51 29 9

2000 16 7 6 0 0 0 0

====================================================================================================================================

139a 1866 to 2006 141 years Series 37

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1950 1979 9 -.51 .13 .30 -.17 -.02 -.24 .29 .07 -.24 -.44 .44| .03 -.19 -.20 .35 .16 .11 -.20 -.12 .57\*-.06

1965 1994 -9 -.15 .34\*-.04 -.43 .09 -.16 .06 -.18 -.04 -.18 .22|-.21 -.10 .10 .33 .06 .13 .08 .14 .27 -.12

1977 2006 -8 -.10 .12 .19\*-.47 -.11 -.01 .14 -.16 -.11 -.08 .15| - - - - - - - - - -

[B] Entire series, effect on correlation ( .544) is:

Lower 1979< -.042 1988> -.016 1965> -.015 1983> -.014 2002> -.014 1868> -.012 Higher 1900 .020 1953 .018

1950 to 1979 segment:

Lower 1979< -.140 1965> -.056 1952< -.023 1974< -.012 1950> -.011 1961< -.011 Higher 1953 .087 1969 .041

1965 to 1994 segment:

Lower 1979< -.079 1988> -.063 1965> -.057 1983> -.051 1980< -.016 1974< -.013 Higher 1969 .075 1972 .043

1977 to 2006 segment:

Lower 1988> -.066 1983> -.052 1979< -.037 2002> -.031 2004< -.020 1980< -.012 Higher 1997 .026 1982 .026

[D] 6 Absent rings: Year Master N series Absent

1924 -2.983 30 3

2000 -.612 40 5

2001 -.089 40 4 >> WARNING: Ring is not usually narrow

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 4 3.0 SD above or -4.5 SD below mean for year

1965 +3.1 SD; 1979 -6.6 SD; 1980 -5.0 SD; 2002 +3.0 SD

139a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1866 74 103 130 92

1870 195 189 179 201 179 193 141 137 90 107

1880 115 181 179 312 189 250 189 267 214 266

1890 108 93 80 64 95 131 156 144 172 126

1900 54 103 190 142 156 153 181 100 85 74

1910 83 115 62 61 90 71 98 115 127 90

1920 94 55 50 39 0 21 76 155 160 105

1930 163 121 28 67 21 19 21 55 14 39

1940 26 15 23 36 31 12 9 27 9 8

1950 28 45 22 7 30 53 45 31 49 74

1960 64 33 20 69 75 79 63 56 24 70

1970 54 32 50 33 21 20 20 15 17 2

1980 3 10 15 13 6 5 13 11 15 15

1990 18 27 13 5 9 3 3 18 6 26

2000 0 0 63 19 0 0 0

====================================================================================================================================

139b 1866 to 2006 141 years Series 38

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1965 1994 -9 .00 .42\*-.10 -.33 .05 .05 .08 -.20 .01 -.12 .36|-.18 -.12 .06 .30 .17 .02 -.29 .23 .06 -.02

1977 2006 -9 .08 .28\*-.12 -.26 .04 .21 .16 -.17 .15 -.05 .11| - - - - - - - - - -

[B] Entire series, effect on correlation ( .513) is:

Lower 1878< -.023 1940< -.012 1980< -.012 1881> -.012 1988> -.011 1979< -.011 Higher 1900 .026 1924 .015

1965 to 1994 segment:

Lower 1980< -.051 1988> -.049 1979< -.036 1965> -.029 1989< -.023 1983> -.021 Higher 1969 .094 1982 .048

1977 to 2006 segment:

Lower 1988> -.043 2004< -.039 2003> -.037 1980< -.024 1997< -.019 2000> -.018 Higher 1982 .084 1978 .034

[D] 3 Absent rings: Year Master N series Absent

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1980 -5.5 SD

139b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1866 109 196 118 105

1870 218 185 191 223 126 163 126 211 74 112

1880 183 240 145 288 175 278 209 275 217 227

1890 135 228 127 137 157 133 172 130 177 157

1900 60 107 101 176 173 108 169 184 197 85

1910 83 94 81 94 172 176 159 144 171 116

1920 115 67 79 65 27 59 79 150 154 128

1930 132 123 57 79 58 35 25 45 26 40

1940 18 40 30 35 41 23 18 31 21 18

1950 34 38 32 16 25 40 34 18 17 23

1960 31 33 21 59 56 59 66 67 80 141

1970 80 38 69 56 55 39 66 53 54 19

1980 13 38 68 34 18 16 26 16 22 13

1990 7 26 17 7 9 5 7 3 4 23

2000 14 12 13 16 0 0 0

====================================================================================================================================

140a 1883 to 2006 124 years Series 39

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1883 1912 0 .01 .06 -.39 -.24 -.17 .13 .07 -.13 .32 -.28 .39\*-.18 .02 .09 -.15 .10 -.11 .15 .17 -.05 .20

1890 1919 0 .02 .17 -.33 -.13 -.16 .10 .07 -.10 .19 -.25 .36\*-.23 -.07 .17 -.11 .15 -.16 .05 .22 -.21 .19

[B] Entire series, effect on correlation ( .638) is:

Lower 1972< -.015 1906< -.013 1905< -.012 1908> -.011 1971< -.010 1904< -.008 Higher 1924 .022 1887 .009

1883 to 1912 segment:

Lower 1908> -.047 1905< -.046 1906< -.045 1899> -.033 1904< -.030 1897< -.028 Higher 1887 .075 1895 .066

1890 to 1919 segment:

Lower 1906< -.060 1905< -.058 1908> -.042 1904< -.039 1897< -.036 1899> -.032 Higher 1895 .075 1890 .051

[D] 4 Absent rings: Year Master N series Absent

2003 -.646 40 10

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1971 -4.6 SD

140a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1883 422 362 406 343 476 387 291

1890 219 283 201 181 271 156 271 171 234 262

1900 169 244 186 151 156 124 155 237 327 192

1910 245 193 173 143 262 317 276 244 285 183

1920 310 206 252 142 74 144 228 327 299 216

1930 234 246 136 141 118 144 70 114 89 109

1940 97 104 109 146 178 22 50 107 51 51

1950 67 115 180 64 139 181 152 140 124 105

1960 160 245 90 227 131 91 88 153 133 274

1970 140 17 65 90 100 76 106 87 191 96

1980 74 116 185 79 76 60 108 97 59 80

1990 109 82 80 36 74 30 68 61 18 18

2000 15 67 53 0 0 0 0

====================================================================================================================================

140b 1893 to 2006 114 years Series 40

[B] Entire series, effect on correlation ( .728) is:

Lower 2000> -.023 1972< -.012 1907< -.010 1925< -.009 1936> -.009 1999< -.009 Higher 1924 .026 1953 .018

[D] 6 Absent rings: Year Master N series Absent

1924 -2.983 30 3

1999 .280 40 2 >> WARNING: Ring is not usually narrow

2003 -.646 40 10

2004 .771 40 10 >> WARNING: Ring is not usually narrow

2005 .988 40 12 >> WARNING: Ring is not usually narrow

2006 .206 40 19 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2000 +3.1 SD

140b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1893 124 205 131 144 157 159 128

1900 98 229 222 160 194 148 184 124 219 176

1910 218 216 108 96 184 210 192 117 166 86

1920 126 74 97 35 0 14 115 163 169 124

1930 134 143 110 145 110 149 115 151 80 110

1940 108 77 78 148 169 78 78 147 84 52

1950 69 111 109 49 131 154 134 157 137 139

1960 151 143 61 148 121 75 64 120 128 168

1970 91 46 66 76 92 62 91 83 114 97

1980 78 52 82 34 31 21 34 49 26 42

1990 31 44 31 30 67 23 24 36 51 0

2000 100 55 39 0 0 0 0

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Corr //-------- Unfiltered --------\\ //---- Filtered -----\\

No. No. No. with Mean Max Std Auto Mean Max Std Auto AR

Seq Series Interval Years Segmt Flags Master msmt msmt dev corr sens value dev corr ()

--- -------- --------- ----- ----- ----- ------ ----- ----- ----- ----- ----- ----- ----- ----- --

1 121a 1917 2006 90 6 0 .661 1.13 2.41 .521 .417 .458 2.50 .365 .009 1

2 121b 1919 2006 88 6 0 .677 1.09 2.12 .456 .263 .438 2.50 .445 -.022 2

3 122a 1923 2006 84 5 0 .703 .84 2.36 .502 .679 .365 2.56 .441 .003 3

4 122b 1937 2006 70 4 1 .621 .65 1.67 .385 .603 .477 2.64 .514 .008 2

5 123a 1914 2006 93 6 0 .643 .63 1.96 .394 .471 .537 2.65 .393 -.013 1

6 123b 1917 2006 90 6 0 .661 .64 1.85 .400 .377 .600 2.80 .580 .026 1

7 124a 1868 2006 139 9 0 .698 1.11 2.83 .723 .752 .402 2.98 .518 -.009 1

8 124b 1873 2006 134 9 0 .785 1.13 3.34 .660 .713 .421 2.61 .536 -.023 1

9 125a 1914 2006 93 6 0 .735 .84 2.51 .534 .506 .534 2.69 .506 .012 1

10 125b 1914 2006 93 6 0 .698 .92 2.53 .532 .464 .603 2.68 .613 -.010 1

11 126a 1907 2006 100 6 0 .758 .80 1.86 .392 .408 .482 2.73 .606 -.010 2

12 126b 1911 2006 96 6 0 .737 .83 2.03 .449 .533 .501 2.57 .516 -.036 2

13 127a 1967 2006 40 2 0 .435 2.08 4.01 1.014 .359 .532 2.51 .598 -.039 1

14 127b 1968 2006 39 2 0 .528 1.55 2.98 .618 .106 .457 2.45 .523 -.049 1

15 128a 1968 2006 39 2 0 .535 2.30 5.38 .717 .173 .273 2.81 .487 -.080 1

16 128b 1971 2006 36 2 0 .551 1.85 4.54 .612 .177 .295 2.93 .527 -.108 1

17 129a 1895 2006 112 7 1 .701 1.07 2.99 .566 .664 .391 2.80 .479 -.051 2

18 129b 1929 2006 78 5 0 .703 1.18 2.43 .489 .575 .336 2.63 .438 -.045 2

19 130a 1917 2006 90 6 0 .749 1.23 2.94 .559 .653 .316 2.55 .442 .014 1

20 130b 1871 2006 136 9 0 .621 1.46 3.72 .665 .647 .322 2.60 .357 -.041 1

21 131a 1889 2006 118 8 0 .693 .83 2.90 .591 .567 .555 2.74 .493 .002 2

22 131b 1873 2006 134 9 0 .677 .76 2.57 .497 .468 .553 3.02 .537 -.019 2

23 132a 1926 2006 81 5 0 .633 .30 1.64 .242 .597 .577 2.55 .407 -.027 1

24 132b 1935 2006 72 4 0 .533 .49 1.27 .341 .601 .546 2.56 .419 -.034 3

25 133a 1864 2006 143 9 0 .724 .63 2.01 .382 .556 .508 2.72 .519 .011 4

26 133b 1861 2006 146 9 0 .744 .62 1.68 .356 .387 .535 2.76 .583 -.068 1

27 134a 1865 2006 142 9 4 .515 .71 3.29 .613 .819 .503 2.63 .453 -.042 2

28 134b 1908 2006 99 6 2 .463 .49 1.17 .261 .315 .576 2.58 .439 -.026 1

29 135a 1862 2006 145 9 3 .626 .70 2.88 .384 .586 .397 2.65 .471 -.043 1

30 135b 1861 2006 146 9 1 .542 .71 2.24 .362 .594 .360 2.63 .418 -.025 1

31 136a 1881 2006 126 8 0 .609 .52 2.76 .389 .707 .400 2.78 .538 .006 1

32 136b 1872 2006 135 9 0 .717 .77 3.95 .532 .603 .412 2.67 .524 .011 3

33 137a 1862 2006 145 9 1 .468 .57 2.51 .622 .762 .556 2.45 .317 -.007 1

34 137b 1867 2006 140 9 1 .649 .69 3.60 .688 .846 .551 2.74 .491 -.041 1

35 138a 1928 2006 79 5 0 .751 .51 1.64 .307 .539 .432 2.95 .540 -.027 3

36 138b 1925 2006 82 5 1 .502 .51 1.58 .329 .654 .447 2.91 .526 -.023 2

37 139a 1866 2006 141 9 3 .544 .75 3.12 .680 .845 .487 2.80 .412 .067 1

38 139b 1866 2006 141 9 2 .513 .87 2.88 .715 .813 .386 2.85 .466 .006 1

39 140a 1883 2006 124 8 2 .638 1.55 4.76 .984 .761 .393 2.67 .446 .016 1

40 140b 1893 2006 114 7 0 .728 1.03 2.29 .578 .693 .417 2.72 .506 .094 1

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Total or mean: 4193 265 22 .642 .87 5.38 .526 .595 .461 3.02 .481 -.012

- = [ COFECHA ROXB COF ] = -