

## KENT ARCHAEOOOGICAL SOCIETY

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## THE DOMINICAL OR SUNDAY LETTER DIAL, IN EASTRY CHURCH, KENT

By F. H. Worsfold, F.S.A.

When visiting this beautiful old building in the summer of 1947, my attention was drawn to an incised lettered Dial on a pillar in the South Aisle (Plates I and II). The Vicar, the Rev. F. J. Cartman, could not throw very much light on its origin or function and this uncertainty about it has always been general. On the occasions of the visits of the Society to this Church, both in 1885 and 1910, nothing very conclusive could be stated, except that it had something to do with the Sunday Letter System used by Ecclesiastical Authorities for the ascertainment of the correct date of Easter Day for any given year. This led the Rev. C. D. Lampen, the present vicar's predecessor, to say, when speaking to the Society in 1910, "I must draw attention to the Dominical Circle on the octagonal pillar of the South Aisle of which an account was printed in the Archocological Journal forty years ago by Mr. W. S. Walford. The Sunday Letters within the circle are carved in Lombardic Capitals of the date (say) 1325, which is a highly interesting specimen of a fourteenth century Parish Almanac " (Arch. Cant., XXIX, p. LXXI). A full transcript of Mr. W. S. Walford's article which appeared in the Archocological Journal, Vol. IX, p. 389, was reprinted with a sketch of the Dial in the Rev. Dr. W. Frank Shaw's Memorials of Eastry, pp. 75-77, and is as follows. "It is little more than five feet from the floor and at a height consequently for inspection, on the south-west face of an octagonal pillar (being the second pillar from the west) between the nave and the South Aisle. It consists (see sketch) of three concentric circles, each an inch apart, the outer one being eleven inches in diameter.
" The inner and middle circles are divided by radii into 28 equal parts, and in each compartment so formed between the circles, is one of the first seven letters of the alphabet, and above every fourth is another of these letters in a compartment formed between the middle and outer circles by the radii being there carried through to the outer circle. In this manner the letters A. B. C. D. E. F. G. are arranged so that each of them occurs five times, but the order of them is the reverse of alphabetical, the letters between the outer and middle circles being read immediately before those over which they respectively stand. Such is the order in which the Dominical Letters succeed each other, the two letters one above the other corresponding with those


Dominical Circle, Eastry Church, Kent.


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A Pen Sketch of the Dominical Circle, Eastry Church, Kent.

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of the bissextile or leap year. As after every 28 years, which is the period of the solar cycle, the Dominical Letters occur again in the same manner, that cycle has been aptly represented by a circle divided into 28 parts. The result was a table whereby if two Dominical Letters for any leap year were given, the Dominical Letter for any other year before or after it might be readily found, according to the state and understanding of the Calendar."

Dr. Shaw then adds, "The pillars of the Church having been scraped a few years ago this carving which had been covered over, was brought to light again. The lines and letters now appear slightly incised the consequence probably of the scraping; but they may all be made out. Mr. Walford could not learn that it had been explained before since its discovery, and as far as he was able to ascertain, it is an unique example of such a table.
"The Church is a very good specimen of plain Early English Architecture, but the pillar on which the carving exists, has the appearance of being somewhat more recent in style than the others, as if from some cause it had been renewed, though hardly later than the early part of the fourteenth century; and since the letters are what are generally termed Lombardic Capitals there is great reason to think the carving, if not contemporaneous was executed but a few years after the pillar itself." Now it will be gathered from Mr. Walford's description of the dial that he has rightly associated it with the Dominical (dies dominica) or Sunday Letter System but failed to point out that for its effective working, its letters must be used in conjunction with what are called the Golden Numbers or Primes, if its utility is to be demonstrated, which doubtless was to determine the day on which the Church's Great Feast of Easter Day falls in any given year, from which many of her other Holy Days, Festivals and Feasts are regulated. As to how Sunday Letters are ascertained is set forth in the first part of the Book of Common Prayer in the Tables and Rules for the Moveable and Immoveable Feasts with the days of Fasting and Abstinence throughout the year and entitled "A Table to find Easter Day." It reads thus: "To find the Dominical or Sunday Letter according to the Calendar until the year 2099 inclusive, add to the year of OurLord its fourth part (omitting fractions) and also the Number 6. Divide the sum by 7 and if there is no remainder then $A$. is the Sunday Letter. But if any number remaineth then the Letter standing against that Number in the small annexed Table is the Sunday Letter.

$$
0=\text { A. } \quad 1=\text { G. } . \quad 2=\text { F. } . \quad 3=\text { E. } . \quad 4=\text { D. } \quad 5=\text { C. } .6=\text { B. }
$$

Note that in all Bissextile or Leap years the letters found as above from the intercalated Day exclusive to the end of the Year."

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Applying the foregoing rules to this present year of Grace it can be expressed thus :

$$
\begin{aligned}
1954+\frac{1954}{4}+\frac{6}{1}= & 2448 \text { (ignoring fractions), which } \div 7 \\
& =349 \text { with } 5 \text { over. }
\end{aligned}
$$

This remainder being the operative figure yields the Sunday letter C. according to the above scale. However, when it is known on what day of the week January lst falls it is only necessary to remember it is invariably assigned the letter A. and to the six following days B. C. D. E. F. G. respectively.

Thus with New Year's Day for 1954 falling on a Friday=A, Saturday =B, Sunday=C, Monday=D, Tuesday=E, Wednesday=F, Thursday $=G$, which shows the Sunday Letter to be in agreement with the Church's method of ascertainment.

These Sunday letters progress clock-wise round the dial, and as Mr. Walford has pointed out in reverse alphabetical order, namely G. to $A$. while the Leap Years are indicated by double lettering. This is necessitated by the inclusion on the circle of the extra day in the 7 recurring bissextile periods in the solar cycle of 28 years and is in conformity with the Prayer Book's expression of this factor. If they were not so shown, it would be impossible to determine to which of the 5 C's on the dial our present year of 1954 could be attached, but knowing 1952 to be a leap year we can definitely nail down our ascertained C for 1954, two removes from the F.E. lettering on the circle. With this date and its corresponding letter definitely established one can complete the entire cycle of the wheel, and can by simple addition or subtraction determine unfailingly the correct Sunday Letter for any year in the series before or following the fixed year. For example if the dial is consulted as to the appropriate letter for 1957 all that is needed is to count three divisions from 1954 to find F. indicated for the year in question. Or if the letter for 30 years ahead is required it is only necessary to deduct one cycle of 28 years leaving 2 which from our base point 1954 gives us G. for 1984. But, as already stated, the Sunday Letter Dial alone is impotent to yield the Easter Day date without the co-operation of the Golden Number, so called because in ancient calendars it was inscribed in letters of Gold and in Roman numerals. Its purpose was to indicate the number of any year in the cycle of the moon which after every nineteen years repeats its various aspects within an hour of the same as they were when the cycle started. This was known at an early period and this nineteen year lunar cycle was adopted as far back as July 16433 в.о.

The Prayer Book instruction to find the Golden Number is " Add one to the year for which the Golden Number is required and then


DOMINICAL CTRCLE TK EASTRY CHURCM
with the a ddilion of the apprapriste Golden Numbers and therasultina Easten Davs, for yenrs

1938-1965.

Complete dial showing Easter Days from 1938 to 1965.

DOMINICAL OR SUNDAY LETTER DIAL, IN EASTRY CHURCH, KENT divide by 19 , the remainder if any is the Golden Number but if nothing remaineth then 19 is the Golden Number." Thus for the present year it can be shortly expressed $1954+1=\frac{1955}{19}=102$ with a remainder XVII representing the prime for this period. Now with the already ascertained Sunday Letter C. and this associated Golden Number XVII they jointly can be applied to the Prayer Book's "Another Table to find Easter" which is given below, and following its note of instructions

| Golden <br> Number | Sunday Letters |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | D | E | F | G |
| II |  | Ap. 17 |  |  |  |  | Ap. 15 |
| III | Mch. 26 | Mch. 10 | $\begin{array}{rr} 4 \\ \mathrm{Mch} . & 48 \end{array}$ | $\begin{aligned} & \text { M }{ }^{5} \\ & \text { Mch. } 29 \end{aligned}$ | $\begin{array}{r} 6 \\ \text { Mch. } 30 \end{array}$ | $\begin{aligned} & 7 \\ & \text { Mch. } 24 \end{aligned}$ | Mch. ${ }^{8}$ |
| IV | Ap. 16 | Ap. 17 | Ap. 18 | Ap. 12 | Ap. 13 | Ap. 14 | Ap. 15 |
| V |  |  | " 4 | " ${ }^{5}$ |  | " 7 |  |
| VI | " 23 | , 24 | , 25 | " 19 | " 20 | " 21 | " |
| VIII | " 9 | " 10 | " 11 | ") 12 | ${ }^{\prime \prime}{ }^{\prime \prime} 13$ | " ${ }^{\prime \prime} 14$ |  |
| VIII | " 2 | " 3 | " 4 | Mch. 29 | Mch. 30 | Mch. 31 |  |
| $\underset{\mathrm{X}}{\mathrm{IX}}$ | ", 23 | ", 17 | ", 18 | $\begin{array}{rr}\text { Ap. } \\ \text { \% } & 19\end{array}$ | Ap. 20 | Ap. 21 <br> 1  | " ${ }^{22}$ |
| XI | Mch. 26 | Mch. 27 | Moh. 28 | Mch. 29 | Mch. 30 | Mch. 31 |  |
| XIII | Ap. 16 | Ap. 17 | Ap. 18 | Ap. 19 | Ap. 20 | Ap. 14 | " 15 |
| XIII | M" 26 | " ${ }^{3}$ | " ${ }^{4}$ | *) ${ }^{5}$ | "3 ${ }^{6}$ | M" ${ }^{7}$ |  |
| XIV | Mch. 26 | Mch. 27 | Mch. 28 | Moh. 29 | Mch. 23 | Mch. 24 | Mch. 25 |
| XVI | Ap. ${ }^{16}$ | Ap. $\begin{array}{r}17 \\ \#\end{array}$ | Ap. 11 | Ap. <br> $\#$ <br> $\#$ | Ap. ${ }^{13}$ | Ap. Mch. 31 | $\text { Ap. } 15$ |
| XVII | 23 | ", 24 | " 18 | ", 19 | 20 | Ap. 21 |  |
| $\underset{\text { XIX }}{\text { XVIII }}$ | $\begin{array}{ll} \hline " & 9 \\ " & 2 \end{array}$ | $\begin{array}{r} 10 \\ " \quad 3 \end{array}$ | $\xrightarrow[\text { Moh. } 28]{11}$ | Mch. ${ }^{12}$ | Mch. 30 | Mch. 31 | " ${ }^{8}$ |

how it functions is indicated by my directional arrows, our goal of Easter Sunday, April 18th, 1954, is reached, agreeing as it does with the date published in this year's Church calendar. It should be pointed out that the Golden Number sequence could not be satisfactorily expressed on the Dominical Circle, being different in the length of its term, but their computation for any given year is quite simple as demonstrated above-and the result can be quickly linked up with its Sunday Letter to yield any required Easter Day date. For the convenience of my readers the accompanying sketch (Plate III) has been prepared setting forth the various processes described herein, superimposed on a copy of Eastry's unique example of medieval date fixing apparatus, to make my written word the clearer.

