

Dorothy wept bitter tears for him during the long nights when Stephen tossed and fretted if she was not close at hand. She was wearied out with all she had to do, and with an ever-present longing to hear how it fared with Jasper, fancying him ill, perhaps dying, and no word ever again to pass between them. Mrs. Williams every day went to the Grange to look after her staff there, and Mr. Ardley wandered sadly backward and forward, until he found a fellow-student in Mr. Flemyng, and then the two used to pace up and down under the sycamores talking of this edition and that. Dorothy, sitting one afternoon at Stephen's window, looked down with a little wonder at the long black figures with their wigs and three-cornered hats, and the boys playing solemnly, and the little stiff garden with daffodils flaunting in the sunshine, and the old sun-dial in the middle. Perhaps we never get over that feeling of wonder that all around us the world is so little changed when we are shaken to the centre. Stephen was ill, and Jasper perhaps dying, and Dick lying dead, and all went on as if they had never been. Life brings an answer to the riddle, and a comfort from it, but it is always wonderful, and for a time perplexing; and Dorothy leaned her head against the window and thought of it. She did not notice a little commotion at the gates, nor Molly's awe-stricken voice upon the stairs, but she heard the door open softly, and turned round to see Lady Harrington standing there, with a face as white as her powdered hair.

"May I come in?" she said, in an eager whisper.

"That is mamma!" cried out Stephen; and she was at his side with her arms round him in a moment. The room swam before Dorothy, for there was another figure in the doorway—Jasper, in his caped riding-coat—Jasper, pale, thin, changed, but with the old look in his eyes.

"Oh, he must not come in!" Lady Harrington said, quickly. "Dorothy, run out and stop him!"

Was she smiling? Was it a dream? What could she do? "Oh, Sir," she was beginning, falteringly, when she found herself in his hold.

"Only say you do not hate me—you forgive me, my dearest life! 'Tis almost impossible that you should, and yet if you knew what I have endured! 'Twas when I was ill that I saw my madness! What, won't you forgive me? Nay, I will be forgiven—I must! I see it in your eyes, that were ever the sweetest."

"Sweetest eyes were ever seen." It is the old love-song, eternally new. Look. In the little dingy passage there are two lovers, almost silent in the depth of their great joy; by Stephen's bedside is poured out the yearn-

ing of a mother's love; in a quiet room hard by, still and peaceful, lies Dick, who had given his life for another. Ay, look! For, thank Heaven, though we are sad and sinful, there come to us foreshadowings of what we may one day taste in its perfection and in its infinity.

The old school-house passed into other hands when Mr. Flemyng went to live, in his gentle, lingering way, at the Grange. Lady Harrington tended him kindly. Stephen was sent to Westminster. Jasper and Dorothy are together in their peaceful home when we turn our backs upon them. It is a farewell again which the trees whisper, but a farewell without the pain.

And Dick is not forgotten.

THE ASTRONOMICAL YEAR.

AMONG the places a stranger at Washington visits with eagerness there is no one capable of giving more satisfaction to a thoughtful mind than the National Observatory. It is not so much what one sees of arrangements, instruments, and achromatic glasses, as what these and kindred objects suggest, that makes the day one of red letters ever afterward in the memory. Take, for example, the series of observations, made in many countries, extending over centuries, which has at length determined with great precision that the astronomical or, as it is sometimes called, civil year consists of 365 days, 5 hours, 48 minutes, and 49.7 seconds. This length, as is generally known, is about six hours greater than it was according to the estimates relied upon at the beginning of the Christian era. Reckoning by the data these last give, one day is lost every four years. Such an error, standing uncorrected for any considerable length of time, would be certain to produce awkward results. The day might come when harvest-home would return before the seed had germinated, Michaelmas be postponed to the end of winter, and Christmas occur in the vernal equinox. In fact, winter and summer, spring and autumn, as the years went round, would be perpetually changing places. It became necessary, therefore, in all countries where the astronomical year was recognized, to correct the calendar at intervals to prevent the increase of an evil for which no provision was made.

Julius Cæsar was probably the first man in authority who attempted a permanent correction of the calendar, assisted by Sosigenes, an Egyptian astronomer. Their device was to add a day every fourth year to February, and the principle adopted was so excellent that it has been both retained and extended to the present time. This correction of time was ordered to be made in all countries where the Roman authority was acknowledged, and to secure a uniformity of

dates, the sixth day before the kalends of March was to be reckoned twice, for which reason the fourth year, now called leap-year, was by the Romans designated bissextile. But this ingenious contrivance did not make the calendar perfectly correct. The civil year was still at variance with the astronomical. There was a surplussage of eleven minutes in the former after the double day had been added to it—a trifling error for a man's lifetime, but, when multiplied by centuries, a marked quantity, threatening to interfere not only with social arrangements, but with the very existence of ecclesiastical law. The new Julian year was indeed a great gain over the old Roman year. It was a close approximation to correct measurement of time. But it contained an element of error, and could not remain permanently in use, unless a means of absorbing the miscalculation it perpetuated could be discovered.

The necessities of the Catholic Church ultimately led to the requisite improvement. The Council of Nice, which had assembled in the year 325 A.D., ordered, among other matters, that Easter should be celebrated on the first Sunday after the full moon next following the vernal equinox. This was a guide to other church festivals. Advent-Sunday, Ascension-day, Whitsuntide, Trinity-Sunday, the forty days of Lent, the Ember-days, the Rogation-days, and others depended upon Easter. They had become, in the course of ages, fasts and festivals intermingled with daily concerns of life. Planting and harvesting, dairy-work and sheep-shearing, felling of timber and salving of kine, brewing ale, preparing conserves, curing meats, housing garden-stuffs, distilling domestic spirits, and drying medicinal herbs, grew during the Dark Ages into superstitious connection with certain holy days. But as every revolving year failed to bring the earth quite back to the same point in the ecliptic, the sun that warmed, the stars that were supposed to vivify, and the elements that nourished the sown seed grew slack in their work. The value of old traditions decreased. Calculations failed. Farmers believed the seasons to be changing. In the fifteenth century nine days of variation had taken place, and the gap was constantly widening.

Even during the previous century the difference between the two years—astronomical and civil—had become sufficiently important to force upon the attention of pope and conclave the necessity of correcting the calendar. At the Council of Nice the vernal equinox had fallen on the 21st of March: it now fell on the 12th of the same month. The celebration of Easter, and of all feasts and fasts depending upon it, was therefore put out of joint. This caused infinite confusion, and for at least two centuries before its accomplishment the enterprise of bringing the

two years together again was meditated and discussed by scholars. But for the interruption of the preliminary calculations by the death of John Müller, the astronomer selected to advise the pontiff, it would probably have been effected by Sixtus IV. instead of Gregory XIII. Being thus deprived of the assistance of the man best able to accomplish his object—the well-known founder of the Nuremberg printing-house, and the most eminent astronomer of the fifteenth century—Sixtus lost the honor of effecting the useful design.

There is little cause of regret, however, on that score. Pope Gregory XIII. was not only a friend to, but a devotee of, science. The task of reform could not have fallen into better hands. He was distinguished for his learning, and although succeeding to the pontificate when past seventy years of age, made the thirteen years of his rule illustrious by the promotion of education at Rome and throughout his states. His change of the Julian calendar, in spite of bitter opposition, to that which has since been called the Gregorian, did much to redeem the Romish Church from its reputation of universal hostility to science.

To restore the civil year to a correspondence with the astronomical, he ordered that the 5th of October, 1582, should be called the 15th. To prevent the intrusion of the same errors in the measurement of time in future ages, and to secure the recurrence of the festivals of the church at the same period of the year, he further decreed that every year whose number is not divisible by four should consist of three hundred and sixty-five days; every year which is so divisible, but not divisible by one hundred, of three hundred and sixty-six days; every year divisible by one hundred, but not by four hundred, of three hundred and sixty-five; and every year divisible by four hundred, of three hundred and sixty-six. A more perfect correspondence of the civil and astronomical years will probably never be obtained. After the lapse of four thousand two hundred and thirty-seven years the error will be less than one day. In the preparation of this rule every source of disagreement is estimated, and as far as possible corrected. The allowance of an extra day every fourth year is indeed a small excess; but this is not allowed to accumulate, for at the commencement of every century the centennial year is not to consist of three hundred and sixty-six days, or, in other words, is not to be counted a leap-year, unless its number can be divided by four hundred. Thus the year 1600 was a leap-year, and the year 2000 will be the same; but the years 1700 and 1800 contained, and the year 1900 will contain, only 365 days.

And now comes in a note from history which ought never to be forgotten. This

decree of Gregory XIII., exacted by necessity, founded upon science, universal in benefit, recommended by common-sense, tainted with no superstition, and asking in its acceptance no concession of religious faith—a decree that commended its terms by their universal application, met a want that was every where felt, settled a question that had vexed the world for half a decade of centuries, and corrected, as it was allowed to do by men of science, an evil that was felt through every ramification of the social condition of Europe—was accepted in Italy and Spain only. France partially adopted it, which was no better than to have rejected it. As for England, she would none of it; nor Germany, nor the Northern States, nor Holland, nor Russia. The authoritative demand of the pope for immediate and universal adoption of the reformed calendar, no matter by what sufficient reasons recommended, or necessities required, or good rendered certain, was to be resisted. Conscience, stone-blind or enlightened, required opposition to whatever proceeded from Rome, and was to be obeyed. It reminds one of the couplet good, eccentric Rowland Hill—not he of the postage reform, but his godly ancestor of even higher renown—used to repeat at his table whenever sectarian prejudices had hindered his philanthropic labors:

“Begone, old bigotry, abhorred
By all who love our common Lord!”

The states which acknowledged the ecclesiastical sovereignty of the Bishop of

Rome gave willing compliance to Pope Gregory's decree. The Protestant states delayed. All through the long reign of Elizabeth, the tyranny of James, the fickleness of Charles I., and the Commonwealth the old style obtained in England. It was not until the days of George the Second that England and her colonies adopted the Gregorian calendar. The decree was issued in 1582. Parliament established its support as the law of the land in 1751. Other Protestant states followed—always with protest, however, against the authority of the pope.

Russia adheres, or did ten years ago, to the Julian calendar. The business inconvenience of this is great. Letters to foreign countries, orders for shipments, times of departure for steamers and sailing vessels, news from abroad, advertisements of the holding of international fairs, and one knows not what besides, must all bear two dates—old style and new. The mariner can not read the nautical almanac, nor the merchant accept a draft from abroad, nor the broker determine foreign exchanges, without having two dates at hand. Advices can not be understood, bills of lading can not be made effective, telegrams can not be comprehended, without an extra labor, small in each instance, but large in the aggregate, which the Julian calendar in Russia imposes. “Does he mean old style or new?” is a question asked in St. Petersburg and Moscow thousands of times in a day.

IN THE SEED.

You have chosen coldly to cast away

The love they tell you is faithless found.

Pity or trust it is vain to pray—

Your heart they have hardened, your senses bound.

You have broken the wreaths that clasped you round,

The strength of the vine and the opening flower:

Love, torn and trampled on stony ground,
Is left to die in its blossom hour.

Well, go your ways; but, wherever they lead,

They can not leave me wholly behind.

From the flower, as it falls, there falls a seed

Whose roots round the roots of life shall wind.

So sure as the soul in the flesh is shrined,

So sure as the fire in the cloud is set,

Be you ever so cold or ever so blind,

You shall find and fathom and feel me yet.

As the germ of a tree in the close dark earth

Struggles for life in its breathless tomb,

Quickening painfully into birth,

Writhing its way up to light and room;

As it spreads its growth till the great boughs loom

A shade and a greenness wide and high,

And the birds sing under the myriad bloom,

And the top looks into the infinite sky;

So shall it be with the love to-day

Flung under your feet as a worthless thing.

The hour and the spot I can not say

Where the seed, fate-sown, at last shall spring:

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Beyond, it may be, the narrow ring

Of our little world in swarming space,

After weary length of journeying,

It shall drop from the wind to its destined place.

But somewhere, I know, it shall reach its height!

Sometime it shall conquer this cruel wrong!

The sun by day, and the moon by night,

Shower and season, shall bear it along.

You will sleep and wake while it waxes strong

And green beside the appointed ways,

Till, full of blossom and dew and song,

You shall find it there after many days.

Perchance it shall be amid long despair

Of toiling over the desert sand;

When your eyes are burned by the level glare,

And the staff is fire to your bleeding hand.

Then the waving of boughs in a silent land,

And a wonder of green afar shall spread,

And your feet as under a tent shall stand,

With shadow and sweetness about your head;

And my soul, like the unseen scent of the flower,

Shall circle the heights and the depths of the tree:

Nothing of all in that consummate hour

That shall not come as a part of me!

This world or that may my triumph see—

But love and life can never be twain,

And time as a breath of the wind shall be,

When we meet and grow together again!