Notes on Calendar Construction and Excel

Parts

The two parts of the bookend calendar are the moving window and the stationary part. Figure 1 shows the pattern which has these parts, one above the other.

S	M	T	W	T	F	S			S	M	T	W	T	F	S

Cut out window

Left window year table:

S	M	T	W	T	F	S
2000	2001	2002	2003	2009	**2004**	2005
2006	2007	2013	**2008**	2015	2010	2011
2017	**2012**	2019	2014	**2020**	2021	**2016**
2023	2018	**2024**	2025	2026	2027	2022
2028	2029	2030	2031	2037	**2032**	2033
2034	2035	2041	**2036**	2043	2038	2039
2045	**2040**	2047	2042	**2048**	2049	**2044**
2051	2046	**2052**	2053	2054	2055	2050
2056	2057	2058	2059	2065	**2060**	2061
2062	2063	2069	**2064**	2071	2066	2067
2073	**2068**	2075	2070	**2076**	2077	**2072**
2079	2074	**2080**	2081	2082	2083	2078
2084	2085	2086	2087	2093	**2088**	2089
2090	2091	2097	**2092**	2099	2094	2095
	2096		2098			

Right window year table:

S	M	T	W	T	F	S
	1900	1901	1902	1903	1909	**1904**
1905	1906	1907	1913	**1908**	1915	1910
1911	1917	**1912**	1919	1914	**1920**	1921
1916	1923	1918	**1924**	1925	1926	1927
1922	**1928**	1929	1930	1931	1937	**1932**
1933	1934	1935	1941	**1936**	1943	1938
1939	1945	**1940**	1947	1942	**1948**	1949
1944	1951	1946	**1952**	1953	1954	1955
1950	**1956**	1957	1958	1959	1965	**1960**
1961	1962	1963	1969	**1964**	1971	1966
1967	1973	**1968**	1975	1970	**1976**	1977
1972	1979	1974	**1980**	1981	1982	1983
1978	**1984**	1985	1986	1987	1993	**1988**
1989	1990	1991	1997	**1992**	1999	1994
1995		**1996**		1998		

Stationary part day grid:

						1	2	3	4	5	6	7
2	3	4	5	6	7	8	9	10	11	12	13	14
9	10	11	12	13	14	15	16	17	18	19	20	21
16	17	18	19	20	21	22	23	24	25	26	27	28
23	24	25	26	27	28	29	30	31				
30	31											
JAN	LEAP YR	LEAP YR	LEAP YR	**FEB**	LEAP YR	LEAP YR	**JAN**	LEAP YR	LEAP YR	LEAP YR	**FEB**	LEAP YR
APR	SEP	JUN	MAR	AUG	MAY	OCT	APR	SEP	JUN	MAR	AUG	MAY
JUL	DEC		NOV				JUL	DEC		NOV		
COM YR	COM YR	COM YR	FEB	COM YR	COM YR	JAN	COM YR	COM YR	COM YR	FEB	COM YR	COM YR

Set year under month. Note that Jan. and Feb. are in different rows for leap and common years. Ignore 29, 30 & 31 when applicable.

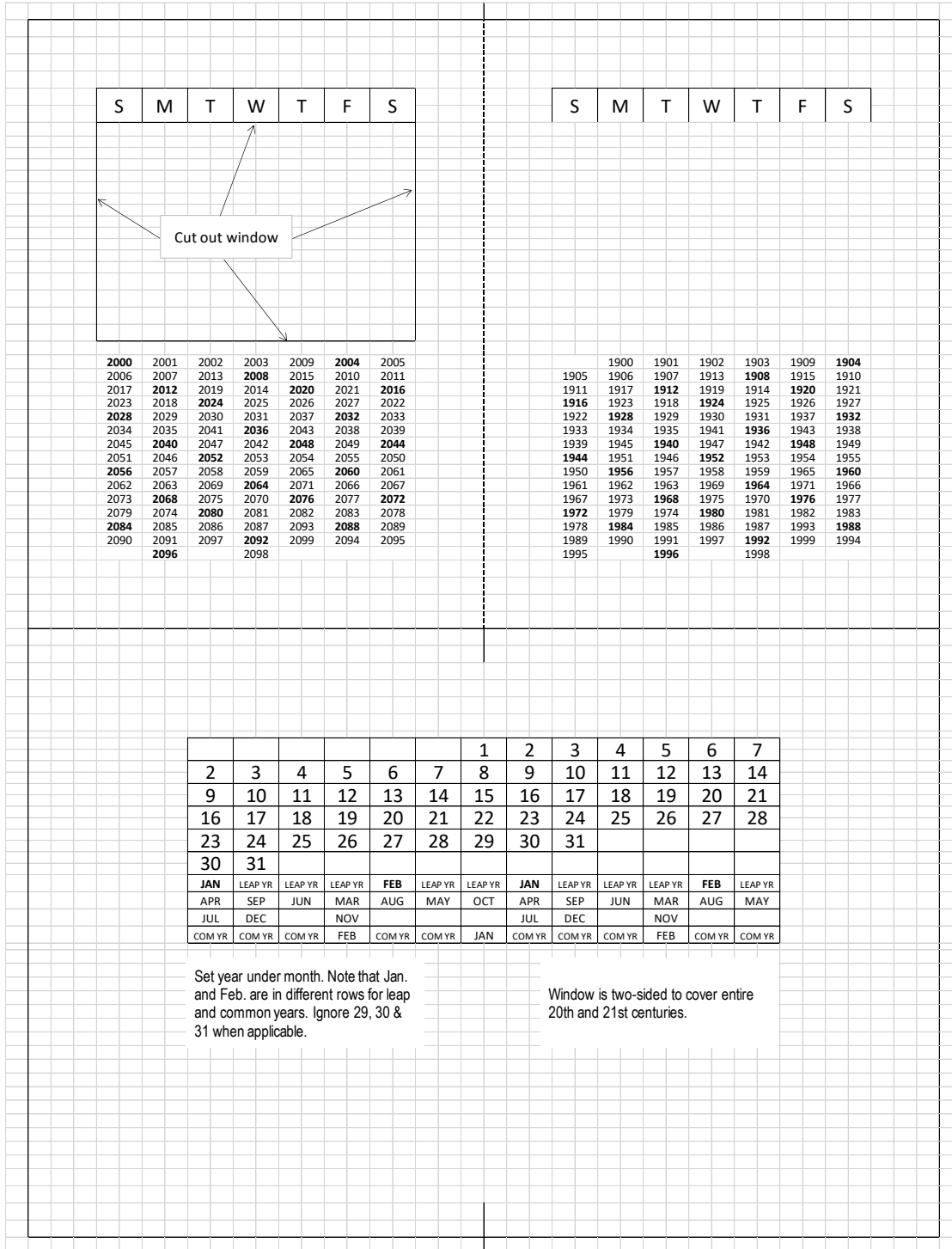Window is two-sided to cover entire 20th and 21st centuries.

Figure 1: Bookend calendar

<u>Using Excel to Make Graphics</u>

I use Excel to make my graphics. It is certainly not a powerful graphics program, but it is widely available and easy to use. Excel features that are useful for making perpetual calendar tables include: a wide range of fonts available, the capability to draw borders around selected cells, the capability to scale the document when printing, the capability to change row heights and column widths, and the capability to merge cells. A disadvantage of Excel is that row heights are usually set as points, where 1 point = 1/72 inches, and column widths are usually set as the number of zero characters ("0") that will fill the cell. The website https://www.officetuto.com/column-width-and-row-height-units-in-excel/ describes a procedure for changing the units to inches or centimeters, but it is complicated. By adjusting cell heights and widths in the usual way and by scaling, I am able to obtain piece sizes close what I would make them if I were able to set exact dimensions.

To start the graphics for the calendar, set all cells on a spreadsheet to have a width of 3 and a height of 15. Then change some of the rows to a different height as indicated in Table 1 below.

Table 1: Rows in the two pieces

Rows	Height	Notes
Rows in the moving window part		
3 to 6	15	Space above day-of-week table
7 and 8	15	Day-of-week table
9	12	To make the window opening one row higher than the tables that it displays
10 to 21	10	Height of the day-of-month table
22 to 25	15	Height of the month table
26 to 41	12	Height of the year table plus one row
42 to 45	15	Space below year table
Rows in the stationary part		
46 to 51	15	Same function as rows 3 to 8 above
52	6	This row and row 69 have the same function as row 9 above. By having two rows half the height of row 9, the day-of-month and month tables are centred in the window opening.
53 to 64	10	Same function as rows 10 to 21 above
65 to 68	15	Height of month table
69	6	See row 52 above
70 to 85	12	Same function as rows 26 to 41 above
86 to 89	15	Same function as rows 42 to 45 above

The fonts for the tables and the text boxes are below.

- Day-of-Week table: Each letter is in a merged cell that is two rows high and two columns wide, which is a total of four cells. The font is Calibri 18.
- Year table: Each year is in a merged cell that is two columns wide, which is a total of two cells. The font is Calibri 11, with bold used for leap years.
- Both text boxes: Height is 2.79 cm and width is 7.38 cm. The text is Arial Narrow 14.

- Day-of-Month table: Each day is in a merged cell that is two rows high by two columns wide, which is a total of four cells. The font is Calibri.
- Month table: Each entry is in a merged cell that is two columns wide, which is a total of two cells. The font is Calibri 11 for month names and Calibri 9 for the terms "LEAP YR" and "COM YR". JAN and FEB are bold when they apply to leap years.

The page setup parameters are:

- Orientation: Portrait
- Scaling: Adjust to 50% of normal size
- Top & Bottom margins: 1.9
- Left margin: 0.5
- Right margin 1.8
- Header & Footer: 0.8
- Gridlines: Not printed

The locations of various features are:

Feature	Cell Locations*	
	Upper Left	Lower Right
Left hand Day-of-Week table (SMTWTFS)	E7	Q7
Right hand Day-of-Week table (SMTWTFS)	Y7	AK7
Window	E9	R25
Left year table	E27	Q41
Right year table	Y27	AK41
Day-of-Month table	I53	AG63
Month table	I65	AG65

*In the case of merged cells, the cell location is that of the upper left cell in the merged group