

DEUCE Programme No. 6 (ZV02)

Easter Day

SUMMARY.

This demonstration programme reads a year from the I.D. and displays in the scope the date of Easter Sunday in that year.

DEUCE Programme No. 6 (ZV02)

Easter Day

OPERATING INSTRUCTIONS.

- (1) Initial Input programme, cards 0 - 27
- (2) Switch Scope to D.L.10 and line up with used mcs. in centre of display.
- (3) Switch Scope to D.L.9.
- (4) Programme stops on 1, 0-14 X.
- (5) On I.D. set thousands digit of year; P_{1-9} keys correspond to digit 1-9, for 0 I.D. is zero.
- (6) S.S.
- (7) Clear I.D.
- (8) Repeat (5) - (7) for the other three digits of the year.
- (9) Programme stops on 5, 30-9 X with the date of Easter Day displayed in scope.
- (10) S.S. to clear display and return to (4).

No allowance is made for the change from the Julian to the Gregorian Calendar in England in 1752 so correct answers will not be produced for years prior to 1753. Future dates can be set up to the year 9999.

Method.

Let the year be N and c be the number of hundreds therein.
Let $[x]$ be the largest integer contained in x

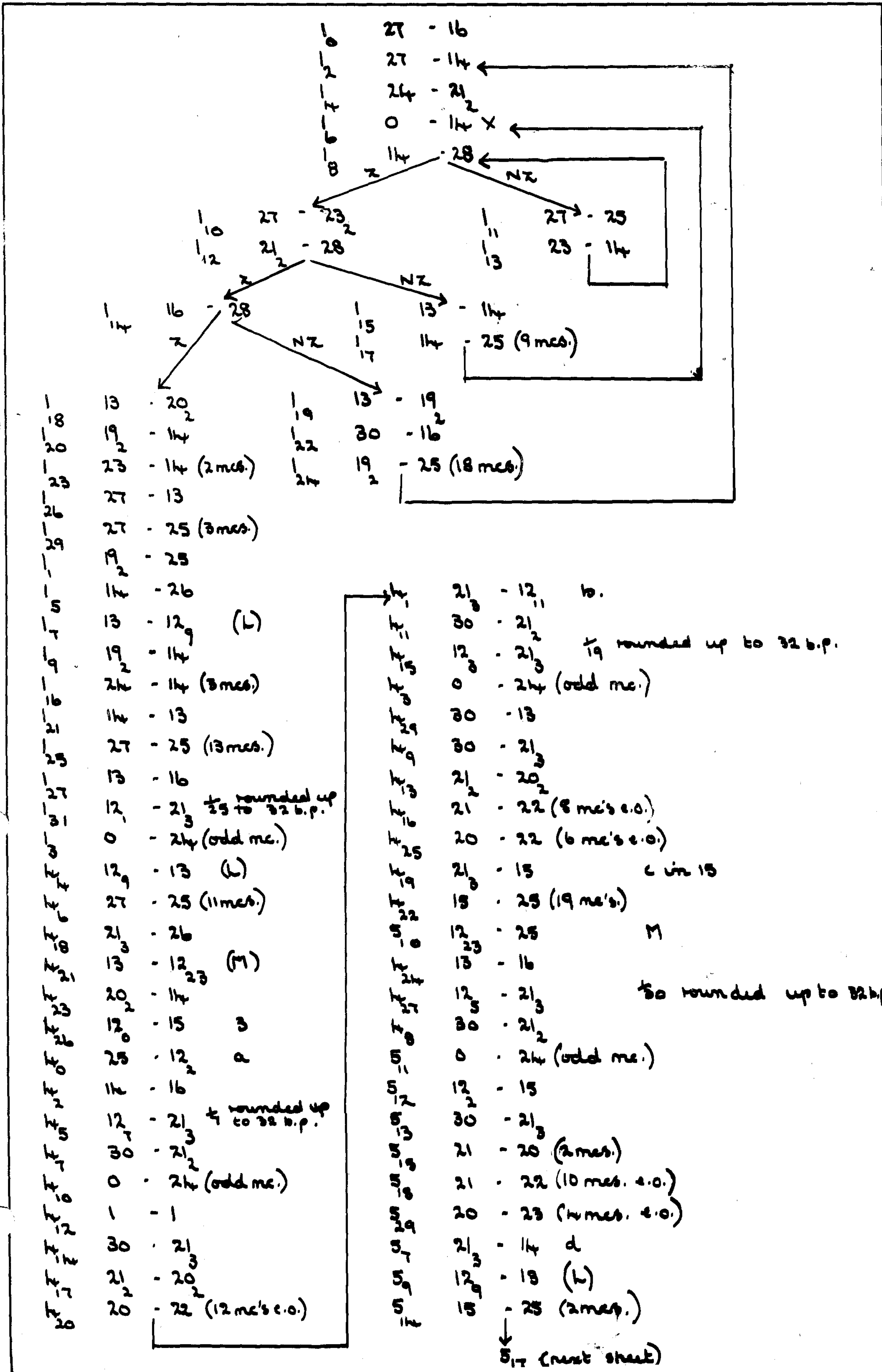
$$\text{We compute } M = 15 + c - \left[\frac{c}{4} \right] - \left[\frac{8c+13}{25} \right]$$

$$L = 4 + c - \left[\frac{c}{4} \right]$$

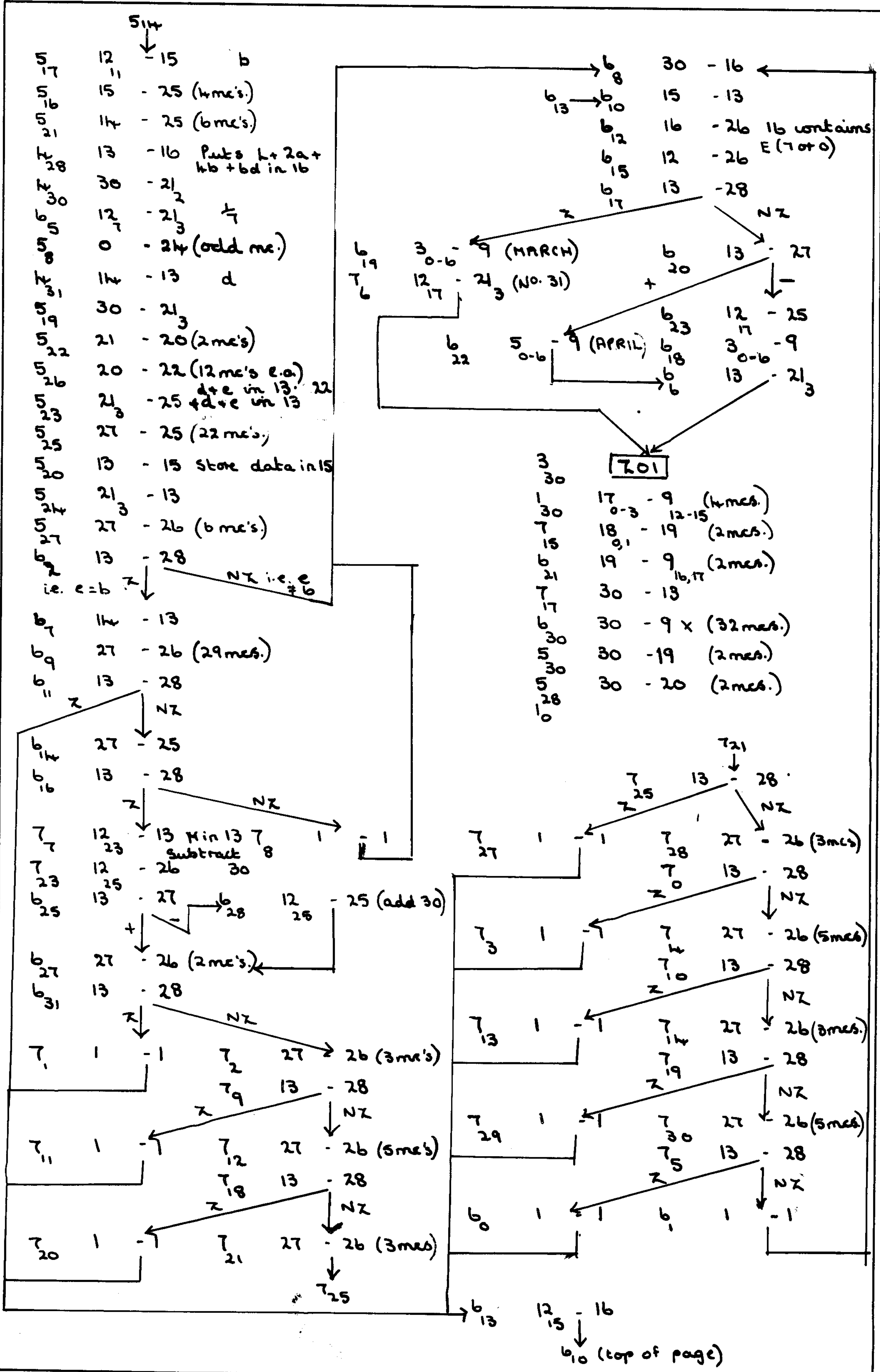
Then divide N by 4 and call the remainder a
 N by 7 and call the remainder b
 N by 19 and call the remainder d
 $19d+M$ by 30 and call the remainder e
 $2a+4b+6e+L$ by 7 and call the remainder f

Then the date of Easter Day is March $(22+e+f)$
 unless $e = 29$ and $f = 6$ or $e = 28$, $f = 6$ and $M = 2, 5, 10, 13, 16, 21, 24$, or 29 when it is one week earlier.

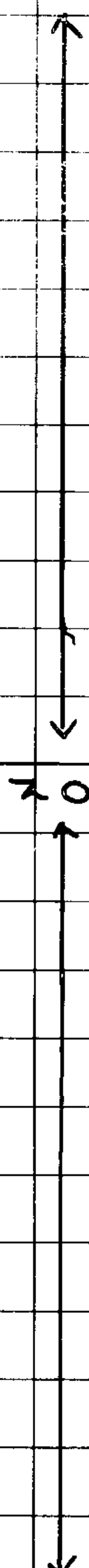
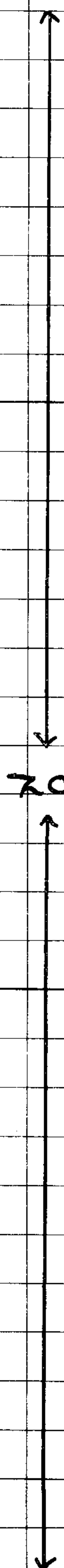
Easter Day.



Easter Day.



D.L. 1. Track Card Nos. 7-9								D.L. 2. Track Card Nos. 10-12								D.L. 3. Track Card Nos. 13-15								
mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T	
0		127		16	0	0		0								0		2	4	2	15	28	4	2
1		119		25	1	2		1								1		6	6	5	17	2	5	2
2		127		14	0	0		2								2		10	21	8	17	2	4	2
3		40		24	0	31		3								3		18	20	9	15	2	28	3
4		124		21	0	0		4								4		2	20	8	5	2	4	2
5		114		26	0	0		5								5		2	20	8	9	2	5	2
6		10		14	0	0	X	6								6		2	20	8	17	28	4	2
7		113		12	0	0		7								7								
8		114		28	0	0		8								8								
9		119		14	1	5		9								9								
10		127		23	0	0		10								10								
11		127		25	0	0		11								11								
12		121		28	0	0		12								12								
13		123		14	0	25		13								13								
14		116		28	0	2		14								14								
15		113		14	0	0		15								15								
16		124		14	1	3		16								16								
17		114		25	1	19		17								17								
18		113		20	0	0		18								18								
19		113		19	1	1		19								19								
20		119		14	0	1		20								20								
21		114		13	0	2		21								21								
22		130		16	0	0		22								22								
23		123		14	0	1		23								23								
24		119		25	1	23	8	24								24								
25		127		25	1	20	0	25								25								
26		127		13	0	1		26								26								
27		113		16	0	2		27								27								
28		013		0	0	0		28								28								
29		127		25	1	0	2	29								29								
30		717		9	1	12	15	30								30								
31		112		21	0	2		31								31								



30-6 MARCH.

D.L. 4. Track Card Nos. 16-18								D.L. 5. Track Card Nos. 19-21								D.L. 6. Track Card Nos. 22-24										
mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T			
0		25		12		0	0	0		16, 24, 19		7		5		0	0	0		61		1		0		11
1		21		12		8	8	1		8, 9, 20		8		5		0	0	1		61		1		0		5
2		14		16		0	!	2		10, 20		8		5		0	0	2		613		28		0		3
3		0		24		0	24	3		28, 27, 19		7		5		0	0	3								
4		12		13		3	0	4		10, 16		2		5		0	0	4								
5		12		21		0	0	5		10, 16		4		5		0	0	5		512		21		0		1
6		27		25		0	10	6		10, 16		8		29		1	0	6		313		21		1		22
7		30		21		1	1	7		521		14		0		0	7		614		13		0		0	
8		30		21		0	1	8		40		24		1		21	8		630		16		0		0	
9		30		21		0	2	9		512		13		30		3	9		627		26		4		0	
10		0		24		1	0	10		412		25		11		12	10		615		13		0		0	
11		30		21		1	2	11		50		24		0		31	11		613		28		0		0	
12		1		1		1	0	12		512		15		20		31	12		616		26		0		1	
13		21		20		1	1	13		530		21		0		0	13		612		16		0		27	
14		30		21		1	1	14		515		25		d		0	14		627		25		0		0	
15		12		21		18	18	15		521		20		d		0	15		612		26		0		0	
16		21		22		0	7	16		515		25		0		3	16		713		28		0		21	
17		21		20		1	1	17		512		15		24		29	17		613		28		0		0	
18		21		26		1	1	18		521		22		0		9	18		63		9		12		18	
19		21		15		0	1	19		530		21		0		1	19		713		9		11		17	
20		20		22		0	11	20		513		15		0		2	20		613		27		0		0	
21		13		12		0	0	21		414		25		0		5	21		719		9		d	25	26	
22		15		25		0	18	22		521		20		d		0	22		65		9		8		14	
23		20		14		1	1	23		521		25		0		0	23		612		25		24		25	
24		13		16		0	1	24		521		13		1		1	24									
25		20		22		0	19	25		527		25		0		25	25		613		27		0		0	
26		12		15		4	4	26		520		22		0		16	26									
27		12		21		8	11	27		627		26		0		5	27		627		26		d	0	2	
28		13		16		0	0	28		130		20		d		0	28		612		25		27		29	
29		30		13		11	10	29		520		23		0		8	29									
30		30		21		0	5	30		530		19		d		0	30		530		9		0	31	30 X	
31		14		13		19	18	31									31		713		28		0		0	

5-6 APRIL

D.L. 7. Track Card Nos. 25-27								D.L. 10 Track Card Nos. 4-b								D.L. 12 Track Card Nos. 1-3								
mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T	mc	A	NIS	S	D	C	W	T	
0		713		28		0	1	0								0								
1		61		1		0	10	1								1								
2		727		26	8	3	5	2								2								
3		61		1		0	8	3								3								
4		727		26	8	0	4	4								4								
5		613		28		0	25	5								5								
6		312		21		9	22	6								6								
7		712		13		14	14	7								7								
8		61		1		0	30	8								8								
9		713		28		0	0	9								9								
10		713		28		0	1	10								10								
11		61		1		0	0	11								11								
12		727		26	8	0	4	12								12								
13		61		1		0	30	13								13								
14		727		26	8	1	3	14								14								
15		618		19	d	3	4	15								15								
16								16								16								
17		630		13		0	11	17								17								
18		713		28		0	0	18								18								
19		713		28		0	8	19								19								
20		61		1		0	23	20								20								
21		727		26	8	0	2	21								21								
22								22								22								
23		612		26		0	0	23								23								
24								24								24								
25		713		28		0	0	25								25								
26								26								26								
27		61		1		0	16	27								27								
28		727		26	8	0	2	28								28								
29		61		1		0	14	29								29								
30		727		26	8	1	6	30								30								
31								31								31								



0 3P1
 1 0, 0, 9, 1, 23, 30, 8, 1 ($\frac{1}{25}$)
 2 Reserved for a
 3 11, 23, 6, 20, 28, 21, 1 ($\frac{1}{19}$)
 4
 5 10, 2, 17, 8, 4, 2, 1 ($\frac{1}{30}$)
 6
 7 10, 9, 18, 4, 9, 18, 4 ($\frac{1}{7}$)
 8
 9 Reserved for h
 10
 11 Reserved for b.
 12
 13
 14
 15 7P1
 16
 17 31P1
 18
 19
 20
 21
 22
 23 Reserved for M
 24
 25 30P1
 26
 27
 28
 29
 30
 31