Women's Writing

The later twentieth century saw a huge wave of academic interest in women's writing, which led to the rediscovery of neglected works from a wide range of genres, periods and languages. Many books that were immensely popular and influential in their own day are now studied again, both for their own sake and for what they reveal about the social, political and cultural conditions of their time. A pioneering resource in this area is Orlando: Women's Writing in the British Isles from the Beginnings to the Present (http://orlando.cambridge.org), which provides entries on authors' lives and writing careers, contextual material, timelines, sets of internal links, and bibliographies. Its editors have made a major contribution to the selection of the works reissued in this series within the Cambridge Library Collection, which focuses on non-fiction publications by women on a wide range of subjects from astronomy to biography, music to political economy, and education to prison reform.

The Book of Sun-Dials

Margaret Gatty (1809–73) was an English writer of popular science best known for her researches on sundials and British seaweeds. After marrying the Rev. Alfred Gatty in 1839, she moved to Ecclesfield, Yorkshire, where she pursued her literary and scientific studies. This volume, first published in 1872, contains detailed descriptions of various styles of sundials, many taken from Gatty's own collection. Over 350 sundials from across Britain and Europe are described (with their mottoes provided and translated where necessary), and each sundial's location is noted in this work, which was one of the first popular books on the subject. Examples included range from portable sundials to early Saxon sundials, as well as the more familiar church sundials. This volume is one of Gatty's best known works, and remains a valuable reference for the various types of sundials and the variations and similarities in their mottoes. For more information on this author, see http://orlando.cambridge.org/public/svPeople?person_id=gattma
Cambridge University Press has long been a pioneer in the reissuing of out-of-print titles from its own backlist, producing digital reprints of books that are still sought after by scholars and students but could not be reprinted economically using traditional technology. The Cambridge Library Collection extends this activity to a wider range of books which are still of importance to researchers and professionals, either for the source material they contain, or as landmarks in the history of their academic discipline.

Drawing from the world-renowned collections in the Cambridge University Library, and guided by the advice of experts in each subject area, Cambridge University Press is using state-of-the-art scanning machines in its own Printing House to capture the content of each book selected for inclusion. The files are processed to give a consistently clear, crisp image, and the books finished to the high quality standard for which the Press is recognised around the world. The latest print-on-demand technology ensures that the books will remain available indefinitely, and that orders for single or multiple copies can quickly be supplied.

The Cambridge Library Collection will bring back to life books of enduring scholarly value (including out-of-copyright works originally issued by other publishers) across a wide range of disciplines in the humanities and social sciences and in science and technology.
The Book of Sun-Dials

Margaret Gatty
A SHORTENED MORTUARY CROSS

In Over Peover Churchyard, Cheshire.

OITO PEDE PRÆTERIT ÅTAS 1879. Nº 30
THE

BOOK OF SUN-DIALS.

COLLECTED BY

MRS. ALFRED GATTY,

AUTHOR OF “PARABLES FROM NATURE,”

ETC.

LONDON:

BELL AND DALDY, YORK STREET,

COVENT GARDEN.

1872.
TO

THE DEAR HUSBAND,

TO WHOM I AM INDEBTED FOR THE BEST HAPPINESS OF

THE HOURS OF EARTHLY LIFE,

AND WITH WHOM I HOPE TO SHARE THE EXISTENCE IN WHICH

TIME SHALL BE NO MORE,

I DEDICATE THIS VOLUME,

IN THE COMPILATION OF WHICH HE HAS TAKEN SO GREAT

A PART AND INTEREST.

M. G.
PREFACE.

If any one should open these pages, expecting to find in them an astronomically scientific account of sundials, from their first simple origin to the complicated and even confused perfection at which they arrived, just before they were superseded by clocks, in the beginning of the eighteenth century, he will be disappointed.

Some years ago, when we were contemplating this publication, we rejoiced at receiving the following advice from a wise and accomplished friend, James Nasmyth, Esq.—“If I might presume to say so, I think you will do well to keep quite clear of any astronomical treatment of the subject. If I apprehend aright, your object is the poetry and moral of dials, under their varied treatment in several ages. This is the romantic part of it, the other is the dry one; and has been done many times already.” If we had ever doubted the wisdom of this counsel, our hesitation would have been swept away by the sight, which through the kindness of his daughter we have been permitted to enjoy, of the models and works on Dialling of the late Rev. W. Hewson, M.A., vicar of Goatland, Yorkshire
PREFACE.

—the labour of eight years, and still requiring as long an apprenticeship to understand them. They remain a monument of his indefatigable zeal, and remind us that the undergraduates of Cambridge used to say that only Sir Isaac Newton could explain the dial which he himself had erected on Queen's College.

On the subject of this volume so much has been already said in the Introductory Chapter, which might naturally have formed a part of the Preface, that little remains to be added, beyond thanking those who have assisted in making the collection.

Among these there is one dear young friend, without whom it is probable that the work would never have appeared—Miss Eleanor Lloyd. To her the reader is indebted for by far the greater number of the continental mottoes, and for much of the pleasant notices which accompany them, as well as for general unwearied enthusiasm in her researches. Being an artist, too, she has adopted the habit which we ourselves had pursued for so many years, and made sketches of all the dials she saw, both at home and abroad.

Thanks are also due to numerous correspondents in the pages of “Notes and Queries,” who, ever since we first communicated with that periodical on this subject, under the name of Hermes, have from time to time sent word of dials worthy of notice. A recent appeal in the columns of the “Guardian” has likewise led to some interesting contributions. Of private friends who have most kindly given their help, the list of names would be endless; and we can only hope that they will accept this assurance of how much we feel obliged to one and all.

There is, however, one more name, which must most certainly
be put on record. We have particularized a friend, but for whose contributions during the last ten years this work might probably not have appeared; it would be dishonest to omit the name of another, without whose help it could not have appeared—the Rev. Alfred Gatty, D.D. To him are wholly due the introduction and arrangement of whatever classical or antiquarian lore is to be found in the ensuing pages, as well as the judicious selection from materials which had largely accumulated during so long a period of time.

Margaret Gatty.
INTRODUCTORY.

There is no human discovery more ancient, or more interesting, than that of the Sun-dial: so ancient that the exquisite essayist, Charles Lamb, says, “Adam could scarcely have missed it in Paradise;” and so interesting that we may be sure that man’s first want, after supplying the cravings of hunger, would be to invent some instrument by which he could measure the day-time into portions, to be allotted to his several avocations.

“Please, sir, what’s o’clock?” is the child’s enquiry, as he “tents” his mother’s cow in the lane pastures; and the hardy backwoodsman, hewing out a settlement for himself in the primeval forest, leans on his axe, and looks to the sun’s position in the heavens for information how soon he may retire to his hut for food and sleep. Time is a blank if we cannot mark the stages of its progress; and it has been found that the human mind is incapable of sustaining itself against the burden of solitary confinement in a dark room, where you can take no note of time. The great Creator, who made the sun to rule the day and the moon and the stars to govern the night, has adapted our nature to these intermitting changes, and implanted in us an immediate desire to count how, drop by drop, or grain by grain, time and life are passing away.
INTRODUCTORY.

Edgar Poe sings, in melancholy strain, as he stands in imagination on the sea-shore—

"I hold within my hand
Grains of the golden sand;
How few, yet how they creep
Through my fingers to the deep,
While I weep!"

The first notion of dissecting time would of course be suggested by a tree, or a pole stuck in the soil, the shadow of which moving from west to east as the sun rose or declined in the sky, would lead men to indicate by strokes on the ground the gradual progression of the hours during which the daylight lasted. Further observation would discover that if the pole slanted so as to point to the north star, and run parallel with the earth’s axis, a sun-dial was constructed that would measure the day. But the fixing of a complete instrument, varying in its lines and numbers, according to the locality, and whether horizontally or vertically placed, would be a matter of progressive astronomical and mathematical calculation, which only the scientific could accomplish, long after the rude art of uncivilized man had discovered the means of ascertaining midday, and dividing into spaces the morning and afternoon.

Herodotus writing 445 B.C. says, that “it was from the Babylonians that the Greeks learned concerning the pole, the gnomon and the twelve parts of the day.” (B. ii. cap. 109.) These twelve parts however, would always differ in length according to the season, except at the equinox, because the ancients always reckoned their day from sun-rise to sun-set. The word “hour” therefore, as they used it, must be regarded as an uncertain space of time, until it was accurately defined by astronomical investigation.

The Jewish Scriptures, our oldest literature, give us no clear information as to how time was reckoned in the ancient world. “The evening and the morning were the first day” (Gen. i. 5) is the earliest description of a
period of time whose duration we cannot surely estimate. A week is also
thus defined: “On the seventh day God ended his work which he had made,
and he rested on the seventh day from all his work which he had made.”
(Gen. ii. 2.) Farther on in the Jewish history we find the day divided into
four parts, and the night into three watches. In Nehemiah ix. 3, we read,
“They stood up in their place, and read in the book of the law of the Lord
their God one-fourth part of the day; and another fourth part they con-
fessed, and worshipped the Lord their God.” This mode of computa-
tion appears to have lasted until our Saviour’s time. In His parable of a
householder hiring servants, He describes him as going out at the third,
sixth and ninth hours to engage additional labourers, and afterwards at the
eleventh hour before the day closed. (Matthew xx. 1—8.) The night was
divided by the Jews into three watches. The “beginning of the middle
watch” is spoken of in Judges vii. 19. This reckoning also lasted to the
time of Christ: “Blessed are those servants whom the Lord when He cometh
shall find watching . . . and if He shall come in the second watch, or
come in the third watch.” (Luke xii. 37, 38.)

In short, the accurate measurement of time is a comparatively late
invention. What the ancients effected for this purpose was the result of a
close observation of the heavenly bodies, whereby they made rude computa-
tions according to the amount of their knowledge. The exact hour of the
day which the totally unlearned wayfarer now ascertains by drawing his silver
watch from his fob, the Chalmean star-gazers 2,000 or 3,000 years ago deduced,
as best they could, from a constant study of those hieroglyphic lights which
rule day and night alternately, and whose motions are now more accurately
known and noted than the arrival and departure of railway trains in the
columns of Bradshaw.

But our business is with Sun-dials, and the first on historical record is
that of Ahaz, who reigned over Judah 742 B.C. It has been observed that
xii

INTRODUCTORY.

the Babylonians or Chaldeans were the first people who seem to have divided time by any systematic mechanical contrivance. A lucid atmosphere is favourable to celestial contemplation, of which the people of the East have always fully availed themselves; and even now those countries most abound in Sun-dials which have the clearest skies. The Rev. S. C. Malan thus speaks of a recent visit to Ur of the Chaldees, and the landscape of serene beauty presented to him on the site of Rebekah’s well, “as the shadows of the grass and of the low shrubs around the well lengthened and grew dim, and the sun sank below the horizon, the women left in small groups; the shepherds followed them, and I was left in this vast solitude, yet not alone; the bright evening star in the glowing sky to westward seemed to point to the promised land, as when Abraham took it for his guide.”

From this people of Chaldaea, these star-searchers of the old world, we may conclude that Ahaz got his notion of dialling, and we read in the history of the unfortunate reign of this king a possible, nay a likely cause of his introduction of Babylonish customs. Being pressed in war by the kings of Israel and Syria, Ahaz sought alliance and rescue from Tiglath Pileser, king of Assyria, who indeed released him in his emergency, but made him pay heavy tribute, and conform his worship to that of the Assyrians. “The altars at the top of the upper chamber of Ahaz” (2 Kings xxiii. 12) which Josiah removed, were probably connected with the worship of the stars, and they prove the adoption of Babylonian usages. Amongst these we may imagine that “the dial of Ahaz” held a conspicuous place; but what its actual form was, must ever remain a matter of conjecture. The word “degrees” in our translation of the Scripture might have as appropriately been rendered “steps;” and it has generally been supposed that a pillar outside the king’s palace threw a shadow on the steps of the terraced walk which indicated the time of day.
INTRODUCTORY.

It appears that in Egypt, the land of earliest civilization, obelisks and pillars were used for this end; but such contrivances would only show the progression of the natural day, from the rising to the setting of the sun. A yet more primitive mode of computing time is even now pursued in Egypt, and may have been in existence before the pillar-dial was ever erected. We are told that in Upper Egypt the natives plant a palmrod in the open ground, and arrange a circle of stones round it—forming a sort of clock face—and on this the shadow of the palm falls and marks the time of day. The plougher will leave his buffalo standing in the furrow to consult this rude horologe, and learn how soon he may cease from his work—illustrating the words of Job (vii. 2) “as a servant earnestly desireth the shadow.”

The Rev. W. B. Galloway has proposed a construction of Ahaz’s dial, quite different from that which has been already named. He thinks it may have been made on the plan of the huge Indian dials, such as were erected about 300 years ago at Benares, Delhi, and Agra, for the purpose of restoring the ancient sciences of Hindostan. These are assumed to be reproductions of the original pattern introduced from Babylon. Berosus, the Chaldean, who went to Athens, as some say, in the reign of Alexander the Great, was the great astronomer of his age; and he made a monster dial in form of a concave hemicycle, which Mr. Galloway thinks may have been the shape perpetuated in India. It was in fact a building of large size, and included a staircase leading to an observatory at the top, which formed a gigantic gnomon that cast its shadows on the coping of a wall below, which was built in the form of a hemisphere. But enough of guesses about the dial of Ahaz.

The introduction of dials into Greece is said by some to have taken place about the year 560 B.C. by Anaximander of Miletus, the successor of Thales. About 300 years later, Berosus seems to have taught the art of making dials of semicircular form, like the one that was found at the base
INTRODUCTORY.

of Cleopatra’s Needle at Alexandria, and is now deposited in the British Museum. Vitruvius says, lib. ix. cap. 9, “Berosus, the Chaldaean, was the inventor of the semicircle, hollowed in a square, and inclined according to the climate.” The old dials seem to have borne various forms. Some were suspended, and would require adjustment before they were consulted; and one of this kind, shaped like a ham, has been found at Herculaneum—the Romans having succeeded to a pattern, which certainly could not have had a Jewish origin. Lord Elgin brought a fixed dial from Athens. It is wrought in stone, and has four faces, each of which is lineated and numbered. It is supposed that it stood in one of the crossways of the city, and told the time to all comers in each direction. The octagonal Tower of the Winds at Athens contained a dial on every face.

As the Greek numerals are represented by the letters of the alphabet, it is curious that those letters which express the hours six, seven, eight, nine, (from noon till four o’clock) should spell the word ἑωθή “live,” that is, “enjoy thyself.” An epigram, attributed to Lucian, comments upon this with the observation, “Six hours are enough for work; those which follow show by their very letters that we should then begin to enjoy ourselves.” In fact, these hours form that portion of the day when exertion is scarcely possible in a warm climate, and people generally sleep and relax their bodies.

The Romans adopted dials from the Greeks, and the first erected at Rome was placed by Papirius Cursor in the court of the Temple of Quirinus, 293 B.C. Before this time “noon” was proclaimed by a crier, when the sun appeared between the rostrum and a spot called the “station of the Greeks.” About thirty years afterwards, during the first Punic war, Valerius Messala captured a dial at Catania, in Sicily, which he sent to Rome, where it was placed on a pillar near the rostrum, and remained there for ninety-nine years, when Martius Philippus substituted another which told the
time more accurately. The commoner form appears to have been merely that of a column which formed the gnomon, and threw its shadows on the ground; in fact, this was the most primitive mode of ascertaining the sun’s rise and decline.

A learned friend offers the following remarks. “The shadow of a tree or vertical pillar cannot permanently indicate the time of day, because its motion is not uniform. The sun’s motion in his diurnal track is uniform; he always describes the same angle in the same time; but the angular velocity of the shadow of a tree or pillar is greater at noon than it is at sunrise or sunset; it also varies with the time of year. The gnomon that indicates the time of day must slope to the horizontal plane at an angle equal to the latitude of the place, and must also lie due north and south. This may be illustrated by the blunder the Romans made in bringing a Sicilian sun-dial to Rome.” (Pliny N. H. vii. 214, Censorin. de D. N. 23.) The same authority proceeds to say, “The proper slope of the gnomon may be obtained without a knowledge of the latitude; and the Babylonians probably did obtain this, and from it determined the latitude, and ascertained that the earth is spherical; so also the Greeks. (Strab. ii. pp. 125-136.) A vertical gnomon may be used to determine, not the time of day, but its length and variation of length in terms of equinoctial hours; and thus the Egyptian obelisk brought to Rome by Augustus was used. (Plin. N. H. xxxvi. 72.) Though from causes which Pliny conjectures, the inferences they drew were subsequently found to be erroneous. During the Attic period, the Greeks of that city ascertained the time of day by measuring a shadow; but it is difficult to determine how they did this. They talk of a six-foot shadow or mark, a ten-foot shadow or mark, &c. Expressions of this kind are very frequent, and yet they give little or nothing whereby to show the particulars of the measurement—whether it was the length of the shadow that was measured, or its angular distance
INTRODUCTORY.

from a given line, or even what the thing was that gave the shadow.” [In Aristophanes is found the expression στοιχεῖων ἐκάτον, a gnomon ten feet long; and in other Greek writers of a later period the same word is used, with epithets signifying six, twelve, and seven feet. There also occurs the word ἰα ςκιά, the shadow, to which the same epithets are applied.] “There is little in any of these writers to suggest even a conjecture, still less to support a probable one respecting the mode of measuring the shadow. The shadow was thrown on the ground; it was twenty feet long in the morning, about six at noon, and ten or twelve in the afternoon. Salmassius conjectures that it was each man’s own shadow which he measured with his own foot. This is really ingenious; but all that is certain is, that the method was far from exact, very imperfect, and required altering several times in the year.”

Such is the conclusion at which our learned friend has arrived; but one more quotation must be given from his kindly comments: “There certainly is a considerable probability that what is called poetic astronomy is as old as human nature itself; and it is a very perfect system. Without any instrumental aid the first occupiers of Arabia could determine the time of year and the time of day with as much accuracy as they had any occasion for. The loss of this science, and the causes, moral and historical, that produced it are curious, and as connected with the Holy Bible, they are important; but all these matters require leisure, long life, and patience—things which few possess, and still fewer wish for.”

It is time that we descended from the heights of conjecture to the plain level of facts; remarking, by the way, that the studious contemplation of the heavenly bodies led to the worship of them, and also to astrology, which was a base corruption of the highest science known to men.

That dials were of frequent occurrence in ancient Rome is obvious from the lines attributed to Plautus, who died about 184 B. C.; and it is probable
INTRODUCTORY.

that their existence, or rather information, was noisily announced at stated intervals by trumpeter or crier.

"The gods confound the man who first found out
How to distinguish hours—confound him, too,
Who in this place set up a sun-dial,
To cut and hack my days so wretchedly
Into small pieces! When I was a boy,
My belly was my sun-dial—one more sure,
Truer, and more exact than any of them.
The Dial told me when 'twas proper time
To go to dinner, when I had aught to eat;
But, now-a-days, why even when I have
I can't fall to, unless the sun gives leave.
The town's so full of these confounded dials,
The greatest part of its inhabitants,
Shrunk up with hunger, creep along the street."

In the time of the Emperor Trajan, who died A.D. 117, the art of dialling must have been well understood, if an epigram, attributed to the Emperor, be authentic (See Anthol. Pal. xi. 418): ΤΡΑΙΑΝΟΥ ΒΑΣΙΛΕΩΣ.

'Αντίον ἥλιον στόσας Ῥίνα καὶ στόμα χασκον, δείξεις τὰς ὤρας πάσι παρερχομένως—
"Set your nose and wide mouth to the sun, and you will tell the hour to all passers by."
He was ridiculing a man who had a long nose and a wide mouth, very much curved and grinning; whilst his many teeth, all visible, resembled the characters that denote the hours, and their double line. Prescott tells us that the Peruvian Indians had erected pillars of curious and costly workmanship, which served as dials, and from which they learned to determine the time of the equinox. When the shadows were scarcely visible under the noontide rays, they said that "God sat with all his light upon the column." Their Spanish conquerors threw down these columns, as savouring of idolatry.

Mahometan countries abound in these instruments, which are probably no new introductions. As prayer is ordered to be observed five times in
INTRODUCTORY.

every twenty-four hours, all the principal mosques in Constantinople are provided with a dial, in order that the people may ascertain the exact times of worship. The sun-dials on the mosques of S. Sophia, Muhammed, and Sulimania, have no motto or inscription, except what expresses the course of the shadow and the name of the maker. But on some, in addition to the lines which mark the solar movement, there is a line drawn which points to the sacred town of Mecca, towards which the faces of the faithful must be turned during the performance of their religious offices. It is said that the Turks erect a sun-dial, whenever they build a mosque.

“Sun-dials,” writes a correspondent of the highest authority, “are the commonest things possible in China. You cannot get into your chair, or palanquin, but a flat board, with a dial fixed in the centre, is put before you to keep you in. They are on the sides of houses, and on boxes—indeed, they are most common, but none of us recollect any mottoes under them: though the Chinese have such a habit of putting mottoes to everything, that it is more than likely that sun-dials are no exception. They are probably ancient. There are sun-dials in Japan, for I had one in my garden.” Touching Japanese dials, one who was for long resident in Japan, writes: “In regard to sun-dials, I can only say that there are sun-dials in Japan, but not as fixtures; and that they are not provided with mottoes, as is the case on old sun-dials in Europe. You will probably remember the small bronze portable sun-dials every Japanese carries about with him; but I never saw a large fixed sun-dial anywhere, except at a watchmaker's shop in Yokohama, who had made use of the railing round his shop as a kind of dial, according to which he adjusted his watches. The shadow of the railing had been previously adjusted, and was marked off after the Saturday gun from the flagship.”

We may here remark that at Paris, and we believe also at Edinburgh and elsewhere, a cannon has been used for proclaiming the hour of noon,
which was fired by the rays of the sun being concentrated on a magnifying glass so placed as to ignite the powder in the touchhole, when the sun reached its meridian height. Moreover, the gun stood on a platform which was marked as a sun-dial, and therefore simultaneously with the explosion, the gnomon cast its shadow exactly on the figure xii. We hardly need add that this mode of ascertaining 12 o’clock is not pursued at Greenwich or any scientific observatory; but that telescopic enquiry more accurately informs the Astronomer Royal when the sun attains its meridian.

No science being required for the construction of the common dial, we may expect to find barbarous nations measuring the progress of the day; and no doubt there are ancient pillars in various countries, the original purpose of which is unknown, but which were used as sun-dials. There are some very old pointed stones near Boroughbridge, in Yorkshire, still called the “Devil’s Arrows,” which may have been time-keepers; and certainly the early inhabitants of Great Britain could not have been behind their neighbours in horology, if it be true, as stated, that Julius Caesar brought sun-dials and clepsydræ to this country. The Saxon dials at Kirkdale and Edstone in Yorkshire, and that at Bishopstone in Sussex, are the oldest remaining dials known in England, and all seem to belong to the eleventh century. Stone dials of a much earlier date have been found in Ireland.

Of all dials we have met with, none approach in architectural interest to those in Scotland, which appear to date from about 250 years ago. They will bear comparison for elegance and beauty with the wayside crosses of the middle ages. It is difficult to ascertain whence their style and form were derived. No constructions remaining in France can have suggested them. What is called “Queen Mary’s Sun-dial” at Holyrood Palace, is fine; and was erected by Charles I. Another elegant dial is now, after removal, at Melville House, the seat of the Lady Elizabeth Cartwright, daughter of the Earl of Leven and Melville. Both these dials are on steps, and are finely carved; and it is
INTRODUCTORY.

in the hollows of the ball at the top of each, that the gnomon indicates the hours. The most remarkable, however, is the dial at Glamis Castle, the residence of the Earl of Strathmore, near Forfar, where, we are told, “the Pretender slept in 1715, and had above eighty beds made for himself and his retinue.” Here was the Castle, by inheritance, of Macbeth—

“1st Witch. All hail, Macbeth! hail to thee, thane of Glamis.

Macbeth. Stay, you imperfect speakers, tell me more.

By Sinel’s death, I know, I am thane of Glamis.”

This wonderful dial is supposed to have been made about the beginning of the seventeenth century. It stands on steps, and four carved lions above the base (Lyon is the family name) stand up, and hold each a shield in his paws which is a dial face. The names of months and days are engraved below. But as the structure tapers upwards, there are literally eighty dial faces cut diamond-wise on the blocks of stone, which look as if they had been carefully sliced over, to afford planes in which the gnomons are fixed.

In the reign of Elizabeth the mortuary crosses were cut down, or stumped, in our churchyards; and nothing is more common than to see these converted into dials: a brass plate and gnomon being placed on the shortened pillar. In the parish records of Prestbury there is the following entry: “1577. Item. for cuttynge the cross in the churchyard, and for charge of one with a certificate thereof to Manchester, xij’.”

In many instances, both of our cathedrals and parish churches, the clock has taken the place of the dial, which was generally fixed over the south porch on the wall. It was so at York Minster, for where the clock now shows its face over the south entrance, there was formerly a sun-dial, as exhibited in a plate in Dugdale’s “Monasticon,” now open before us.

The art of dialling, under the title of “Gnomonics,” was taught in works of deep mathematical calculation, especially in the seventeenth century. A lively mathematician, recently opening a volume on this subject by William
INTRODUCTORY.

Leyburn, published in 1682, exclaimed that “the five first books of Euclid were easy reading after that!”

We cannot presume to touch upon the intricate subject of horology by mechanism, but it is certain that clocks were invented long before they came into general use, and displaced the dial. More than 500 years ago, according to Dante, a clock that would strike the hours was known in Italy, and striking clocks were made in England at almost as early a date. A time-piece that could be carried on the person was also a common implement in Shakespeare’s time; but we cannot suppose this to have been a watch with metal works. Jaques tells us that his motley Fool

“Drew a dial from his poke:
And looking on it with lack-lustre eye,
Says, very wisely, It is ten o’clock.”

The peasant in the Pyrenees can do the same thing now, with possibly a like time-teller. He carries in his pocket a small cylinder, made of boxwood, and not larger in size than a pocket-knife. The top of it can be drawn out, when a small blade turning on a pin forms a gnomon, which can be adjusted to the lines, figures, and initials of the month that are carved in the wood. It will tell the time when consulted, within five minutes. We suggest this form as more simple and primitive than the ring-dial, which some think was the article alluded to in “As you Like it.” The ring-dial was much used in the seventeenth and at the beginning of the eighteenth century, and its inside was marked like a dial-face. A hole in the ring admitted the ray of light, which passing through fell on the interior surface; and there was a slide which required adjustment for ascertaining the hour.

There have been many quaint devices connected with dials. For instance, in the garden of Wentworth Castle, near Barnsley, the property of F. Vernon Wentworth, Esq., a dial was formed of box edgings cut into the
INTRODUCTORY.

proper numerals, whilst a clipped yew tree in the centre acted as the gnomon. Floral dials have also been invented, being composed of flowers that bloomed in succession during the months of sunshine. These, however, are conceits, which hardly come within the compass of our subject.

As clocks ascended into the church towers, or showed their faces in the market-places, the dialler's learned vocation gradually ceased. The old dial may still retain its footing in the quaint yew-tree'd garden, or may stand conspicuously in the churchyard; but few consult it as an oracle, and it rather lingers superfluously amongst us as a memento of the past. It has nevertheless to many minds a touching interest; it has drawn forth maxims in the form of mottoes, and it would be like discarding wisdom if we did not preserve and cherish them.

“But if these shadows tell us after all
We are but shadows on Life's sunny wall:
They not less point us, with a hope as bright,
To that good land above where all is light.”

H. V. T.

Howard, the philanthropist, is said to have thus spoken on his deathbed:—“There is a spot near the village of Dauphigny where I should like to be buried. Suffer no pomp to be used at my funeral; no monument to mark the spot where I am laid, but put me quietly in the earth, place a sundial over my grave, and let me be forgotten.” Sir William Temple ordered that his heart should be placed in a silver case, and deposited under the sundial in his garden at Moor Park. So tender have been the uses to which the dial has been applied, so striking is the thought that the eyes of succeeding generations look in its time-telling face only to read their own memento mori, that we are ready to fall into David Copperfield's vein of meditation, as we see it ever cheerfully return with sunlight to the performance of its duties, and ask, “Is the sun-dial glad?—I wonder, that it can tell the time again.”

* * * * * * *
INTRODUCTORY.

We can imagine a strict diallist, after reading the foregoing sketch of the history of dials, exclaiming, “You do not say what a dial is; and as not one in a thousand knows this, explanation of it might be fairly expected.”

From his point of view, which would include the lineating and fixing a dial in the proper manner and right position, the accusation would be just; but as we have altogether declined to touch the scientific side of the subject, and have only undertaken to treat what is obvious to the senses, we cannot be censured for not venturing to approach the astronomical and mathematical mysteries. Holding by this rule, we maintain that it cannot surely be true that the world in general, more especially the literary portion of it, for whom we write, can be so ignorant of what their forefathers knew, that they have to be told what those primitive horologes—sun-dials—are! Nevertheless, we will offer a slight description. A sun-dial is a timepiece of shadows, and in its first idea was so simple, that as Charles Lamb said, “Adam could scarce have missed it in Paradise.” But those were days of rough reckonings, when there was little to be gained or lost by being a few minutes early or late. What then is a sun-dial now? Well, it is still a timepiece of shadows; but instead of the shadows being thrown from trees, pillars, or buildings requiring a large extent of space, we have, as it were, gathered them up into the small compass of a foot or two of level board, producing them by a bar of iron or wood raised at a proper angle from the surface. These dial plates are marked round by regular lines of division, which show the places in which the shadow will fall at each successive hour; and, indeed, agreeably to the need of the times, the sixty minutes of each hour were soon marked off also.

How this was accomplished, how the calculations were made which enabled the diallist to set up a dial at any aspect with equal certainty of telling the hours correctly, we do not pretend to describe. This part of the subject belongs to scientific enquiry, and we must refer the readers, curious
INTRODUCTORY.

on this point, to such old books as "Leadbetter's Art of Mechanic Dialling," &c., for information.

The foregoing account, brief as it is, will, it is hoped, be enough to make a fair beginning by explaining what a sun-dial is—perhaps more than enough, for we cannot believe that the numberless clergy with sun-dials on their church porches have never once looked up at them, and found out what they were. Nor that clergymen's wives have marshalled their numerous families into church, Sunday after Sunday, for so many years, and no little fingers pointed to, and no little tongues asked about the pretty tablets, often shining with the colour of the gilding over their heads, as they entered the sacred building.

Besides, England is not the world, nor is its climate favourable to horologes dependent on sunshine. Go to Nice, Antibes, Cannes, and probably other towns and villages in the south of France, and you will find them on all sorts of buildings, prettily coloured, fancifully imagined, on two or three houses in the same street, on the toll-house of a bridge here, on a shed there. They are common along the Riviera from Genoa to Nice, as is evident from the collection of mottoes inserted by the late Dean Alford in his beautiful book, "The Riviera." Moreover, did not H. R. H. the Prince of Wales visit the Temple in 1861, and on this occasion were not all the old Temple dials done up, that is, regilt and repainted, to greet his presence?

No, the proportion of those ignorant of what a sun-dial is, cannot even in the present day, when they are jostled out of use by chronometers, be as one to ninety-nine.

The present collection of dials, with their mottoes, was begun long ago—according to the measure of a man's life—some thirty-five or forty years about. Perhaps the presence of a curious old dial over our church porch (Catterick), with something like a punning motto, "Fugit hora, ora," may
INTRODUCTORY.

have had somewhat to do with starting the idea. Also at the home of some dear friends, a few miles off, the porch of their picturesque little church (Wycliffe), on the banks of the Tees, bore another inscription, “Man fleeth as a shadow.” A third motto surmounted an archway in a stable-yard (Kiplin) “Mors de die accelerat.” A fourth was over the door of a cottage in a village (Brompton-on-Swale), bearing the warning words, “Vestigia nulla retrorsum,” which shone out in gold and colour amidst evergreens. Here lived the venerable sister of a canon of Lincoln, which may perhaps account for the presence of the dial. A fifth looked out from the depths of pyracanthus on a house at Middleton-Tyas, hinting to callers not to waste the precious hour, with its “ Maneo nemini;” while last, and not least in our esteem, stood the touching inscription, “Eheu, fugaces!” on a pillar-dial outside the drawing-room at Sedbury Hall, Yorkshire, where it betokened the scholarly character of the hospitable owner. These six mottoes (all, rather remarkably, in one neighbourhood), made an admirable beginning of a list, which soon swelled to twenty or thirty pages by taking a wider circuit, and with the assistance of the contributions of friends. And thus the matter went on from more to more; but the great impulse was given when the friend, alluded to in the preface, undertook to collect in the south of France and the north of Italy—a fair field indeed, and one even yet imperfectly explored. As to these dial mottoes there are perhaps as many differences of opinion, as there are differences of character in those who read them. We, who have studied them for so many years, feel with Charles Lamb that they are often “more touching than tombstones,” while to other people they seem flat, stale, and unprofitable. One correspondent describes them as “a compendium of all the lazy, hazy, sunshiny thoughts of men past, present, and in posse;” and says, “the burden of all their songs is a play upon sunshine and shadow.” But this is no fair description. The poet’s words,

“Liberal applications lie
In art as nature,”
INTRODUCTORY.

have never been more fully realized than in the teachings which have arisen from dials, as we trust the following pages will prove beyond a doubt. So far from the burden of all their songs being a play upon sunshine and shadow, one of the most fertile subjects of thought is the sun’s power, as being his own time-keeper, which he certainly is, whilst the mottoes constantly assert the fact.

The sun describes his own progress on the dial-plate as clearly as he paints pictures on the photographer’s glass—human art assisting in both cases. “Solis et artis opus,” says the dial in a street at Grasse, near Cannes—somewhat baldly perhaps. More refined is the “Non sine lumine” of Leadenhall Street; and perhaps higher still the “Non nisi cælesti radio” of Haydon Bridge. “Non rego, nisi regar” is the modest avowal of another dial in a street at Uppingham, acknowledging itself to be but an instrument governed by an overruling power. And these are but a few of the many “applications” the poet speaks of. The reader will find all these mottoes in their proper places in the list, on which our first happens to be a foreigner.
SUN-DIALS.