after this let him recall this list several times both ways without reviving the cementing relations, and finally let him recall several times, both ways, the entire series of Presidents from Washington to Cleveland, and from Cleveland to Washington.

REMARKS.

1. This group furnishes the notable fact that two Presidents (Lincoln and Garfield) were assassinated while in office.

2. Another peculiarity of this group is that, for the first time since the days of Washington, there was a widespread discussion and effort made to push the claims of a President (Grant) for a third term.

3. This group contains the name of the grandson (Benjamin Harrison) of William Henry Harrison, of the second group. The only other instance of relationship between the Presidents was in the case of John Adams and his son, John Quincy Adams of the first group.

4. This group contains the name of the only President (Andrew Johnson) who was ever sought to be impeached. The prosecution failed to convict, having lacked one vote of the number necessary for a conviction.

5. Grover Cleveland affords the first instance where the two terms of a President are separated by the full term of another President (Benjamin Harrison).

ENGLISH SOVEREIGNS.

A UNIQUE EXERCISE.

The method here used of memorising the order of the English sovereigns from William I., the Conqueror, to Victoria possesses the following novelties :—

(1) We learn the order of the entire series of thirty-seven sovereigns by means of the relations, direct and indirect, which we establish with the reigning sovereign, Victoria.

(2) The precise credit is claimed for this method which it is entitled to receive. In a list of proper names we sometimes have several surnames alike, with usually a difference of Christian names, as in the presidential series we have—*William Henry* Harrison and *Benjamin* Harrison, and *John* Adams and *John Quincy* Adams, and we also sometimes have the same Christian names prefixed to different surnames, as James *Madison* and James *Monroe*. But in the Sovereigns of England, from William I. to Victoria, we have many Christian names alike, and the differences indicated by *ordinal* numbers, as George I., George II., George III., George IV. This order of the English Kings is most extraordinary, neither the Popes of Rome, nor the French, nor any other list of kings, furnishing any parallel in more than a few incidents. It is these unique coincidences and recurrences that make it so easy to find relations between these sovereigns. This method is not applicable to the American Presidents, Prime Ministers of England, or hardly any other series.

(3) No accidental relations of parts of names is resorted to, as was done in the case of the American Presidents.

(4) The series is so taught that it can be recited for-

wards and backwards—the only true test of learning any series.

(5) The series is completely worked out and nothing is left to chance or possible mistakes so liable to be committed by novices in dealing for the first time with a new process that has to be applied to many details.

(6) When the series is carefully studied and the relations painstakingly *characterised*, it is quickly learned and it is hard to forget.

(7) When the series is learned by this method and the relations are occasionally reviewed and *identified*, its recital both ways once or twice a day for a month helps to develop the Attention as well as the Assimilative powers.

(8) The *exact name* of each Sovereign is learned. The student relies on real relations and names, and not on unidentified jingles of threes and threes and twos and twos, like three Edwards and three Henrys and two Edwards and two Henrys, with the inevitable necessity of having afterwards to learn *which* Edward and *which* Henry was meant, &c. But summations can follow specifications.

(9) Pestalozzi [1745–1827] taught that we must proceed from the "known" to the "unknown;" but this principle mainly applies to learning the words of a foreign language. When we begin to learn such words they are wholly unknown to us. But in learning ordinary series of names or prose or poetry by heart, all the names and words used may be equally well known by us; but it is mainly the *order* in which these occur that we wish to memorise, and we begin at the beginning and proceed as we learn on from the Better Known or Best Known. In the list of American Presidents the series extends back to a little more than a century; but in the case of the English Sovereigns, when we begin with the Conqueror, the series extends back to 1066—upwards of 800 years—and, although in such a series the names of all the Sovereigns may be known, yet the latest is vastly better known to us than the earliest. In such a case it may be most useful to begin with the Best Known.

(10) Fortunately in this case the Best Known Sovereign is a PIVOT around which all the other Sovereigns are directly or indirectly related. *How*, we will proceed to show.

Something of the method will be intimated by the difference of type and spaces between the names :—

William I.
William II.
Henry I.
Stephen.
Henry II.

Richard I.

John.
Henry III.
Edward I.
Edward II.
Edward III.

Richard II.

Henry IV.
Henry V.
Henry VI.
Edward IV.
Edward V.

Richard III.

Henry VII.
Henry VIII.
Edward VI.
Mary.
Elizabeth.
James I.
Charles I.
Council of State and Parliament.
Oliver Cromwell.
Richard Cromwell.
Council of State and Parliament.
Charles II.
James II.
William III. and Mary.
Anne.
George I.
George II.
George III.
George IV.
William IV.
VICTORIA.

We begin with the Best Known, or Victoria, and we take note that she is an independent Queen, since she has never shared sovereignty with anyone; but Mary, of "William III. and Mary," was not an independent Queen, because she did share the Sovereign Power with her husband. Hereafter, when I use the word Queen I mean an independent Queen, except when Mary, of "William III. and Mary," is mentioned, and her name will be used only in connection with William III. England has had only four independent Queens, namely, Mary [Tudor], Elizabeth, Anne, and Victoria.

(I.) Victoria is the *last* queen and Mary was the *first* queen [Exclusion between *first* and *last*, or Ex.], and Mary, the *first* queen, was preceded by the *last* Edward, or Edward VI. [Ex.] And Mary, the *first* queen, was followed by the *first* and only Elizabeth [In.] And the *first* and only Elizabeth was followed by James the *First*, or I. [In.] Again, *Queen* Elizabeth was followed by *King* James, making a clear case of Ex. Again, Anne, the *third* queen, was preceded by Wm. the *Third*, or III., and Mary [In.]

And these *two* co-equal Sovereigns were preceded by James the *Second*, or II. [In., between cardinal number *two* and the ordinal number *Second*]. This series of Queens concludes with Victoria the *fourth* Queen, who was preceded by William the *Fourth*, or IV. [In.], and William the *Fourth*, or IV., was preceded by George the *Fourth*, or IV. [In.]; and George IV. by George III., and he by George II., and he by George I.,—a concurrence reversed, and William IV. was preceded, as we have seen, by William III. and Mary—and William III. by William II., and William I. at the very beginning of the series—Con.

Now let us recall in the forward and reverse order what we have learned so far. William I., William II., Edward VI., Mary, Elizabeth, James I., James II., William III. and Mary, Anne, George I., George II., George III., George IV., William IV., and Victoria, and the order reversed is Victoria, William IV., George IV., George III., George II., George I., Anne, William III. and Mary, James II., James I., Elizabeth, Mary, Edward VI., William II., William I.

(II.) Disregarding for the moment the four periods of what is usually called the Commonwealth, we see that between Elizabeth and William III. and Mary, are four monarchs, the two James and the two Charles. We have already learned that Elizabeth was followed by James I. and that William III. and Mary were preceded by James II. Hence we see that the two Charles must come *between* the two James, and, of course, that Charles I. must precede Charles II., and that the order of these four monarchs *must* be James I., Charles I., Charles II., and James II.—a plain case of Con. reversed. We saw that there were two of these four monarchs before the Commonwealth; there must then be two after it, making James I. and Charles I. before the Commonwealth and Charles II. and James II. after it.

On the day that Charles I. was executed (January 30, 1649), the Parliament (the House of Commons) abolished the kingly office and House of Lords, and appointed a Council of State of 41 members, which with the House of Commons was to be the government. Intermediate then between Charles I. and Charles II. there came—

Council of State and Parliament.
Oliver Cromwell.
Richard Cromwell.
Council of State and Parliament.

Here we see there was a Council of State and Parliament at the beginning and close of these intermediates, and between them came Oliver Cromwell and his son, Richard Cromwell. Charles I., followed by Council of State and Parliament, made a case of Exclusion and the Council of State and Parliament, followed by the Protector Oliver Cromwell, gives another example of Ex. and a case of In. between Oliver Cromwell and his son Richard, who inherited the protectorate, but a case of Ex. again between the powerful Oliver and his weak son Richard, and another example of Ex. between the protectorate of Richard Cromwell and the Council of State and Parliament, and another between the latter and the full-fledged monarchy of Charles II.

Now review what we have learned so far and we have William I., William II., Edward VI., Mary, Elizabeth, James I., Charles I., Council of State and Parliament, Oliver Cromwell, Richard Cromwell, Council of State and Parliament, Charles II., James II., William III. and Mary, Anne, George I., George II., George III., George IV., William IV., and Victoria. Reverse the recital and we have Victoria, William IV., George IV., George III., George II., George I., Anne, William III. and Mary, James II., Charles II., Council of State and Parliament, Richard Cromwell, Oliver Cromwell, Council of State and Parliament, Charles I., James I., Elizabeth, Mary, Edward VI., William II., and William I.

(III.) We now proceed to learn the eighteen kings intermediate between William II. and Edward VI. We notice at once that the *first* and *last* of these intermediates are the *first* and *last* Henrys [Ex.], viz., Henry I. and Henry VIII. We see also that Henry the *First*, or I., is followed by Henry the Second, or II. [Con.], with the *first* and only Stephen as the *first* single intermediary [In.]. Returning to Edward VI., we see that he, the *last* Edward, is preceded by Henry VIII., or the *last* Henry [In.] We also notice that Edward VI. is preceded by Henry VI., and

Henry VI. by Henry III., or the half of six [In. by W. and P.]. Finally we observe that between William II. and Mary, there are three series of kings completed—eight Henrys, six Edwards, and three Richards. Making the three Richards *reference* points we can easily fix the residue of the eighteen kings for we see that Richard I. or the *First*, is preceded by Henry II. and followed by Henry III., with the *first* and only John as the *second* single intermediary [In.] and that Richard II. is preceded by Edward I., Edward II., and Edward III., or three Edwards, and followed by Henry IV., Henry V., and Henry VI., or three Henrys, and that Richard III. is preceded by Edward IV. and Edward V., or two Edwards, and followed by Henry VII. and Henry VIII., or two Henrys.

Recalling the succession from William I. to Edward VI., we have William I., William II., Henry I., Stephen, Henry II., Richard I., John, Henry III., Edward I., Edward II., Edward III., Richard II., Henry IV., Henry V., Henry VI., Edward IV., Edward V., Richard III., Henry VII., Henry VIII., Edward VI. Reversing the order, we have Edward VI., Henry VIII., Henry VII., Richard III., Edward V., Edward IV., Henry VI., Henry V., Henry IV., Richard II., Edward III., Edward II., Edward I., Henry III., John, Richard I., Henry II., Stephen, Henry I., William II., and William I.

We conclude with the recital both ways of the thirty-seven Sovereigns from William I. to Victoria.

William I.
William II.
Henry I.
Stephen.
Henry II.
Richard I.
John.
Henry III.
Edward I.
Edward II.
Edward III.
Richard II.
Henry IV.
Henry V.
Henry VI.
Edward IV.
Edward V.
Richard III.
Henry VII.
Henry VIII.
Edward VI.
Mary.
Elizabeth.
James I.
Charles I.
Council of State and Parliament.
Oliver Cromwell.
Richard Cromwell.
Council of State and Parliament.
Charles II.
James II.
William III. and Mary.

Anne.
George I.
George II.
George III.
George IV.
William IV.
VICTORIA.
VICTORIA.
William IV.
George IV.
George III.
George II.
George I.
Anne.
William III. and Mary,
James II.
Charles II.
Council of State and Parliament.
Richard Cromwell.
Oliver Cromwell.
Council of State and Parliament,
Charles I.
James I.
Elizabeth.
Mary.
Edward VI.
Henry VIII.
Henry VII.
Richard III.
Edward V.
Edward IV.
Henry VI.
Henry V.
Henry IV.
Richard II.
Edward III.
Edward II.
Edward I.
Henry III.
John.
Richard I.
Henry II.
Stephen.
Henry I.
William II.
William I.

NUMERIC THINKING.

HOW TO NEVER FORGET FIGURES AND DATES.

When my pupils have gained the quick perception and instantaneous apprehension which always reward the studious use of In., Ex., and Con., they can, amongst other new achievements, always remember and never forget figures and dates.

Pike's Peak, the most famous in the chain known as the Rocky Mountains in America, is fourteen thousand one hundred and forty-seven feet high. Instantly, one who is trained in the use of In., Ex., and Con., perceives that there are two fourteens [Syn., In.] in these figures, and that the last figure is half of fourteen, or 7 In. by W. and P., making 14,147. Of course, one who is not practised in analogies, in discovering similarities and finding differences would not have noticed any peculiarity in these figures which would enable him to remember them. Few people ever notice any relations among numbers. But any possible figures or dates always possess relations to the mind trained in In., Ex., and Con.

Fujiyama, the noted volcano of Japan, is twelve thousand three hundred and sixty-five feet high. Does any pupil who has mastered the first lesson and who is expert in the use of In., Ex., and Con., fail to notice that here we have the disguised statement that the height of this mountain is expressed in the number of months and days of the year, 12,365 feet high? These figures drop into that mould and henceforth are remembered without difficulty. These are remarkable coincidences no doubt, but are not all sets of figures similarly impressive coincidences to the trained eye, and the *active*, *thinking* and *assimilative* mind?

No reader of English history has failed to notice the three sixes in the date of the Great Fire in London, *viz.*, 1666. The "three sixes" are generally resorted to as a signal for fire companies to turn out in full force; yet such a coincidence of figures in a distant date makes a slight impression compared to the vividness of events that happened in the year of our birth, the year of graduation from school, the year of marriage, and the year of the death of relatives, &c., &c. Keep a small blank book for such entries, not to help remember the dates or facts, but to have them together so as to rapidly deal with them, to classify them and otherwise study them under the eye. You will soon be astonished at the accumulation.

The population of New Zealand, exclusive of natives, is 672,265. Bringing the first two figures into relation with the last two we have 67 and 65—a difference of 2 only. The two groups of 672 and 265 have the figure 2 at the end of the first group, and another 2 at the beginning of the second group. These two twos are in sequence (Con.), and each of them expresses the difference between 67 and 65. *Thought* about in this way, or in any other, the series becomes fixed in mind, and will be hard to forget.

The population of Sydney is 386,400. Here are two groups of three figures each. The first two figures of the first group are 38, and the first two figures of the second group are 40—a difference of 2. Two taken from 8 leaves 6, or the third figure of the first group, and 2 added to the first figure of the second group makes 6. The 40 ends with a cypher, and it is a case of Syn. In. that the last figure of the second group or the third figure of it should likewise be a cypher. Besides, those who know anything at all about the population of Sydney must know that it is vastly more than 38,640, and hence that there must be another cypher after 40, making the total of 386,400.

The population of Melbourne is 490,912. Here we have 4 at the beginning and half of 4 or 2 at the end of the six figures. The four interior figures, viz., 9091 is a clear case of Con.—or 90 and 91. Then again 91 ending with 1, the next figure is 2—a case of sequence or Con. But 490,912 is the population of the city of Melbourne with its suburbs. The "city" itself contains only 73,301 inhabitants, 73 reversed becomes 37—or only 1 more than 36. This 1 placed at the end of or after 36 makes the 361. Now 37 reversed is 73, and then follows 361, making the total to be 73,361.

Let the attentive pupil observe that this method does not give any set of rules for thinking in the same manner in regard to different sets or example of numbers. That would be impossible. Thinking or finding relations amongst the objects of thought must be differently worked out in each case, since the figures themselves are differently grouped.

The foregoing cases in regard to population will suffice for those who live in the Australian colonies, and to others they will teach the method of handling such cases, and leave them the pleasure of working out the process in regard to the population where they reside, or other application of the method they may wish to make.

Great encouragement is found in the circumstance that after considerable practice in dealing with numerous figures through In., Ex., and Con., new figures are self-remembered from the habit of assimilating numbers. They henceforth make more vivid impressions than formerly.

INCLUSION embraces cases where the same kind of facts or the principles were involved, or the same figures occur in different dates with regard to somewhat parallel facts—End of Augustus's empire [death] 14 A.D.—End of Charlemagne's [death] 814 A.D., and end of Napoleon's [abdication] 1814 A.D.

EXCLUSION implies facts from the opposite sides relating to the same events, conspicuously opposite views held by the same man at different periods, or by different men who were noticeably similar in some other respects, or antithesis as to the character or difference in the nationality [if the two nations are frequent foes] of different men in whose careers, date of birth, or what not, there was something distinctly parallel—Egbert, first King of England, died 837. William IV., last King of England, died 1837. What a vivid exclusion here for instance: Abraham died 1821 B.C., and Napoleon Bonaparte died 1821 A.D.

CONCURRENCES are found in events that occur on the same date or nearly so, or follow each other somewhat closely.

Charles Darwin, who advocated evolution, now popular with scientists in every quarter of the globe, and Sir H. Cole, who first advocated International Exhibitions, now popular in every part of the world [Inclusion] were born in the same year 1809 [Concurrence] and died in the same year 1882 [Concurrence.]

Garibaldi [the Italian] and Skobeleff [the Russian] [Exclusion, being of different countries], both great and recklessly patriotic generals [Inclusion] and both favourites in France [Inclusion], died in the same year, 1882 [Concurrence]. Longfellow and Rossetti, both English-speaking poets [Inclusion] who had closely studied Dante [Inclusion] died in the same year, 1882 [Concurrence].

Haydn, the great composer, was born in 1732, and died in 1809; this date corresponds to that of the birth [Exclusion and Concurrence] of another famous composer [Inclusion], Mendelssohn, who himself died in 1847, the same year as O'Connell.

Lamark [1744–1829], advocated a theory of development nearly resembling the Darwinian Theory of the Origin of Species [In.]. This he did in 1809, the year in which Charles Darwin was born [Con.]. Darwin's writings have altered the opinions of many as to the Creation, and the year of his birth was that of the death of Haydn, the composer of the Oratorio "The Creation." [Con. and Ex.].

John Baptiste Robinet taught the gradual development of all forms of existence from a single creative cause. He died in 1820, the year in which Herbert Spencer, the English Apostle of Evolution, was born [In., Ex., and Con.].

Galileo, founder of Modern Astronomy, born in 1564—Shakespeare's birth year [Con.]—died in 1642, the very year in which Sir Isaac Newton was born. Galileo's theory was not proved but merely made probable, until the existence of the laws of gravitation was established, and it was Newton who discovered gravitation. This is an instance of Inclusion as to the men, of Exclusion and Concurrence as to date of birth and death.

Two prominent *litterati* [Inclusion], one a Frenchman the other an Englishman [Exclusion], well-known for the pomposity and sonority of their style of writing [Inclusion], were born in the same year, 1709, and died the same year

1784, a double Concurrence—Lefranc de Pompignan—[pompous In. by S.], and Samuel Johnson.

General Foy, an *orator* and artillery officer, fond of literature, was born the same year [Concurrence] 1775, as the *orator* [Inclusion], Daniel O'Connell. He died in 1825, the same year [Concurrence] as Paul-Louis Courier, who was also an artillery officer [Inclusion], fond of literature [Inclusion], and moreover, like O'Connell, a violent pamphleteer [Inclusion].

Two illustrious, uncompromising characters [Inclusion], both brilliant composers [Inclusion], the one musical, the other literary, the one a representative of the music of the future, the other of the obsolete polemic of the past [Exclusion], Richard Wagner and Louis Veuillot, were born in the same year, 1813, and died in the same year, 1883. The last point is a double Concurrence.

Two foremost harbingers of modern thought [Inclusion], Voltaire and J. J. Rousseau, died in 1778—[Concurrence]. Both gained for themselves the reputation of having been the most reckless antagonists of Christianity [Inclusion]. And still the one dedicated a church to the service of God, whilst the other in his "Emile" wrote a vindication of Christianity [Exclusion as to each of them, Inclusion as to both of them].

A little practice makes the pupil prompt in dealing with any figures whatever. Take the height of Mount Everest, which is 29,002 feet. We have all heard that it is more than five miles high. Let us test this statement. There are 5,280 feet in a mile, multiply 5,280 by 5, and we have 26,400. Hence we see that Mount Everest being 29,002 feet high must be more than five miles high. Half of a mile is 5,280 feet divided by 2, or 2,640 feet. Add this to 26,400 and we have 29,040. Hence we see that Mount Everest is $5\frac{1}{2}$ miles high lacking 38 feet, or that if we add 38 feet to its height of 29,002, it would then be exactly $5\frac{1}{2}$ miles high. Can we then forget that it is exactly 29,002 feet high?

Shakespeare was born in 1564 and died in 1616. The First Folio Edition of his works was printed in 1623, the Second in 1632, the Third in 1664, and the Fourth in 1685. Can we fix these events infallibly in our memories?

We can begin with whichever date we prefer. If we add together the figures of the year of his birth, 1564, they make 16. All the dates hereafter considered occurred in 1600, &c. We can thus disregard the first 16 and consider only the last two figures which constitute the fraction of a century.

Let us begin with his death in 1616 in the *sixteens*. Is not this a vivid collocation of figures? Can we forget it as applied to the great dramatist? Now if we double the last 16, it gives us the date of the second Folio in [16]32 and 32 reversed gives us the date of the first Folio. Again, seven years after his death [" seven ages of man "] his first Folio was published in 1623. The second Folio was published in 1632 or 23 reversed, and the third Folio in 1664, or 32 doubled, and just 100 years after his birth in 1564. His birth might also be remembered as occurring in the same year as that of the great astronomer Galileo. The fourth Folio appeared in 1685 or 21 years after the third Folio. This period measures the years that bring man's majority or full age.

Attention to the facts of reading will be secured by increased power of Concentration, and a familiarity with In., Ex., and Con. will enable us to assimilate all dates and figures by numeric thinking with the greatest promptitude, especially the longer or larger series.

Try the case of Noah's Flood, 2348 B. C. Here the figures pass by a unit at a time from 2[3] to 4, and then by doubling the 4 we have the last figure 8—making altogether 2348. Another method of dealing with this date is very instructive. Read the account in Gen. ch. vii., vv. 9, 13, and 15. Now we can proceed.

They went into the Ark by *twos*. This gives the figure 2. Now let us find the other figures. Noah's three sons and their wives make three pairs of persons, or *three* families. This gives the second figure 3. Then counting Noah and his wife, and his three sons and their wives, there were four pairs of human beings altogether. This gives the figure 4. Finally the total number of human beings who entered the ark were 4 pairs or *eight* persons. This gives the figure 8. Thus we have the entire set of figures, 2348 B. C. Take the date of the creation according to the accepted biblical chronology as 4004 B. C. We could say the date has *four* figures, that the expression of it begins and ends with the figure 4, and that the two intermediates are nought, or cyphers ; or that the figures are expressed by 40 and *forty reversed* as 40-04—or 4004.

A Scientific Experiment.

Having met several persons who claimed that they always remembered figures by reasoning about them [whatever that may have meant], and yet all such persons having shown an inability to remember many dates or numbers, I inferred that they were honestly mistaken in supposing that they could remember numbers, or else that such a method was not adapted to their idiosyncrasies. At that time, I did not suspect that their failure may have arisen from lack of *training* in In., Ex., and Con. From the circumstance that I myself could use this method with promptitude and certainty, I determined to test it in a strictly scientific way.

I made the experiment two years ago, and all my experience since has corroborated the conclusion then arrived at.

I experimented with the two groups of 20 pupils each. Neither knew any method of dealing with dates and numbers. The first group had had no training in In., Ex., and Con.; the second group had been well practised in those laws. I then gave each member of each group several very difficult cases of dates and numbers to be memorised—one example containing 24 figures. To save time and space in exposition, I have heretofore only mentioned 12 figures, or the half of the amount. All of the first group failed except one. He, however, could not memorise the 24 figures. All of the second group handled all the new examples with success, and only two of them met with much difficulty in dealing with the 24 figures.

Since this decisive experiment, I have heartily recommended the method of finding relations amongst the numbers themselves, to all who are proficient in the use of In., Ex., and Con.

The example of 24 figures must conclude this exposition.

They represent respectively the number of the day of the month in which the first Saturday in each month falls in 1895 and 1896. To one without practice in applying analysis to figures, there seems no hope of memorising this long group of figures except by endless repetition. The 24 figures are

522641637527417426415375.

Yet reflect a moment and all will be clear. Divide the 24 figures into 2 groups of 12 figures each and number the first group, divided into four sections, thus :—

(1)	(2)	(3)	(4)
522,	641,	637,	527.

Now bring the first and fourth groups into relation, and you see at once that the fourth group is larger than the first group by only *five*. Bringing the *second* group into relation with the *third* group, we find they differ only by *four*. Again : the third group is larger than the fourth by 100 and by 10, that is 527 becomes 637, the seven alone remaining steadfast. Beginning with the fourth group and passing to the third group we have the fourth group with 110 added. The second group is the third group with only four added, and the first group is the fourth group with only five subtracted. Thinking out these relations you can recall the groups as groups or the separate figures of each group or the entire 12 figures either forwards or backwards—and you have achieved this result by *Attention* and *Thought.*

The other twelve figures are easily disposed of. They are 417426415375. Divided into groups of three figures each we have

(1)	(2)	(3)	(4)
417	426	415	375

Bringing the first group into relation with the third group, we notice that it is larger by two—and considering the second group with the fourth group, we find that the second group is as much and one more above 400 as the fourth is below 400. Other minor matters could be noticed, as that the first two figures of each group are respectively 41—42—41—37, and that the last figure in each group is 7—6—5—5. But these relations are hardly worth observing.

Coming back to the first series, we know that each figure represents the number of the day of the month to which it belongs on which the first Saturday in that month falls.

The figures for 1895 are 522—641—637—527. The first Saturday in January, 1895, falls on the *fifth* day of January, hence the second Saturday must be 5 + 7 = the 12th day of January; the third Saturday the 19th, and the fourth Saturday 26th. It is easy to know on what day of the *week* any day in January falls. Suppose you ask on what week day the 25th of January falls? You know the 26th is Saturday, and hence the 25th must be the day preceding the 26th, to wit, Friday, the 25th. Suppose you ask on what week day the 9th of January falls. You know the 12th is Saturday (the second Saturday). You now count backward thus: 12 is Saturday, 11 must be Friday, 10 Thursday, 9 must be Wednesday. The *first* Saturday in January, 1895, is the 5th; of February, the 2nd; of March, the 2nd; of April, the 6th; of May, the 4th, &c., &c. And we can tell on what week day any day of any of the other months falls.

Exercises.

1.—The Ratio of the Circumference of the circle to its diameter is expressed by the integer 3 and 708 decimals, of which I give only eight. Learning these nine figures is good practice in numeric thinking—3.14159265.

2.—The Yellowstone National Park contains 2,294,740 acres.

3.—The Monster Chartist Petition contained 3,317,702 names.

HOW TO LEARN PROSE AND POETRY BY HEART.

THE ANALYTIC SYNTHETIC METHOD APPLIED TO LONG SENTENCES.

How *unobservant* and wholly *unreliant* many pupils are may be seen from the fact that notwithstanding my elaborate handling of the processes of learning prose and poetry by heart, I often receive requests to send some indication of how I would learn a particular chapter or selection by heart! But a chapter consists of paragraphs and paragraphs of sentences. Learning the desired passages by heart is done by applying the methods here so profusely illustrated to the successive sentences of the chapter or selection, until practice and training in these methods will make their further application unnecessary.

In pursuance of my plan to keep the mind in an Assimilating condition when trying to learn and to further aid in making the intellect stay and work with the senses, I proceed to furnish a Training Method for committing prose and poetry to memory.

Endless repetition or repeating a sentence to be memorised over and over again is the usual process. After one perusal, however, the mind in such a case has sated its curiosity in regard to the meaning of the sentence and each subsequent repetition for the purpose of fixing it in the memory merely makes an impression upon the eye or ear or both, and the intellect, being unoccupied, naturally wanders away. Hence, learning by *rote* promotes *mind-wandering:* for the Attention always wanders unless wooed to its work by all-engrossing interest in the subject which in case of a weak power of Attention is rarely sufficient, or **by the stimulating character of the process of acquirement**