GREGOR VON FEINAIGLE.
THE NEW

Art of Memory,

FOUNDED UPON THE PRINCIPLES
TAUGHT BY

M. GREGOR VON FEINAIGLE:

AND APPLIED TO
Chronology, History, Geography, Languages, Systematic:
Tables, Poetry, Prose, and Arithmetic.

TO WHICH IS ADDED,

SOME ACCOUNT OF THE PRINCIPAL SYSTEMS
OF
ARTIFICIAL MEMORY,
FROM THE EARLIEST PERIOD TO THE PRESENT TIME;

WITH

INSTANCES OF THE EXTRAORDINARY POWERS
OF
NATURAL MEMORY.

Illustrated by Engravings.

Third Edition,
CORRECTED AND ENLARGED.

Constat memoriam habere quiddam artificii et non omnem a
natura proficisci. Cic.

London:
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1813.
Entered at Stationers' Hall.
PREFACE

TO THE

FIRST EDITION.

As the art which forms the subject of this volume is sufficiently discoursed on, in the introductory matter prefixed to the system contained in the present work, it remains only to give an account of the origin of this publication.

The system, here presented to the public, is that taught by M. Von Feinaigle; who, by the public exhibitions which he has given of the proficiency of some of his pupils, has excited a very general interest and curiosity as to the mnemonic art. The following pages contain, amidst various other matter, the substance of fifteen of the Professor's lectures, on the application of the art to Chronology, Geography, History, Language, Systematic Tables, and Poetry and Prose; being the whole of one course, with the exception of one lecture on Arithmetic and Algebra. This was omitted because the subject to which it relates, is so complicated in itself, as to render it
impossible to give an intelligent account of it within the compass necessarily prescribed to this publication; and because the subject was not of such general interest or utility, as those which are here treated of.

The Editor is not aware that any apology is due to the Professor on account of this publication. The principal peculiarities of his system had found their way into pretty general circulation, by oral communication, before this work was contemplated; and the accounts which were thus circulated, like most traditions, were by no means calculated to give satisfactory or creditable notions on the subject.

The Editor attended one course of lectures, and after the example of several of his friends, took very copious notes. Finding, however, that the materials which he had thus collected, were so confused and disorderly, as to be nearly, if not wholly, useless; and being unwilling that the time he had bestowed on the subject should become entirely without profit, he applied himself to draw up these lectures in a more intelligible form, for his own use; supplying, at length, the analogies and other illustrations to which the lecturer had very cursorily and distantly alluded. In this attempt, parum claris dare lucem, the matter swelled it-
self nearly to the contents of the following pages.

Several of his friends who had attended the Lectures, were pleased to think that the subject had profited much in his hands; and that the science, thus illustrated and explained, was much more intelligible than it was in its original state of communication. They accordingly urged him to publish this improved account of the system, as well for the benefit of those persons who had actually attended courses of Lectures, as of those who would be satisfied with such an account of it as is herein contained. With this request he has complied, whether rightly or erroneously, it is not, perhaps, for him to determine. On this subject he only wishes to add, that, however secondary and derivative this undertaking may, at first sight, appear to those who have not attended the Lectures,—they who have attended them, will be able, (the Editor is confident,) to give him ample credit for originality.

No expense has been spared in supplying this volume with appropriate engravings, together with the diagrams necessary to illustrate the work, and which have been chiefly furnished to him by the kindness of his friends.
In order to render this work as complete as possible, an account has been inserted of the Principal Systems of Artificial Memory: and, accordingly, the public and private repositories of curious literature have been diligently searched for scarce books on this subject.

Some instances of the extraordinary powers of Natural Memory conclude the volume; they have been inserted from a persuasion that they will be new to many persons, and agreeable to all. In short, nothing has been omitted, which was thought capable of illustrating or giving interest to the subject; and it is hoped, nothing has been inserted, which the curious reader would wish to be suppressed.

Under these circumstances, the Editor takes leave of his readers, in full confidence, that whatever may be the success of his publication, he has at least deserved well of them, in his intentions and endeavours to promote their advancement in useful knowledge.

London,
August, 1812.
ADVERTISEMET

TO THE

SECOND EDITION.

If the sale of a book be any criterion of its merit, the present work must stand high in the opinion of the public, as a large impression has been disposed of, in a short space of four months. The general utility, indeed, of this ‘New Art of Memory,’ needed only to be known to be properly estimated, and successfully practised.

The appearance of such a system as this, has produced (as might naturally be expected) many imitators. The merit of having improved upon the original plan of M. Feinaigle, does not, however, appear to belong to any of these persons; for the editor is enabled to state, without fear of refutation, that either an attendance upon M. Feinaigle’s lectures, or indeed the former edition of this book, has furnished more than the outlines of those systems which were so recently taught in the metropolis. The diagrams, indeed, distributed to the pupils who attended these lectures were, evidently, copied from those of M. Feinaigle. The hieroglyphics, it is true, were changed, but the principles and the practice of the art were precisely the same.

The chief peculiarities which distinguish this edition from that which preceded it, are the following:—
1. The editor has adopted a more convenient and connected disposition of his materials, and has given an introduction to mnemonics partly new, together with several additions and illustrations calculated to extend the knowledge of this art, and to accelerate the progress of the student. Among the additions may be named the application of the art to Arithmetic, which was not inserted in the former edition, for the reasons there stated.

2. Some new and interesting notices of books have been inserted in the account of the Principal Systems of Artificial Memory. This sketch contains notices of more than seventy* works on the subject, including copious extracts from many books of great curiosity and value. A small portion of extraneous matter has also been omitted, and the whole of Lowe's Mnemonics has been introduced. This change was made for two reasons; (1.) on account of the extreme scarcity of Lowe's original tract, and (2.) because some persons, perhaps, may be inclined to practise this system, and yet be unwilling to purchase the last edition of Grey for this purpose.

3. To the account of instances of the extraordinary powers of natural memory, is appended an interesting narrative of Zerah Colburn, the young American who is so well known for his wonderful powers in extemporary calculation. This extraordinary youth seems, indeed, to rival the far-famed Jedediah Buxton, in his instantaneous, but correct, solution of the most difficult arithmetical questions.

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* It is, perhaps, worthy of remark, that one of the most celebrated bibliographers of the present day, Brunet,—in his Manuel du Libraire, (Paris 1810,) notices one work only on Artificial Memory, viz. that of Grataroli translated by Cope—the same solitary book inserted by De Bure, in his Bibliographie Instructive.
4. There is prefixed to the present edition, a Portrait of M. von Feinaigle, the accuracy of which may be relied on.

Having stated the chief advantages of this edition, the editor will proceed to offer some observations upon the importance and general utility of the present New Art of Memory. And, here, he cannot refrain from strongly recommending it to the especial notice of all Tutors and Instructors of Youth. The revival of the ancient mnemonics seems to have formed a new era in the annals of education:—it must, therefore, deeply interest every one who is concerned in so important an office. Let the system be impartially examined and properly practised, and there will be no need of a herald to proclaim its merits.

The general utility of the present work, must be obvious to every one; but the peculiar advantages which it offers to the Senator, the Divine, the Barrister, the Merchant, and the Man of Business, are evident, even from a casual examination of the system. In short, what was said of Schenckel's method is equally applicable to the present. Speaking of the importance of his mnemonics to the legal man, he says, 'The Attorney who has many causes to conduct, may, by the assistance of this art, imprint them so strongly upon his memory, that he will have an answer ready for his clients, at any hour, with as much precision, as if he had just perused the whole of the papers relative to each cause. In pleading, the Barrister will not only have the evidence and reasoning of his own party at his fingers' ends, but all the grounds and refutation of his antagonist.'

Were the editor to enlarge upon the general usefulness of the 'New Art of Memory,' it would be
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necessary to name every profession and employment in life; for he is persuaded that there is not one of these, in which some benefit may not be derived from a careful and diligent practice of the principles here developed.

The purposes to which this system is applicable in the every-day occurrences of common life, it would be endless and useless to specify; the editor will, therefore, conclude in the words of Gratnaroli, an eminent writer on mnemonics:

"It sufficeth therefore, that we have expressed a method or compendious waye, the whiche whosoever foloweth shall easelye (so that exercise be not lackynge) get and attayne the certeine and sure remembrance, of manye and sundry things, as due occasion shall require: but as for the sluggishe and yole, let them slugge and slepe stille, to whomme all thinges are displeasing."

LONDON,

January, 1813.
ADVERTISEMENT

TO THE

THIRD EDITION.

In presenting this third and improved edition of the 'New Art of Memory' to the public, it will be sufficient to observe, that the whole work has been carefully revised; and that several useful tables have been added, in order to facilitate the progress of the mnemonick student.

The system of M. Feinaigle has been sanctioned by some of the most eminent names in society, and is well characterized by the Rev. Peter Baines, a Professor in the College of Ampleforth in Yorkshire.* "I think (says Mr. Baines) Mr. Feinaigle's system excellent, and in most cases, incapable of improvement. Many things, which, before could scarcely at all, and not without the greatest difficulty be acquired, he has rendered by his discoveries perfectly easy and accessible to the lowest capacities; and, in every branch of study, whether easy or difficult, he has considerably abridged the time of learning them, while at the same time, the labour of the student is rendered more pleasant, and his acquirements both more perfect and lasting. The

* At this school, M. Feinaigle's Mnemonicals have been regularly taught, and with great success.
system is not only adapted to the higher studies, but is applicable to the very first elements of learning, and is of no less use to the child than to the scholar. Sufficient of it has been experienced here to convince all the profession, that it is infinitely superior to any former mode of instruction, and that its advantages are very great indeed."

The truth of these observations seems now pretty generally acknowledged; and the time is not far distant when ample justice will be done to the merits of this useful system of memory. It is highly gratifying to hear that a Society of Gentlemen, in Dublin, have formed an establishment for the education of youth on the system of M. Feinaigle. They have taken two contiguous houses near Mountjoy-square, and they announce in their prospectus "that the donations arising from the institution (save one half to the Professor for his life) are to form a fund for the promotion and extension of the object of education upon this plan; that with them there can be no consideration of profit, inasmuch as by the Deed of Trust, they can merely enjoy legal interest for the money advanced, and, that in founding a seminary under such circumstances, they have been solely influenced by a conviction, derived from personal observation, and the experience already had in the College of Ampleforth."

The Committee announced, that they would, on the first Monday in September, under the auspices of Professor Von Feinaigle, and well qualified Assistants, instructed by him, commence the education of youth, on a plan, of which the following is an outline:

Supposing the youth capable of reading and writing, and of an age not under nine years, the Pro
fessor undertakes, and the Committee do not hesitate in joining in the pledge, that in four years they shall acquire a competent and radical knowledge of the following subjects:—

1st. Of the English, Latin, Greek, French, Italian, and Spanish languages, so as to speak several, and write in all, correctly.

2ndly. Of History and Chronology, so perfect a knowledge as to connect with every important fact, ancient and modern, its specific date and relation to corresponding and contemporaneous events.

3dly. Of the Mathematics, comprising Arithmetic and Algebra, and certain departments of Natural Philosophy.

4thly. Of Geography, embracing general views of the system of the world, and minute information respecting every country on the habitable globe.

5thly. Of Natural History, an acquaintance with the arrangement of plants, animals, and minerals, and their general application to the wants of civilized society.

Besides the above, there are other objects of instruction necessary to render the plan of school education complete, too numerous here to detail; suffice it to say, that youth so educated, will be qualified, if designed for the University, to pass through it with eclat: or if a degree be not required for his professional pursuits, to appear in society with the information of a gentleman.

For information thus extensive, and acquired within a period of time so limited, the Proprietors have fixed on the lowest terms possible, consistent with the prosperity of the Institution.

As the mode of instruction is by Lecture, the same teacher can instruct 500 boys with as much ease and certainty as five.
ADVERTISEMENT.

A public examination will be held at the seminary before Christmas next, to manifest to the public the progress made by the pupils, after which, such examination will be held quarterly.

The Managing Committee will breakfast once a week at the Institution, and one of its Members daily visit it.

LONDON,
September, 1813.
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*Before the reader uses Plates II. III. IV. and V. it will be advisable to take them out of the volume and paste them on stiff paper. If the white paper be cut away, it will fold up, so as accurately to represent the floor, four walls, and ceiling of a room.*
"IN this work, we conceive, there is a just development of the principles of M. Feinaigle; and the author has, with great industry of research, detailed the principal systems of artificial memory, both before and after that of Mr. Grey was announced to the public." Rees' Cyclopaedia, vol. xxiii, part 2, art. Mnemonica.

"This system is adapted to the meanest capacity. Besides being infinitely serviceable in the more important subjects, to which other systems have been usually confined, it can with equal facility be used, in the common transactions of ordinary life; and its application is rather a source of amusement than labour. It possesses all the advantages of the preceding methods, and as a whole is superior to any that have yet appeared." Monthly Review for May, 1813.

"The principles of the art may be considered as fairly developed in this work; the book is in itself very curious and interesting, and well worth purchasing." British Critic for August, 1813.
Something herein I once redrest,
And now again for thy behoof,
Of zeal I doe and at request,
Bothe mende and adde, fit for all proof.

Of mem'ry's use, the endless might,
No wit nor language can expresse:
Apply and try both day and night,
And then this truth thou wilt confess.  J. Dee.
THE NEW

Art of Memory.

Introduction.

Memory, in the sense in which it is to be understood in the present work, (for it is not employed always in the same precise sense) cannot, perhaps, be better defined than in the words of Mr. Dugald Stewart, "It is that faculty which enables us to treasure up, and preserve for future use, the knowledge we acquire; a faculty (he adds) which is obviously the great foundation of all intellectual improvement, and without which, no advantage could be derived from the most enlarged experience."

With the various metaphysical theories concerning Memory which have been advanced by different philosophers, we shall not pretend to meddle; as such an investigation would not much assist our present purposes. Whatever may be the relation in which Memory stands to the other principles of our constitution, it is
beyond all controversy, a most necessary and excellent faculty: so much so, that, as Dr. Watts observes, "all other abilities of the mind borrow from hence their beauty and perfection; for other capacities of the soul are almost useless without this. To what purpose (as the same eminent author inquires) are all our labours in knowledge and wisdom, if we want Memory to preserve and use what we have acquired? What signify all other intellectual or spiritual improvements, if they are lost as soon as they are obtained? It is Memory alone that enriches the mind, by preserving what our labour and industry daily collect. In a word, there can be neither knowledge, nor arts, nor sciences, without memory; nor can there be any improvement of mankind in virtue or morals, or the practice of religion, without the assistance and influence of this power. Without memory, the soul of man would be but a poor, destitute, naked being, with an everlasting blank spread over it, except the fleeting ideas of the present moment."

This faculty exists, however, in very different degrees, in different men. Some persons possess astonishing vigour of memory,* while others are

*For many remarkable instances of the extraordinary powers of natural memory, the reader is referred to the conclusion of this volume.
deplorably deficient in this faculty; or, as Mr. Locke has beautifully expressed the same idea, "in some persons, the mind retains the characters drawn on it like marble, in others like freestone, and in others, little better than sand."* Themistocles, the Athenian, indeed, is said† to have been oppressed by the strength and tenacity of his memory, and to have wished for the possession of the faculty of oblivion, rather than an increase of the powers of remembrance; but it is

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* Mr. Locke, speaking of the continual decay of our ideas, says, "The ideas, as well as children, of our youth, often die before us: and our minds represent those tombs, to which we are approaching; where though the brass and marble remain, yet the inscriptions are effaced by time, and the imagery moulders away. The pictures drawn in our minds are laid in fading colours, and if not sometimes refreshed, vanish and disappear. How much the constitution of our bodies, and the make of our animal spirits are concerned in this, and whether the temper of the brain makes this difference, that in some it retains the characters drawn on it like marble, in others like freestone, and in others, little better than sand; I shall not here inquire: though it may seem probable, that the constitution of the body does sometimes influence the memory; since we oftentimes find a disease quite strip the mind of all its ideas, and the flames of a fever in a few days calcine all those images to dust and confusion, which seemed to be as lasting as if graved in marble." Works, vol. i. p. 76. ed. 4to. 1777.

† Plutarch Apophth.
more than probable that, in this respect, if the anecdote be true, he stands an exception from all the rest of mankind. *Plenui rimarum sum,* may be truly, and without reproach, said by almost every man, with regard to his memory: and that not only concerning matters difficult to be retained, but even concerning the most ordinary occurrences of life.

To remedy this inconvenience, and provide as effectually as possible against the mischiefs of forgetfulness, various artifices have, at different times, been resorted to. Of these, the *topical memory* of the ancients stands first, both in point of date and of celebrity; and as its principles are very analogous to those of the present system, we shall give some account of the origin and general plan of that invention. And, as Professor Barron, has already trodden this path, no apology will be offered to the reader for presenting to him, that author's very excellent account of the subject, prefaced by some of the ingenious remarks with which he has introduced it.

"The recollection* which ordinary memories possess, appears to be resolvable into two principal sources, the vivacity of the impression and association.****

* Barron's Lect. on Belles Lettres and Logic, v. 1. p. 609.*
But the principal expedient for assisting the memory is derived from association. For instance, when I see a house, I naturally recollect the inhabitants, their manner of life, and the intercourse I have had with them. The sight of a book prompts the memory of its contents, and the pleasure, or profit, I have received from the perusal of it. A view of the sea may suggest the idea of a storm, and the painful recollection of the loss of property, or of the life of a friend, by shipwreck. The act, then, of aiding recollection by association, is to connect thoughts remote, or abstract, with others more obvious and familiar, that the recurrence of the latter may bring along with it the memory of the former. Thus the sight of my ring, which I cannot miss to observe, reminds me of the action, to suggest the remembrance of which I moved it from one finger to another. The ringing of the bell, or the sounding of the clock, prompts the recollection of the business I had resolved to perform at these times. A glimpse at the first words of a paragraph, or a page, introduces the recollection of the whole. In a word, we must connect the things we wish to remember with the immediate objects of our senses, that offer themselves daily to our attention, but particularly with the objects of our sight, the most vigorous and lively of all our senses, and of which the objects are,
perhaps, more numerous than those of all our other senses put together.

"This theory is the foundation of all contrivances which have been, or, perhaps, can be, employed to help recollection. It is the groundwork of the famous artificial memory of Simonides, a lyric poet, of the island of Ceos, one of the Cyclades, who flourished in the sixty-first Olympiad, about five hundred and thirty-five years before the birth of Christ, and [who] is celebrated by Cicero and Quinctilian. Both these authors relate the following: mythological incident, on the occasion which suggested the invention. Simonides was employed by Scopas, a rich Thessalian, to compose a panegyric on him for a certain sum of money; was invited to a festival given by Scopas to his friends, in order to rehearse it, but was sordidly refused more than half the stipulated compensation,—because puzzled, perhaps, with the sterility of the principal subject, he had introduced a long episode, amounting to half the poem, in praise of Castor and Pollux. Simonides soon found an avenger of the insult. He was immediately summoned from the company by two young men on horseback, supposed to be Castor and Pollux in disguise, who appeared to protect their favourite poet; and who, as soon as they had saved Simonides, made the roof fall on Scopas and his
company, bruising them so to death that not a lineament of them could be known. Simonides, by recollecting the manner in which they sat at table, was enabled to distinguish them, and to deliver them to their friends for burial. The aid which the recollection of the poet received, on this occasion, is said to have suggested the idea of an artificial memory.

"The principle of the scheme of Simonides, is to transfer a train of ideas, the archetypes of which are not the objects of sense, and are, therefore, of difficult recollection, to another train which we cannot miss to recollect, because the archetypes are not only objects of sense, but objects of sight, with which archetypes we are perfectly familiar; or which may be placed actually before our eyes. Suppose then Simonides were to commit to memory a discourse, consisting of speculations concerning government, finances, naval affairs, or wisdom, none of the archetypes of which could be made objects of sense, at least, at the time of delivery; and to assist his recollection, he were to connect the series of ideas in that discourse, with a series of objects, which he could either place in sight, or with which he was so familiar, that he could not fail to recollect them; he would proceed in the following manner. He would take a house, for instance, either the one in which he might deliver the discourse, or another; with every part of
which he was perfectly acquainted. He would begin at some fixed point of that house, suppose the right side of the door, and he would proceed round it in a circular line, till he arrived at the point from which he set out. He would divide the circumference of the house into as many parts as there were different topics, or paragraphs, in the discourse. He would distinguish each paragraph by some symbol of the subject it contained; that on government, by the symbol of the crown, or a sceptre; that on finances, by the symbol of some current coin; that on naval affairs, by the figure of a ship; that on wisdom, by the figure of the goddess who presided over it. He would either actually transfer, or suppose transferred, these symbols to the different compartments of the house, and then all he had to do, in order to recollect the subject of any paragraph, was, either to cast his eye on the symbol during delivery, or to remember upon what division the symbol was placed. The memory, by this contrivance, easily recalled the discourse. The orator either saw, or could not fail to remember the compartments, because he was perfectly familiar with them. Neither could he forget the symbols of each paragraph, because they were no more than hieroglyphical paintings of the sense.

"In the place of a house, we may assume, according to Quintilian, a public building, the
walls of a city, a well known road, or a picture, to divisions of which we may refer our symbols. Metrodorus assumed the circle of the zodiac, which he divided into 360 compartments, equal to the number of degrees of which it consists, making a compartment of each degree.

"Some people carried this art so far as to comprehend the words of a discourse, by constructing symbols for each of them, and referring in like manner, these symbols to compartments. This seems to have constituted nearly what we call short-hand writing, except that our short-hand writers oblige themselves to commit to memory the meaning of their symbols, and pretend not to refer these to any more familiar objects. Quinctilian accordingly observes, that this pretended improvement terminated in confusion, and embarrassed, much more than it assisted recollection. However much, therefore, he might prize the scheme of Simonides, he rejected this supplement as nugatory, or detrimental."

This system of Mnemonics was a favourite pursuit with the Greeks;—and was cultivated with success by the Romans, among whom Crassus, Julius Caesar, and Seneca, are said to have particularly excelled in this art.

Such were the origin and principles of the celebrated topical memory of the ancients: from which source are derived all the various modern systems of local and symbolical memory, that
have been promulgated from the thirteenth to the eighteenth century. We shall here briefly recapitulate the names of the principal writers on the subject, referring our readers to another part of this volume for an account of the different systems.

That luminary of science, Raymond Lully, born in 1236, seems to have been the first modern who brought the art of memory into notice, after it had lain dormant for so many ages. This art was termed transcendental, and distinguished by his name.

In the fifteenth century mnemonics seem to have occupied the attention of Publicius, Priis, Peter of Cologne, and Peter of Ravenna, who successively published systems of local and symbolic memory.

In the year 1533, Romberch published his Congestorium Artificiosae Memoriae, which contains a very complete view of his predecessors' labours, with many important additions. Grataroli, an Italian physician, was the next writer on this subject, who in 1555, put forth a treatise, 'de memoria reparanda, etc.' This was translated into English by William Fulwod, under the title of 'the Castel of Memorie;' and afterwards rendered into French by Stephen Cope. The treatise of Grataroli contains much curious matter.

The works of Spangenberg, Rosselius, Bruno,
Albert, Porta, Maraisot, and others, appeared about the close of the sixteenth century, but they contained nothing very materially new on the mnemonic art.

The seventeenth century was remarkable for the number and variety of mnemonic works which issued from the presses of the continent. England also had her share in this honour, and produced one or two books worthy of examination. The system of Schenckel occupied the greatest share of attention in France and Germany. Schenckel was followed by Alsted, Brux, Ravellin, and Naulius. Brux also wrote an essay upon the 'art of forgetfulness,' and gave numerous rules for acquiring perfection in this useful science.

The principal work published in England, on the subject of the local memory, appeared in 1618, under the title of Mnemonica; sive ars Reminiscendi, etc. by John Willis; and was translated in 1651, by one Sowersby, a bookseller. This curious and rare volume is replete with information respecting mnemonics, and discourses at large concerning every particular which requires the attention of the student.

In the year 1651, Henry Herdson, who styles himself a Professor by Public Authority in the University of Cambridge, published his Ars Mnemonica, sive Herdsonus Bruxiatus, etc. in
Latin and English. It is merely a republication of part of Brux's *Simonides Reditivus*.

The mnemonic essays published on the continent from 1620 to 1702, were principally by Azevedo, Carbonel, Cuirot, Dannhawer, Belot, and Brancaccio:—several anonymous systems were put forth also during this period. Erhardt's *Ars Memorix* appeared in 1715, and Morhof and Father Feyjoo, have, both, dissertations expressly upon the subject; the one in his *Polyhistor*, and the other in his *Cartas Eruditas y Curiosas*.

From the time of Feyjoo (1781) to 1806, (if we except a German translation of Schenckel by Klüber) the local and symbolical memory seems to have lain completely dormant. In the *Philosophical Magazine* for December, 1806, there is the following notice:—

"A new branch of science is begun to be studied in Germany. It is the science called by the antients mnemonica, or the art of memory. We find in Herodotus, that it was carefully taught and practised in Egypt, whence it was transplanted into Greece. This historian attributes the invention of it to Simonides; but this opinion is refuted in a dissertation published by M. Mongenstern, of Dorpat, upon mnemonica. He there asserts, that this science is more intimately connected with the Egyptian hieroglyphics than
is generally thought, and that this connection may help to explain them. However the case may be, this singular art, so long neglected, has reappeared in Germany with some eclat. M. Aretin, who may be accounted the restorer of it, has recently had M. Kästner, a clergyman, as his pupil, whom he has permitted to teach his new doctrine at Leipzic; at the same time exacting a promise from him not to suffer his pupils to write down his lectures. M. Kästner travels about like Dr. Gall.

"According to a book written, it is said, by a child of twelve years of age, and mentioned in the Leipzic catalogue for the last September fair, *mnemonica* is a true science, and may be taught by means of seventeen different rules, and which will give a memory to individuals of every age."

In March 1807, **M. Gregor Von Feinaigle**, a native of Baden, visited Paris, and delivered Lectures on his 'New System of Mnemonics and Methodics.' In the *Philosophical Magazine* for June, 1807,* there is the following extract from a letter written by M. Fichtel, at Paris, to a friend in London, giving some account of M. Von Feinaigle's exhibitions there.

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"Paris, 2d March, 1807.

"During my residence in this metropolis, I heard a great deal of a new method of mnemonique, or of a method to assist and fix our memory, invented by Gregor de Feinaigle. Notwithstanding the simplicity with which he announced his lectures in the papers, I could not determine myself to become a pupil of his, as I thought to find a quack or mountebank, and to be laughed at by my friends for having thrown away my cash in such a foolish manner. Perhaps I should hesitate to this moment about the utility of this new invented method to assist our natural memory, had I not had the pleasure of dining at his excellency's the Count of Metternich, the Austrian ambassador, who followed, with all his secretaries, the whole course of lectures: they all spoke very advantageously of it, likewise several other persons of the first rank I met there: in consequence of this I was inserted into the list of pupils, and I follow, at this moment, the lectures. All I can tell you about this method is: it is a very simple one, and easy to be learned, adapted to all ages and sexes: all difficulties in such sciences as require an extraordinary good memory, for instance, the names and epochs in history are at once overcome and obviated. There is not one branch of science to which this method cannot be applied. It is easy
to be perceived that such an invention cannot pass without some critique, and even sarcasms, in the public prints: some of them were very injurious, and plausible enough to mislead the public, who, knowing nothing of the method, are always more ready to condemn than to assist. Mr. Feinaigle, to answer all these critics at once, adopted a method not less public for Paris than the public papers, but less public for the rest of Europe: he gave, the 22d of last month, a public exhibition to about 2000 spectators, in which he did not appear at all, only about 12 or 15 of his pupils; each of them made such an application of the method as his situation in life required. The principal parts were the following: history about names and years; geography, with respect to longitude, latitude, number of inhabitants, square miles, &c. &c.; grammar in various languages, about different editions of the same work; pandects, their division, and title of each book, title, &c.; different systems of botany, poetry, arithmetic, &c. &c. At last one desired the company to give him one thousand words, without any connection whatsoever, and without numeric order; for instance, the word *astronomer*, for No. 62; *wood*, for No. 188; *lovely*, for No. 370; *dynasty*, for No. 23; *David*, for No. 90, &c. &c. till all the
numbers were filled; and he repeated the whole (notwithstanding he heard these words, without order, and but once,) in the numerical order; or he told you what word was given against any one number, or what number any one word bore. It is still more striking, but certainly, likewise, more difficult, to retain as many numbers however great they may be. For words and numbers I could venture myself, with the greatest safety, as far as one hundred of each; and I am sure, after having fixed them once, which is done in less than ten minutes, I could repeat them to you at any period, without ever thinking any more of them.

"M. Feinaigle is about to visit England."

To the testimony of M. Fichtel may be added that of the celebrated French astronomer, M. Lalande, who says, "I have witnessed the extraordinary effects produced on the memory, by the method of M. de Feinaigle: one of his pupils is able to repeat, in any order, without the least mistake, a table of fifty cities in all parts of the world, with the degrees of longitude and latitude in which they are situated; the same is the case with chronology: in the Annuaire, I have inserted 240 dates from antient and modern history, and M. de Feinaigle's Scholars repeat
them all—an astonishing aid in the study of geography and history!"

In the *Monthly Magazine* for September, 1807,* there is a letter under the signature of *Common Sense*, which, though somewhat illiberal in its remarks, displays considerable knowledge of the *principles* of the "local and symbolical Memory."

"Any person (says this writer) who wishes to try an experiment on the power of association, need only make use of the succession of rooms, closets, stair-cases, landing-places, and other remarkable spots or divisions, of his own house, with all the parts of which he may be supposed to be very familiar. Let him apply any word or any idea to the several parts of the house, in any determined order of their succession, and he will find it almost impossible, in recalling the same order of the parts of the house, not to associate the idea or word which he had previously annexed to each part. Thus, for example, a person may learn the succession of the Kings of England in ten minutes, by annexing the names of each succeeding monarch to the successive rooms, closets, and principal parts of his own house, beginning at the upper story, and regularly de-

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ascending; or, at the lower story, and regularly ascending.

"Any other permanent and familiar class of objects will, in general, answer the purpose better than the rooms of a house. I was myself educated in the vicinity of Oxford-street, and the streets running out of that street south and north (beginning at Charles-street, Soho-square, and so on to Park-lane, and down on the other side to Rathbone-place and Hanway-yard) are the permanent and familiar set of objects, which I make use of for my own purpose of successive association. The counties in England, the kingdoms and the countries throughout the world, the villages, and other objects on a great road, or the streets of a city, are all well suited to this business of association; and either of them may be taken indifferently by various persons, according to their acquaintance with them. The greater the variety of ideas connected with this set of objects, which may be called the associating key, the more easy, and the more certain is the power of recollection.

"If I do not hazard a charge of egotism; I shall mention, as illustrative facts, that by this new art I once committed to memory, in a single morning, the whole of the propositions contained in the three first books of Euclid, and
with such perfection, that I could for years afterwards specify the number of the book on hearing the proposition named, and could recite the proposition on hearing the number and the book; and I have frequently, in mixed companies, repeated backwards and forwards from fifty to an hundred unconnected words, which have been but once called over to me. I may also add, to prove the simplicity of the plan, that I taught two of my own children to repeat fifty unconnected words in a first lesson, of not more than half an hour's continuance."

M. VON FEINAIGLE visited England some time in the early part of 1811. In order to exhibit a detail of his progress in this country, we have made some extracts from the Periodical Works and Public Papers which gave an account of his various experiments.

"On the 22d of June, 1811, M. Von Feinaigle* gave at the Royal Institution, a public experiment of the efficacy of his Method of facilitating and assisting Memory. The Managers of the Institution, in consequence of the application of the Committee of Literature and Science, granted permission for this public display of the art, without, however, making themselves in any way responsible as to its character. The

exhibition took place before an assembly of several hundred Ladies and Gentlemen, who were astonished and delighted with the result of the experiment. Four children, two boys and two girls, all under 14 years of age, had been put under Mr. Feinaigle's care but two or three days before: he had one of the girls but an hour and a half; and the longest tuition that any of them had received was but four hours and a half.—One of them repeated Goldsmith's *Hermit* backward and forward, and stated the stanza, the line, and the order of any remarkable word required of him.—One little girl answered to questions in the chronology of the Roman Emperors; and another multiplied, without slate or paper, *two sums of eight figures by eight*, and declared that she had not previously been taught arithmetic.—A boy determined the geographical situation by degrees and minutes, of 50 different cities; and on a planisphere chalked out on a board, marked down the true situation of places named to him.—Mr. Fincher, of the Institution, also recited the Mineralogical Tables of Hauy, the second part of which he had taught himself on Mr. Feinaigle's system, together with the first part of Brisson's Ornithologic System; and he declared, from his own experience, that the principles of Mr. Feinaigle's art were equally calculated to give facility in the acquisition, and
certainty in the retention, of the tables of any other science—a fact which was confirmed by several Gentlemen present, who have attended the private courses of the Professor.—The examinations were carried on by Mr. Disney, Chairman of the Literary and Scientific Committee; and for a great part of the time, Mr. Feinaigle retired from the Lecture-room. Nothing could be more satisfactory than the result of the experiments; and the company returned Mr. Feinaigle their thanks.—The Professor, Aug. 26, repeated the experiment at Liverpool, where the Rev. Jonathan Brookes, at the request of the Mayor, selected from the different charity-schools of the town, children upon whom the experiment might be made. The exhibition took place before a very numerous assembly. Four children had been put under Mr. Feinaigle's tuition but three days before, two boys and two girls, and none of them had received more than two hours' instruction; neither of the girls could make or read a figure when first presented to him. The examinations (which were carried on by the Rev. Jonathan Brookes) were precisely of the same nature as those at the Royal Institution; and the results were equally satisfactory."

"On the 6th of April, 1812, the effects of M. Von Feinaigle's system were exemplified at
the Surry Institution, before a numerous assembly of Proprietors and Subscribers, by the examination of five young persons, who had previously been committed to the care of M. Von Feinaigle.*

"1. Master H. S. (13 years of age) determined the geographical situation of fifty principal towns in different parts of the globe, assigning to each its longitude and latitude in degrees and minutes, and named the country in which it is found. He also marked on a blank planisphere the true situation of the towns named to him.

"2. Miss P. K. (11 years of age) repeated fifty stanzas of four lines each, from the second part of Mrs. More's 'Sir Eldred of the Bower.' These she repeated consecutively, and in any order desired. On any remarkable word being mentioned, she determined the stanza, the line, and the place of the line, in which it was to be found; and also how many times the same word occurred in the Poem.

"3. Miss M. A. K (15 years of age) answered to all the declensions, as well of substantives as of adjectives, of the Latin language; and gave a full account of all the conjugations,

* The whole of this report is taken from the Morning Post of April 18th, 1812.
both active and passive, without any previous knowledge of that language.

"4. Miss S. S. (of the same age with the preceding pupil) answered to the declensions and conjugations of the Greek Language, and declined and conjugated several regular nouns and verbs proposed to her. This pupil had never seen a Greek character till put under the care of the Professor.

"The whole instruction received by the above pupils consisted of five lessons only, of one hour each.

"Master S. H. explained the physical, mathematical, and chemical characters of minerals, after Hauy's system, assigning the systematical order of any character whatever proposed to him, and showing in what manner any mineral ought to be examined and tried, to ascertain its nature. This pupil received only two hours' instruction from M. Feinaigle.

"Master S. H. afterwards requested the audience to give twenty words, or names; without any order or connection whatever. These words were written on a board, and numbered from one to twenty as follows:—

1. Tower. 5. Chapel.
2. Gate. 6. Institution.
9. Regent.  
10. Feinaigle.  
11. Syracuse.  
12. Wellington.  
15. Hill.  
17. Archimedes.  
18. Palestine.  
20. Reform.

"After inspecting the number and words for a space of time, not exceeding three minutes, the pupil named every word in the series, both forward and backwards: to any number that was proposed to him, he assigned the proper word, and vice versa.

"A series of twenty-eight figures, named promiscuously by the audience, was then written down, as, 8. 6. 1. 0. 5. 0. 2. 9. 6. &c. &c. &c. These the pupil surveyed attentively, for about five minutes, and then repeated them forwards and backwards. He afterwards declared how many 8's, 2's, 9's, &c. occurred in the series, and the relative situation of each figure.

"In consequence of the disappointment of many of the Proprietors and Subscribers, who could not obtain admittance into the Lecture Room on the 6th instant, the above experiments were repeated on Wednesday evening last to a crowded auditory. On this evening the following additional evidences of the utility and universality of M. Feinaigle's System were ad-duced.
INTRODUCTION.

"1. Master J. C. answered to two sums in multiplication of 8 numbers, by 8 numbers each. Each sum containing 8 separate products, besides the total product; he repeated any product required of him. The separate operations being represented on a board, by cyphers—on any one cypher, or line of cyphers, on either sum being effaced, he replaced them by the appropriate figures. This pupil was employed for ten minutes only, in committing the figures to memory.

"2. Miss S. T. answered to the Chronology of the Kings of England, from William the Conqueror, down to his present Majesty, in any order that was desired. She also named the predecessor and successor of any King pointed out to her. This pupil received four lessons of one hour each.

"Master S. H. after one hour's application, repeated a Greek word from Aristophanes, consisting of seventy-six syllables and 165 letters, both forwards and backwards; he also named any syllable in any order desired, determining its numerical situation."

At these public experiments, M. Von Fei-

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* Similar experiments have been given at the Russell Institution, Freemasons' Hall, the London Tavern, etc. etc. etc.
NAIGLE distributed a syllabus, in which the nature of the pupil's examination was stated; and the six following notes, or explanations, of the objects of his 'New System of Mnemonics and Methodics,' were subjoined.

"1 Systematic Tables. A method that is at once speedy and effectual for acquiring the perfect knowledge of systematical tables, is an object of higher value and greater importance than at first it might appear. How often are we attending courses of lectures upon particular sciences, without being able to form a clear idea of the whole, or to give ourselves an account of what we are learning! When, by the means here recommended, we are enabled to know previously the great divisions and subdivisions of a system, it is not difficult to refer to those fixed points all our ideas, and at once to secure our knowledge already attained, and to accelerate our progress in the science. A system acquired by this method is not a dry and sterile series of words; it is a well-arranged classification of real knowledge. We learn in like manner all the systems of any science, whatever; however complicated they may appear.

"2. Languages. The learning and teaching of languages are not only facilitated by the system of Mnemonics, but acquire more light and more solidity than ever they were thought sus-
ceptible of. It is a fact well known to all my pupils, that, almost in any language whatever, the declensions may be learnt in a single hour, and all the conjugations in another. It can easily be conceived, that all the rest may be acquired with the same facility: but this is not all the advantage of my system: anomalies, irregularities of verbs, and similar difficulties which have been hitherto the torment of the scholars, become, by this system, the most pleasing and most instructive part of the language. My pupils are convinced, by the most satisfactory experience, that grammar is to be learned in the language, not the language in the grammar; and when the true way is once known, it becomes delightful to them to go on with ease and promptitude, by themselves, from one language to another.

"S. Prose and Poetry. When we know pieces of prose or of poetry in such perfection that we are able to answer at pleasure to any single word, it is not to be imagined that in learning them we have to fix one word after another; but whatever we commit to our memory is there in such an order that we are sure to find it again whenever we may wish for it. The matter and the diction are necessarily distinguished, and every thing treated after its own nature, and we are therefore sure neither to omit any thing that is
to be said, nor any word by which it is to be expressed. Persons who could never before get by heart either prose or poetry, have, by a short practice of this method, acquired the greatest readiness and facility.

"4. Geography. This part of geography* has only been learned by my common manner of fixing in the memory proper names in general, and that of noting the arithmetical figures wherever we meet them. The true system of geography is the object of more than one of my lectures; and by this new system, the study acquires a degree of facility, and the science itself a degree of perfection, of which it was never thought susceptible, and yet without which it can never be essentially what it ought to be. Those who would think it needless, or of no use, to know the situation of every remarkable point of the globe by degrees of longitude and latitude, have to consider, if without these degrees, geography itself, or any geographical chart, could ever exist; and, if not, they surely cannot maintain that what is essential to geography itself may be neglected in the study of geography. This perfection is not only given to the science by my system, but is also attained with greater facility

* This refers to the longitude and latitude of the fifty cities repeated by the pupil.
and certainty than even the former imperfect knowledge could be acquired by any other method whatever. The same principles are applicable with equal efficacy to all the subsidiary parts of a perfect geographical knowledge, and it is shown how to fix in the memory, for instance, the government, the extent, the population, and the military power, the products, the commerce, the manufactures, the arts and sciences, &c. of every state. Those who are acquainted with the principles of the present arrangement, cannot but feel how much easier it must be to compare, according to this plan, one kingdom with another by simple memory, than after any other plan, with all the assistance of books and systematic tables.

"5. Chronology. What is done with regard to the kings of England may be done with any chronological series of sovereigns; and though such a series presented nothing more than what may be considered as great epochs of history, even of those the present system offers a greater number than any other system of chronology, and fixes them more easily than it has ever been possible to do by all those ingenious historical tables which have been invented to assist the memory in this interesting study. But the highest perfection of historical knowledge is certainly to know the whole history, not only by great
epochs, but year by year, and fact by fact; and this perfection no other system has ever been able to afford.

"6. Multiplication. To make a multiplication, consisting of a greater number of figures in the multiplier as well as in the multiplicand, only by memory, without writing any thing, may certainly in many cases be desirable, or of great utility, and is at least a certain proof that the principles of the present method reach every where, and that to its means nothing is too difficult or too complicated. It is undoubtedly of the highest importance to be able to fix in our minds the numbers in general. Statistic geography, history, mathematics, in short, almost every science is full of numerical figures. Multiplication tables, square and cube numbers, logarithms, algebraic formulae, and all the mathematics can be submitted to those rules."

Since the period of M. Von Feinaigle's arrival in this country, he has been delivering a variety of courses of fifteen or sixteen lectures each, for which the charge of five guineas has been made; but the pupil is at liberty to attend any particular lecture, a second time, should he not sufficiently comprehend it at the first hearing. M. Von Feinaigle has not confined his visits to the metropolis: Edinburgh, Glasgow, Liverpool, etc. etc. have, in the summer season, been, successively, the theatre of his exertions.
CHAP. I.

Principles.

The memory may be compared to a warehouse* stored with merchandise. A methodical arrangement of the contents of such a repository, enables its owner to find any article that he may require, with the utmost readiness. With a general knowledge of the contents of a library, and of the manner in which the books are distributed, a person may, even when absent from the spot, determine, with certainty, the situation of any particular book.† "Medallists," says Mr.

* Memory is, as it were, the storehouse of our ideas; for the narrow mind of man not being capable of having many ideas under view and contemplation at once, it was necessary to have a repository to lay up those ideas, which at another time it might make use of. *Lock on the Human Understanding*, vol. i. p. 111.

† The well known anecdote of Magliabechi, librarian to the Grand Duke of Tuscany, Cosmo III. will suffici-
ADDISON,* "upon the first naming of an emperor, will immediately tell you his age, family, and life. To remember where he enters in the succession, they only consider in what part of the cabinet he lies; and by running over in their thoughts such a particular drawer, will give you an account of all the remarkable parts of his reign." If our ideas were arranged with equal method and order, the mind would turn to them, with the like facility.

Sensible objects have a powerful effect in recalling to the mind the ideas with which it was occupied when those ideas were presented. Thus the sight of any remarkable scenes in the course of a second journey, will frequently remind a person of the subject of which he was thinking or talking when he last travelled that road; or, to adopt the elegant language of Mr. Foster.†

"Places and things which have an association

ently illustrate and confirm this fact. The Grand Duke having asked Magliabechi whether he could procure a book that was particularly scarce, he replied, 'no, sir, it is impossible, for there is but one in the world, that is in the Grand Signior's library at Constantinople, and is the seventh book on the second shelf, on the right hand side as you go in.'

* Dialogue upon the usefulness of ancient Medals, pp. 21, 22, 12mo. 1726.

† Essays, p. 12. For a very pretty illustration of this subject, see also Spectator, No. 417.
with any of the events or feelings of past life, will greatly assist the recollection of them. A man of strong associations finds memoirs of himself already written on the places where he had conversed with happiness or misery. If an old man wished to animate, for a moment, the languid and faded ideas which he retains of his youth, he might walk with his crutch across the green where he once played with companions who are now probably laid to repose in another spot not far off. An aged saint may meet again some of the effects of his early piety in the place where he first thought it happy to pray. A walk in a meadow, the sight of a bank of flowers, perhaps even of some one flower, a landscape with the tints of autumn, the descent into a valley, the brow of a mountain, the house where a friend has been met, or has resided, or has died, have often produced a much more lively recollection of our past feelings, and of the objects and events which caused them, than the most perfect description could have done."

Indeed, it will be found upon investigation, that locality is the most efficacious medium of reminiscence: and that system of memory will be the most serviceable, which brings this principle into the most extensive operation. For this reason, locality (or, the connection of our ideas with places) is made the foundation of the
present system. In this respect, it is analogous to the scheme of Mnemonics practised by the ancients, but it is here applied much more extensively and advantageously than it was by them.

A room having generally four walls, the most obvious division of it is, into four sides, and each wall or side may be subdivided into pannels or compartments. Accordingly, the antient system divided a wall into five spaces. Thus, suppose the letter \( M \) to be represented on a wall as under:

\[
\begin{array}{ccccc}
2 & & 3 & & 4 \\
1 & & 3 & & 5 \\
\end{array}
\]

Five spaces are thus gained in the places marked by the figures 1, 2, etc. Every wall of the room was, in imagination, divided in this manner; and this plan was applied to as many rooms as were found necessary to the extent of each particular scheme—every room being similarly divided into four sides,—and every side being subdivided into five compartments. Thus, any idea which, according to this method, had been associated in the mind with the forty-eighth compartment, would be placed in the third compartment of the second wall, in the third room.
But as few compartments could be obtained on each wall by these means, the calculation of high numbers would be exceedingly difficult. To remedy this defect, each wall might be divided into nine or ten compartments, thus:

If a wall be divided into nine parts, there will be 36 compartments in every room. In order to ascertain the situation of any particular number, it is to be considered in relation to the total number of the subdivisions. For example, if the situation of number 48 be required; according to the last mentioned division of the rooms, it is to be found by considering the proportion which that number bears to 36, the total number of the compartments in this arrangement. If the number in question be less than this total, the place inquired after will be obvious; thus 12 being within the number 36, must, of necessity, be in the first room: being above 9, it is equally clear that it cannot be on the first wall, and being less than 18, it must, necessarily, be on some part of the second wall: and as it exceeds the number of the first wall by 3, it follows, of course, that its
place must be in the third compartment of the second wall. If the number in question be higher than the number of the compartments in one room, its place will be readily found by dividing it by that number. Thus, suppose 48 to be the number whose place is required:

\[
\begin{align*}
36 & \mid 48(1.2) \\
9 & \mid 12(1.2) \\
\hline
3 & \\
\end{align*}
\]

As 48 exceeds 36, we know that it cannot be in the first room, the 1 is therefore changed into 2; and the fraction remaining, shows it to be in the twelfth compartment. There being nine compartments on every wall, this remainder, or number of the compartment, is divided by 9, for the purpose of ascertaining the wall. Now, as the divisor is contained more than once, but not twice, in the dividend, it follows that the compartment sought must be on the second wall; the remainder gives the specific compartment. This operation, then, shows that 48 is in the third compartment, on the second wall, in the second room. This was the plan adopted by the antients when they divided their rooms into parts; but being both complicated and difficult, it has been rejected in the present system, and another scheme has been introduced in its place, which is more simple in its construction—less difficult in its application—and much more extensive in its powers.
We shall now proceed to explain the mode of dividing a room according to the New System of Memory, and to develop the principles of the art. It is, however, necessary to premise, that the pupil must not attempt too much at first, but should proceed gradually in the acquisition of this system; for his ultimate success in it will greatly depend upon a perfect knowledge of the first principles.* As in mathematics no problem can be demonstrated without understanding all the preceding demonstrations,—so every advance in this art, must be grounded on the full possession of all the antecedent doctrines.

We shall divide a wall in the following manner:

\[
\begin{array}{ccc}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9 \\
\end{array}
\]

The figures are arranged from left to right, in the usual manner of writing; and for the more easily remembering their situation, it will be found that if two lines be drawn diagonally, from the four corners of the figure, they will intersect

all the odd numbers. (See Plate I. fig. 1.) There is now a single wall divided into nine squares or compartments; these we shall name places, and say, the first place, second place, third place, etc. etc.

The same mode must be pursued with the three remaining walls in this room; by these means, four walls are obtained—each being divided into nine places. In order to find the number 36 in this room, we should naturally say four times nine will be 36, and should, of course, conclude that 36 would be in the last place of the last side or fourth wall of the room: but this calculation is erroneous; 6 must ever be in the same situation, which will be that occupied by the point in the following figure:

![Diagram 1]

The place occupied by the number 6; in all the four walls, would be thus designated:

![Diagram 2]
It must now be determined how we are to reckon these walls: if we stand in a room with our back to the windows, the first wall is on our left, the second before us, the third on our right, and the fourth behind us. We shall, however, commence with the floor, and divide it into nine parts in the same manner as the walls. Where are 10, 20, 30, 40, etc. to be placed? Every decade begins a new series, and the decimal is placed on the ceiling of the room over its proper wall; thus, the first decimal, or 10, will be over the first wall; the second decimal, or 20, will be over the second wall; the third decimal, or 30, will be over the third wall; the fourth decimal, or 40, will be over the fourth wall; the fifth decimal, or 50, as its tenth part exceeds the number of walls, will be assigned to the ceiling of the room, and will consequently be the highest number in the first room, forming the connecting link between this room and the second.
FIRST ROOM.

Second Wall.

First Wall.

Third Wall.

Fourth Wall.

As one room will not supply us with sufficient numbers, a second room must be provided. The floor of the second room is denominated the fifth wall, the wall on the left, the sixth; the wall before us, the seventh; that on our right, the eighth; and the one behind us, the ninth; and as the number 50 was upon the cieling of the first, so the number 100 will be upon the cieling of the second room.
SECOND ROOM.

Seventh Wall.

Ninth Wall.

100 Ceiling.

Numbers, probably, originated from holding up the fingers of the hand thus: | | | | | | | | |; five was made by holding up the thumb and little finger, with the other fingers down, thus \( \text{thumb}V\text{finger} \) forming the numeral \( V \); six was made by erecting another finger and continuing the former position; thus \( VI \) and \( VII \),

* Floor or fifth wall.
VIII and IX, in the same way, by adding a finger each time: ten was formed from two fives, thus, \( V \) making \( X \).

The learner should now exercise himself in finding the situation of the different numbers in the two rooms. Where, for example, are 29, 47, 35, 21, 62, 82, 99, etc. The room must be first ascertained; as to this there can be no difficulty, for as 50 is the lesser number in the first room, all the numbers exceeding 50, and as far as 100, will be found in the second room.

Having found the room, the left hand figure will denote the wall, and the right hand figure will show the place; thus, 29 is in the first room, second wall, and ninth place; 47, fourth wall, seventh place; by cutting off the left hand figure, the numerical order of the wall is given, and the remaining figure acquaints us with the place.

In order to remember a series of words, they are put in the several squares, or places, and the recollection of them is assisted by associating some idea of relation between the objects and their situation; and, as we find by experience, that whatever is ludicrous, is calculated to make a strong impression upon the mind, the more ridiculous the association the better. Being provided with two rooms, we will take the floor of the first room, and place some-
thing in each of the nine squares. In illustration of this experiment, sensible objects will be given, as the association of ideas between them and the places is most striking.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>Apple</th>
<th>2</th>
<th>Monkey</th>
<th>3</th>
<th>Man</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Ship</td>
<td></td>
<td>5</td>
<td>Pipe</td>
<td>6</td>
<td>Cap</td>
</tr>
<tr>
<td>7</td>
<td>Tankard</td>
<td></td>
<td>8</td>
<td>Boat</td>
<td>9</td>
<td>Tree</td>
</tr>
</tbody>
</table>

The ideas of these images must be connected together, and it will then be almost impossible to forget the order in which they are arranged. The first is an apple, the second a monkey; this monkey takes the apple, eats, and offers it to the man who is in the third place; the man is just going to embark on a long voyage, and for this purpose a ship will be in the fourth place; but he will smoke his pipe before he leaves his native country; — pipe is in the fifth place; — and when he has finished smoking, he calls for his night-cap, which will be found in the sixth place; before he retires to rest, he wishes for another tankard of ale; tankard occupies the seventh place. In the morning when this man awakes, a boat is ready to convey him to the ship; this boat is in the eighth place; a tree is found in the ninth place — it shall be a
willow-tree, and must grow by the water-side, on the very identical bank from which the man embarks in the boat. Any different objects may be taken promiscuously, and the connection made between them, at the moment, as chance or fancy bids. The chief use of this example is to induce a habit of fixing certain objects in a regular order, that we may always know where to find them. For this purpose the pupil should exercise himself in the numerical situation of the different objects, and be enabled to determine it quickly.

The floor and the walls are localities on which the figures and words must be arranged, in the several places or squares, in the order above described. Were a series of twenty-six figures to be taken, for instance, the following:

```
7 9 2 0 7 9 2 6 3 1 4 5 2
8 7 9 6 5 7 8 9 6 4 3 1 4
```

Or a series of consonants thus:

```
fillmngmfprstern
```

(Full many a gem of purest ray serene.)

or any other series of figures, or consonants, it would be found very difficult to remember them. The figures, and the letters, are merely signs of
signs, and cannot easily be fixed in the memory; the understanding having no exercise. The elements of words must, therefore, be sought for. Dr. Grey changed figures into letters, and thus made words; but these words could not be fixed in the memory without constant repetition, and strenuous application; the different words required to be remembered in his Memoria Technica, being almost equally burthensome with the facts and dates which they were intended to imprint upon the memory. The mode of changing figures into letters was known long before the time of Dr. Grey. The substitution of letters for figures was practised by most ancient nations; in the Hebrew and Greek languages, there are no arithmetical signs, but the letters of the alphabet are used in their place. Shop-keepers and others, from an early period, had been in the habit of marking the articles which they had to sell, with certain letters, as arbitrary symbols, for the prices in pounds, shillings, and pence.

We now take the consonants, and attach one or more to the series of figures, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; each figure having its appropriate consonant. (See Plate 1. fig. 2. The consonants only are resorted to, for they compose, like the skeleton of the human body, the
principal parts; the vowels are but the ligaments.

The letters appropriated to the figures are not merely arbitrary, but are adapted as nearly as possible to the form of the figures.*

$t$, like the figure 1, is a perpendicular, or down stroke, and differs only from it, in the addition of the small horizontal line drawn across the upper part of it; $t$ is more like the figure 1, than any other consonant, if perhaps, we except the letter Ʌ. An additional reason for assigning the letter $t$ to 1 is, that it occurs in the word unit.

$n$, is the appropriate letter to represent 2, there are two down strokes in it.

$m$, furnishes us with three down strokes, it will then give the idea of 3: if we place a 3 thus 3, it will form a tolerable outline of the letter $m$.

$r$, is to represent 4: $r$ when written, (See

---

* Dr. Grey who assigned both vowels and consonants to figures, in a manner perfectly arbitrary, has the following effect:

<table>
<thead>
<tr>
<th>a</th>
<th>e</th>
<th>i</th>
<th>o</th>
<th>u</th>
<th>au</th>
<th>oi</th>
<th>ei</th>
<th>ou</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>b</td>
<td>d</td>
<td>t</td>
<td>f</td>
<td>l</td>
<td>s</td>
<td>p</td>
<td>k</td>
<td>n</td>
<td>z</td>
</tr>
</tbody>
</table>

Here a and b stand for 1, e and i for 2, i and t for 3, etc.
Plate I. fig. 2.) resembles somewhat a 4. The letter r occurs also in our word *four*; in the German *fohr*; in the Dutch *vier*; in the Latin *quattuor*; in the French *quatre*; in the Spanish and Portugueze, *quatro*; in the Italian *quattro*; in the Greek *tisvages*; in the Russ, *chetyiye*; and in a variety of other languages.

The English L was borrowed from the Romans; they had it from the Greeks, and they again from the Hebrews, whose *lamed* is much like our L, excepting that the angle is somewhat more acute. L was used as a numerical letter for *fifty*, and may, therefore, be assigned to the figure 5. d, in writing is the reversed form of this figure. (See Plate I. fig. 2.)

*c, k, g, q*. The figure 7, with a slight curvature, may be made to resemble a crooked stick, and as we shall remember this stick the better, if something be hung upon it, a cage shall be suspended there. In the word cage we obtain the consonants c and g; k also is added to the number, for c is more frequently pronounced hard (*ka*) than it is soft (*se*); q being a guttural and a crooked letter, shall go along with the cage and the stick. For the figure 7 there are then c, k, g, and q.

*b, h, v, w*. In the figure 8 there are two noughts, or two round things; these may be
converted into beehives, and if one be placed upon the other, there will be a tolerably accurate idea of the figure 8. In the word beehive, are obtained b, h, v; and w may be added, for it is compounded of vv.

p, f. The figure 9 is not unlike a pipe, and as a pipe is seldom used without a puff of smoke issuing from it, we have the p and f in these two words; they are inseparably connected, and cannot easily be forgotten.

s, x, z. The o being a round body, it may be compared to a wheel or grinder in a mill; this wheel, when in swift rotation, gives out a hissing sound, and the hissing consonants s, x, z, are attached to the cipher. x is formed from two half circles; and z is the first letter of the word zero.

These letters, and the figures which they are intended to represent, should be impressed strongly upon the memory, as the letters must be converted into words, by the introduction of vowels
The two consonants representing two figures must be converted into a word, to which should be affixed some striking idea; and the images represented, connected together. The objects when selected, each being a word, must be arranged in the different places, beginning with the floor, and proceeding to the first, second, and third walls, etc. In making these words, it is necessary that the two consonants required should be the two first in the word; if there be more than two it is of no importance, as the two first only will be needful. It will not be difficult to make a perfect figure from the skeleton we have just seen.

**Floor of the First Room.**

<table>
<thead>
<tr>
<th>Bat</th>
<th>Mouse</th>
<th>Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle</td>
<td>Mutton</td>
<td>Roll</td>
</tr>
<tr>
<td>Tub</td>
<td>Soap</td>
<td>Doll</td>
</tr>
</tbody>
</table>

**First Wall of the First Room.**

<table>
<thead>
<tr>
<th>Cabbage</th>
<th>Pudding</th>
<th>Rum</th>
</tr>
</thead>
</table>
A bat is seen flying after a mouse, which shelters itself under a cap, stuck full of needles. There is some mutton for dinner, and a roll to eat with it. The tub and soap show that it is washing-day; the servants playing with the children and their doll, have forgotten to boil the cabbage and the pudding. As a compensation for this loss, a large bottle of rum is produced. By this method, it will be easy to commit to memory a long series of figures, to repeat them backwards or forwards, to name the first, fourth, fifth, eighth, etc.; or to say how many fours, fives, noughts, etc. are contained in the series.

The converting of figures into letters, and making sense by the introduction of vowels, will be found applicable to many of the purposes of common life. If we purchase any articles, and would remember the measure or weight of them, and thus prevent fraud in the shop-keeper, it is only necessary to change the figures into a word or words, and connect them with some strange or ludicrous idea. Should we buy 32 yards of cloth, muslin, etc. it is easy to say, that a man brought home the cloth, and the measure is given to us: if 30 lbs of cheese, a mouse that had been gnawing the cheese, would fix the weight immediately. The number of a hackney-coach, or of
a house may be preserved in the same manner. The purposes in domestic life to which this system is applicable, are almost infinite, and need no further specification.

We have already learned to divide a room into parts, as the floor and walls,—to subdivide these into places,—to change figures into letters,—and to form words; and, by these means, to remember series of figures, or of things. It would be a material advantage to us, to have some fixed or certain rooms: we may take, for instance, those with which we are best acquainted, and fix the different places upon the various articles of furniture, as a chair, a chest of drawers, etc. What we have learned, hitherto, is not sufficient: as yet, an intellectual order only has been obtained; numbers have been localised, but there is still a deficiency,—the realities are wanting.

If the reader has practised our instructions in a room in which he is accustomed to spend the greater part of his time, and this room should have been hung with pictures, engravings, or plans, or ornamented with busts, etc. he will have been very materially assisted in the remembrance of his places, or localities. We can, after a little practice, ascertain the order of different things placed in a room which we have long frequented. The transition is slight, but the im-
pression will be permanent. Let us fill the squares or places with some pictures of our own drawing: the two rooms will be then furnished, and it will be as easy to remember the symbols, or hieroglyphics, as to remember the situation or place of any picture, or article of furniture in a room. Instead of having a carpet on the floor, we can suppose that the floor is inlaid or constructed of mosaic. This will allow us to put symbols there.

The outlines of the symbols are intended to represent, as accurately as possible, the various figures in the two rooms, so that they may be permanently fixed in the memory. (See Plates II. and III.) And here we dismiss the pupil for a season, giving a general hint, that it will be advisable to make himself perfectly familiar with the situations of the different symbols, before he thinks of looking into the next chapter. Until a knowledge of these symbols be obtained, no further progress can be made in the system. It is, at least, indispensably necessary, that the pupil should answer with facility to any questions put to him respecting the first room, containing fifty symbols; the second room may be acquired at leisure.
The following are the names attached to the different symbols:

First Room.

1. Tower of Babel.
2. Swan.
3. Mountain, or Parnassus.
4. Looking-glass.
5. Throne.
6. Horn of Plenty.
8. Midas.
9. Flower, or Narcissus.
10. Goliath, or Mars.
11. Pillars of Hercules.
12. David with the Lion.
13. Castle, or Nelson's Monument.
14. Diogenes, or Watchman.
15. Æsculapius, or Serpent.
16. Ceres, or Gleaner.
17. Archimedes, or Carpenter.
18. Apollo.
20. Peacock.
21. Vaulter, or Rider.
22. Cockfighting.
23. Pegasus.
24. Elephant.
25. Sancho Panza.
27. Don Quixote.
30. Sysiphus.
31. Cupid.
32. Diana.
33. Clouds, or Sky.
34. Noah's Ark.
35. Curtius.
36. Hermitage.
37. Miner.
38. Moses.
39. Vesuvius.
40. Pleasure Garden.
41. Monument.
42. Golden Calf.
43. State Bed.
44. Piano-Forte.
45. Bajazet.
46. Fountain, or Square.
47. Vulcan.
48. Apis.
49. Orange-Tree.
50. Bacthus.
Second Room.

51 Pigmaliion.
52 Jupiter.
53 Neptune.
54 Toilette, or Penelope.
55 Fleet.
56 Guitar Player.
57 Conjurer.
58 Orpheus.
59 Samson.
60 Still.
61 Bagpipes.
62 Phoenix.
63 Temple of Glory.
64 Fame.
65 Schoolmaster.
66 Tents.
67 Mutius Scævola.
68 Mercury.
69 Mausoleum.
70 Lottery, or Fortune.
71 Saturn.
72 Centaur.
73 Pedlar.
74 Thresher.
75 Garden Engine.
76 Gardener.
77 Mowers.
78 Pagan Priest.
79 Direction-Post.
80 Apothecary.
81 Cymbal-Player.
82 Trojan Horse.
83 Actæon.
84 Cabriolet.
85 Europa.
86 Brewer.
87 Hunter.
88 Bullfighting.
89 Hercules.
90 Burning-Glass.
91 Tantalus.
92 Hawker, or, Sportsman.
93 Golden Fleece.
94 Lime-Tree.
95 Shepherd.
96 Cap of Liberty.
97 Solomon.
98 Trophy.
99 Avenue.
100 Justice.
CHAP. II.

Chronology.

The pupil is, by this time, supposed to have fixed all the symbols in the first room, and to be enabled to tell readily the first, seventh, thirtieth, forty-ninth, etc. and also to say what place is occupied by Midas, Sisyphus, etc. In making the application to chronology, we shall confine ourselves to the succession of the kings of England since the conquest.

1. William the Conqueror. A word must be now made from William; the first half will is taken, and to this is added low, by which willow is obtained; this enables us to remember William. The willow is fixed upon the Tower of Babel, our first symbol; we have then William I. but another circumstance remains; he was the conqueror:—we hang some laurel, the reward of valour, and the crown of conquest, upon the willow tree. The date is yet wanting:
we say the laurel is dead; in the word dead, are d, d for 66; the 1000 being understood through the whole series.*

2. William Rufus, or William II. There must be two willows, one on each side of the swan; the swan is put into a red (bag): by making the bag red, we preserve the meaning of the Latin word Rufus.

3. Henry I. There is one hen upon the mountain tossing up the ground; (toss.)

4. Stephen. The looking-glass is very much stiffened; there is a watch placed before the glass; this is (timely). The word stiffened will recal to the mind the name of Stephen.

5. Henry II. A (taylor) sitting upon the throne, with two hens, one under each arm.

6. Richard I. This was the first rich man,—the horn of plenty is before him. The first rich man, probably, pilfered from other people; he must have been a (thief).

7. John. The glass-blower's name was John (Taffy).

* As the reader will find at p. 60, a tabular view of this application, we shall merely explain the manner of connecting the different images, inclosing the word which gives the date in a parenthesis.
8. **Henry III.** *Midas,* or the man with the long ears, hast just received a present of three hens; he puts one in each ear, and one in his mouth, the hens are so near to each other, they are almost *(united).*

9. **Edward I.** To fix the name of Edward, we convert the verb *to ward,* that is, to watch, into a substantive, and say here is one *ward,* guard, or soldier, watering *Narcissus,* or the flower, with an *(engine).*

10. **Edward II.** There are two wards, or guards, behind *Goliath,* each in a *(mask).*

11. **Edward III.** Three soldiers as guards between the *Pillars of Hercules,* playing with a *(monkey).*

12. **Richard II.** This is the second rich man, who meets *David putting his hand into the lion's mouth*; *David* is mocking at the lion's strength. *(mock).*

13. **Henry IV.** We take a *(muff)*, put four hens in it, and place it on the pyramid.

14. **Henry V.** *Diogenes* has five hens in his lantern; they are very noisy and troublesome,—*(rout'em).*

15. **Henry VI.** *Æsculapius,* or the doctor, is very much annoyed by six hens, which are *(running)* round the serpent.

16. **Edward IV.** Here are four soldiers
taking away poor Ceres, and putting her in a (redoubt).*

17. Edward V. Archimedes, or the carpenter.

As these two kings are of the same date, one word will be sufficient to fix it. Here are five guards preparing to rob the third rich man; Apollo is looking on, and amusing them with a tune on his lyre; in the mean while, Archimedes, or the carpenter, vociferates (rob'em).

19. Henry VII. Robinson Crusoe is seen to shoot seven hens, in a (rebellion.)

20. Henry VIII. There is a Peacock, with eight hens in her nest; they are young and cannot speak,—they are (lispings.)

21. Edward VI. We have here the vaulter, or rider; one man is a sufficient weight for a horse; but our horse must carry seven. There are six guards, or wards, upon this horse, besides the vaulter, who are all scrambling for a piece of a (lark).

22. Mary. There must be some rejoicings where there is a cock-fight; it is very possible that the town may be (illuminated).

23. Elizabeth. This queen had so flourishing a reign, that she is (allowed) to ride upon Pegasus.

* As the b is not sounded in pronunciation, the r, d, t, are the letters which give the date.
24. James I. The word chains sounds somewhat like James; we will, therefore, put the Elephant in chains: what (dismal) chains.

25. Charles I. Poor Sancho Panza upon his ass! Poor fellow, he met with many (denials).

26. Charles II. The charioteer is running a race; the (odds) are against him.

27. James II. Don Quixote must be put in chains; he must have two sets of chains; he shall have (double) chains.

28. William III. The patient packhorse travelling along the accustomed road, arrives at that part where three willows have been planted: how melancholy it is to see so many willows! (do weep.)

29. Anne. The Standard Bearer is just arrived on a visit to (cousin) Anne.

30. George I. Sisyphus is rolling up the hill "his huge round stone,"—but he stops and listens to some one who is playing on the (guitar).*

George II. This sovereign is a (king) between two kings of the same name.

George III. has had some important concerns with (Cadiz.)

* No. 30, as it completes a wall, may include George I, II, III.
# Tabular View of the Chronology of the Kings of England From the Conquest.

<table>
<thead>
<tr>
<th>Numerical Order</th>
<th>Name of the King</th>
<th>Symbol</th>
<th>Word giving the date</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>William the Conqueror</td>
<td>Tower of Babel</td>
<td>DeaD,</td>
<td>1066</td>
</tr>
<tr>
<td>2</td>
<td>William II. (Rufus)</td>
<td>Swan</td>
<td>BaG,</td>
<td>1087</td>
</tr>
<tr>
<td>3</td>
<td>Henry I.</td>
<td>Parnassus</td>
<td>ToSS,</td>
<td>1100</td>
</tr>
<tr>
<td>4</td>
<td>Stephen</td>
<td>Looking-Glass</td>
<td>TiMeLy,</td>
<td>1135</td>
</tr>
<tr>
<td>5</td>
<td>Henry II.</td>
<td>Throne</td>
<td>TayLoR,</td>
<td>1154</td>
</tr>
<tr>
<td>6</td>
<td>Richard I.</td>
<td>Horn of Plenty</td>
<td>THieF,</td>
<td>1189</td>
</tr>
<tr>
<td>7</td>
<td>John</td>
<td>Glass-Blower</td>
<td>TaFFy,</td>
<td>1199</td>
</tr>
<tr>
<td>8</td>
<td>Henry III.</td>
<td>Midas</td>
<td>uNiTeD,</td>
<td>1216</td>
</tr>
<tr>
<td>9</td>
<td>Edward I.</td>
<td>Narcissus, or, the Flower,</td>
<td>eNGiNe,</td>
<td>1272</td>
</tr>
<tr>
<td>10</td>
<td>Edward II.</td>
<td>Goliath</td>
<td>MaSK,</td>
<td>1307</td>
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<tr>
<td>11</td>
<td>Edward III.</td>
<td>Pillars of Hercules</td>
<td>MoNKey,</td>
<td>1327</td>
</tr>
</tbody>
</table>
**TABULAR VIEW OF THE CHRONOLOGY OF THE KINGS OF ENGLAND FROM THE CONQUEST.**

<table>
<thead>
<tr>
<th>Numerical Order</th>
<th>Name of the King</th>
<th>Symbol</th>
<th>Word giving the date</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>Richard II.</td>
<td>David and the Lion, Pyramid,</td>
<td>MoCK,</td>
<td>1377</td>
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<tr>
<td>13</td>
<td>Henry IV.</td>
<td>Diogenes,</td>
<td>MuFF,</td>
<td>1399</td>
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<td>14</td>
<td>Henry V.</td>
<td>Aesculapius,</td>
<td>RoUT'eM,</td>
<td>1413</td>
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<td>15</td>
<td>Henry VI.</td>
<td>Ceres,</td>
<td>RuNNing,</td>
<td>1422</td>
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<td>16</td>
<td>Edward IV.</td>
<td>Archimedes,</td>
<td>ReDoub'T,</td>
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<td>17</td>
<td>Edward V.</td>
<td>Apollo,</td>
<td>rOB'eM</td>
<td>1483</td>
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<td>18</td>
<td>Richard III.</td>
<td>Robinson Crusoe,</td>
<td>ReBeLion,</td>
<td>1485</td>
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<tr>
<td>19</td>
<td>Henry VII.</td>
<td>Peacock,</td>
<td>LiSPing,</td>
<td>1509</td>
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<td>20</td>
<td>Henry VIII.</td>
<td>The Vaulter,</td>
<td>LaRK,</td>
<td>1547</td>
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<tr>
<td>21</td>
<td>Edward VI.</td>
<td>Cock-fighting,</td>
<td>iLLuMinated,</td>
<td>1553</td>
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<td>22</td>
<td>Mary</td>
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<tr>
<td>Numerical Order</td>
<td>Name of the King</td>
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<td>23</td>
<td>ELIZABETH</td>
<td>Pegasus</td>
<td>aLlowed</td>
<td>1558</td>
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<td>24</td>
<td>JAMES I</td>
<td>Elephant</td>
<td>DI8mal</td>
<td>1603</td>
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<td>25</td>
<td>CHARLES I</td>
<td>Sancho Pansa</td>
<td>DAniel</td>
<td>1625</td>
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<td>26</td>
<td>CHARLES II</td>
<td>Charioteer</td>
<td>oDDeS</td>
<td>1660</td>
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<td>27</td>
<td>WILLIAM III</td>
<td>Don Quixote</td>
<td>Do WWeeK</td>
<td>1685</td>
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<td>28</td>
<td>ANNE</td>
<td>Packhorse</td>
<td>COnStIN</td>
<td>1689</td>
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<tr>
<td>29</td>
<td>GEORGE I</td>
<td>Standard Bearer</td>
<td>GuItAR</td>
<td>1702</td>
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<tr>
<td>30</td>
<td>GEORGE II</td>
<td>Sysiphus</td>
<td>KING</td>
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<td>GEORGE III</td>
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C H R O N O L O G Y.

In order to enable the pupil to make a further application of the mnemonic principles to chronology, we subjoin the following table:—he can, at his leisure, resort to more copious sources of information.

Table of the Principal Historical Events

From the Creation to the Birth of Christ.

Before Christ.
4004 The creation of the world, and of Adam and Eve.
4003 The birth of Cain.
3017 Enoch for his piety, translated to heaven.
2348 The old world destroyed by a deluge.
2247 The tower of Babel built about this time, by Noah's posterity, upon which God causes the confusion of tongues.
2234 Celestial observations first made.
2181 The kingdom of Egypt founded.
2059 The kingdom of Assyria founded by Ninus.
1924 The covenant of God with Abram.
1897 Sodom and Gomorra destroyed for their wickedness.
1856 The kingdom of Argos and Greece begins under Inachus.
1822 Memnon, the Egyptian, invents letters.
1635 Joseph dies in Egypt; which concludes the book of Genesis.
1574 Aaron born in Egypt.
1571 Moses, brother to Aaron, born in Egypt, and adopted by Pharaoh's daughter, who educates him in all the learning of the Egyptians.
1556 Cecrops begins the kingdom of Athens, in Greece.
NEW ART OF MEMORY.

Before Christ.

1546 The kingdom of Troy begun by Scamander.
1493 Cadmus carried the Phenician letters into Greece, built the citadel of Thebes, and is the first king.
1491 The Israelites delivered from Egypt after 430 years of sojourning.
1485 The first ship appeared in Greece.
1453 The Olympic games first celebrated at Olympia, in Greece.
1452 The Pentateuch, or first five books of Moses, written in the land of Moab;—the death of Moses.
1451 The Israelites led, under Joshua, into the land of Canaan.
1356 Eleusinian mysteries introduced at Athens.
1326 The Isthmian games introduced at Corinth.
1267 The Argonautic expedition undertaken.
1198 The rape of Helen by Paris; which, in 1193, gave rise to the Trojan war, and the ten years siege of Troy, by the Greeks, who took and burnt that city.
1182 Æneas lands in Italy.
1048 David is sole king of Israel.
1004 The temple dedicated by Solomon.
894 Money first made of gold and silver.
884 Lycurgus reforms the constitution of Lacedemon.
869 Carthage founded, in Africa, by Dido.
814 The kingdom of Macedon begins.
776 The first olympiad begins in this year.
753 Æra of the building of Rome, by Romulus, first king of the Romans.
720 Samaria taken, after three years' siege; and the kingdom of Israel annihilated by Salmanazar, king of Assyria, who carries the ten tribes into captivity. The first lunar eclipse on record.
600 Thales, of Miletus, travelled into Egypt; where he acquired the knowledge of geometry, astronomy, and philosophy; returned into Greece, and established his philosophy.
Before Christ.

600 Maps, globes, and the signs of the Zodiac invented by Anaximander, the disciple of Thales.

597 Jehoiakim, King of Judah, carried captive, by Nebuchadnezzar, to Babylon.

587 Jerusalem taken, after eighteen months' siege.

559 Cyrus, the great king of Persia.

538 The kingdom of Babylon finished, that city being taken by Cyrus; who, in 536, issued an edict for the return of the Jews.

534 The first tragedy performed at Athens, on a waggon, by Thespis.

526 Learning encouraged at Athens, and the first public library founded.

515 The second temple at Jerusalem finished under Darius.

509 Tarquin, the seventh, and last king of the Romans, expelled, and Rome became a republic.

504 Sardis taken and burnt by the Athenians; which caused the Persians to invade Greece.

490 The battle of Marathon, in which Miltiades defeated the Persians.

486 Æschylus, the Greek poet, first gains the prize of Tragedy.

481 Xerxes began his expedition against Greece.

480 The Spartans, under Leonidas, cut to pieces at Thermopylae.

Great naval victory gained by the Greeks over the Persians, at Salamis.

458 Ezra sent from Babylon to Jerusalem with the captive Jews, and the vessels of gold and silver, &c.

454 The Romans send to Athens for the laws of Solon.

451 The Twelve Tables compiled and ratified.

431 The Peloponnesian war begins, which lasted twenty-seven years.

420 The history of the Old Testament finishes about this time. Malachi, the last of the prophets.
400 Socrates, the founder of moral philosophy among the Greeks, flourished.
371 The battle of Leuctra, the Lacedemonians defeated by the Thebans, under Epaminondas.
363 Epaminondas killed at the battle of Mantinea.
357 The Phocian or Sacred war begins in Greece.
343 Syracuse taken by Timoleon; and Dionysius the tyrant, banished.
351 Alexander the Great conquers Darius, king of Persia.
285 Dionysius, of Alexandria, begins his astronomical æra, on Monday, June 26, being the first who found the exact solar years to consist of 365 days, 5 hours, and 49 minutes.
284 The Septuagint version made by order of Ptolemy Philadelphus, king of Egypt.
264 The first Punic war begins; which continued twenty-three years.
260 The Romans defeated the Carthaginians at sea.
237 Hannibal, at nine years old, swears eternal enmity to the Romans.
218 The second Punic war begins; which continued seventeen years.
190 The first Roman army enters Asia, and from the spoils of Antiochus, brings the Asiatic luxury first to Rome.
170 Antiochus Epiphanes plunders Jerusalem.
168 Perseus, King of Macedon, defeated by the Romans.
167 The first library erected at Rome, of books brought from Macedonia.
163 The government of Judea, under the Maccabees, begins; which continued 126 years.
149 The third Punic war.
146 Carthage, the rival of Rome, razed to the ground.
135 The history of the Apocrypha ends.
72 Mithridates defeated, and Pontus reduced to a Roman province.
Before Christ.

52 Julius Cæsar's first expedition into Britain.
47 Pompey defeated at the battle of Pharsalia, and afterwards slain in Egypt.
   — The Alexandrian library burnt.
   — The solar year introduced by Cæsar.
44 Cæsar killed in the senate-house by conspirators.
42 The battle of Philippi, in which Brutus and Cassius are defeated.
31 The battle of Actium; in which Mark Antony and Cleopatra were totally defeated by Octavius, nephew to Julius Cæsar.
30 Alexandria taken by Octavius: Antony and Cleopatra put themselves to death, and Egypt reduced to a Roman province.
27 Octavius obtains from the senate the title of Augustus Cæsar, and is made the first Roman emperor.
8 The temple of Janus shut by Augustus, as an emblem of universal peace.
John the Baptist and JESUS CHRIST born, four years before the commenceement of the vulgar Æra.
CHAP. III.

Geography.

In the application of the Art of Memory to Geography, this science will be considered under the following heads; (1.) Principles. (2.) General Geography. (3.) Particular Geography. (4.) Statistics.

Sect. 1.—Principles.

Geographical charts represent the situation of cities, towns, seas, continents, etc. on the globe; but we will suppose that nothing of this kind has ever been fabricated; that there are no charts; if we wish to ascertain the relative situation of any places, the means must be invented to accomplish what is required, beginning with the first principles. Whenever the memory is to be treated with, we should employ the powers of reason. The charts must be drawn in our intellect, and we should proceed step by step; what is wanting in the memory, will be supplied by reason.
The earth being a round body,* it is represented by a globe; but as both sides of this globe cannot be seen at the same time, it must be divided into hemispheres or halves: there will then be an eastern and a western, or, a northern and a southern hemisphere.

Suppose a circle to be described, and a point placed within it; the situation of this point must be determined with relation to some other part of the circle. If a horizontal line be drawn across the circle and divide it equally, the line appears to us straight; but cannot, in reality, be so, because it is half the circumference of a globe. A perpendicular line is then drawn, and the hemisphere is divided into four equal quarters: each quarter containing 90° or one-fourth of 360°; every circle containing 360°. (See Plate I. fig. 3.) The horizontal line must be taken for the equator. The quarter then in which the dot or point appears, should be divided by 90 lines, but as this would completely conceal the surface of the diagram, and obliterate the little point itself, we will divide it into 9 parts. (See Plate I. fig. 4.)

The point is now evidently within the first stripe or line, and if these lines be named ladders,

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* The earth is, as every one knows, an oblate spheroid, but it would be needless to descend to particulars, in a general illustration.
we shall say it is on the first ladder; but its situation is now only half determined. These ladders are divided into steps; and each has nine steps. This will be effected by drawing 8 horizontal lines across those already made. (See Plate I. fig. 5.) The point is still on the first ladder, but on what step? It is on the sixth step.

Two rooms should be provided, with four walls in each; in the upper room is to be placed the northern hemisphere, and the southern is to be supposed under the northern, in the lower room. We will begin with the northern hemisphere, dividing it into four equal parts or quarters; transferring one quarter to the first wall. (See Plate I. fig. 6.

The former division of a wall was thus:

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</table>

It will not, however, be more difficult to remember nine figures in one line, than in three. The floor of the upper room in which we stand is the equator; upon this we reckon the longitude. From the pole to the equator there are 90°, but we only place 60° on the wall, the remaining 30° being fixed in the ceiling. In each of these squares, there are 10° of longitude, and 10° of latitude.
The horizontal lines are parallels of *latitude*, and the perpendicular lines are meridians or circles of *longitude*.

The series of walls in the first room will be as follows:

<table>
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<th>I.</th>
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<th>4</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<tr>
<td>II.</td>
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<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
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<tr>
<td>III.</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
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<tr>
<td>IV.</td>
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<td>34</td>
<td>35</td>
<td>36</td>
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</table>

Upon referring to the globe, it will be found that the whole hemisphere, north of the equator, has been transferred into the first or upper room; the southern hemisphere being reserved for the room beneath.

Before we proceed further, the *meridian* must be fixed. This, in English charts, is taken from London, or more correctly from Greenwich, counting the longitude east and west from that place. The French place their meridian in Paris, but they mark also in their maps the longitude from Ferro, from which island, all the other European nations commence theirs; by these means, the longitude which is laid down on a foreign map is comprehensible by them, and the Parisian mode is easily understood by any
other continental geographer, but our maps are not intelligible anywhere but in England.

In making our calculation we shall adopt the meridian of Ferro, because it divides the globe into those two equal parts or hemispheres, which are usually represented on maps. Suppose a place to be in 254° of longitude, and 43° of latitude; on what ladder, on what step, and on what wall will it occur? We must take 254, (and as it will be remembered our hemisphere is divided only into tens of degrees) we must cut off the unit figure, thus 25,4, and we have 25 left, but as the 25th ladder would include only those degrees under 250, and 254 being above that number, it is on the 26th ladder. To ascertain on what wall this 26th ladder is, and its numerical situation there, the figures 2 and 6 must be added together; the product gives the number of the ladder. By counting the difference between 6 and 8, thus 6, 7, 8, three, the number of the wall is given. In the latitude 43, the 3 is rejected, and 43 being past 40 it is on the fifth step. A place then in longitude 254 and latitude 43, will be found on the 26th ladder, fifth step; or on the third wall, eighth ladder, and fifth step.

If we read that an engagement had taken place between two ships in 324° longitude, 36° S. latitude, how shall we find on which wall this spot
is situated? We know that south latitude must be in the lower room, and that 36 being more than 30, must be on the 4th ladder step. For the longitude, as in the foregoing example, we cut off the unit 32,4—324 is more than 320, therefore it must be on the 33rd ladder; these two figures are now added together; the product 6 gives the situation on the wall, and by counting from 3 to 6—3, 4, 5, 6, we get 4, which is the number of the wall. This event, therefore, took place near the mouth of the Rio de la Plata; on the 4th wall, 6th ladder, and 4th step, of the southern room.

Sect. 2.—General Geography.

We are now provided with a geographical net, with which all the different places may be taken, from the smallest to the largest. What we have learned in the common way on globes is soon forgotten, there being no connecting media to bring the different countries to our recollection. Supposing we are looking at a globe, and we fix our eyes upon England, we cannot see its antipodes; places can be seen only in one direction. The Chinese, when shown a map of the world, said, why put us up in a corner? we are in the centre. In fact, every where is the centre, and
the centre is every where. The whole circumference is equally distant from us wherever we may be. The four quarters of the northern hemisphere being arranged on the four walls, when we are in the room, we can, in an instant, see every part of the hemisphere. (See Plate IV.)

On the first wall will be a part of the Atlantic Ocean, the whole of Europe and a great part of Africa and Asia.

On the second wall will be found the remainder of Asia, and a large proportion of the North Pacific Ocean.

On the third wall there is a continuance of the Northern Pacific Ocean, and a part of North America.

On the fourth wall there is the remainder of North America, part of South America, the American Islands or West Indies, and a great part of the Atlantic or great Western Ocean. This completes the northern hemisphere, and occupies the first or upper room.

In the second or lower room, (see Plate V.) on the first wall, we have a part of the Southern Atlantic Ocean, part of Africa, and the Indian Ocean.

The second wall is occupied by the remainder of the Indian Ocean, the Indian Archipelago, and by New Holland.
The third wall contains the Southern Pacific Ocean, and the South Sea Islands.

The fourth wall has nearly the whole of South America.

Thus there are in the northern Room the whole Continent of Europe and Asia, the greater part of Africa, the whole of North, and part of South America; the lower, or Southern Room containing the remainder of Africa and South America, the Asiatic Islands, Polynesia and Australasia.

Supposing the windows of our room to be on one side, if we stand with our back to them; the first wall is on the left; this wall is divided into nine ladders, which show the longitude, and each ladder into nine steps, giving the latitude.

On the first ladder, first step, there is almost entirely sea, being a part of the Atlantic Ocean; a small portion of Africa, however, is discovered. On this part Sierra Leone is situated. The square on which this falls is known by the number 11, (1st. ladder, 1st. step,)—here the symbol for 11 is, the Pillars of Hercules. These pillars are placed in the square; one pillar is fixed in the sea, the other on land. Leone will recall to mind the name of a Lion; a lion must be placed between the pillars, and the situation of this place will then be fixed in the memory.

On the second step there is a part of the At-
lantic Ocean and of Africa; upon this part of Africa are Senegal, Cape Verde, and Goree; and the symbol for the 1,2th place (1st ladder, 2d step,) is *David with the lion*; if it be said that David in tearing the *sinews* of the lion, is *gored* by the animal; and that he has a *green cap* in his hand, these three places will be fixed in this square. It is quite sufficient if the words given recal the names of the places to our memory.

On the *third* step are the Canary Islands; these are somewhat like a cluster of birds (Canary Birds) that must fly round the *Pyramid*, the symbol for 1, 3, (1st ladder, 3d step.)

On the *fourth* step, there is part of Portugal, and the island of Madeira. The symbol for 14 is *Diogenes* with the lantern. This man is the proprietor of the island, and has come to Madeira from Lisbon, on purpose to drink a bottle of his favourite beverage.

On the *fifth* step is Cape *Finisterre*. The symbol for 15 is *Æsculapius* with his serpent; a serpent then shall be placed at the extremity of the land, (*Finis terræ.*)

On the *sixth* step there is a small part of Ireland. The symbol for 16 is *Ceres*, or the gleaner; she shall have a *garland* upon her head; *garland* and Ireland are too much alike in sound to be easily forgotten.
On the seventh step is Iceland. The symbol for 17 is Archimedes, or the Carpenter; he is breaking up the ice, and that we may remember the name of the celebrated mountain, Hecla, we will say, that he acquits himself with very great eclat.

These illustrations seem amply sufficient to direct the pupil in the application of this art to geography, so far as it relates to the use of the symbols, and the connecting ideas to be associated with them.

While we count our meridians all east from Ferro, it must be remembered, that in English maps, London, or rather Greenwich, is taken for the first meridian, from which the degrees are counted 180° East, and 180° West. If a place be described in longitude 121° west of London; to reduce it to the meridian from Ferro, 121° must be subtracted from 180°, (the whole number of degrees west,) the remainder is 59, which added to 180, and the 18° difference between the calculation from London and Ferro, will give the product 275°. A place then which is 121° west of London, may be said to be 257° east of Ferro. The meridian of Paris is 20° east from Ferro, and 2 from the meridian of London. This process is at once simple and correct, and will allow us to use a general meridian which
will be intelligible on all maps,-and to all persons.

The best mode of learning the geography is to take a chart of Mercator's projection of the earth, in which the degrees of latitude and longitude are marked by tens, that it may coincide with the divisions on the walls, each of the squares there containing 100°; 10° both ways. All the squares in the map must be covered with a sheet of paper, except one, that is the first step on the first ladder; the space taken up by the land in this square should be noticed, and the outline of the land described in the map, and traced upon a drawing, or diagram, of the first wall, divided into ladders, and ladder-steps, as seen before. These squares should be sufficiently large to show some of the principal projections of the land, that the most remarkable places may be inserted; thus constructing a small chart.

In the lower room, which contains the southern hemisphere, we must count downward, 1, 2, 3, 4, 5, 6, 7, etc. still beginning with the equator.

Every one of the small squares may be divided into degrees.
Suppose the point in this square to represent Madeira. This point is about one-fifth of the whole, therefore, it is in 2° of longitude, and a little less than one-fifth of the whole 10° of latitude, we see then 32°½ of latitude, and 2° of longitude; there is not an error of ¼ of a degree.
To ascertain the relative situation of towns, some association must be formed between the towns and cities found in any one square. If a sort of narrative be invented, the memory will be materially assisted. We will take 25 for an example: in this are many towns, as Madrid, Barcelona, Bourdeaux, Rochelle, Brest, Rouen, and Paris. The symbol for 25 is Sancho Panza. Sancho then must set out on his travels; he departs from Madrid, and arrives at Barcelona, where he has to call for some parcels (Barcelona); he then goes to Bourdeaux, and is very fond of drinking a bumper of good Bourdeaux wine; thence he travels to Rochelle, where he rests on a rock: being pressed for time at Brest, he departs for Rouen; and by rowing down the Seine, arrives at last at Paris. To remove the apparent difficulty of fixing the names of so many squares, it must be observed that, the greater proportion of them is occupied by sea, where, of course, there is nothing to fix. It may also be supposed, that as there are no less than eight elevens, there will be much confusion in remembering the name of any particular place. An association has already been formed for the eleven in the first wall. In the eleven in the second wall is Ceylon: it is not likely that we shall ever commit so great an error as to place Ceylon on our
first wall, or Sierra Leone, or Goree, on the second. The *locality* of each is so permanently fixed as to defy any thing like confusion.

**Sect. 3.**—*Particular Geography.*

In *particular* charts the divisions are different from those in *general* charts; being divided into much smaller parts.

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The above is a chart with a series of figures. The figures which run along the bottom of this chart are the degrees of longitude; those which run up the sides are the degrees of latitude. The Latitude must be counted North or South of the Equator, and the Longitude, East or West of the first meridian. There is here a series of ladders.
and steps, but very differently numbered from those which have been seen before. The square in longitude 29°, and latitude 55°, if brought together will make 2955; the tens must be rejected, and the units only left. We know that the squares in longitude, from 20 to 30, are on the third ladder, and from 30 to 40 on the fourth; and that the latitude begins on the sixth ladder step. To remember this, some word must be formed from the two figures. Having cut off the tens, we find 2955 becomes 9 longitude, and 5 latitude. The minutes are next to be determined. The distance from line to line is 60 minutes, one half will of course be 30 minutes; ¼—15; ⅛—45; ⅜—12; ⅛—5. When the geography of England is to be learned, we should commence from the bottom or South of the map, as England is above the equator: when any country is beneath the equator, we must of course count downwards. Although the floor is not used in geography, it will be convenient to suppose this chart of England placed upon the floor, that the different counties may be arranged in order; or it may be supposed to be on a table, &c. or on any other object.

England is generally divided into Circuits, each of which contains a certain number of counties.
Circuits in England and Wales.

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The usual division of the Counties is into Home Circuits, etc. etc. but this will not be adopted here. The following is our arrangement of them.

I. South East. Sussex, Hertfordshire, Kent, Middlesex, Essex, Surrey.

II. South West. Hampshire, Wiltshire, Dorsetshire, Somersetshire, Devonshire, Cornwall.

III. East. Suffolk, Norfolk, Cambridgeshire, Bedfordshire, Huntingdonshire, Buckinghamshire.


V. Midland. Northamptonshire, Rutland-
shire, Lincolnshire, Leicestershire, Nottinghamshire, Warwickshire, Derbyshire, Staffordshire, Cheshire.

VI. North. Yorkshire, Durham, Northumberland, Lancashire, Westmoreland, Cumberland.

VII. North Wales. Montgomeryshire, Denbighshire, Flintshire, Merionethshire, Caernarvonshire, Anglesea.

VIII. South Wales. Glamorganshire, Brecknockshire, Radnorshire, Caermarthenshire, Cardiganshire, Pembrokeshire.

All these Circuits are numbered in a series as ladders, and the counties are the steps; therefore 4.4 will be 4th circuit, 4th county, and so of the rest. The symbol of 44 is a piano-forte; if it be said that the keys of the instrument are bound with worsted, Worcestershire will be immediately brought to our recollection. In the same manner we must proceed with the others, fixing each on a symbol, and connecting some strange and ludicrous idea with this symbol.

The student should be prepared with a small map of England which is not coloured; and colour the circuits, each with a separate colour, The first, for instance, blue; the second, yellow; the third, green; the fourth, red; the fifth, lilac; and when he comes to the sixth, begin again. When this is done, it must be
remembered that the numerical order of the Circuits is represented by the different colours. The first colour will be blue, the second yellow.

When the counties are numbered, the pupil must count upwards, commencing with the lowest. The more effectually to distinguish their numerical order, we use the colours. The first county in the first circuit, must be bordered with blue; the second county with yellow; the third with green, etc. and the like with the other remaining counties in the circuit. The numerical order of the counties will thus be firmly impressed on the memory.

France contains one hundred and ten departments. These are to be divided into eleven Regions, containing ten departments in each. The regions should be arranged in geographical order, commencing from the equator, and counting upwards. The meridian is taken from Paris. West of this meridian we commence with O, the region of the Pyrenees. On the East is I the Region of the Mediterraneaen, II of Piedmont, III of Charente, IV of Lake Leman, V Central Region, VI Finisterre, VII Region of Jurat, VIII of the Seine, IX of the Rhone, X northern Region.

If we wish to know the thirty-fifth department, it will be found in the third region, fifth department. To distinguish the region there are
five colours; one colour serves for I and VI, a second for II and VII, a third for III and VIII. In the same manner one department is distinguished from another.

Sect. 4.—Statistics.

It has been shewn that by the aid of the first principles of this science, it will not be difficult to find the situation of kingdoms, provinces, etc. and their respective longitude and latitude. There are, however, many other particulars which it is important to remember, as the number of inhabitants, the natural products, the military power, the extent in square miles, the form of government, the state of commerce, of the arts, etc. etc. These may be all fixed in the memory with equal facility. Suppose that there is before us, a table, and that all the kingdoms of Europe, are placed upon it, and arranged according to their relative importance. This is shewn in the following statistical table.
The first symbol being the Tower of Babel, it must be connected, in some manner, with the kingdom, which is placed first. This is England. The Tower of Babel was the cause of the confusion of languages: in England are heard many different languages. Spain shall be II. The symbol for 2 is a Swan; a swan then is placed in the sea, between Spain and England, and it will swim to England to convey intelligence. III is France, and is represented by the mountain, or Parnassus;—the Muses are banished from France. IV is Sweden, represented by a Looking-glass, which may be emblematic of the smooth surface of the Baltic Sea, when calm, and at rest. By such comparisons as these it will be easy to fix any thing that may be required. It now remains to mention the objects in the particular squares or places.

1. Population. The symbol for this square is the Tower of Babel. From the top of a tower, some idea may be formed of the population of a city, by the number of people walking in the streets.

2. Natural products. This square is represented by the swan. A swan is an animal. Animals may be reckoned among the natural products of a country.

3. Military power. A fortification may be supposed to be on a mountain; and, as this is
the symbol for 3, the military power will immediately occur to us.

4. Extent in square miles. The looking-glass, which represents 4, will by its four-square figure, call to mind the square miles.

5. Government. It will not be difficult to connect the idea of a throne, with that of government, whether it be monarchical, republican, or any other form of government. A throne is the symbol for 5.

6. State of commerce. Commerce, the source of plenty, may well be represented by the Horn of Plenty, the symbol for 6.

7. Arts and Manufactures. To remember these it will be only necessary to think of the Glass-blower, the symbol for 7.

8. The Sciences. The symbol for 8, Midas, or the man with long ears, is capacitated for the reception of all branches of science.

There is here again a series of ladders and ladder-steps, which must be denominated by their respective numbers. In the number 2, 4 there is 2 for Spain, and 4 for the extent in square miles, or the second ladder, fourth step: 4, 6 is the Commerce of Sweden; fourth ladder, sixth step.

In the statistical table may be placed every particular that it is necessary to know respecting
a nation. The manner of application for each square is now considered.

1. *Population.* This is changing every year; the thousands and hundreds must therefore be omitted, and the *millions* only preserved. The population for England will be the number 1, 1, first ladder, first step: this is represented by the pillars of Hercules. England contains 16 millions of inhabitants.* This number will be fixed in the memory by changing the figures into a word; *t d* will be the consonants giving the number;—it may be said then, that there is a *Toad* crawling up the pillars of Hercules.

2. *Natural Products.* If a country be remarkable for the excellence of its horses, a rude outline of this animal may be drawn in the square belonging to the natural products. If it contains extensive *salt* mines, a barrel or basket of salt may be placed by the horse; if good wine, two bottles of wine should be added; *iron* may be represented by *bars*, and sheep by an outline, as with the horse. To connect these circumstances together, some narrative should be invented, the more improbable and ludicrous the better. The *horse* being pressed by hunger, eats the *salt*, but becoming thirsty, in conse-

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*According to the last Population Returns, 16,552,144*
quence, drinks the wine; the wine has an effect upon him, he becomes frantic, breaks the bars of iron, and endangers the safety of the sheep. The symbol for 12 is *David with the Lion*; David must hold the horse, and take especial care that the Lion does not devour the sheep.

In the course of our reading, if it be required to commit to memory any remarkable circumstance respecting a country, we should take a sheet of paper and divide it as our table is divided, placing in the appropriate squares a resemblance, or rude outline, of the object or circumstance to be remembered. This mode will assist the memory very materially, and excite a greater degree of attention than the mere idea which is presented to the mind by reading.

**3. Military Power.** The state of the military force, in time of peace as well as of war, must be considered, with the divisions into artillery, cavalry, and infantry; or, any other arrangement may be made which the nature of the military force, in any particular country, may demand. The square may be thus divided:

<table>
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<tr>
<th>Peace</th>
<th>War</th>
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<tr>
<td>Navy</td>
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<tr>
<td>Artillery</td>
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<td>Cavalry</td>
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<tr>
<td>Infantry</td>
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</table>
4. Extent in Square Miles. Here we should divide the square into several parts, significant of the face of the country; whether it be cultivated or uncultivated, wood-land, meadow, or pasture, arable, etc. and what may be the extent of water in the country.

5. Government. If the government be monarchical, a king may be supposed sitting upon the throne, attended by princes; or, if of the mixed kind, he is supported by Lords and Commons.

6. Commerce. In this are arranged the principal exports and imports, and whatever relates to trade in general.

7. Arts and Manufactures. Those of England might be represented in many ways. It will be sufficient, perhaps, to place there the steam-engine and the cotton-mill, and there will be a visible remembrance of the arts and manufactures of our own country.

8. The Sciences. To this square belong the principal universities or foundations for the propagation and increase of knowledge, with the various literary and scientific Institutions, as also the philosophers, poets, etc. etc.

This general system of statistics is applicable, of course, to any particular country, and to its various subdivisions. In England, for instance, it might be applied to every county, in the same manner, as it is used for the whole kingdom.
CHAP. IV.

History.

The pupil having acquired some knowledge of the details of geography, including statistical tables, and also of the mode of fixing in his memory the chronological succession of sovereigns, will proceed to the study of history with peculiar advantages.

The following arrangement of some dates will introduce us to the application of the mnemonic principles to history.

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<th>Room</th>
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There are here units of years, tens of years, or decennials; and hundreds or centuries. As the division into rooms already noticed, will be here resorted to, we cut off the first series of units, and call them places; the next which are rejected
are named stripes; and the remaining figures, rooms. For example, 1786, would be seventeenth room, eighth stripe, and sixth place; 1524, fifteenth room, second stripe, and fourth place, and so of the rest. 87 is in O room, or the room of units and tens,* eighth stripe, and seventh place. When we view a choice collection of pictures, some impressions of the excellence of a particular picture, and of its situation in the room or gallery, are generally fixed in the mind. The remembrance of one picture will suggest the situation of another, and in this manner it will not be difficult to fix the places of the more conspicuous paintings: and if there are many rooms, the particular room may be distinguished. Instead of a room being filled with pictures, it is easy to imagine that it is occupied by the events of a whole century: in this room are all the years, reduced to localities.

A room is now taken with three walls, (see Plate I. fig. 7.) each of which is divided into three stripes; and each stripe into nine compartments or squares, as we have, in some instances, done on our walls.

Each of these stripes is now a ten; and before the first ten, there is O stripe, which is placed

* The second is the room of centuries.
on the floor: on this are put 1, 2, 3, etc. to 9. The number 100 must be placed on the ceiling of the second room, which should be divided in the same way. This number will also serve as an inscription to designate the room.

As it will be needful to appropriate a room to each century, there will be occasion for a series of rooms. This series will be thus arranged.

\[
\begin{array}{c|c|c}
0 & 1 & 2 \\
\hline
3 & 4 & 5 \\
\hline
6 & 7 & 8 \\
\hline
9 & & 
\end{array}
\]

Here are the hundreds; and those before 100 are placed in the preceding or O room. There is now a necessity for a tenth room. To obviate this inconvenience it will be easy to suppose that the house is a double house. Thus we shall be furnished with rooms for 2000 years.

But whence, it will be asked, are so many rooms to be procured? Every one is familiar with the apartments in his own house. All these rooms must be employed, and named, first, seventh, fourth, etc. and it will be better to choose rooms which are supplied with pictures, furniture, or some other remarkable objects, upon which numbers may be fixed. Each room will be distinguished by one of the symbols. The first room will have the tower of Babel painted upon it; and to fix this more
strongly upon the memory, it may be observed that the proprietor of the room is a great linguist, and the idea of the confusion of languages cannot fail to suggest to us the Tower of Babel, the distinguishing symbol of this room.

The second room will be designated by the Swan; the occupant of this room may be much attached to the study of ornithology; he may be fond of birds, and possess an extensive aviary.

The third room will have Parnassus or the Mountain; this room may be the habitation of a poet, or of one who has a taste for poetry. If there be not a sufficient number of rooms in our own house, some of those belonging to our friends may be engaged, whether they be at London, Edinburgh, or Vienna. Having placed them ideally in order, we are now ready to fix whatever is required to be remembered.

For example, in the history of England it will be found that William the Conqueror began to reign in 1066. This date must be placed in the tenth room, sixth stripe, and sixth place. The tenth room will belong to Goliath, and we shall have associated this idea with the room, by comparing the possessor to Goliath in size and shape, or in character for courage, bravery, or
any other similar quality. The second king is *William Rufus*, who ascended the throne in the year 1087; he will, of course, be placed in the same room, on the eighth stripe, and seventh place, and the whole of the stripes and places between this and the former, may be devoted to William the Conqueror.

*Charlemagne*, who was crowned Emperor in the year 800, is, naturally, placed on the ceiling of the eighth room,—the room belonging to Midas. With Charlemagne may be arranged Egbert, or any king of another country whose reign was coeval with that of Charlemagne.

When the present historical arrangement has become familiar, it will be proper to take a sheet of paper for every century, forming a room and making the proper divisions of three walls and a floor, as above described. A particular fact may be then put upon paper, by sketching a rude outline of the circumstances, by figures of animate or inanimate beings; this, though it may appear to some unnecessary, will imprint the different facts upon the memory more forcibly than the usual mode of committing them to writing. This will be sufficiently exemplified by the following hieroglyphic:
It is thus explained. A convention was entered into in Egypt, between General Kleber, on the part of the French, and the Grand Vizier, on the part of the Sublime Porte, which was approved by the Cabinet of London. The straight line with the crescent on its top denotes the Grand Vizier, by its superior height to the perpendicular line which is to represent General Kleber; the line drawn through the centre of this line forming 2 acute angles, is intended for the General's sword. To denote the convention two lines are drawn, which meet together in the centre, and represent the shaking of hands, or a meeting. The convention was formed in Egypt, which is signified by a pyramid. The Cabinet of London is typified by the outline of a cabinet on the right of the diagram; the head of a ship placed in the square denotes London, as it is frequented more than any other port by ships.
HISTORY.

It is not to be supposed that each division will become more difficult in proportion as it is filled with events. The reverse indeed will be the case. It is a much greater labor to retain a few facts scattered throughout the different squares, than it is to remember a multiplicity of them, each being arranged in order. If we take a few insulated facts, there can be but little connexion between them; but when there is a multiplicity of events disposed in order, by associating them together, the one assists the remembrance of the other, and a strong connecting chain is formed, the links of which can scarcely be broken. The facility of committing these facts to memory is increased by their number. In selecting the facts we should be careful to take the simple facts; and not to mistake their connecting circumstances, or consequences, for the facts themselves.

It may be asked, perhaps, is there not occasion for a different room for every country? Certainly not. The history of one country must never be separated from the history of another country. We can scarcely speak of an event of very great political importance which has happened in England, without involving the history of most of the European States, of the East Indies, etc. etc. The political interests of one country are almost always united with those of
another country. Sometimes, the events of one nation are of high importance; sometimes those of another nation. The gradual progress of a nation to power, and the gradual decline and extinction of that power must be familiar to every one who is, in the slightest degree, acquainted with history. The wheel of power, like the fabled wheel of fortune, is continually revolving; and, as one nation, in one century, takes the lead in importance and influence; the next views it sunk into insignificance, and consequently very unproductive of peculiar or striking events.

Some, however, may object, that we shall not be able to distinguish any particular event, so as to assign this event to its proper country. There can be, however, no fear of this. Some particular circumstances connected with, and inseparable from, the fact itself, cannot fail to distinguish the country in which this event happened, whether in England, France, Spain, Germany, or any other part of the world.

Hitherto that period of time only has been considered which is posterior to the Birth of Christ. Antecedently to this period, however, there is a space of four thousand and four years. This time, though embracing a large number of years, is by no means so pregnant with events as that after the Birth of Christ.
Plate I. fig. 8. represents the series of centuries, and on the left of this series are placed the events that happened from the creation to the Birth of Christ.

It would be easy to assign to each year its proper place; but the first 5000 years are so barren of events, that it would be useless to do so; and the difficulty of remembrance would be enhanced by the paucity of dates worthy of being committed to memory. We ought not to take rooms where there is nothing to fix. It is only necessary to know the true series of facts, the years must be put into words. There are but four years before the four thousandth year. In these the Creation, and the birth of Cain and Abel, are the principal events. From 4000 to 1000 there are not more than thirty principal facts. If there were 300, not more than three rooms would be required. The period which includes the histories of Greece and Rome, will produce a greater number of facts; and there will be more certainty as to the dates. From the building of Rome then to the Birth of Christ, there will be occasion for seven rooms. (See Plate I. fig. 9.)

These remarks will suffice for the ancient and modern history,—for the antediluvian and post-diluvian periods. We may, however, wish to remember not only the principal facts in general
history, but to enchain and fix the fleeting visions of the moment,—those passing incidents which interest, amuse, or instruct us. "The sacred treasure of the past," is not the only "substantial shadow," which will be registered in our ideal repository. We shall be enabled to arrange future events, and thus have an orderly disposition of every circumstance of business or pleasure, in which we may be engaged. In this repository may be placed passing events, those already entombed in the grave of time, and those which are yet to seek the same sepulchre. Our ideal almanack will enable us not only to register appointments—but to enrol the payment of bills and other mercantile concerns. To the diarist it will be a neverfailing source of profitable instruction and amusement.

To fix the events of a whole year more places are required. Our year is divided into months, weeks, and days; and into four seasons. Every room has four sides. Every season contains three months, and each wall contains three stripes. (See Plate I. fig. 10.) The months are named first, second, third, fourth, and so on; on each stripe are the days of the month, and consequently a sufficient number of squares or places, in which the facts and events may be arranged. To remember the first, second, and third months, the figures may be changed into
letters, and the letters into words, if necessary. If it be required to commit to memory some remarkable circumstance which happened on the 25th of June, we should take the figures 6,25 (sixth month, 25th day,) and change them into letters; these would be d•l; of this we might make Daniel, or any other word that would associate better with the nature of the event. If it be 6,8 (June 8th) we might say d•v (dove) and connect it with the leading feature of the event.

The advantage of resorting to symbols for the representation of sensible objects, has, already been insisted upon: it must, however, be repeated, that the rude outline of any one object, if drawn upon the paper, will contribute more essentially to imprint the circumstance upon the memory, than whole pages of laboured description and minute detail. The Egyptian hieroglyphics were formed in this way, and the key to their interpretation (the combination of the different images) was a sacred trust reposed with the priests. The symbols which may be formed will serve the purpose of secret writing: for we may be well assured that they will be as unintelligible to every one but ourselves, as the priest-writing was, to the profanum vulgus of Egypt.
CHAP. V.

Language.

Sect. 1.—On learning Languages.

The learning of Languages is, in these days, an object of such general pursuit, and at the same time of such real importance, that every plan of instruction which has for its object to abridge the labour of this study, or to give permanence to its acquisitions, comes to our consideration with the strongest claims on our attention. The first approach to the study of Languages presents to view a long and dreary passage, but which must be travelled through with care and diligence, by those who wish to make any useful progress. Now it would certainly be a great advantage to turn and shorten this toilsome road, and be enabled to pursue our journey through the regions of science by more direct and less fatiguing advances.

That any course of learning should be devised by which the acquisition of Languages shall be
rendered an expeditious and unlabourious task, it would be presumptuous to expect. But it may be reasonably hoped, that, in the progressive improvement of human experience, new methods of instruction may be introduced, in this as well as in other sciences, which may afford additional facilities to learning, and clear away many obstacles to improvement which former ages were unable to remove.

It is quite obvious that the difficulty in acquiring a foreign language consists in the constitutional difference of our native tongue, and that which we propose to learn. If the grammatical properties of the two languages were similar, the mere obtaining of a copia verborum would be an undertaking of no great difficulty. But how considerable a labour it is to obtain a perfect knowledge even of the genders and declensions of nouns, the conjugation of verbs, and other matters which are the very initials of language, any one who has had the least experience of the drudgery of teaching can well testify.

It would seem, then, that one of the most extensive facilities which can be afforded in this matter, is to point out the affinities of different languages—to systematise, as far as can be, their similarities; and, where it is practicable, to trace and notify their variances. In other words,
if the expression may be allowed, to exhibit the universalities of language.

Something of this nature will be attempted in the present chapter. It is inserted, because it constitutes a part of M. Von Feimaigle's instructions; and because the Editor hopes that, it will be found to contain some useful matter. But he does not mean to delude the reader into an expectation that he will be here provided with a sort of talismanic key, which shall enable him, without labour and without loss of time, to unlock the janua linguarum. Indeed that (whatever some interested enthusiasts may pretend) is what no intelligent reader would expect, nor any honest man venture to promise. All that will be here attempted will be, to exhibit some of the most important similarities of different languages—to show that, notwithstanding individual peculiarities, they still retain strong marks of affinity in many essential particulars.

Facies non omnibus una,
Nec tamen diversa; qualem decet esse sororum.

Or. Met. l. 2. v. 13.

And, to bring the matter more home to practice, to offer some rules, by the assistance of which one language may be usefully applied to the acquisition of another.

As we are about to consider some of the uni-
versal properties of language, it may not, perhaps, be thought improper to enter on the subject with a slight sketch of the origin of language.

Sect. 2.—Sketch of the Origin of Language.

"We are informed by Scripture, that when the building of Babel was begun, about eighteen hundred years after the fall, the whole earth was of one speech. And had no miraculous interposition taken place, it is probable, that some traces of it would have remained in every language to this day. For, though, in so long a time, many words must have been changed, many introduced, and many forgotten, in every country, yet men being all of the same family, and all deriving their speech from the only one primitive tongue, it may be presumed that some of the original words would still have been in use throughout the whole earth: even as in all the modern languages of Europe, some Greek, and some Hebrew, and a great deal of Latin, is still discernible. But Providence thought fit to prevent this; and by confounding the language of the builders of Babel, to establish in the world a variety of primitive tongues.

* * * *

"Languages are either Primitive or Derived."
That those which are formed out of the same parent tongue should all resemble it and one another, and yet should all be different, is not more wonderful, than that children and their parents should be marked with a general family likeness, and each distinguished by peculiar features. Spanish, Italian, Portuguese, French, and a great deal of the English Tongue, are derived from the Latin; with the addition of many new words, and new modes of termination and syntax which were introduced by the northern nations. And, therefore, all these languages resemble the Latin and one another; and yet each is different from it, and from all the rest. But, if we could compare two original or primitive tongues together, the Hebrew for instance, with the Gothick or the Celtick, or the language of China, with that of the Hurons in North America, we should not discern, perhaps, the least similitude: which, considering that all mankind are of the same family, could not be fully accounted for without supposing, that some preternatural events like that at the confusion of Babel, had some time or other taken place. But this history solves all difficulties.”

* Beattie on Language, in his Dissertations, pp. 304—206, 4º.
This is the general opinion respecting the origin of the diversity of Languages; but it is not an uncontroverted doctrine. Dr. Priestley* has argued upon this point in the following manner:—

"The present diversity of language is generally believed to have taken its rise from the building of Babel, and to have been brought about by the interposition of the Divine Being; but it is no impiety to suppose, that this (agreeable to most other operations of the Deity) might have been brought about by natural means. The possibility of this natural deviation seems to be deduced from the following considerations.

"First. The primitive language, or that which was spoken by the first family of the human race, must have been very scanty, and insufficient for the purposes of their descendants, in their growing acquaintance with the world.

"Secondly. Not being fixed by the practice of writing, it would be very liable to variation.

"Thirdly. Supposing the primitive language to have had few inflections, (because few would have been sufficient,) it would easily admit any inflections, which chance or design might sug-

* Lecture on the Theory of Language, p. 287, and seq.
gest to the founders of different families, or to their successors. These different inflections would consequently introduce different constructions of words, and different rules of syntax: and thus what are called the very stamina of languages, would be formed independently of one another, and admit of all possible varieties.

"Fourthly. Considering into what different climates mankind were dispersed, furnished with the bare rudiments of the art of speech, into what different ways of living they fell, and how long they continued without the art of writing, (without which no language can be fixed,) it seems to be no wonder that languages should be so different as they are; both with respect to the rules of inflection, with the fundamentals of grammar which depend upon them, and the words of which they consist.

"The difficulty which some allege there is, in conceiving how languages should arise in the world so very different, not only in the words, but in the manner of using them, seems to arise wholly from the supposition, that the primitive language was copious, regular, and perfect in all its parts: the difficulty of changing such a language is allowed; but the fact, is apprehended, is much easier accounted for upon the present hypothesis.

"To these arguments it may be added, that
to a person thoroughly acquainted with the present state of mankind, the prodigious diversity of human manners and customs may probably appear almost as difficult to be accounted for, as the diversity of languages only."

The late Dr. G. Gregory has observed on this subject, that it is impossible to say what was the nature of the confusion of language at Babel; whether it consisted in the invention of new terms, or in the improper use of the old. The miracle at Babel, he adds, might be only a temporary confusion, sufficient to set aside that useless and absurd undertaking: and it is more natural to suppose, that the consequent dispersion of mankind was the effect of dissentions occasioned by having misunderstood each other, than that they could not live together, because they did not all continue to speak the same language.

II. The origin of alphabetical writing is involved in as much doubt as that of the diversity

* This conjecture, as Dr. Gregory states in a note, is confirmed by a criticism of Mr. Bryant, who remarks, in his analysis of Ancient Mythology, that כֶּלֶש really signifies lip, and that consequently the miracle was not any alteration in the language, but a failure or incapacity in labial utterance, which, soon after their separation, they recovered.
of language; and the controversies which have arisen on both subjects have been similarly conducted—one side pretending to found their arguments on the authority of the Scriptures, and the other side denying that those records furnish any such inference.

They who have recourse to supernatural interposition to account for the origin of writing, allege that the first alphabetical writings were the two tables of stone, which, as we are informed by Moses, were written by the finger of God himself. And it must be acknowledged (in the words of Dr. Priestley) that the oldest account we have concerning the use of letters in Asia and Greece is so circumstanced, as by no means to clash with this hypothesis. It seems likewise very probable from Robertson's comparison of Alphabets, that all the known ones might originally have been derived from the Hebrew, or Samaritan.

But in opposition to these arguments, it has been asked—if the Deity had taught or revealed such an art to mankind, why is it not explicitly noted in that complete history of revelation, which inspiration has handed down to us? The writing on the tables at Mount Sinai is not spoken of as a new invention; and if it had been such, and particularly if it had been the immediate act of the Deity, is there the least proba-
bility that so important a fact would have been omitted by the sacred historian? There are various other arguments in this matter, but these form the hinge of the dispute; and we shall close this subject with a very satisfactory observation of Dr. Priestley, who remarks, that, the imperfections of all alphabets, the Hebrew by no means excepted, seems to argue them not to have been the product of divine skill, but the result of such a concurrence of accident and gradual improvement as all human arts, and what we call inventions, owe their birth to. For certainly, the alphabets in use bear no marks of the regularity and perfection of the works of nature: the more we consider the latter, the more reason we see to admire their beauty, just proportions, and consequent fitness to answer their respective ends; whereas, the more we examine the former, the more defects, superfluities, and imperfections of all kinds we discover in them. Besides, had there ever been a divine alphabet, it would certainly have established itself in the world by its manifest excellence, particularly as, upon this supposition, mankind were incapable of devising one themselves.

III. But whatever may be the origin of alphabetical writing, it is certain that all alphabets are, more or less, defective. In the orthography of modern languages, in particular, it
is a great inconvenience, as has been truly observed,* that the pronunciation does not correspond with the writing; but that the same letters have different sounds, and the same sounds are often represented by different letters; some letters also, according to the pronunciation, are superfluous in some words, in others letters are wanting. This is chiefly a mark of their derivation from other languages: since, in many of those differences, the spelling leans to the antients, when the pronunciation is modern. Thus the (p) in the word receipt is not pronounced; but it shows the derivation of the word from recipio in Latin. Some words of the same sound are spelled differently, to preserve a distinction in writing, as air heir: hair heir, etc. Other words, on the contrary, which are spelled in the same manner, are pronounced differently, to preserve a distinction in speaking; as I read, and I have read.

Sect. 3.—Account of some attempts towards forming a universal Character or Alphabet.

All the alphabets extant are charged by Bishop Wilkins with great irregularities,

* Priestley's Lectures on Language, p. 43.
with respect both to order, number, power, figure, &c.

As to the order it appears, says he, inartificial, precarious, and confused, as the vowels and consonants are not reduced into classes, with such order of precedence and subsequence as their natures will bear. Of this imperfection the Greek alphabet, which is one of the least defective, is far from being free: for instance, the Greeks should have separated the consonants from the vowels; after the vowels they should have placed the diphthongs, and then the consonants; whereas, in fact, the order is so perverted, that we find the ο the fifteenth letter in the order of the alphabet, and the ω, or long o, the twenty fourth and last: the ε the fifth, and the η the seventh letter.

With respect to number, they are both redundant and deficient; redundant by allotting the same sound to several letters, as in the Latin c and k, f and ph; or by reckoning double letters among the simple elements of speech, as in the Greek ξ and η, the Latin q or cu, x or ex, and the j consonant. They are deficient in many respects, particularly with regard to vowels, of which seven or eight kinds are commonly used, though the Latin alphabet takes notice only of five. Add to this, that the difference among
them with regard to long and short, is not sufficiently provided against.

The powers again are not more exempt from confusion; the vowels, for instance, are generally acknowledged to have each of them several different sounds; and among the consonants we need only bring as evidence of their different pronunciation the letter c in the word *circa*, and g in the word *negligence*. Hence it happens, that some words are differently written, though pronounced in the same manner, as *cessio* and *sessio*; and others are different in pronunciation, which are the same in writing, as *give*, *dare*, and *give*, *vinculum*.

Finally, he adds, the figures are but ill concerted, there is nothing in the characters of the vowels answerable to the different manner of pronunciation; nor in the consonants analogous to their agreements, or disagreements.

As we are on this subject, the reader may not be displeased, perhaps, to have the various schemes which have been proposed for the emendation and correction of the English Alphabet brought together in one concise view.

"There have been many schemes offered for the emendation and settlement of our orthography; which, like that of other nations, being formed by chance, or according to the fancy of
the earliest writers in rude ages, was at first very various and uncertain, and is yet sufficiently irregular: of these reformers some have endeavoured to accommodate orthography better to the pronunciation, without considering that this is to measure by a shadow; to take that for a model or standard, which is changing while they apply it. Others, less absurdly indeed, but with equal unlikelihood of success have endeavoured to proportion the number of letters to that of sounds, that every sound may have its own character, and every character a single sound. Such would be the orthography of a new language to be formed by a synod of grammarians upon principles of science. But who can hope to prevail on nations to change their practice, and make all the old books useless? or what advantage would a new orthography procure equivalent to the confusion and perplexity of such an alteration.

"One of the first who proposed a scheme of regular orthography, was Sir Thomas Smith, Secretary of State to Queen Elizabeth, a man of real learning, and much practised in grammatical disquisitions." After him another mode of

* In the preface to Dr. Johnson's English Dictionary (from which this account is extracted) a specimen may be seen of his reformed orthography. The want of proper types, however, renders it impossible to exhibit this and other specimens here.
writing was offered by Dr. Gill, the celebrated Master of St. Paul's School in London. Dr. Gill was followed by Charles Butler, a man who did not want an understanding, which might have qualified him for better employment. He seems to have been more sanguine than his predecessors, for he printed his book according to his own scheme.

"In the time of Charles I, there was a very prevalent inclination to change the orthography; as appears, among other books, in such editions of the works of Milton as were published by himself. Of these reformers every man had his own scheme; but they agreed in one general design of accommodating the letters to the pronunciation, by ejecting such as they thought superfluous. Some of them would have written these lines thus:

All the erth
Shall then be paradise, far happier place
Than this of Eden, and far happier days.

"Bishop Wilkins afterwards, in his great work of the philosophical language, proposed, without expecting to be followed, a regular orthography; by which the Lord's prayer is to be written thus:

Yir Fadher hritah art in héven, hailloa bi dhiy nam, dhi cingdym cym, dhy silt bi dyn in erth as it is in héven, etc."
"Here Dr. Johnson has closed his account, which we shall endeavour to complete by noticing some other philosophical speculations of a similar nature that have been submitted to the public. But we shall first present the reader with a more detailed account of Bishop Wilkins' plan of a universal and philosophical language. This account we shall give in an extract from Dr. Priestley's Lectures on the Theory of Language, because it contains the most clear and concise exposition of it, that can possibly be given.

"Having in the first place, with prodigious labour and exactness, distributed all things to which names are given into classes; under forty genera or general heads, (some of which, however, are subordinate to others) he assigns a short and simple character to each of these forty genera,—a definite variation of the character, to each difference under the genera, and a further variation for each species, etc. By this means, the characters, representing all things that have names, have the same analogies with one another that the things themselves have.

"Characters being provided for the names of things, the grammatical distinctions of words, numbers, tenses, persons, voices, etc. are denoted by some appendage to the character.

"In this manner may we be furnished with an
universal character, which shall represent ideas directly, without the intervention of any sounds, and which may be equally understood by people using any language whatever.*

"To make this character effable, the Doctor (Wilkins) appropriates a single sound to the characters representing each genus and difference, and also to each variation and appendage before mentioned: and they are so contrived, that the simple sounds adapted to all the parts of the most complex character may be pronounced with ease, as one word.

"By this means any people, after they had applied this character to represent their ideas, might soon learn to read it in the same manner.

* The languages of Europe have one instance of this kind of writing. Their arithmetical figures, which were derived from the Arabians, are significant marks precisely of the same nature as the universal characters above mentioned. They have no dependance on words; but each figure represents an object—represents the number for which it stands: and accordingly, on being presented to the eye, is equally understood by all the nations, who have agreed in the use of those cyphers—by Italians, Spaniards, French, and English, however different the languages of those nations are from one another, and whatever different names they give in their respective languages, to each numerical cypher.—Blair on the Belles Lett. Lect. vii.
as any other people; whereby, in conversation as well as in writing, they might make themselves perfectly understood by one another.

"The elements of this character and language are so few, and the combination of them so easy, that the Doctor (Wilkins) says he has no doubt, that a person of a good capacity and memory may, in one month's space, attain to a good readiness of expressing his mind this way, either in the character or language.

"As the names of individuals cannot be comprehended in tables of genuses and their differences, the Doctor (Wilkins) hath contrived an alphabet of all the simple articulations of the human voice; to which he hath assigned two sets of characters, to be used at pleasure: the one consists of short and plain strokes, the other is a kind of delineation of the position of the organs in forming the articulations."

This plan Dr. Priestley considers the most rational of all the plans of a universal and philosophical language. And he adds, whenever this noble project is resumed, it seems to be impossible to proceed upon a better plan than this. The principal thing that is wanting to the perfection of it is a more perfect distribution of things into classes than, perhaps, the present state of knowledge can enable us to make.
Mr. Lodwick, in the *Philosophical Transactions,* gives 'an Essay towards an universal Alphabet.' His plan was to contain an enumeration of all such single sounds, as are used in any language: by means of which people should be able to pronounce truly and readily any language; to describe the pronunciation of any language that shall be pronounced in their hearing, so as others accustomed to this language, though they had never heard the language pronounced, shall at first be able truly to pronounce it: and lastly, this character was to serve to perpetuate the sounds of any language whatever.

The construction of "a new alphabet, and a reformed mode of spelling," has also occupied the attention of that celebrated Philosopher, Dr. Franklin. His plan may be seen in his miscellaneous works.† In this alphabet he has attempted to provide that no letter should have two sounds, and every sound should be represented by a distinct letter. "It is to be observed, (he says) that in all the letters, vowels, and consonants, wherever they are met with, or in whatever company, their sound is always the same.

* Vol. xvi. p. 126.
It is also intended, that there be no superfluous letters used in spelling; i.e. no letter that is not sounded; and this alphabet, by six new letters, provides that there be no distinct sounds in the language, without letters to express them. As to the difference between short and long vowels, it is naturally expressed by a single vowel, where short; a double one, where long; as for mend, write mend; but for remained, write re-meen'd; for did write did, but for deed write diid, etc."

In this alphabet c is omitted as unnecessary; k supplying its hard sound, and s the soft; k also supplies well the place of z, and with an s added, the place of x: g and x are therefore omitted. The vowel u, being sounded as oo, makes the w unnecessary. The y, where used simply, is supplied by i, and where as a diphthong, by two vowels: that letter is therefore omitted as useless. The jod, j, is also omitted, its sound being supplied by a new letter, which serves other purposes.

The philosophical construction of the alphabet may be best seen in the following account, written by himself, and entitled:
"Remarks on the alphabetical Table."

It is endeavoured to give the alphabet a more natural order; beginning first with the simple sounds formed by the breath, with none or very little help of tongue, teeth, and lips, and produced chiefly in the windpipe.

Then coming forward to those formed by the roof of the tongue next to the windpipe.

Then to those, formed more forward, by the forepart of the tongue, against the roof of the mouth.

Then those formed still more forward in the mouth, by the tip of the tongue, applied first to the roots of the upper teeth.

Then to those formed by the tip of the tongue, applied to the ends or edges of the upper teeth.

Then to those formed still more forward, by the under lip applied to the upper teeth.

Then to those formed yet more forward, by the upper and under lip opening to let out the sounding breath.

And lastly, ending with the shutting up of the mouth, or closing the lips while any vowel is sounding.

It is impossible for want of proper types to give a specimen here of the Doctor's reformed mode of spelling; but several examples may be seen in the 3rd vol. of his works, p. 357, in which is inserted a correspondence which was
carried on between the Doctor and Miss Stephenson, on this subject, and in which the former urges the utility of his scheme, and endeavours to answer the objections raised against it.”

Mr. Noah Webster, another American author, has proposed a more moderate innovation, “to render our orthography sufficiently regular and easy.”

1. The omission of all superfluous or silent letters. Thus bread, head, give, breast, built, meant, realm, friend, would be spelt, bred, hed, giv, brest, bilt, ment, relm, frend.

2. A substitution of a character that has a certain definite sound, for one that is more vague and indeterminate. Thus, moan, noar, speak, grieve, real, would become, meen, neer, speek, greeve, reel. Thus key should be written kee; laugh, laf; daughter, dauther; blood, blud; character, karacter; chorus, korus, etc.

3. A trifling alteration in a character, or the addition of a point would distinguish different sounds, without the substitution of a new cha-

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* Mr. Webster states, that the Doctor, amidst all his other employments, public and private, actually compiled a Dictionary on this scheme of reform, and procured types to be cast for printing it. But it never was printed.
racter. Thus a very small stroke across the would distinguish its two sounds. A point over a vowel might answer all the purposes of different letters. And for the diphthong ow, let the two letters be united by a small stroke, or both engraved on the same piece of metal, with the first hand line of the w united to the o.

These, with a few other inconsiderable alterations, Mr. Webster thinks, "would answer every purpose, and render the orthography sufficiently correct and regular."*

The only other scheme of reformation we shall notice is that put forth by Mr. Elphinston. We shall transcribe the first paragraph of his preface.†

"Every tongue is independent of every other. Howevver seeks dhe analogy (or nat-

tural rule) ov any tongue, must dherfore find it at home; nor wil dhe seeker seek in vain. Inglish dictcion dhen haz no laws, but her own. Yet, in her picturage, and consequently in much ov her living practice; hav any oddher laws, or any lawlesnes, been prefferably regarded. No more can any language adopt dhe system ov any oddher; dhan any racion, dhe hoal pollity ov

* Dissertations on the English Language, p. 394.

† Propriety ascertained in her Picture, 40.
another nation: for such adopter were no more
a distinct nation or language; were but a mongrel, or an eccoe."

Sect. 4.—Proposed Philosophical Arrangement of the Alphabet as applied to Language in general.

The ordinary arrangement of the alphabet being thus defective and unphilosophical, we shall propose another mode of disposing the letters, which we shall endeavour to justify, by assigning a reason for allotting to each letter the particular place which it occupies. We shall exhibit our alphabet, then, in this form:—

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>ph</td>
<td>gh</td>
<td>th</td>
</tr>
<tr>
<td>j</td>
<td>k</td>
<td>l</td>
<td>m</td>
</tr>
<tr>
<td>i</td>
<td>l</td>
<td>j</td>
<td>i</td>
</tr>
<tr>
<td>o</td>
<td>p</td>
<td>q</td>
<td>s</td>
</tr>
<tr>
<td>u</td>
<td>v</td>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>t</td>
<td>r</td>
<td>z</td>
<td>e</td>
</tr>
</tbody>
</table>

According to this scheme, the letters are distributed into four columns, each column containing five letters. This arrangement is not an arbitrary one, but is made upon principles of philosophical propriety.
The first column contains the vowels. \( Y \) is a vowel in English, but it is by no means an essential part of the alphabet. It takes in general the sound of \( i \), as in rhyme, cyder, system, syntax, etc. For this reason (as Mr. Walker has observed) printers, who have been the great correctors of our orthography, have substituted the \( i \) in its stead, in many instances. We shall discard \( y \), therefore, from our alphabet.

The vowels are placed first, because they can be pronounced without the assistance of consonants, while consonants cannot be pronounced without the aid of vowels. In order to account for the arrangement of the vowels, thus; \( a, e, i, o, u \); we must advert to the pronunciation of them. The French pronunciation is the most natural and philosophical; for in the course of that pronunciation of the vowels, there is a regular gradation of sound from the most open to the closest,—from high to low,—\( aw, a, ee, o, eu \). This is the order of nature. The sound of \( a \) is produced by a very wide opening of the lips; which are somewhat more closed in the pronunciation of \( e \); and still more so in the utterance of \( i \). When \( o \) is pronounced, the lips approximate still more, and at the sound of \( u \), they are almost closed.

This subject may be further illustrated by the following extract from Mr. Walker’s Principles of English Pronunciation prefixed to his
**Critical Pronouncing Dictionary.** After exhibiting a detailed view of the organic formation of the vowels, not differing materially from that before stated, he remarks that, in this view we find, that, *a, e, and o*, are the only simple or pure vowels: that *i* is a diphthong, and that *u* is a semi-consonant. If we were inclined (he adds) to contrive a scale for measuring the breadth or narrowness, or, as others term it, the openness or closeness of the vowel, we might begin with *e* open, as Mr. Elphinston calls it, and which he announces to be the closest of all the vocal powers. In the pronunciation of this letter, we find the aperture of the mouth extended on each side; the lips almost closed, and the sound issuing horizontally. The slender *a* in *waste* opens the mouth a little wider. The *a* in *father* opens the mouth still more, without contracting the corners. The German *a*, heard in *wall*, not only opens the mouth wider than the former *a*, but contracts the corners of the mouth, so as to make the aperture approach nearer to a circle; while the *o* opens the mouth still more, and contracts the corners so as to make it the *os rotundum*, a picture of the letter it sounds.

Consonants are divided into different classes according to the seat of their intonation, or from those organs of speech which are chiefly employed in forming them. The distinction which we
shall adopt, is that which divides them into labials, gutterals, dentals, and palatals; as they are formed by the lips, the throat, the teeth, or the palate: or, in other words, because the breath, in passing from the lungs, is intercepted in those seats or places, or at least is very strongly compressed there.

In the second column are the consonants, $b$, $f$, $p$, $v$.

$B$ is a labial: it is formed by intercepting the passage of the breath through the mouth, by closing the lips.

$F$ may be represented by $ph$. $Ph$ occurs chiefly in words derived from the Greek, and written in that language $Φ$. The Italians, in such words, write $f$; thus, while we adhering strictly to derivation write $philosopher$, they write $filosofo$.*

$P$ is a labial, formed (like $b$) by closing the lips; but in a less forcible manner. The Arabs (says Mr. Wallis) have not this letter, but substitute for it either $Be$ or $Phe$. The illiterate Jews in this country usually confound $b$ and $p$ in their pronunciation, using the one for the other.

---

V is a labial: it is formed by a touch of the upper teeth and the under lip. It is, indeed, the flat f, to which letter it bears the same relation as p does to b. The Arabians and Persians have not this sound; and Wallis is of opinion that the English Saxons either had it not, or wrote it by f; for they used, he says, no v consonant, and they wrote many words with f, as the English did after them, for some ages, which are now written with v, as well as those which are now written with f: as gif, heofon, etc. which are now written, give, heaven. And Priscian acknowledges, that the Latins formerly pronounced f with the same sound, with which afterwards the v consonant was pronounced.

In the third column, are c, g, q, x.

C and g are both gutturals; c has the sound of s and k; g of j and k. As the sound of k is usually given to c, there is great reason for supposing that this was its original sound.* In the less frequent sound of c, the guttural becomes a hissling sound. The hard sounds of c and g, (ka, ge) are produced by a stroke in the throat, and are consequently gutturals: g is the only weak sound of tch, as in church; ch is a guttural aspirated.

* Wallis observes, that the Latin k was formerly used for c: for the Romans wrote indifferently Calendae and Kalenda. 
Q is the strong sound of c, which, as was before observed, is a weak guttural.

X is written egs, ees, and eks; it is a guttural aspirate, with a hissing termination. Aspirate and hissing are compound sounds.

The fourth column contains d, h, t, z.

D is a dental, or produced by pressing the tongue against the gums of the upper teeth, and then separating them.

T' is also a dental, and is similarly formed.

H. This letter is no more than an aspiration, or breathing forcibly before the succeeding vowel.

Z is a hissing dental. It is the flat s, and bears the same relation to that letter, as h does to p, and f to v. It is formed by placing the tongue in the same position as in t and d, but not so close to the gums as to stop the breath: a space is left between the tongue and the palate for the breath to issue, which forms the hissing or buzzing sound of the letter.

L, m, n, are placed in the centre because they are of a middle nature between mutes and consonants. They are generally termed liquids, because, in pronunciation, they easily flow into and combine with the mutes. L is a weak palatal, m is a labio-palatal, and n is a strong palatal.

R is not found in all languages. It is formed by the forcible expulsion of the air, which during its passage, causes a tremulous motion of the
The Greeks sometimes wrote this letter with an aspiration, and we follow their example in *rhetoric, rhythm*, etc.

*S* is a hissing palatal, and is formed in the same manner as *z*.

*J* and *v* are placed between the highest vowels and the weakest consonants.

We shall subjoin the following tabular view of the powers and qualities of the consonants, according to this system.

<table>
<thead>
<tr>
<th></th>
<th><strong>Labials.</strong></th>
<th><strong>Gutturals.</strong></th>
<th><strong>Dentals.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td></td>
<td>a labial with the sound of <em>k</em>; a weak touch.</td>
<td>a weak dental, a weak touch.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>a labial with a weak touch.</td>
<td>a guttural with the sound of <em>k</em>; a weak touch.</td>
<td></td>
</tr>
<tr>
<td><strong>C</strong></td>
<td></td>
<td>a guttural, weak aspirated.</td>
<td>a dental aspirated.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E</strong></td>
<td></td>
<td>a labial with a strong touch.</td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td>a guttural; weak aspirated.</td>
<td></td>
</tr>
<tr>
<td><strong>G</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>a weak palatal.</td>
<td></td>
<td>a strong palatal.</td>
</tr>
<tr>
<td><strong>J</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>k</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>a labio-palatal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>O</strong></td>
<td>a labial with a strong touch.</td>
<td>the strong sound of <em>c</em>.</td>
<td>a strong dental.</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Q</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>r</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>s</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>T</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U</strong></td>
<td>a labial with a guttural aspiration, with a weak touch.</td>
<td>a hissing dental.</td>
<td>a hissing sound, it is the weak sound of <em>ph</em>.</td>
</tr>
<tr>
<td><strong>V</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>w</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>X</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>y</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Z</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As in the course of this chapter we have noticed the schemes of different authors on this subject, it may be as well to insert here the following tables of the consonants; extracted from Dr. Wallis, Mr. Walker, and Mr. Elphinston.

(1. From Dr. Wallis.*)

Synopsis of the Letters.

<table>
<thead>
<tr>
<th>Consonants</th>
<th>Mute</th>
<th>P</th>
<th>F</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labial or Lip</td>
<td>Half Mute</td>
<td>B</td>
<td>V</td>
<td>W</td>
</tr>
<tr>
<td>Palatine or Palate</td>
<td>Half Vowel</td>
<td>M</td>
<td>a Loweing</td>
<td></td>
</tr>
<tr>
<td>Palatine or Palate</td>
<td>Mute</td>
<td>T</td>
<td>S</td>
<td>TH</td>
</tr>
<tr>
<td>Guttural or Throat</td>
<td>Half Mute</td>
<td>D</td>
<td>Z</td>
<td>DHLR</td>
</tr>
<tr>
<td>Guttural or Throat</td>
<td>Half Vowel</td>
<td>N</td>
<td>a sigh</td>
<td></td>
</tr>
<tr>
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<td>Mute</td>
<td>C</td>
<td>N</td>
<td>CH</td>
</tr>
<tr>
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<td>Half Mute</td>
<td>G</td>
<td>Y</td>
<td>G</td>
</tr>
<tr>
<td>Guttural or Throat</td>
<td>Half Vowel</td>
<td>N</td>
<td>a sigh</td>
<td></td>
</tr>
</tbody>
</table>

* Grammatica Anglicana, p. 35.
(2. From Mr. Walker.*)

An Analogical Table of the Consonants.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mute labials</td>
<td>sharp p, pomp, flat b, bomb</td>
</tr>
<tr>
<td>Hissing labials</td>
<td>sharp f, if, flat v, of</td>
</tr>
<tr>
<td>Mute dentals</td>
<td>sharp t, tat, flat d, dad</td>
</tr>
<tr>
<td>Hissing dentals</td>
<td>sharp s, say, flat z, as</td>
</tr>
<tr>
<td>Lisping dentals</td>
<td>sharp th, death, flat the, sythe</td>
</tr>
<tr>
<td>Gutturals</td>
<td>sharp k, kick, flat g, (hard) gag</td>
</tr>
</tbody>
</table>

- labio-nasal liquid m.
- dento-nasal liquid n.
- dental liquid l.
- guttural liquid r.

* Critical Pronouncing Dictionary.
NEW ART OF MEMORY.

(3. From Mr. Elphinston.*)

TABEL OV AFFINNITY.

**DUE LICQUIDS.**

<table>
<thead>
<tr>
<th>lingual,</th>
<th>guttural,</th>
<th>dental,</th>
<th>labial,</th>
</tr>
</thead>
<tbody>
<tr>
<td>l</td>
<td>r</td>
<td>m</td>
<td>m</td>
</tr>
</tbody>
</table>

**DUE MUTES.**

<table>
<thead>
<tr>
<th>direct</th>
<th>depressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>simple</td>
<td>aspirate</td>
</tr>
<tr>
<td>b</td>
<td>v</td>
</tr>
<tr>
<td>ph, f</td>
<td>dh</td>
</tr>
<tr>
<td>th</td>
<td>s, s</td>
</tr>
<tr>
<td>sh, si</td>
<td>[zh] zi</td>
</tr>
<tr>
<td>k, c, q</td>
<td>g, gh</td>
</tr>
<tr>
<td>ch</td>
<td>j, g [dzh]</td>
</tr>
</tbody>
</table>

We may conclude this part of our subject in the words of Mr. Walker on a similar occasion.

"In this sketch of the formation and distribution of language, we are not to lose sight of the fact that all consonants are derived from the simple sounds, and that the compound sounds are formed by the combination of these simple sounds."

* 'Propriety ascertained in her Picture,' p. 3.
of the consonants, it is curious to observe how few radical principles, the almost infinite variety of combination in language depends. It is with some degree of wonder, we perceive that the slightest aspiration, the almost insensible inflexion of nearly similar sounds, often generate the most different and opposite meanings. In this view of nature, as in every other, we find uniformity and variety very conspicuous. The single **flat**, at first imprinted on the chaos, seems to operate on languages; which from the simplicity and paucity of their principles, and the extent and power of their combinations, prove the goodness, wisdom, and omnipotence of their origin.

"This analogical association of sounds is not only curious, but useful: it gives us a comprehensive view of the powers of the letters; and from the small number that are radically different, enables us to see the rules on which their varieties depend: it discovers to us the genius and propensities of several languages and dialects: and when authority is silent, enables us to decide agreeably to analogy."
Sect. 5. The derivation of French from Latin, shown to consist, principally, in the change of certain letters according to established rules.

When two different nations have an intercourse together, either by means of war or commerce, an attempt is made on both sides, to render the language of each, mutually understood. For example, France was once conquered by the Romans. The French people were, of course, subject to the laws of their conquerors, and if they had any complaints to prefer before the courts, were, of necessity compelled to make them in Latin.

The people in acquiring this language, did not resort to grammars; they had heard a particular name given to a particular object, another name to another, etc. and had constantly seen the objects characterised by these names. The French had heard the Romans mention a bridge, which they called pons; they heard them speak of the expense of a bridge, (pontis) of going to a bridge (ponti) of destroying this bridge, (pontem) of going far from it, (ponte) of more bridges, (pontes, pontium, pontibus, etc.) The common people seeing such terminations affixed to each word, and not caring to understand or remember them, rejected them
off at once, preserving the body of the word *pont*, and forming the French *pont*e. The Spaniards and Italians followed the example. The terminations, which, in Latin, formed the declensions, were omitted; and as in this last word, so in many other derivatives from Latin appellatives, the last vowel only was changed, and a great part of the original word remained. What is done in adjectives and substantives, also takes place in verbs.

In Latin, the verbs have their infinitive moods terminated in *re*; once preceded by *a*, once by *e*, and once by *i*, as *are*—*ere*—*ire*. It has been observed, that the consonants are weak, strong, aspirated, and hissing. All nations used the letters of the alphabet, but they changed the pronunciation according to the genius of their respective countries. The language of one people abounds with weak letters, others with strong, hissing, or gutteral letters, etc.

The Latin word *frater* when changed into French, has the letter *a* weakened, and it becomes *e*—as in *frere*: the deep Roman *a* is taken away, and the weaker letter *e* is substituted, as in *mare*, *mer*: chare *chere*; pater, *pere*; catena, *chaîne*. As it is the genius of the French language to shorten their verbs, the Latin infinitive *are*, becomes *er*; as in *amare*, *aimer*. In the third conjugation the final *e* only
is cut off, and the *ir* remains, as *in finire, finir; venire, venir*, etc. etc. In the *second* conjugation which ends in *ere*, were the final *e* to be rejected, *er* only would remain, which would be the same termination as that of the first conjugation. If it be changed into *e*, the third conjugation will appear; we seem then in danger of losing a whole conjugation. This inconvenience, however, will be soon obviated. The genius of the language requires that the sound should be shortened; there remains, then, no other mode than to deprive the *ere* of the first vowel, and the second conjugation in *re* will be found, as *perdere, perdre*. By taking away the vowel that precedes the *r*, this letter would come into contact with a preceding consonant, with which, in some cases, it would be impossible for it to stand. The verb *valere*, would, according to the rule just given, become *valre*; but as *l* and *r* cannot stand together, one should be taken away. To connect them a sharp vowel must be inserted, and this must be *e*, but then the conjugation would be lost. Let us try *i*, and we shall find it will become *vir*.

The Latin *tres* is changed into *trois*, for *valere*, there is *valoir*; this cannot be an irregular conjugation, for all the remaining parts are conjugated regularly; as there is only the infinitive *valoir*, it is then neither regular, nor irregular,
but regulated. This air can only stand for the infinitive mood; it is instead of valre; if the infinitive mood be not found regularly, the future cannot be given. As r is indispensable, we must part with the l. The Latin word calx, is made chalk in English, but in pronouncing this word, the l is opened and the pronunciation becomes (chawk) changing the c into ch. In French, calx becomes chaux; in the Latin word alter, the l is opened and alter is converted into autre; saltare into sautre.

From the Latin pulvere, the French infinitive would be pulver, but the l is resolved into ou, and v is changed into d; thus, pulvere becomes poudre; cinere cindre. In vaundre, the l must be rejected, and au supplied; thus valre—vau.

In the future, the French do not say, as in Latin or English, I will do,—but I have to do; they take the present of avoir, add it to the infinitive, and thus form the future vaudr-ai, vaudr-as, vaudr-a; we cannot say voulerai. In the present tense, in Latin, there is valet; the e is rejected, and as the l and t cannot stand together, l is opened as before, and we immediately have vaut.

It has been shown already, that the infinitive moods of the Latin ending in are, ere, ire, are changed into er, re, ir, in French. The first and last conjugations are both made by rejecting
the final e. Afterwards we find a fourth conjugation in oir; it has been shown how this is formed, and that it is not a new conjugation, for no tense or person is formed from oir.

If the Latin and French languages are compared together, it will be easy to prove how much one is derived from the other, and how very materially the study of the Latin and French will facilitate the acquisition of other languages. Those who are acquainted with the Latin language know that mus is the termination of the first person plural, so that from are we get amus, from ere, emus, from ire, imus. If the first person plural in French be required, the vowel must be omitted, and ms will be given. The French words non, nom, noms, are all pronounced in the same manner; for when m is final, it is pronounced as n, which has a nasal sound: m, then, is no more necessary, for if we write according to the pronunciation it would be nons.

In the verb danser, for example, the infinitive termination er, is changed into ons, and we have dansons. The second person in Latin, is known by the termination tis—atis—etis—itis: the same principle that directed the French to shorten the former person, induces them to pursue the same method here. The i is taken away and ts is left, which has the same sound as, and
may be supplied by, z. The word is written according to its pronunciation, and from danser, is produced dansez. The Latin termination ent is continued in French, but is mute; they say dansent (danse) as if there were no ent.

In the next tense the past time occurs; we danced yesterday: again for the first person plural there is ons, but this would denote the present tense; to distinguish, therefore, the imperfect from the present, tense, and to show that it is past, i is placed before ons, as ions; and this is always found in the imperfect in all conjugations. In the second person, present, there is ex; to denote the imperfect, i must be added as iez. For the third person, ent with the i before it, ient; but this requires some little addition; o, therefore, is placed before the i, and oient is formed. This tense, then, is dansions, dansiez, dansoient.

The future, we shall dance, will require something more than ons; the whole infinitive is here taken, and the termination ons is added; thus we have danser, danserons, danserez, and danseront. From ont comes the infinitive danser, to dance. This future also has an imperfect, I would dance; i the sign for the imperfect being added, danserions, danseriez, danseroient, are obtained. If the word danserions be analysed, thus, danse | r | i | ons, it will be found that
ons is the sign of the third person plural; i of the imperfect; and r of the future.

There are yet two more tenses to be considered. The first is the preterperfect, we have danced, or we danced. In Latin, the terminations are mus, stis, runt; the mus is softened into mes, as in parlames; the stis was formerly written parlastes, but as the s was not sounded, it was entirely dropped, and the i being softened, formed parlates; and runt was softened into rent, as in parlerent. In the imperfect of the subjunctive mood, the terminations are ssions, ssiez, and the third person would be ssient; but that would be a longer terminations than the genius of the French language would allow, it is therefore shortened into ssent.

If the person, tense, etc. of the word finiriez, be required, it must be remembered that ez is the sign of the second person plural; that i is the sign of an imperfect tense, and r of the future: it is therefore the second person plural of the future imperfect. In rendroit, t is the sign of the third person singular, oi is the sign of the imperfect, and r of the future; it is then the third person singular of the future imperfect, and belongs to the conjugation ending in rè.

A French verb which is termed irregular, is nevertheless derived regularly from the Latin. For example, the verb plaisir. This
verb is evidently derived from the Latin *placere*: to convert this word into French, it must be curtailed, and the first step towards this, will be to leave out the *e* before the *r*; there will then be *placre*, but as *c* and *r* cannot combine together, and the *r* is absolutely necessary, the *c* must be dispensed with; the *a* being changed into the softer sound *ai*, which forms *plaire*. To form the different persons and tenses, it remains only to reject the final *e*, and add the proper terminations.

The French verb *connoitre* is derived from the Latin *cognoscere*. We will now consider the various changes which take place during the process of derivation. In the word *connoissance*, which is also derived from *cognoscere*, the *sc* is changed into *ss*, and the *o* is shortened into *oi*, *oiss*: we then have *cognoissere*; but as there cannot be a double *e*, the first is taken away, because the latter is wanted for the infinitive termination; the word becomes then *cognoissre*: the *r* being too weak by itself; it must be strengthened by a *d* or *t*; a *t* is preferred; the *g* is changed into *n*, and the double *s* is lost—at last *connoitre* is obtained.

In the future, the *r* is retained; as *connoitrai*, *connoiras*, etc. but in other tenses, the *r* is changed into its original *s*—je *connois*, tu *connois*, etc.
Another example may be found in "mournir. In the Latin, there is for the infinitive, sometimes "moriri, but generally "mori. To form "mournir, the final i must be taken from "moriri, and the o softened into ou; for the future, the ir is rejected, and we have je "mournir—tu "mournas, etc. In the present, the infinitive termination is omitted, and an s is added, as je "mourns, tu "mourns; but as the ou is too long, it is changed into eu, as je "meurs, etc. In the same manner, when in the Latin word dolor there are two short o's, they are strengthened and converted into ou and eu; as, dolor, douleur; color, couleur; and from dolorosus comes douloireux.

When the Latin word debere is to be sought in French, the b must be changed into v (devene,) the second e being rejected, it becomes devne, but as the v and r cannot combine together, the termination re is changed into oir, devoir. This verb then is not regular, but regulated. It is impossible to obtain the future from devoir, as it is irregular, and must be derived from the regular verb devere. In the present, the r is rejected, and it becomes devus; but, as v and s cannot stand together, and as s is the personal character, it must remain, and the v be omitted; the word das is then left, but as the e is too weak, it must be strengthened by changing it into oi: we have then dois—je dois, tu dois, il doit. When in
the plural there are two syllables, the e is restored, and devons, devez, doivent, are obtained.

It remains only to fix the conjugations. This may be easily done by observing which of the vowels, a, e, i, precedes the personal terminations rons, rez, ront. The Latin conjugations may be learned in the same way. In the verb aller, we do not, in the present tense, say j’aille, but je vais; the vais is not then derived from aller, but from the German, wenden. It takes part of the present from one verb, and the remainder from another. When the Latin verb habere is to be converted into French, the b is changed into v, and have is formed; the h not being sounded in French, it is omitted, as avere; the first e is rejected, and the re being changed into oir, we have avoir.

In the present, the oir would be s—aus; but v and s not combining together, the v must be omitted, and the a is softened into ai—making aus; the s not being pronounced, it is therefore dropped; we have then ai—j’ai: the future comes from the infinitive avoir; the v being resolved into u; as aurai—aurai—auras—auro. The second person singular always takes s for its character, as in Latin—habes—as—debes—dois. The third person has t from the Latin, but as this letter was not pronounced in some cases, it
has been dropped; yet is is again brought into use, when the nominative case is put after the verb, when two vowels would come together, as aima-t-il?—moura-t-il? When the nominative precedes the verb, the t is omitted.

The following observations showing the process of derivation in some particular languages, and the mode by which one letter is substituted for another, will serve to illustrate the subject upon which we have been treating. They are taken from Dr. Rees' Cyclopædia.*

"The substitution of a labial for an aspirate or a guttural, or a diphthong, forms a general principle which pervades the Latin tongue in its formation from the Greek. Hence vicus, a village, from οῖκος; vinum, wine from oinos; ovis, a sheep, from ois; video, to see, from εἰδω. With respect to our own language a similar analogy prevails, which has converted a guttural into a labial; thus laugh is pronounced laff; enough, enuff; and most of those words which begin or end with y and w, whether derived from Hebrew, Greek, or Gothic, began or ended with a guttural. On this general principle year may safely be said to be derived directly, or indirectly, from ὑπὸς, a circle, and means a period,

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*Art. Etymology
or revolution of time; wheel from *wōn to *roll; etc. etc.

"The prefixing of the letter s to Greek words is a principle that pervades the Latin tongue; as in sperno, to despise, from *στρέμω, the heel; thus the primary sense of sperno is, to put the heel upon; on the same principle is salio, insults, insult, taken from ἀλλομα. The French generally drop the gutturals either in the middle or at the end of words; hence we should be justified by an invariable analogy in saying, that eau, water, is from aqua, and seal from sinigal. The Italians generally drop the liquid l; agreeably to this custom of the language, flume is derived from flumen, a stream, and piano from planus, a plain. In German, most of those words which have t in English, are used with th; as waser, water; besser, better; ex, it: and the corruption of m into f or v, is a principle that runs through the Welsh tongue; thus, ve, voer, and vayr, are but the Latin words, me, mare, and major."

We shall conclude this section with some excellent rules given by Mr. Greenwood, for ascertaining when an English word is derived

* Essay toward a Practical English Grammar, p. 212.
from Latin, and how it may be made Latin again.

1. Most English words, ending in *nce*, or *ey*, are derived from Latin words in *tia*; *Temperantia*, *Clementia*; *Temperance*, *Clemency*.

2. Words in *ion*, in English, are made Latin by casting away *n*; as, *Question*, *Questio*; *Religion*, *Religio*.

3. Words ending in *ty* are made Latin by changing *ty* into *tas*; as, *Liberty*, *Libertas*; *Charity*, *Charitas*.

4. Words ending in *ude* are derived from the Latin, by changing *o* into *e*; *Fortitude*, *Fortitudo*; *Gratitude*, *Gratitudo*, etc.

5. Adjectives, which end in *d*, do for the most part become Latin, by the addition of *us*; as *Rigid*, *Rigidus*; *Putrid*, *Putridus*, etc.

6. Words ending in *t*, *n*, or *r*, between two vowels become Latin by changing the last vowel into *us*; as, *Mute*, *Mutus*; *Obscure*, *Obscurus*; *Obscene*, *Obscanus*, etc.

7. Most words ending in *nt* are made Latin, by changing *nt* into *ns*; as *Latent*, *Latens*; *Vigilant*, *Vigilans*, etc.

8. Many words ending in *al*, by the addition of *is* become Latin; as *Liberal*, *Liberalis*; *Substantial*, *Substantialis*. 
Sect. 6.—Mode of learning the Conjugations and Declensions of a Language.

In the Latin infinitive, \textit{are, ere, ire,} are the terminations of the primary conjugations; there are two more in \textit{ere} which are secondary. The first person singular is given by the termination \textit{o}, as \textit{eo—deleo} from \textit{delere}; and \textit{io—audio} from \textit{audiere}; but we do not say \textit{amao} from \textit{amare}, but \textit{amo}: \textit{a} and \textit{o} are two dependant vowels; the \textit{a} is merged in the \textit{o} according to the genius of the language; for a labial cannot precede a lingual vowel. In \textit{eo} and \textit{io} there is first a lingual, and then a labial vowel, we consequently have:

\begin{align*}
amare & - delere - audire - lambere - fugere 
amo & - deleo - audio - lambo - fugio
\end{align*}

The preterperfect tense is terminated by \textit{vi}, as \textit{amavi—delevi—audivi}, except in the secondary conjugations which only change the \textit{o} of the present tense into \textit{i}; as \textit{lambo—lambi—fugio—fugi}.

The supine is known by the termination \textit{tum}, as, \textit{amatum—deletum—auditum—lambitum—fugitum}. The personal characters are in the singular \textit{o} (amo), \textit{m} (amabam), \textit{s} (amas—amabas,
t ( amat—amabat ); and in the plural, mus, tis, nt, as ( amamus, amatis, amant ). The third person plural from ire is not int, but being softened in the pronunciation by the insertion of u, becomes iunt, as audiunt, fugiunt; and the secondary ire, as in lamhere does not make lambent in the third person plural, but lambunt.

The different tenses to be considered are the present, imperfect, preterperfect, preterpluperfect, and future; and there are two moods, the indicative and the subjunctive, each of which contains all the foregoing tenses.

In the present tense of the subjunctive mood when the vowel is a in the infinitive, it is changed into e; and when it is e in the infinitive, it becomes a in the subjunctive; this may be thus remembered:

\[
\begin{array}{c|c|c}
\text{remembered} & \frac{a}{e} & \text{amare—amem; delere—} \\
\end{array}
\]

delem; legere—legam. The character of the imperfect is ba in the indicative, and re in the subjunctive mood. The word bare will bring this to our recollection—amabam—amarem; delebam—delerem.

The character of the preterperfect is i in the indicative, except in the secondary verbs, and in the subjunctive is erim; amavi—amaverim; delevi—deleverim;—lambi—lamberim.
The preterpluperfect of the indicative is known by the termination *veram*, etc. except when the preterperfect is formed simply with *i*, in which case it is *eram*. The same tense in the subjunctive is *vissem*, or, *issem*: — *amaveram*—*amavissem* ; — *deleveram*—*delevisset* ; *legeram* — *legisset*.

The future of the indicative is formed by *bo* in *amo* and *deleo*, and by *am* in *lambo* and *fugio*. In the subjunctive mood, the future termination is formed from the preterperfect indicative by the addition of *ero* throughout; as *amabo*—*amavero* ; — *delebo*—*delevero* ; *lambam*—*lambero*.

The following tables of the Latin conjugations and declensions may be committed to memory, by placing them on a wall, a mantelpiece, a door, etc. preserving the situations of the moods, tenses, and declensions as described in the tables.
<table>
<thead>
<tr>
<th>Infinitive terminations</th>
<th>Preterperfect</th>
<th>Imperfect</th>
<th>Present</th>
<th>Subjunctive</th>
</tr>
</thead>
<tbody>
<tr>
<td>all m. r.</td>
<td>avi</td>
<td>atum</td>
<td>a</td>
<td>m</td>
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<tr>
<td>āre</td>
<td>i</td>
<td>tum</td>
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<td>ēre</td>
<td>i</td>
<td>itum</td>
<td>ia</td>
<td>vero-is</td>
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</table>

Table of the Latin Conjugations.

Singular and plural endings of all the tenses in the indicative and subjunctive moods.

Except 1st and 2nd persons singular of the Preterperfect.

NEW ART OF MEMORY.
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Table of the Choose Latin Declensions.
Sect. 7.—Particular Directions for the acquisition of a Language.

Having fixed the terminations of the declensions and conjugations, and observed the signs of the different cases, the student may proceed to the learning of a language. Supposing this to be the Latin language, an easy book must be first taken, for instance, a Latin Bible, and an English one, placed by the side of it. In the latter we read, “In the beginning God created the heaven and the earth,” etc. etc. In the Latin it is, In principio creavit Deus caelum et terram, etc.

The two versions having been compared, the first word is found to be the same in both; the second in the Latin (principium) does not resemble the English; its meaning may, however, be ascertained with tolerable accuracy from its situation; and as o is the sign of the ablative singular, there will not be much difficulty in discovering the translation of principium to be ‘in the beginning.’ The next word in Latin is creavit, this is found to be a verb by its termination; cre-a-vi-t is proved to be of the first conjugation by the character a; v shows it to be the preterperfect tense, and t gives the third person singular. It is impossible to err in assigning creavit its proper meaning; the word so nearly resembles the English created.
Who created? God created—Deus is the nominative. What did he create? the heaven and the earth: caelum et terram will immediately be presented to us; our celestial and terrestrial cannot fail to give the meaning of these words, and the final m will point out to us that they are in the accusative case.

In this manner, we should proceed for two or three pages, and then read them for three or four times more, till we can translate with tolerable facility. We do not consult grammars to learn the rules, but merely to solve any difficulty that may occur. In the present mode, the grammar is learned in the language, and not the language in the grammar. Every rule is an abstraction, and cannot be understood without an example. Instead of long rules we learn examples, and these should be fixed upon the walls of a room in proper order.

The striking analogy between many modern languages, and the consequent facility of acquiring several languages, at the same time, must be evident to every one. This is particularly the case with the English, German, Latin, French, Italian, Spanish, and Portugueze languages.
The knowledge of Systematic Tables is peculiarly important to the student in any branch of science, whether it be botany, zoology, chemistry, mineralogy, etc. and the mode of fixing these tables in the memory, must be deemed of very great use to all who are concerned in such pursuits. The application of this art to such tables will be shown in the following Mineralogical table of Hauy.

The characters of Minerals are of three kinds, Physical, Geometrical, and Chemical.

I. Physical Characters.

1. General.

1. Specific Gravity, (according to the Hydrostatic balance of Nicholson):

2. Cohesion.

1. In Solids is proved:

      i. Yielding.
      ii. Not yielding.
Physical characters, continued.

II. By rubbing the angular parts of one mineral against the angular parts of another mineral.

III. By percussion with a hammer.
   i. Difficult to be broken.
   ii. Brittle.
   iii. Crumbling.

IV. By a Steel.
   i. Giving Fire.
   ii. Not giving Fire.

V. By flexion or pressure.
   i. Simply Flexible.
   ii. Elastic.
   iii. Ductile.
   iv. Soft.

1. In its own nature.
2. Having imbibed a fluid.

VI. By the force of Traction.

2. Liquids (yielding with the slightest pressure.)
   i. By moistening the hand.
   ii. By not moistening it.

II. PARTICULAR. (As found by the senses.)

1. Impression upon the tongue.

1. By Taste.
   i. Salt.
   ii. Astringent.
   iii. Sweetish.
   iv. Pungent.
   v. Bitter.
   vi. Urinous.
Physical characters, continued.

11. By adhesion.

2. Feeling.
   1. Unctuous and Greasy.
   11. Smooth, but not greasy.
   111. Harsh.

3. Smell.
   1. By Breathing.
   111. By Heating.
      i. Aliaceous, or garlic-like.
      ii. Bituminous.
      iii. Sulphureous.

4. Sound.
   1. By Percussion.
   11. By Bending.

5. Light.
      i. Colours of the mass.
      1. In their species.
      2. In their distribution.
         i. Uniform.
         ii. Variegated.
            1. In stripes.
            2. In spots.
      3. In their action.
         1. By change of colour.
         2. By reflex iris.
SYSTEMATIC TABLES.

Physical characters, continued.

-ii Colours of the Streak.
  1. Similar.
  2. Dissimilar.

-iii Colours of the Powder.
  1. Similar.
  2. Dissimilar.

- Producing Lustre)
  i Brilliant.
  ii Dull.
  iii Greasy.
  iv Silky.
  v Pearly.
  vi Metallic.
  vii Pseudo-Metallic.

41. By Refraction.

- (Transparency.)
  1. Limpid.
  2. Transparent but coloured.
  3. Translucent.
  4. Opaque.

III. By Phosphorescence.

  i By heating.
  ii By rubbing.

46. Electricity.

  i. Passive.
    -i By communication.
    -ii By rubbing.
      - 1. Vitreous.
      - 2. Resinous.

   P. 5
Physical characters, continued.

iii By heating.

(Vitreous on one side, and resinous on the other.)

II. Active.

i Vitreous.

ii Resinous.

iii Neither vitreous nor resinous.

7. Magnetism.

i. Simple.

ii. Polar.

II. Geometrical Characters.

I. Form.

1. Determinable.

i. Elementary.

ii. Secondary.

2. Indeterminable.

i. By rounding off the surfaces and angles.

ii. Striated and rough.

iii. Amorphous bodies, (i.e. bodies of an irregular form.)

3. Imitative.

i. Bodies formed by concretion.

ii. Pseudomorphous bodies, (i.e. such as have assumed the form of another body, for which they are substituted.)
Geometrical characters, continued.

II. STRUCTURE.

1. LAMINATED.
2. LAMELLATED.
3. STRATIFORM.
4. FOLIATED.
5. FIBROUS.
   i With parallel fibres.
   ii With radiated fibres.

6. GRANULATED.
7. COMPACT.
8. CELLULAR.

III. FRACTURE.

1. DIRECTIONS.
   i. Longitudinal.
   ii. Transverse.
   iii. Indeterminate.

2. VARIETIES.
   i. Conchoidal.
   ii. Smooth.
   iii. Rough.
   iv. Scaly.
   v. Articulated.

III. Chemical Characteristics.

I. BY FIRE.

1. WITH STRAW.
   i. Fusibility.
   ii. The result of Fusion.
   iii. The Reduction of metallic Substances.
Chemical characters, continued.

2. With red-hot Coals.
   I. Volatility.
   II. Detonation.
   III. Decrepitation.
   IV. Ebullition.

II. By Acids, (and in particular by the Nitric Acid.)
   1. Dissolution with effervescence.
   2. Dissolution without effervescence.
   3. Reduction into jelly.

III. By Alkalies.
   1. Dissolution of Copper by Ammonia, forming a beautiful blue Colour.
   2. The Vapour of sulphuretted Ammonia, blackening the Carbonate of Lead.

The characters of minerals, as we have seen, are physical, geometrical, and chemical. The physical characters are general and particular; and both these are again subdivided. The general physical characters must be first considered. In order to fix these, we should take a room which is familiar to us, and place the various divisions upon the different objects in that room, which are also well known to us, inventing some connecting circumstance by which we
may be the better enabled to remember the particular division of the table.

Having a room in which there are four walls, we take the first which is on our left hand, and commence with specific gravity, the first division of the general characters, and to fix this in our minds a balance is placed on the top of the wall, near the ceiling. The next division is cohesion, which is put by the end of the balance; if we ask what preserves the whole wall in its present firm state, the answer will be cohesion. There is now occasion for a sopha, which is placed against the lower part of the wall; upon which the solids must be put; cohesion in solids is proved in six different ways. In one corner of the sopha, a file is placed, which will call to mind the first mode, friction with a file; in another corner, some minerals of an angular shape; and thus we must proceed to fix the six different divisions. The sub-divisions will be easily remembered, if connected, in some way, with the principal outlines, which are thus permanently fixed.

Having filled one wall with the general physical characters of minerals, the particular characters are next to be considered. The particular physical characters of minerals are known, 1. by taste, 2. by adhesion. Another wall is now needful, in which there may be a door; on this
door a **tongue** is placed as the emblem of **taste**; the door being divided into six compartments, in the first is found a **cube of salt**, to convey the idea of saline; on the second a **string** for astringent; in the third some **sweetmeats** for sweetish; in the fourth, a **knife** for sharp, which may cut the string in the second compartment; **bitter** in the fifth division will come immediately under sweetish; and cannot fail to be remembered by the contrast which it presents; **urinous** is in the sixth and last division, and will need no symbol. In this way must the pupil proceed with the remaining divisions of the table, fixing each upon an object, and connecting some striking circumstance with the object, that will afford a permanent idea of the system which he is desirous to acquire.

The application of mnemonics to zoological **tables**, is peculiarly easy and agreeable, as they are entirely formed of **sensible objects**, and will readily associate with our hieroglyphics. The Linnean class, **mammalia**, for instance, may soon be fixed in our minds, by taking a single **order**, and placing the different **genera**, if not more than five or six, on different parts of a single hieroglyphic;—and forming associations with the symbol, and making a little narrative or tale. If the **genera** should be numerous, two or three hieroglyphics may be employed for that order.
We shall not give the associations, because they are so plain and obvious; and as the invention of these will afford an agreeable exercise for the student. The following table, we conceive a sufficient specimen, but the application may be made, with equal facility, to the different classes of birds, amphibia, fishes, insects, worms, and zoophytes; and with great advantage to any single class which may be preferred from the particular inclination or pursuit of the student.

CLASS I. MAMMALIA, or animals provided with teats.

Symbol.

Tower of Babel. ORDER I. PRIMATES, or chiefs of the creation.

Genus 1. Simiae, orang-otan, apes, monkeys, baboons.
2. Lemur, maccano.  
3. Vespertilio, bat.

ORDER II. BRUTA.

Genus 1. Bradypus, sloth.
2. Dasypus, armadillo.
3. Manis pangolin.
4. Myrmecophaga, ant-eater.
5. Platypus, ornithorincus, or duck-bill.

Swan and Mountain. ORDER III. FERÆ, or animals of prey.

Genus 1. Canis, dog, wolf, hyæna, fox, and jackal.
2. Felis, cat, lion, tiger leopard, lynx, panther, &c.
3. Viverra, weasel, ferret, polecat, civet.
4. Ursus, bear.
Symbol

Genus 5. Didelphis, opossum.


7. Talpa, mole.

8. Sarex, shrew.


Looking-Glass and Throne

ORDER IV. GLIRES, or sleepers.

Genus 1. Hystrix, porcupine.

2. Castor, beaver.

3. Mus, mouse and rat.

4. Cavia, guinea-pig.

5. Arctomys, marmot.


7. Sciurus, squirrel.

8. Myoxus, dormouse.


10. Hyrax, Cape and Syrian rabbit.

Horn of Plenty and Glassblower

ORDER V. PHORA

Genus 1. Elephas, elephant.

2. Camelus, camel, dromedary, lama, vicuna.

3. Giraffa, giraffe or camel-leopard.

4. Cervus, elk, deer-kind.

5. Bos, ox, buffalo.


7. Antilope, antelope, chamois.

8. Ovis, sheep.

9. Capra, goat.

Midas

ORDER VI. BELLA

Genus 1. Equus, horse, ass, zebra.

2. Rhinoceros.

3. Hippopotamus.

4. Tapir.
**SYSTEMATIC TABLES.**

**Symbol.**

*Genus 5.* Sus, pig-kind, pecari, babiroussa.

**Pinnated Mammalia.**

*Genus 1.* Phoca, seals.

2. Trichecus, morse or walrus, manati or sea-cow.

**Narcissus.**

*Order VII. Cete or Cetacea, (cetaceous mammalia, or whale tribe.)

*Genus 1.* Balaena, proper whales.

2. Physeter, spermaceti whales.

3. Delphinus, dolphin, porpoise, grampus.


The following table by Mr. Nicholson, showing the number of ounces Avoirdupois, in a cubic foot of some metals and other bodies, will be a useful exercise; the technical words to be formed out of the figures, we shall leave to the industry, and the associations, to the ingenuity, of the student.

<table>
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<tr>
<th>Bodies</th>
<th>Ounces</th>
<th>Hieroglyphic</th>
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<tbody>
<tr>
<td>1. Pure Gold cast</td>
<td>19258</td>
<td>Tower of Babel</td>
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<td>2. Sea Water</td>
<td>1026</td>
<td>Swan</td>
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<tr>
<td>3. Standard Gold cast</td>
<td>17486</td>
<td>Mountain</td>
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<td>4. Zinc</td>
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<td>5. Bismuth</td>
<td>9823</td>
<td>Throne</td>
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<td>6. Pumice Stone</td>
<td>914</td>
<td>Horn of Plenty</td>
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<tr>
<td>7. Heart of Oak</td>
<td>1170</td>
<td>Glass Blower</td>
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<tr>
<td>8. Rock Crystal, from Madagascar</td>
<td>2653</td>
<td>Midas</td>
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<tr>
<td>9. Lime Stones</td>
<td>1386</td>
<td>Narcissus</td>
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<td>10. Agate</td>
<td>2590</td>
<td>Goliath</td>
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<td>11. Tallow</td>
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<td>12. Green Glass</td>
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<td>13. Cast Iron</td>
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<td>14. Cork</td>
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<td>15. English Tin hammered</td>
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<td>16. Crude Platina in Grains</td>
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<td>17. Standard Silver in Coin</td>
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<td>18. Ruby</td>
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<td>19. Mercury</td>
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<td>20. Spermaceti</td>
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- 942 - Hercules
- 2620 - David
- 7207 - Castle
- 240 - Diogenes
- 7299 - Æsculapius
- 15602 - Ceres
- 10391 - Archimedes
- 4283 - Apollo
- 13568 - Robin. Crusoe
- 943 - Peacock
The first materials of a poetic edifice are to be found in metaphors, allegories, and in various kinds of fiction; and, it is thus all images, comparisons, allusions, and figures, particularly those which personify moral subjects, concur in adorning such a structure. When these images are reduced into verse, the ear is delighted to a high degree, and the mind insensibly repeats them while the eye reads them. This is particularly the case with rhyme. Cadence, harmony, and especially rhyme, afford the greatest assistance to the memory that art can invent; and the images, or poetic fictions, that strike our senses, assist in engraving them deeply on our minds.

When a historical narrative is related in prose, the facts only are stated in a plain, regular order, without any minute description of the different objects which occur in the course of the history.
The poet, however, proceeds differently. He describes, minutely, every object which presents itself; if it be a mountain, we have a lively description of its situation, the objects seen from it, and the trees or houses upon it. Should there be a castle on this mountain, its antient and present state is accurately described, together with the characters of its various possessors and their contests for the occupation of it: these descriptions we read with pleasure, and they are more firmly imprinted upon the memory by the variety and succession of images employed in them.

In order to commit to memory any particular piece of poetry which may be divided into stanzas, each consisting of four, six, eight, or ten lines, etc. it is necessary to take one stanza at a time, to read it over, and to select the principal objects or images, and combine them with the first symbol; attaching the next stanza to the second symbol, and so on with the remaining stanzas. By these means we are not only enabled to recite the whole poem in regular order, but to repeat any one or more stanzas in any order,—to determine the numerical situation of any line or word in the poem—and to say how often any particular word may occur. As we are able to repeat any stanza in the poem, it will
only be needful to count the lines or words, if it be required to determine the numerical situation of any line or word.

It will not be difficult to apply these principles to the repetition of poetry. A single illustration, perhaps, will be sufficient; and, for this purpose we take the first stanza of Goldsmith's Edwin and Angelina.

"Turn, gentle hermit of the dale,
And guide my lonely way
To where you taper cheers the vale
With hospitable ray."

We must here reflect, and imagine that we see a Hermit standing on the Tower of Babel, and turning round with inconceivable rapidity; a very large taper is placed upon his head. Angelina is walking by the tower and calling out loudly to the hermit 'to guide her lonely way;' the taper cannot fail to suggest the remainder of the stanza.

In a poem that is not divided into stanzas, we must take 4, 6, 8, or 10 lines, preserving the connection, and fix them upon a symbol. Several small pieces of poetry may be readily imprinted upon the memory by placing them upon the pictures, or furniture, of the wall of a room with which we may be acquainted. Though the symbols are not here actually resorted to,
yet the principle that is pursued, is precisely the same, for what are the symbols, but pictures which line the walls of our imaginary rooms?

As a further illustration of the mode of committing poetry to memory, we shall give the following examples from Nolegar, as quoted by Feyjoo, in his Cartas Eruditas.*

First Example.

*Fenix Divina*
*De tan bellas alas*
*Humilde, y piadosa*
*Al Cielo te enalzamos.*

Divine Phoenix,
With such beautiful wings,
Humble and Merciful,
Thou raisest to Heaven.

"The Phoenix in the first verse of this stanza, (says Nolegar) must be placed on the first predicament of the sphere;† on the right hand, and a papal crown, or tiara, or any other thing belonging to the Church, must be put on its head; because we cannot apply any other material ob-

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* Tom. i.
† This will answer to the first place in the first wall of a room.
ject, to represent the word Divine; we may then make a reflection or two on these images, and say, why has a Phoenix, the Papal Crown on its head? It is a Divine Phoenix, a Divine Phoenix. Then the second predicament of the left hand shall be taken for the second verse, and a drum with a stick to beat it, may be placed there; the stick may explain the word [de] with. * * *. I imagine that the drummer being ready to beat it, says [de] with and the drum [tan] such; in the same place, I would put two beautiful women sitting by the drummer, who should have two wings lying at his feet; and speaking of the second predicament, I would say, De tan bellas alas (with such beautiful wings.)

"On the third predicament opposite the first on the right, I would put a woman kneeling and soliciting the pardon of a poor man condemned to banishment, who should be there with a chain, and by this image I would recall to mind the words of the third verse, Humilde y piadosa (humble and merciful.) On the fourth predicament, I would place a piece of carpet, (alfombra) or any thing whose name begins with al[to,] and I would only use this syllable, to which I would sew the tester of a bed, and would say (al cielo) to heaven; and for the word thou raisest I would put a Priest, raising the Host, to whom the Curate (ayudonte) should hold some salt, saying
(ten sal alzas) take some salt, (thou raisest.) In this last image the figure Apenthesis is formed, and reflecting, I should say (ensalzas) thou raisest.

Second Example.

Pongan, Senor, el medio, y el gobierno
Los altos atributos de tu Essencia.

Sir, let Method and government be established
By the high attributes of thy Essence.

"In order to commit these verses to memory, (says Nolegar,) on the right hand of the table upon which I am writing, and where my inks-stand is, I would place a slave, or a black woman, with a basket and two hens in it; and close to the slave a Marquis or Duke, who on entering my room should attempt to frighten the hens, at which the slave must say (Pongan, Senor,) Let them lay, Sir. On the right hand of the slave I would place a Medio Celemin (half a Peck measure,) and on the left hand a Chain, signifying the letter (y) (G) or some (hiel) Gall. For government, I would place one of the many governors of my acquaintance, who is astonished at what is going forward. I would reflect, and think that I heard him say, Pongan, Senor, el medio y el gobierno. To represent the other verse, I would put for (los altos) two
or three pieces of timber with some tiles, taking these for the whole of a roof of a house, which consists of timber and tiles; and for (atributos) attributes, I would place two tributary Princes, with an image of the letter (A) on the head of one, who must be going to collect tributes or taxes, and if his name be Andrew, the better; because the (A) might be placed as an image of the name. Then supposing our food to be dependent on the collection of the taxes, it would be easy to remember, that Andrew was bringing some attributes by the letter (A); now, at the feet of this collector, I would place an alembic of Quintessences, or a Distiller, with a glass full of water, (Quintessence, already drawn,) who should mind not to break it with his feet; and close to the glass I would place a small stick, or the stick of a drummer made of iron, that we may remember it is not to be broken, because it might be used as we have already said, for an abecedario, meaning (de tu) of thy. In this manner, whenever I write, I shall remember that I have this verse at my right hand; Pongan, Señor, el Medio, y Gobierno; and on my left, the other; Los altos atributos, de tu Esencia."

When Prose is to be committed to memory, the particular passage, or chapter, should be read over carefully two or three times, and
having selected the principal images or objects, it will be necessary to form a narrative by combining them with the different symbols. We should take a few lines only at a time, and proceed gradually in fixing the various objects presented to us.

To remember the principal points in a Sermon which is regularly divided into parts, it is only needful to take the different heads or titles as they are given, and arrange them on the ceiling of the church or chapel, placing some on the cornice, and others in various parts, in regular order.* Or, a sort of imaginary tree may be supposed springing from the centre of the ceiling, and the proofs and illustrations adduced by the preacher, may be suspended on its branches. This method will be rendered more effectual, if a symbol of the idea will be formed, as for

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*A plan somewhat analogous to this, is mentioned by Mr. DUGALD STEWART, who observes, "I have been told of a young woman, in a very low rank of life, who contrived a method of committing to memory the sermons which she was accustomed to hear, by fixing her attention, during the different heads of the discourse, on different compartments of the roof of the church; in such a manner, as that when she afterwards saw the roof, or recollected the order in which its compartments were disposed of, she recollected the method which the preacher had observed in treating his subject. Elements of the Philosophy of the Human Mind, p. 456."
Justice a pair of scales, etc. etc. This, however is not essential.*

Mr. Stewart, speaking of the assistance rendered to an orator, or public speaker, by the topical memory, in recollecting the plan and arrangement of his discourse, considers the accounts given of it by the antient rhetoricians, as abundantly satisfactory, and makes the following pertinent observations on the subject.

"Suppose (says this author) that I were to fix in my memory the different apartments in some very large building, and that I had accustomed myself to think of these apartments always in the same invariable order. Suppose farther, that in preparing myself for a public discourse, in which I had occasion to treat of a great variety of particulars, I was anxious to fix in my memory, the order I proposed to observe in the communication of my ideas. It is evident, that by a proper division of my subject into heads, and by connecting each head with a particular apartment, (which I could easily do, by conceiving myself to be sitting in the apartment while I was studying the part of my discourse, I meant to connect with it,) the habitual

* The chapter and verse of the text may be soon fixed, by changing the number of each into a hieroglyphic, and forming an association between the two.
order in which these apartments occurred to my thoughts, would present to me, in their proper arrangement, and without any effort on my part, the ideas of which I was to treat. It is also obvious, that a very little practice would enable me to avail myself of this contrivance, without any embarrassment or distraction of my attention.”*

A public speaker may arrange the arguments of his adversary on various parts of his person, and thus be enabled to review and answer a multiplicity of observations made by many different speakers. The first remark might be placed on his head, one in each eye, one in each ear, another on his nose, mouth, etc. etc. If it be required to remember a high number, we need only resort to the symbols: for instance, 27,819 will be fixed by remembering the names of Don Quixote, Midas, and Robinson Crusoe, the 27th, 8th, and 19th symbols, or, by changing the figures into letters, according to the scale in fig. 1, plate 2, and by inserting vowels, and forming words sufficient to construct a sentence, which cannot easily be forgotten. Any sum in pounds, shillings, and pence, may be readily committed to memory, by this last method; taking care to

* Elements of the Philosophy of the Human Mind, pp. 456, 457.
have (if possible) but one word for the pounds, and always separate words for the shillings and pence.

The advantages of this part of the system to the different professions are very great. The minister—the legal student, and the Member of Parliament, may all practise this method with success. The application of these principles will also render an essential service to the merchant and the man of business, in the various concerns of life.
In this chapter, we have given faithfully the substance of Mr. Feinaigle's Lecture on Arithmetic, without any attempt at illustration; and as this Lecture has been accurately detailed in a recent publication,* it is extracted from that work, but without any of the reporter's commentaries and observations.

"We have now to see how our methods will apply to Arithmetic.

"In this subject we think we have, or may have evidence, for every particular proposition. But let us think a little; in many cases we have certainty: but is certainty and evidence the same thing? For instance, we know that 6 multiplied by 6 gives 36: this is certain; but is it evident? All we can say is that we have learned so: but

* Cross's Examination of Feinaigle's Arithmetic.
where is the evidence that $6 \times 6$ gives just 36? When you say that $6 \times 6$ is 36, you answer that it is three tens and six units; but see we this? How are we convinced that it is just 36, and no other number? It is only in our machine; but how it comes we know not.

We have these products given us in our multiplication tables, which we all know how difficult it is for children to learn; nay, many grown persons cannot learn it, because it is founded only upon the poor natural memory, upon which we can never depend. We make it only an object of memory instead of presenting it to the intellect, and we have no evidence, because we want the first evidence. To find the first evidence we must consider the figures themselves. Let us see then what is in the figures: we have.

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 & 90 \\
100, & & & & & & & & & etc. \\
1000, & & & & & & & & & etc.
\end{array}
\]

What comes after 9? Is it 10? No; 10 is a higher unit, and must therefore be placed before the 1; now what comes after 10? Is it 11? No; it is 20. Thus we find those nations did who employed letters for numbers: after having used the first 9 they went on thus, 10, 20, 30,
&c. and not 10, 11, 12, &c. Thus change these numbers as you please, you will always find they go from 1 to 9, and by considering the numbers in this way, the child sees at once that the rapport of 10 to 60 is exactly the same with that of 1 to 6; and all the relations of these numbers are at once in his mind. The first thing then must surely be to give the evidence of those figures; after this every thing will be easy. In problems, the greatest difficulty is to understand the question; when we do that, the problem is half solved; the mind then acts like an algebraical formula. O! we see—put this here, and that there; do this, and do that, and it is done.

"Let us see then how we are to get the true idea of number.
Let this be one, - - O
Let it be one something, an apple, or an orange, or whatever, and let this be another, - - O
Now what have we here? Is this two? I see only two ones; and we say that these are equal to one two: But how know we this? Have we evidence in the thing itself that two ones are the same with one two? I should see two things in one thus; - - - - - - O
O and the child sees at once that two halves are
equal to one; and that two halves and one are equal to one two. In the same manner I have for three, a circle divided into three sectors; and the child sees at once that three thirds are equal to one; and that the half of 3 thirds is one half; and that three thirds and two halves and one are equal to three. And so on for the higher numbers.

"Thus the child sees at once the proportions between the fractions: those things which are most difficult to be learned by the common way are here the first to be acquired, because they go with the first conception. If I say give me one half of three thirds, or one third of one half, or one half of one third, or one third together with one half of one third, he gives me them at once; because he has a clear conception of their meaning. I give not these things to the child, he must give them to me; and it is wonderful what calculations many children will make when they go on with their reason; but all this is gone when they begin with the usual methods, because evidence is taken away, and commonly we find that the more instruction they receive, the difficulty is the greater. But in our method they proceed with pleasure, because they continue to have evidence; and I will engage that any child instructed in this method, would in one fortnight
perform calculations of which you have no idea. So true is this, that if we were to unknok all that we have learned, and begin from the foundation, it would be better.

"We can go on with the same principles to Mathematics; in them we have three things, weight, measure, and number; but all are reducible to number.

"If we now represent our succession of units thus, and divide ten into two halves, as we have seen that this is necessary for representing two in one. If I ask what is 6 to 8, or give me one half of eight, and one fourth of eight, the child finds this at once, which is sometimes the solution of a difficult problem. If we go on to Addition, and ask what is 7 and 8? the child sees at once that 7 is equal to 5 and 2, and that 8 is equal to 5 and 3; so that 7 and 8 are equal to two fives and five, or one ten and five, or fifteen. In the same manner 6 and 6 are one ten and two, 8 and 8 are one ten and six, &c. &c. so that we see addition is certainly demonstrated thus; and subtraction is as evident.

"Let us go on then to Multiplication. Say that we ask how much is eight taken six times, the answer must be in tens and units, the child sees that 8 is equal to 5 and 3, and 6 is equal to 5 and 1."
And multiplying these he has—25
Thus every member must be considered by 15
what it is in rapport to 10 and 5.

But let us see if this is not in our dots also,

We have certainly above a and below b and c
four dots, which are the tens; above b we have
four, and above c two; two multiplied by four
give eight for the units, so that we have 48.

"In the same manner 7 multiplied by 9, we have 6 tens, and one multiplied by 3, or 3 units, that is 63."
And so 8 multiplied by 9, we have 7 tens, and one multiplied by two units or 72, and so in every other case; only the rule must be changed when we change the object of the question.

So that we see a child has no need of the multiplication table; he burdens not his mind with it; he sees not only the relation of the different numbers, but he sees all how they affect and combine with each other; all is in the nature of the thing; the evidence is before him.

"Let us now go on to Division. Suppose we have to divide 63 by 7; let us see if this is not included in the nature of the thing. We have

$$7)63(\text{If we subtract the 7 from 10, we have 3 ; and}$$
if we add this to 6, we have 9 the quotient.
Divide 54 by 9.

\[
\begin{array}{c}
9) \quad 54 \\
\quad 45 \\
\hline
\quad 9
\end{array}
\]

Subtracting the 9 from 10, and adding the remainder to 5, we have 6 the quotient.

\[
\begin{array}{c}
6) \quad 48 \\
\quad 48 \\
\hline
\quad 0
\end{array}
\]

so 6)48(8

\[
\begin{array}{c}
8) \quad 72 \\
\quad 72 \\
\hline
\quad 0
\end{array}
\]

and so on.

And in cases where the dividend does not exactly contain the divisor, as in

\[
\begin{array}{c}
9) \quad 76 \\
\quad 72 \\
\hline
\quad 4
\end{array}
\]

we find by multiplication, that 8 multiplied by 9 gives 72, we have then 4 over, which is consequently 4 ninths.

"Thus in every case we have always the answer to the nearest whole number. Here also we have no need of the multiplication table, which, as I said before, is so difficult to learn, as the numbers themselves give us the answer; it is in their nature. You see then how easy it is to advance by our method, and we charge not the memory with what it is so difficult to fix."
As many of the treatises on this subject are extremely rare, we shall give the title of each, and occasionally notice their contents; but we shall not attempt a particular analysis of the early books, as the same principles will be found amply developed in those of a more recent date, from which copious extracts are made. In some few instances, indeed, on account of its rarity, or usefulness, the whole work has been reprinted; and, a slight sketch of the author's life has, when practicable, been introduced. The articles thus noticed are all numbered; the books are chronologically arranged, according to the dates of their publication; and the MSS. are referred to that period in which their respective authors probably flourished.
1. *Thomæ Bradwardini Ars Memorativa. MS.*

This curious manuscript is No. 3744 in the *Sloane Collection*, preserved in the British Museum. It consists of three pages and a half of a small duodecimo size, and treats of places, and of images or symbols to be arranged in the places; and, is evidently an attempt, though a feeble one, to form a system of topical memory, according to the plan of the antients.

*Thomas Bradwardin* was called the *Profound Doctor*, and was born in Sussex, about the beginning of the fourteenth century. He was educated at Merton College, Oxford, of which he was proctor in 1325. Being called to court by Stratford, archbishop of Canterbury, he was made confessor to Edward III. and presented with a canonry of Lincoln, and also with the chancellorship of St. Paul's, London. He accompanied the king in his warlike expeditions; and to his sanctity of life and pious prayers, the superstition of the age attributed much of the success attending the arms of that monarch. His writings were partly theological; and he appears to have been one of the most enlightened ecclesiastics of his age. He gained great credit by his mathematical works.
2. Matheoli Perusini tractatus Artis Memorativae, 8°. 1470. [Bl. let.]

This work was often reprinted in subsequent years.

3. Jacobi Publicii Ars Memorativa incipit feliciter, 4°. [Bl. let.]

4. In nova mirabiliæ ac perfectissima Memoriae Jacobi Publicii, prologus feliciter incipit, 4°. [Bl. let.]

These two articles are without date, place, or printer's name. Panzer* has arranged No. 3 among the books printed at Cologne, by John Guldenschaaff, but does not assign any date to it. Publicius was the author of Ars consiciendi epistolas Tulliano more, printed in 1488; and of Artis Oratoriae Epitom. Ars Epistolaris et Ars Memoriae, printed in 1482. It is very probable, then, that the article under consideration, was printed before the year 1492, and afterwards reprinted with the two other tracts of Publicius. The Ars Memorativa seems to have been the fountain from which every successive writer has taken copious draughts. It treats of the arrange-

ment of places and the combination of images. Several wood-cuts are given, of the most rude and grotesque description, representing the alphabet by symbols taken from the different objects. Since the above observations were written, we have seen the following notice of this rare and curious work in Mr. Beloe's Anecdotes of Literature and scarce Books:*

This is a very curious and scarce book, which, as Mr. Douce is of opinion, was the earliest with wooden cuts, that was printed with moveable types.

Denis (I use, with his permission, the words of Mr. Douce) affirms, in his Supplement to Maittaire, that it was printed at Cologne. This opinion seems to be founded on the resemblance of its type to that which was used by Ulric Zell. The capital letters, however, are different from those in a copy of Petrarch's Historia Griselidis in the possession of Mr. Douce, as well as from the engraved specimen in Meerman, Tab. ix.

In the Catalogue of the Valliere Library, No. 1856, it is said to have been printed by J. Guldenschoff, of Mayence, but who, according to Maittaire, was of Cologne.

The volume consists of fourteen leaves, each page containing twenty-seven lines. The fol-

lowing is a specimen of the contents. I must, however, remind the reader that the original is in the Gothic character, with so many and complicated abbreviations, as to render it by no means easy of perusal.

Nonnihil etiam ad hāc rē opis onomathopeia nobis afferit idē agminō ubi e sono vocis ducta. Sic eminet taratantara dixit. Equi hymnitus mugitusbue boū balatūq. gregē. Strix nocturna et vespertilio stridet, būbitus apium grua gruit crasinat corvus tu corvo voce notat barritis a barro ululat ulule pitāt accipitres et alia quae plurima sunt usu et cōnaeudine vocis sonitu ymagines ṭbebunt.

The engravings on wood are of very rude execution, representing a book, part of a town, an old man sitting in a chair, horses.

The book was, beyond doubt, printed between 1460 and 1470. The author, Jacobus Publicius, was a Florentine, concerning whom, if the reader wishes for further particulars, he may consult Fusii Bibliotheca Gesneri, p. 382, and Fabricii Biblioth. Medīae. Ātatis, iv. 42.

Maittaire was not acquainted with this edition; and some authors have attributed it to George Sibut. See the Valliere Catalogue, Preface, p. xvi.

The Valliere Copy sold for 110 livres. Be-
sides the copy in the Museum, Mr. Douce has one, but I know of no other.

5. Ars Memorativa per Johannem Priiss, fol. Argent. 1468. [bl. let.]

6. Petrus Coloniae, Ars Memorativa, 4°. [bl. let.]

No. 6. consists of eight leaves, with several badly executed woodcuts, evidently the productions of a very early period. It is without date, place, or name of the printer. The arms of Cologne occupy the whole of the last page; from this circumstance, and from the addition of the author, it may be inferred that the work was printed at Cologne. The address to the reader notices the attempt of Publicius, and expresses the author's desire to form a compendious view of the Art of Memory for the use of all persons. There is, of course, but little difference between the schemes of Publicius, and Peter of Cologne. The wood-cuts, which are numerous, are interspersed with the letter-press, and are intended to represent images of particular objects; as a carpenter, by a hammer; a cobler, by a shoe, etc. etc.

This article is without date, place, or name of the printer. It is, in fact, a republication of Publicius, with some introductory rules, which are delivered in Latin hexameters, accompanied by a prosaic comment and exposition. *Manget,* in his *Bibliotheca Scriptorum Medicorum,* has the following meagre information respecting this 'venerable and illustrious medical Doctor.'

*Baldovinus (Sabodiensis), De eo exstat, Ars memoriae carmine cum glossis. Parisiis, in 4°.*


*Tom. I. p. 224.*
Artificial Memory.

In this work, [Nos. 8, 9, 10.] the places and images are noticed at large, with various rules for forming, arranging, and combining them. If we would remember, says Peter, any particular circumstances, we must form some vivid imagination of the event, and associate it with the names of some "pretty girls" of our acquaintance!!! I would wish him that is melancholy, (says Burton) to study Cosmus Rosselium, Peter Ravennas, and Schenckelius Detectus.


The two preceding articles are little more than a repetition of the scheme of Peter of Ravenna, with some observations on the theory of natural memory. They are both beautiful specimens of early typography, and have in the title a large colophon [in wood] representing a room of a printing office, in which are a compositor at work, s 3
a press, a man laying on the ink, and another working the press.

13. Congestorium Artificiosae Memoriae Joannis Romberch de Kyrpse;—opus omnibus Theologis, predicatoribus; confessoribus, advocatis et notariis; medicis, philosophis; Arti liberalium professoribus. Insuper mercatoribus, nuntiis, et tabellariis pernecessarium, 8°. Venetiis, per Melch. Sessa, 1533. [bl. let.]

This work abounds with the most curious woodcuts: according to the title, it is intended for divines, preachers, confessors, advocates, notaries, physicians, philosophers, and professors of the liberal arts: it is also very necessary for merchants, messengers, and amanuenses. The author speaks of natural memory, its seat, etc. and illustrates his observations by the representation of a head, on which the situations of thought, fancy, etc. are laid down with great care. After having treated of the necessity and use of places, and images, of visible places and fictitious places; the author recommends the fixing of certain places upon the walls of the different rooms of a house, monastery, or other place: and, the better to remember the situation of the places, puts symbols
there. A wood-cut is given with the symbols for figures as high as 30, many of which represent very accurately the outline of the figure. The alphabet is represented in the same way by symbols; and, in one instance, entirely by birds of different species.

In speaking of languages, in order to fix the numbers and cases of nouns in the mind of the pupil, M. Romberch resorts to the following expedient. A naked man is to personate the singular number; the nominative case is to be placed on the head of this man, the genitive in his right hand, the dative in his left, the accusative on his breast, the vocative on his middle, and the ablative on his knees. A man clothed gives the plural number, and the cases are to be disposed in the same manner, as on the naked man. Two chapters are devoted to the merchants; in the one, they are instructed to remember the weight and measure of their goods; and in the other, the debts owing to them, the bills which they have to pay, etc. etc. Three chapters are dedicated to gaming; one explains the application of the art to dice, another to cards, and the last to chess.

Another edition of Romberch's Congestorium was published at Franckfort, in 1602, 8°. Lodovico Dolci translated this book into Italian, but gave it a dialogue form; it was printed at Venice, in 8°. 1562.

A prior edition of this treatise was printed at Basle in 1554, with Grataroli’s *Opuscula*, which were all corrected by himself. Many other editions following, and a translation into English was made by William Fulwod under the following title.

An earlier edition of this extremely rare book is noticed in the *Censura Literaria.* After the line in the title of this edition, 'The contentes,' etc. there is a cut of the Printer's sign with the motto *post tenebras lux.* 'Printed at London by Rouland Hall, dwellynge in Gutter-lane, at the sigue of the Half Egle and the Keye, 1562, 12°.' The address to the reader is dated Nov. 20, 1562. The date to the edition from which our extracts have been made, is placed at the end of the 'address,' and is Nov. 20, 1573.

An Epistle 'dedicatorie' to Lord Dudley, 'Maister of the Queenes Maiesties horse,' follows the title. This epistle is in verse, very prolix and dull. After a studied eulogy on his patron, Mr. Fulwod enlarges upon the importance of memory, particularly to the Judge, Preacher, Captaine, Marchaunt, Lawyer, and Husbandman, and shrewdly observes,

For what helps it good booke to reade,
    or noble stories large:
Excepte a perfecte Memorie,
    do take thereof the charge?

What profits it most worthy thing
to see, or else to heare:
If that the same come in at one,
    and out at the other ear?

An address from the translator to the reader, concludes with this sage admonition, *lege et perlege, ne quid temere.* In the next place we have,

**THE BOOKES**

*Verdict.*

A Castell strong I doe present
well furnished and sure:
Munited eke with Armourre bent
For euer to endure.

Which hitherto long time hath ben
In (Lembo patrum) hide,
But now at last may here bee seen,
From daungers men to ridde:

**Procuring them a perfect state,**
And safe securitie,
Whereby they may fynde out the gate
Of wisedome's lore. For why?

Hee that hath lost his Memorie,
By mee may it renewe:
And hee that wyll it amplifie,
Shall find instructions trewe.

And hee that will still keepe the same,
That it shall not decay:
By mee must learne the way to frame,
And my precepts obey.

* Sapi. 6, 8. and 13.*
Lo here yee see my full effecte:
And that I doe entende
The secretes therof to detect,
That thereby wittes may mende.

Then Iudge mee,
As I am worthie.

The Castel of Memorie is divided into seven chapters. The first 'declareth what memorie is, where it flourisheth, how profitable and necessarie it is.' The second 'conteineth the chiefe causes wherby the memorie is hurt, with their signes and cures:' and, in treating of moist and cold brains, concerning the 'meates forbidden the pacient,' there are the following curious directions:

"Let them also forbeare Marow (which is in bones) Cranes fleshe, fishe, especially if it be clammy and nourished in ditches or holes, colde pot herbes, milke, cheese, especially much, or naughtie: fruites moist and not ripe or often but sometimes they maye eate sharper or tartar meates, chiefly in the winter, as Garlike, Peniroyall, or Calamint, Capers being watered; mustard is praised of Pithagoras, they must eate little and speciallye at supper: they must drink no water, except it be sod with hony, or cinnamon, or some other pleasant spices. They must abstain from ouer mutch sleepe, and not to
sleepe in the daye time, nor upon the noddle of the head, nor upon to mutch fulnes of meate: let them also take heede of ouer great watchinges, for it weakeneth the spirite, and resolueth it, and stuffeth the head."

The third chapter 'sheweth the principall endamages of the memorie in what sorte, so euert they bee.' The fourth 'telleth lykewise the perticular helps of the Memorie.' The fifth 'comprehendeth certain best approved and chosen medicinable compounded remedies and preseruatuiues greatly encreasing the Memory;' and containeth a receipt to make 'Pilles that are good for a languishing braine, especially in aged and olde folkes,' 'an odoriferous or sweet smelling aple for the memorie'—'a comforting water or le, for the washing of a colde and moist head, also it helpeth the Memorie, and it must be of the ashes of Twiggis, or of an oake.'—Another, and another follow. The sixth chapter 'expresseth Philosophicall Judgements, Rules, and Preceptes of Remembrance;' these are twenty in number; the nineteenth is as follows:

"For the recreation of your mynde and the restorin of your strengths, you must not flye to fylthie and dishonest things, but you shall bring it to passe by changing of your studie: for it is better somewhat to refresh your mynde, then altogether
to lose it. Yea, also the plaies, pastimes or enterludes of Christians ought to be sage and honest. Therefore after earnest and graue studies you muste repaire to lighter and easier, as to Histories or Musicall exercises, for it restoreth the strength and norisheth the conuenient reste, and also vertue is of more power after pleasure and rest. There be some that had rather play, the which indeede is granteed and permitted, so that the playe bee a play and not an earnest or said things, and let it be shorte, honest, without deceite hurt or couetousness. The Chestes playe (a Treatise whereof I lately translated into English) doth move and stire up the wit, but in the same is often bestowed to much tyme and studye, the which ought to be better applied. The baule or Tenyce play, doth aslo profite the hole bodye (But above all the noble exercise of Shooting in the long Bowe is most commendable) walking abroad is good chieflye for the heade; but it is better to dispute together walking up and downe and movinge the handes. This recreacion of the minde ought not to be daily nor often, and especially it must not be used at the hours or tyme of study."

The seventh chapter "entreateth in seve woordes of locall or artificiall Memorie."

"Artificiall Memorie is a disposyn or placing of sensible thinges in the mynde by imagination,
whereunto the naturall memorie hauing respect, is by them admonished, that it may be hable to call to mind more easely and distinctly suche things as are to bee remembred: and (as Ciceron sayth in bys seconde to Herennius) it consisteth of places, as it were of waxe or tables, and of images, as of figures and letters. For so it commmeth to passe that such things, as we have heard or learned, we reherse agayne, euene as though we read them. Nor it skilleth not muche whether we begynne at the first, or at the laste. The places themselves must be set in order, for, yf there be a confusion in them, it foloweth of necessitie, that al the reste must be disordred. And it behoueth also that there be many places, that manye thinges maye be placed by the same exercise and practisse. Ciceron judged that there should be an hundrith in number. Thomas Aquinas thought it good to have mo. [more.] For these places many have searched by diuers and sundry artes. Metrodorus found oute thre hundred and sixtie places of the xii signes in the whiche, the sunne goeth his course: because the Astrologers do deuyde the Zodiacke into so manye degrees.

"Ciceron inuented a certayne familiar house, seuered or parted into manye places, and he thought it good that we shoulde denise after euerie fysfte place, either a golden hande or some other di-
tinction, wherby the one might be discerned from the other, and also in them to observe a steadfast and unmovable order, that wee might always enter in and go out at the right syde. Another Author, not unskillful, sayned places by certayne lyuing creatures, and derived their order out of the Latyne alphabet, in suche sorte that euery one of their names shoulde beginne with some one of euery letter: euens as if these were the names: an Asse, a Beare, a Cat, a Dogge, an Elephant, a Foxe, a Goate, a Horse, a Jaye, a Kyte, a Lyon, a Mule, a Nyghtingale, an Oule, a Partridge, a Quaile, a Rabbet, a Sheepe, a Throstle, a Unicorne, Xystus the Philosopher (who wrote of these) Hyena, Zacheus. He denyed all these into fyue places: into the heade, into the fore feete, into the bealye, into the hynder feete and the tayle, for this order nature herself ministreth, neither can the wit be confounded in counting or reckenning them. Hauing thus gotten then an hundredth and syftene places, he graued in them the Images of thinges worthy of memorie, and also he commanded that many thinges should bee written by the mynde or wit in the face of him that speaketh, in the heares, in the forehead, in the eyes, and so to descend downewarde to the feete. But me thynketh it a verye easye thinge to device and immagine not onelye an hundreth but also infinite
places, seeing no man is ignorant of the situation of the citie where he was borne, or in the which he hath long dwelled.

"Therefore when the mynde entreteth in at the gate, whiles it considereth the diversitie of ways, directing and leading to diuers countreyes, and whiles it remembreth frendes houses, publike dwellinge places, palaces, or common places of Judgment, it shall fynde out a maruelous number of places. Hereto also it maye imagine great courtes, or places of larger roume, wherein it may devise as great a number of places as it listeth, so that every thing may be written therein that he will have.

"And because the teaching by examples is briefe and effectuall, nowe will I put forth some examples, to the end that thereby the matter may be the better perceiued. I will put forth an example of tenne, and consequently by the proportion thereof shall be devised the example of a thousand.

"And therefore I take or choose a greate and emptie house, to the which you must not go often but seldome, and appointe or sette the fyrst place which is at the doore, three foot distant from the doore. Let the seconde place be twelve or fyftene foot distant from that, as for example let there be one corner or angle. Let the thryd place be distant from the seconde
even as many or twelve foot, and there may be perchance, another corner, or a middest betwene the first and the second corner. The fourth shall be a corner. The fyrst shall be a corner, distant by as much. The syxte likewise: and the hall beyng finished, you shall enter into one chamber, and immediately within the doore you shall note or appoynte the seuenthe. and afterwarde, in the fyrst corner of the chamber the eyglit, and in the second corner the wynth, and in the thyrd the tenth with his distance. And yf you wyll have any more places, goe out of the chamber, and so marke or note the other chambers proportionally.

"But yet remember that the distaunce which is geuen is moderate and conuenient, but yf there be not found so great distaunce, but a lesser euern untio eyglite, or to lesse even unto fiue foote, yet should it be tolerable. As concernyng the temple, it ought to be such a one as must not be much frequented, especially of yourself to the ende that you be not confounded or troubled with the multitude of the sygures or Images. These places ought to be memorables and remoueable with ones hand, for the corners are not places, but fyxed images sette and placed in the corners, upon the which (even euon paper) are painted other sygures, which may be put out euon as letter upon paper. As for
example, the firste place is marked or known by *** in setting *** in his place. The second by a salue boxe, setting there also a salue boxe. The iii by a morter putting it there. The fourth by a pestle. The syfte by a pair of writing Tables. The sixte by a hares foote. The seventh by a Searcer. The eight by a bagge. The ninth by a lose of waxe. The tenth by the Canes of Cassia. And these names must be kepte alwaies in mynd and the places from fiue to fiue, that the quinaries or syfte places may alwaies by had in memorie. Of the distance there is enough spoken. Yet note that you may pass to fiue and thirtie, and not beyonde, lest there should chaunce a negation in the images.

"And bee it spoken euene likewise of the quantitie as touching the height, that there be not manye of a height, but from fiue euene unto eleuen foote. And let euery syftie place be marked, as it is sayde of the order. The qualitie also must be noted, that they be not to light, nor to darke, nor to much frequented. Let us come to the Images which are the things that must be places: the Images whiche bee known unto us ought to be so set in these places with such mouinges, that by them we may call things to remembrance. For example, I would remem-
ber twentye names, I will do thus: In the syrste
place, I will set the Images of Peter, one whom I well knowe, with an * * * full of water in his hande, the whyche he shall power upon James one also well known unto me: and so by this notable act, I shall remember these twoo, and so place in my remembraunce these twoo names.

"In the seconde place I wyll put Henrye who is unto mee verye well knowen (for these fygures must be exactly knowne that they maye quickelye come into ones Memorye) who shall put his hande into a Boxe and pull out the salue, and therwithal to besmyer Steuen, one also whom I do very well know.

"In the thyrde place I will set Wylliam, one whome I knowe also, who shall take out of the morter a playster, and shall put it upon Fraunces face: or inuentinge some other mad jentes and toyes, whereby the memorye may bee confyrmed to beare awaye suche lyke names.

"And so in lyke manner proccede with the rest."

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* As the original passage has not, here, been literally translated, we shall present our readers with a specimen of Grataroli's Latin.—" Transeamus ad imaginæ, quæ sunt res collocandæ: debent ita imaginæ nobis notæ in istis locis collocari cum motibus talibus, ut per eas valeamus memorari. Verbi gratia, volo memorari de viginti nominibus, sic faciam: in primo loco imaginem Petri mihi notissimi locabo, cum urinali in manu pleno urina quam fundet super Iacobum mihi notissimum: et ex isto actu
"Lykewise if I would remember any man and also his acte, I will imagin him and the doyng of his acte; as if I would remember one eating of figges, then I will imagine that with a figge, he did some mery or strange thing.

Gtrarolli next treats of figures, and gives the five following rules concerning them.

"The fyrste is that the stygure do moue either to laughter, compassion, or admiracion, for one may soone fynde a figure that styre up and moue the affection of the Soule.

"An example hereof is this, if I should sette or place in the mouthe of a mad Ass, the head of Antonye to be almoste bytten in pieces, the blood to gushe out of him, and that he asketh helpe, and holdyng up his handes cryeth out: for it cannot bee but that when I would, I shoulde see him with the eyes of my mynde, and

declare or express Antony to him that should ask or enquire for him.

"Another is, that we should represent euyther the lyke by the like, or by the contrary, or else by the proprietie therof. An example of the fyrst is, as if I were about to place the name of Galene, I should write the name of some other excellent physition, whose authoritie (as neere as may be) is euyther equall or lyttle inferiour.

"An example of the seconde is, if I writ the name of an unlerned physition, if I describe Thersites, by Achilles, and the good for the euill; or the soule by the fayre.

"An example of the thyrde is, yf I represent Ouidious Naso, by a great nose: Plato, by large shoulders, Crispas by cryped or curled heares; and Cicero by Gelasinus.

"The thyrde is, that wee accustome ourSELVES to place thinges, euene from our very youth, and that we encrease with dayly exercise: although that the teaching therof may helpe and profit euene them also that be elder.

"The habite, the perfectnes and dexterity (I meane to practyse these thynges) is mueche the more, if they doe so place all thynges, whiche they shall either saye or do and also whatsoeuer they heare in communication or talkinge. And they must lykewise paynt and graue the maners, gestures and tymes. For in so doynge they shall
in a shorte space be notably well exercised. It profyfeth also to playe one with another, and to
goe about to excell hym that shall recyte many
thynges, more clearlye, orderlye, and speedly
then other.

"The fourth is that (in every quinary or
fyft number of those thynges that are to be
marked) we repeat agayne from the beginninge
all such thynges as are alreadye noted for the
repeticion of things commonlye bryngeth greate
utilitie and profyte.

"The fysyte is, that wee should represent
thynges compounde with the similitude of sim-
ple|thynges. As for example. Hee that will re-
member this sentence: Cicero contendeth with
Hortensius, shall imagaine the pease called
Cicer whiche complayneth of the barenese of the
garden: for so doth Cicer resemble Cicero and
the Gardan called Hortus doth represent Hor-
tensius, and the complayne the contention, etc.

etc.

"Agayne you shall not forget that in placyng
or setting of the images or fygures in their places
the thyng is alwayes to bee placed with a merye,
a merueylous or cruell acte, or some other unac-
customed maner: for merye, cruell, iniurious,
meruelous, excellentlye sayre, or exceedinglye
foule thynges do chaunce and moue the sences,
and better styrre uppe the memorye, when
the mynde is mache occupied about suche things.

"Also the images are varyed by the transposition and transumption of the letters: as if I woulde remember Nep,* I shall place a pen, and for a tyran, [Tyrant] a rauening wolf. It sufficeth therefore, that we have expressed a methode or compendious waye, the whiche whosoever foloweth shall easelye (so that exercise be not lackynge) get and attayne the certeine and sure remembrance, of manye and sundrye thinges, as due occasion shall require: but as for the sluggish and ydle, let them slugge and sleepe still, to whom all thinges are displeasing."

At the conclusion of the seventh chapter 'is put an Epilogue of the foresayde thinges.' This epilogue contains quotations from Erasmus, Plato, and Aristotle, and concludes thus:

"It is verye good also to renewe and rehearse verye often suche thinges as are commytted to the memorye, with an elegant Oration or a sweete songe, as it is heretofore declared, for pleasure is the sauce of thynges, the foode of love, the quickening of the wyt, the nouryshynege of the affection and the strength of the Memorye.

"The Soule also must be purged from

* A Herbe so called.
euill things, that it may be filled with good things.

"And we must humbly desire of God with a faythfull prayer to grant us his spyrtyre of wyse-dome and knowledge, for our Lord Jesus Christes sake, to whome wyth the father and the holy ghost be all honor, laud, and glorye for euer and euer. Amen."

On the back of the last leaf, Memory taketh leave of her disciples with the following admo-nition.

_Memorie sayeth._

To him that would me gladly gaine
These three precepts shall not be vaine.
The first is well to vnderstand
The thing that he doth take in hand.

The second is the same to place
In order good and formed race,
The thirde, is often to repeat
The thing that he would not forgeat.
Adioning to this castell strong,
Great vertue comes er it be long.

A French translation of Grataroli's Treatises on the Memory and on Physiognomy, is extant; the following is the title as given by De Buré, and it is remarkable that this is the only book which he has admitted under the head of _Natural_ and Artificial Memory.

Of this book De Bure says, 'Petit Traité singulier, et assez recherché.' And Cailleau in his *Dict. Bibliog.* 'Petit Traité singulier et peu commun.—' On préfère cette Traduction à l'original Latin.'

**William Grataroli** was born at Bergamo in Italy, in the year 1510. He was educated at Padua, where he took the degree of Doctor of Physic, and afterwards became Professor of the same science, and gained considerable distinction. But, having embraced the Calvinistic doctrines on the persuasion of Peter Vermilli, he fled from Italy through fear of the inquisition, and retired to Marburg, where he taught medicine for a year. He was, however, compelled to leave that place also, and repaired to Basle, in the hope of a better fortune, and where, in fact, he taught and practised his profession with success, until May 1562, when he died at the age of 52. He was author of a great number of works, some
of which are honorable to his talents, and evince a large share of knowledge, but in others he shows an attachment to the absurdities of the alchemist, much superstition, and opinions which do not imply a sound judgment. His works, besides those which we have had occasion to mention, were, I. *A Treatise on the Preservation of the Health of Magistrates, Travellers, and Students*, in Latin, published at Frankfurt, in 1591, in 12o. — II. *De Vini Natura*. Cologne, 1671, in 8o. — III. He was the editor of a collection of various works of Pomponatus: Basle, 1565, in 8o. He had been the pupil of this celebrated man, and adopted some of his notions. — IV. *Vera Alchymiae Artisque Metallicæ Doctrina*, etc. fol. Basil, 1551. — V. *De prædictione rerum naturarumque hominum etc.* — VI. *De Temporum omnimoda mutatione, etc.*

"It cannot be denied (says Bayle) that Gratarioli was a public-spirited man, since he not only sought remedies that he might be useful to magistrates, but also those that are proper for all sorts of travellers. He did not forget studious men; for he endeavoured to enable them to preserve their health, and strengthen their memory. A man, who would supply their necessities on

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this account, would deserve divine honors in the republic of letters, in which memory is almost as necessary as life."


This is a very useful manual, and is intended principally for tyros in the art. It unfolds, by question and answer, the principles of former writers on the subject, and is equally remarkable for perspicuity and brevity. This small tract is included in the *Gazophylacium Artis Memoriae*, published in 1610, under the title of *Erotemata de Arte Memoriae seu Reminiscentiae*, etc.


21. *Artificiosae Memoriae Libellus Authore Thoma Watsono Oxoniensi*,
This manuscript is No. 3731 in the Sloane Collection, preserved in the British Museum. It is divided into fifteen chapters, the titles of which are,


If I wish to remember five objects, (says Mr. Watson) as a stone, a tree, a fish, a bird, and a horse, I take some spacious wall well known to me, and make five great divisions; in the first, I see a door; in the second, a window; in the third, a chest; in the fourth, an iron hook; in the fifth, a large crack, or fissure. The stone must be large enough to fill up the whole doorway; the tree has taken root, and almost cou-
ceals the window by its branches; the fish is lying hid in the chest; the bird is seizing the iron-hook with his beak, and is endeavouring to tear it from the wall; the horse has put his tail into the fissure, and is fixed there. By these means, the objects, and their numerical situation are permanently remembered: other divisions of a wall are given; one into 32, and the other into 100 compartments; the first is reckoned by eights, and the latter by tens.

The connection of the different images is considered of great importance, and the following illustration is given. If I wish to remember (continues the author) a man, a horse, a stone, a fire, a hog, and a tree, I must say, that the man finds a horse and seizes it by the tail; the horse is biting a large stone, from which fire is elicited by the teeth of the animal; this fire burns a hog, which had approached too near the horse; the hog, mad with pain, runs against the tree, and overthrows it.

Anthony Wood, in his Athenæ Oxonienses,* affords some information respecting this author.

"Thomas Watson, a Londoner born, did spend some time in this University, not in Logic

* Vol. I. col. 262, 263.

u 3 u
and Philosophy, as he ought to have done; but in the smooth and pleasant studies of poetry and romance, whereby he obtained an honourable name among the students in those faculties. Afterwards retiring to the metropolis [he] studied the common law at riper years, and for a diversion wrote, Ecloga in obitum D. Francisci Walsingham Esq. aur. Lond. 1590. Amintæ Gaudia, Lond. 1592, written in Lat. Hexameter, and dedicated to the incomparable Mary Countess of Pembroke, who was a patroness of his studies. He hath written other things of that nature, or strain, and something pertaining to pastoral, which I have not yet seen, and was highly valued among ingenious men, in the latter end of Q. Elizabeth."


Porta, like the authors already noticed, treats of places and images; he also advises the pupil to commit poetry to memory, by forming ideal representations of the language, and placing them in order. He exchanges figures for symbols, and represents a cipher for a globe; 1 by a knife; 2 by a sickle; 3 by a bow; 4 by a chopper; 5 by a serpent; 8 by a pair of spectacles; 9 by a crosier, etc. etc. Letters are also represented by symbols, and two alphabets are given; in the one, the letters are formed from various objects; and in the other, from different positions of the human body.

*John Baptist Porta* was a Neapolitan gentleman, who acquired celebrity by his application to polite literature and the sciences, especially those of mathematics, medicine, and natural history. He often held at his house meetings of literati, when they discussed the chimerical secrets of magic. The Court of Rome, apprised of the object pursued by this little academy, prohibited him from holding its meetings. Porta then cultivated the Muses, and composed several tragedies and comedies, which were received with some success. His house was always the retreat of men of letters, and of foreign-
ers, who admired the merit of Porta. He died in 1515, aged 70 years. We are indebted to Porta for the invention of the Camera Obscura. His works are, 1. A Treatise on Natural Magic. 2. A Treatise on Physiognomy. 3. De occultis Litterarum notis; a treatise on the art of concealing our thoughts in writing, or of discovering those of others. 4. Phytognomonica, seu Methodus cognoscendi ex inspectione vires abditas cujuscumque rei. 5. De Distillationibus.*


Places and images are the basis of Marafioti’s system, but instead of putting the images upon the walls of a house, they are placed in different parts of the hands, both on the back and in the palm of the hand. By this mode a high number of places and images is obtained. This tract was reprinted in 1610, in the Gazaphylacium Artis Memoriae.


This tract we have not seen, but suspect that it contains an account of Schenckel's experiments in Mnemonics at Paris; of whose system some account will be found in the next article.


30. Schenckelius detectus: seu, Memoria Artificialis hactenus occultata ac a multis quamdiu desiderata: nunc
primum in gratiam optimarum ar-
tium, ac sapientiae studiosorum luce
donata, a J. P. G. [Joh. Paep.
Galbaicus] S. P. D. Hanc artem
principes et alii nobiles, cum Eccle-
siastici, tum seculares addidicerunt,
exercuerunt et mirifice probarunt,
ut exsequentibus notum fiet. 8°.
Lugduni, 1617.

31. Brevis Delineatio de utilitatisbus et
effectibus admirabilibus Artis Me-
moriae, 12°. Venet. [circ. 1610.]

32. Memoria artificialis Lamberti
Schenckely. Omnibus literarum et
sapientiae amantibus luci donata,
vna cum clavicula Illam legendi, mo-
dum aperiente. Arnoldi Backhusy
Lubecensis, 12°. Colon.—Agrip.
1643.

No. 28, Schenckel's method of learning the
Latin language in six months, we have not seen.
No. 29, contains Schenckel's Art of Memory,
and very considerable prolegomena which are
not inserted in any subsequent reprint. No. 30,
is Schenckel's system only, without any introduction. The two last treatises are perfectly useless to the uninitiated, on account of the arbitrary signs and marks employed in them.* No. 31, is a reprint of No. 30, with the addition of a key which explains the arbitrary signs used in the work. It also contains a dedication to the learned Meibomius, and an address to the reader. This, consequently, is the most useful edition for practical purposes. No. 31, is a treatise by Martin Sommer, a contemporary and delegate of Schenckel. It is reprinted in No. 29, the Gazophylacium, and forms a part of the introduction to that work.

Lambert, or Lamprecht Schenckel, born at Bois-le-Duc, in 1547, was the son of an apothecary and philologist. He went through his academical course at Lyons and Cologne, and afterwards became a teacher of rhetoric, prosody, and gymnastics, at Paris, Antwerp, Malines, and Rouen: not forgetting, as the custom of the age required, to claim his title to scholarship, by writing Latin verses. From

* The Gazophylacium, however, is valuable on account of the prefatory matter, and the three tracts which it contains; more particularly, as the original editions of the tracts are extremely rare. -See Monthly Magazine, for Feb. 1810, for some part of this account.
these, however, he acquired no celebrity proportionate to that which was reared on his discoveries in the Mnemonic Art. The more effectually to propagate these discoveries, he travelled through the Netherlands, Germany, and France; where his method was inspected by the great, and transmitted from one university to another. Applause followed everywhere at his heels. Princes and nobles, ecclesiastics and laymen, alike took soundings of his depth; and Schenckel brought himself through every ordeal, to the astonishment and admiration of his judges. The rector of the Sorbonne, at Paris, having previously made trial of his merits, permitted him to teach his science at the university; and Marillon, Maitre de Requêtes, having done the same, gave him an exclusive privilege for practising Mnemonics throughout the French dominions. His auditors were, however, prohibited from communicating this art to others, under a severe penalty. As his time now became too precious to admit of his making circuits, he delegated this branch of his patent to the licentiate Martin Sommer, and invested him with a regular diploma, as his plenipotentiary for circulating his art, under certain stipulations, through Germany, France, Italy, Spain, and the neighbouring countries. Sommer now first published a Latin treatise on this subject, which he dispersed in every
place he visited. [No. 31.] In this he announces himself as commissioned by Schenckel, to instruct the whole world.

"A lawyer, (says he) who has a hundred causes and more to conduct, by the assistance of my Mnemonics, may stamp them so strongly on his memory, that he will know in what wise to answer each client, in any order, and at any hour, with as much precision, as if he had but just perused his brief. And in pleading, he will not only have the evidence and reasonings of his own party, at his fingers' ends, but all the grounds and refutations of his antagonist also! Let a man go into a library, and read one book after another, yet shall he be able to write down every sentence of what he has read, many days after at home. The proficient in this science can dictate matters of the most opposite nature, to ten, or thirty writers, alternately. After four weeks' exercise he will be able to class twenty-five thousand disarranged portraits within the saying of a paternoster:—aye, and he will do this ten times a day, without extraordinary exertion, and with more precision than another, who is ignorant of the art, can do it in a whole year! He will no longer stand in need of a library for referring to. This course of study may be completed in nine days,—and an hour's practice daily, will be sufficient: but, when the rules are
once acquired, they require but half an hour's exercise daily. Every pupil, who has afterwards well-grounded complaints to allege, shall not only have the premium paid in the first instance, returned to him, but an addition will be made to it. The professor of this art, makes but a short stay in every place. When called upon, he will submit proofs, adduce testimonials from the most eminent characters, and surprise the ignorant, after four or six lessons, with the most incredible displays." Here follow testimonials from the most celebrated universities. Nine alone are produced from learned men at Leipzic, and precede others from Marpurg, and Frankfort on the Oder.

On the 29th and 30th of Sept. and on the 1st of Oct. [O. S.] 1602, Schenckel exhibited some specimens of his art at Marpurg in Hesse.* the first experiment took place on the 29th of Sept. at eight o'clock in the morning, before a large assemblage of Divines, Lawyers, Physicians, and Philosophers. Schenckel having requested some one to dictate 25 Latin sentences, he wrote them down with a pen, and numbered them. He next read them aloud twice, with scarcely any pause, and having sat for a short

* This account of Schenckel's experiments is taken from his Memoria artificialis, edited by Buckhusy. (See No. 32.)
time in silence, he repeated the whole, from
beginning to end, backwards and forwards, and
in any order desired, without the slightest hesita-
tion. It happened, however, that once or twice,
Schenckel substituted one word for another, as,
limits for ends; but being reminded of this, he
immediately gave the word required. After-
wards, any particular number being given, he
repeated its appropriate sentence; and, on the
first word of a sentence being named, gave the
proper number. Schenckel being asked to re-
peat 25 doctrinal sentences, replied, that he
thought 15 would be sufficient; and, according-
ly, that number having been dictated, written
down, and read, he united them to the former 25
sentences, and answered, to the whole 40 in any
order desired.

On the 30th of Sept. another meeting was
held at the house of a medicine-vender, when
fifty words were given and numbered from 1 to
50. Schenckel having considered for a short
time, repeated the whole from beginning to end,
in regular order,—from the last to the first, and
in any order required. On any number being
given, he named the appropriate word,—and
vice-versa. Having asked the persons present to
double the number of words, some of the literati
replied, that he had given sufficient proof of his
abilities, and that they had no doubt he would
be able to repeat many more words by the same method. A learned auditor expressed his regret to Schenckel, that he was not allowed to repeat fifty sentences, and a hundred words, being fully persuaded that he was capable of greater things.

Schenckel having presented to his auditory two hundred sentences, in which a pupil of his, taken from the last meeting, had been exercised, together with the 40 sentences then given, the pupil, on any number being asked, repeated the appropriate sentence, and vice-versa, to the astonishment of all present:—more especially at the unconnected manner in which the numbers were proposed; as 235, 27, 9, 240, 128, 19, 184, 3, 225, 2, 176, 36, 7, etc. etc. This same pupil offered to the assembly 250 written words, which he had learned by some tuition from Schenckel, and by his own application. To these 250 words were added 50 others; and, in a short time, the pupil answered to the whole 300, in the same manner as had been done before by the professor himself. In repeating the sentences, the pupil, once or twice, did not give the words regularly:—when this was intimated to him, he immediately corrected himself, and repeated the words in their appropriate order.

On the following day, the 1st of October, similar experiments were tried, greatly to the satisfaction of all present; and, in consequence, Schenckel
received (without asking for it) a certificate of approbation, under hand and seal, from a learned physician, and some professors. This certificate concludes by observing, that 'the deponents' were present at the different examinations,—that there was not a possibility of fraud or collusion—that they thought it but justice, thus unsolicited, to express their approbation,—and to bear witness to the truth of the facts stated in the document.

The student, destitute of oral instruction, cannot expect to reap much benefit from a perusal of Schenckel's system in the Gazophylacium, or in Schenckelius detectus: he might as well seek for a knowledge of Mnemonics, by gazing at the hieroglyphics of an Egyptian obelisk. It is pretty evident that this Gazophylacium was designedly intended as a labyrinthal series: the author indeed closes his labors by confessing, that the work was to be entrusted only to his scholars, and referring for further elucidation to oral precepts. The very basis of his art is concealed beneath a jumble of signs and abbreviations: thus, sect. 9. d. a sect. 99; "videlicet, locus, imago ordo locorum, memoria loci, imagines." And further, in setting forth the most important points, he amuses himself by evincing a multitude of juggling, and unintelligible words.
In proof of this assertion, it will be sufficient to give the key from Backhusy’s edition of Schenckel: it is a fair specimen of the obstacles which are presented to the student.

Clanicula seu explicatio libri.

FALVCO NIVALCA.

1. Legendum serom a focis barbaeo.
2. Alpha & omega sunt lasos vitor.
3. Idoque etiam in dict. osisis ouidi.
4. Si in dolubacoui q. itaro cruccos 1 reg. amucoli nos habet, sed cygnus in illa tantam caballyso.
5. Hæbæretila singulæ sing. num. denotant. eadem gemi. pl.
6. Gen. ca. mod. temp. & alia datus obirrtas, ex lusnesi facile colliguntur:

a amulube macoue
b osias
c codrot
d emuluca sibuco.
e daitnem etnesi.
f amuit ecaps.
g bogamin
h asirape:
i vanosrepo
k emusrodi
l asumodi
m imnis ftice orexes
n asulgunas.
o lairomemt
p danrofe
q oseedesi
r asixarpe
s asucoli
t bogamin
u rogamis
v usucolæ
x farreto.
y amuitios
z amulucato epecera

A efucis itemhtiras.
C emurtsaca
D emuoite ocnita istdo
E parti esenefa
G. & Gr. facitamo emar-

I asirano bigamie
K emuxi fennoca
s emutnemi badnufa
ARTIFICIAL MEMORY.

N. asuremuni
P. Omuite galapo.
R. boitis otepera.
T. asurraste hti
V. amuirato enuloni.
Adi. emutae onuidas
cr. fuitatica.
dct. roitato scidos
diu. poisis euido
cp. galoti osipes
L G. afucigoli
Mph. asucisyho epatem.
Or: roitaros
Ph. esucusyho
Pr. \{ amenos enerpo
vel
laidos’ esorpo
L asutali
Rh. Laciros ethere

Ru. satnemis eduro
Sy. esixato anysi
Ve emubreui.
\{ baereco
\{ vanlus
1. \{ salednaca
2. asungyco.
3. esuluge onairte.
4. asuluga inardo
aqua.
5. esunami.
6. falletse.
7. lamtoni vel asiruceso.
8. exilacu;
9. dunroca
\{ asulunnas
\{ exemora
0. esulucrico.

Reliqua studiosus Lector facile colligel.

CLAVICVLA.

1. Legendum Haebraico more.
2. Prima & ultima litera sunt otiosae.
3. Idque etiam in dictionibus diversis.
4. Si in vocabulo Q occurat, prima regula locum non habet, sed primam in tautum illa syllaba: exemplum sit in asuluga inardo aquas: hoc est Quadrangulas, quae vox numerum quaternarium significat.
5. Literae singulae singularem numerum denotant, eadem geminatae, pluralem.
6. Genus, casus, modus, tempus & alia attributa ex sensu facile colliguntur.
<table>
<thead>
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<td>Cadela, Cerca, Vlna</td>
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<td>Receptaculum</td>
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<td>A.</td>
<td>Arithmeticus</td>
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<td>Castrum</td>
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<td>Distinctio</td>
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<td>Fenestra</td>
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<td>Stella</td>
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<td>Gr. Grammatica</td>
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<td>Norma vel Securis</td>
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<td>I.</td>
<td>Imaginarius</td>
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<td>Calix</td>
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<td>10. Anulus, Remex, Circulus.</td>
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The work of Schenckel is a singular production. His development of the art does not confine itself to mechanical ideas alone. It sets the technical, symbolical, and logical faculties of the memory, in equal activity; and requires that its powers should be at once ingenious and perceptive. Its acquirement is founded on the association of ideas: nor does it fail to call wit and imagination in aid of natural memory. Sommer's Compendium, consisting of eight sections, was printed for the use of his auditors. After his departure, permission is given to his scholars to communicate their mnemonicist doubts, observations, and discoveries, to each other; but no one can be present without legalizing himself previously, as one of the initiated, by prescribed signs: and he who fails in this, is excluded as a profaner.

As Schenckel's work, besides being a literary curiosity, had, of late years, become extremely rare, Dr. Klüber, in 1804, published a German translation of it, entitled, 'Compendium der Mnemonik, etc.' or, 'Compendium of Memonics, or the Art of Memory, at the beginning of the seventeenth century, by L. Schenckel, and M. Sommer. Translated from the Latin, with a preface and remarks, by D. Klüber, 8vo. Erlangen, 1804.

In this tract, are exhibited passages of divers authors, respecting the system of local memory as practised among the Greeks.


In this work is contained the Gymnasium Mnemonicum, or, treatise on the Art of Memory.


The first of these trigae is Artis Mnemonica explicatio.

37. Simonides redivivus; sive Ars Mem- moriae et oblivionis (quam hodie complures penitus ignorari scripse-

A great part of the Simonides Redivivus was reprinted at Leyden, by H. Herdson, in the year 1651, under the title of Ars Mnemonica, sive Herdsonus Bruxiatus; vel Bruxus Herdsoniatus. To this was appended a treatise in English by Herdson, on the same subject, the whole of which may be seen at Nos. 52 and 53.

After the title of No. 37, there is a wood-cut nearly the size of the page, very tolerably executed. It represents a tree loaded with fruit,—a man mounted on a ladder, plucking the fruit,—a boy in a go-cart,—and a venerable figure (we suppose the magister) looking very attentively at the boy. Underneath the cut, are the following verses:

Scala viro, currus puero, quod scipio Acestæ:
Hoc memorativa præstat in arte Locus.

Brux has treated the subject in a very comprehensive manner, and has subjoined a complete nomenclator mnemonicus. He also directed his attention to an art on which much less has been written:—the ars oblivionis, or art of forgetful-
ness; for the acquisition of which very full and minute directions are given. Were this art 'eliminated out of the thick fog in which it is enveloped,' many a candidate would be found for the sweet oblivious antidote. In this (says the great moralist) we all resemble one another; the hero and the sage are, like vulgar mortals, overburdened by the weight of life; all shrink from recollection, and all wish for an art of forgetfulness.

Before we take leave of this interesting art, the following jeu d'esprit will be given from one of the daily papers,* as it deserves to be rescued from the usual oblivion of such repositories. It was written on the occasion of some lectures delivered on Mnenomics in the city of Dublin.

"SYLLABUS of the Public Experiments on the new system of Anti-mnemonic, to the perfectionation of which the Chevalier de sans Souvenir has devoted the last fifty years of a long life, fully verifying from the toils he has encountered and surmounted in the pursuit, the assertion of Pope,—

"Of all the lessons taught to mortals yet,
'Tis sure the hardest science—to FORGET."

* Morning Chronicle for Nov. 21, 1812.
EXPERIMENT I.

"The Chevalier will produce before the company one of the Members just returned to Parliament, and whom he shall have instructed not one quarter of an hour; he will present to him fifty of those Constituents, with whom but a week since he was on the most familiar terms, when to the astonishment of all present it will be found that he does not remember the face of one of them, nor retains the slightest remembrance of the pledges he gave or the promises he uttered, notwithstanding the utmost efforts of the above-mentioned fifty promises to recal them to his recollection.

EXPERIMENT II.

"The Chevalier will present to the company an elderly Widow Lady, of demure aspect, and sedate appearance; she shall have a smelling-bottle in one hand and a white handkerchief in the other, which she shall respectively apply to her nose and eyes, and exhibit every other accustomed symptom of grief, when, by virtue of ten minutes' influence of the anti-mnemonic system she shall furl her flag of sorrow, pocket her bottle of disconsolation, dance a favourite Irish jig, box the ears of her seven children by her first husband, and loudly declare the impossibility of
managing a large family without the aid of a second.

**EXPERIMENT III.**

"A certain Viscount has graciously promised to be present at the first exhibition, and to permit the efficacy of the art to be tried upon his recollection. Twelve Members of Parliament have likewise consented to attend, and severally to ask him twelve questions upon various topics of foreign and domestic Policy—Unions—Swamps—Catamarans—Cat-o'nine-tails—Beds of roses—Triangles—Italian Music—The Penal Code—The Orders in Council—and, the Emancipation of the Catholics,—by all which interrogatories, amounting to 144, he shall evidently appear quite unmoved; nay, during the whole time he shall smile, and preserve the most inviolable self-complacency.

**EXPERIMENT IV.**

"Many elderly persons having, since the Chevalier's arrival, complained to him of the intolerable tenacity of the memories of their children and dependants, who actually exhibit symptoms of impatience at the fiftieth or sixtieth repetition of the same story, and audaciously either yawn or anticipate the denouement, to the great mortification of the narrator. Now the Chevalier
invites any one of the said respectable characters to his exhibition accompanied by seven or eight of his most refractory family hearers, and he engages, that after but ten minutes' instruction, they shall listen, not merely composedly, but with something like curiosity, to the most threadbare tales, laugh in all the proper places, and exhibit every other symptom of being entertained and gratified.

EXPERIMENT V.

"A venerable Pluralist shall be brought forward for examination, and shall be asked, What promises he made at his ordination?—or whether he made any?—which of his three livings he last visited?—from what well-known author he transcribed his last sermon?—with how many persons amongst his several flocks he was acquainted? Not one of which interrogatories he shall be able to answer.

EXPERIMENT VI.

"The Chevalier will next present to the public a Lady of cold affections and morbid vanity, inoculated with the love of the great, possessed of a little smartness, which the superficial might mistake for wit, and deeply versed in what is termed knowledge of the world. She shall in early life have given the most unequivocal pro-
mise of her affections to an unpractised heart, that trusted her with all the unlimited credulity of confiding love—pledges shall have been mutualized, and those solemn assurances reciprocated which indissolubly bind the faithful, and can only be violated by the unprincipled,—yet by the influence of this miraculous science, she shall forget her vows, deny her attachment, and finally marry another person; and when the parties afterwards meet, no feeling shall arise in her mind but a kind of awkward flutter, nor in his but the most contemptuous indifference.

EXPERIMENT VII.

"An eminent Lawyer shall also be produced in testimony of this wonderful art, who will be found to be proof even against a Refresher, and this is supposed, with one illustrious exception, to be the ne plus ultra of anti-mnemonic influence. If circumstances did not imperiously prevent, the Chevalier could produce this Exalted Individual, and triumphantly display him as one of the singular prodigies of the anti-mnemonic system. It is asserted by a celebrated cranioscopist, Dr. Gall, that early friendships make the deepest impression upon the human brain, and are with the greatest difficulty effaced—that they linger there, the last and most tenacious inmates, when other recollections have been weakened by
years, or absorbed in selfishness. To triumph over a radicated feeling like this was reserved for that science which can pervade the cottage as well as the palace, and while it steeped the peasant's mind in balmy forgetfulness, can equally relieve the Prince from the pangs of reminiscence.

"The Chevalier sans Souvenir having thus far developed his plan, will not for the present enter into further details. To the Irish Nation, whose characteristic it is to forgive, he begs leave particularly to recommend his system, which will also enable them to forget their manifold wrongs and injuries, and only to remember, that an united, are ever a happy, and a prosperous, people; that to Religious and Political opinions perfect freedom should be given, if we wish to be happy at home or formidable abroad; that all irritating retrospects should merge in the love of country, and that our endeavours should zealously and exclusively be directed to the Reform of internal abuses, and the extension of public liberty, that so the glorious fabric of our Constitution may be enabled to resist the aggression to which it is exposed, and to survive the storm which has made shipwreck of other Governments."

38. Fr. Mart. Ravellini Ars Memoriae

8°. Franc. 1617.
The principles of the art according to \textit{Ravellin} are four;—place, image, order, and practice or use of the images. He takes houses, chambers or rooms, and walls, in the following order; on entering the room, and standing with the back to the door, the first wall is to be on the left, the second before us, the third on the right, the fourth behind us, and the floor is to be reckoned as the fifth wall. The letter \textit{M} is to be supposed on each wall, and to be divided thus:

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3 & 4 \\
1 & 2 \\
2 & 5 \\
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In each of these divisions a hand is to be placed, consequently 25 places will be gained, if we count one for each of the fingers and the thumb. By taking ten hands and disposing them in the same manner, fifty places are obtained, and if each \textit{wrist} be accounted as one place, 60 compartments will be found. In these compartments the image of what is intended to be remembered is to be placed. Ravellin afterwards divides a wall by tens, precisely in the same way as Mr. Watson has done in the \textit{Sloane MS.} before noticed. The tract of \textit{Ravellin} was reprinted in 1678, with five others, in an octavo volume, entitled, \textit{Variorum de Arte Memoria Tractatus Sex.}

A few pages of this curious and expensive work are devoted to an explanation of the author's system of Mnemonics. This seems to be an attempt to combine the 'Ars Magna' of Lully, with the local memory of the antients, as improved by the modern memorists. Some curious wood-cuts accompany the description; and there are, on other subjects, many extremely singular prints in this rare work, which are intelligible only to an adept. The portrait alone of Fludd, prefixed to the first volume, has been valued at four guineas!!

Robert Fludd, or as he styled himself in Latin, *de fluctibus*, was the second son of Sir Thomas Fludd, Treasurer of War to Queen Elizabeth. He was born at Milgate in Kent, in the year 1574, and was educated at St. John's College, Oxford. He was a very voluminous author in his sect, diving into the farthest profundities, and most mysterious obscurities of the Rosycrucian philosophy;—and blending in a most extraordinary manner, divinity, chemistry, natural philoso-
phy, and metaphysics. He was made Doctor of Physic in 1605, and died 1637.


Naulius has compiled a useful and well-arranged digest of the different authors who have written on this subject, and has devoted a chapter, treating of the application of the art, to each of the following persons:—divines, confessors, lawyers, linguists, rhetoricians, astrologers, geometricians, kings, princes, and noble travellers.

42. *Mnemonica; sive Ars Reminiscendi: e puris artis naturæque fontibus hausta, et in tres libros digesta, ac non de Memoria naturali fovenda libellus e variis doctissimorum operibus, sedulo collectus: jam primum in lucem edita authore Johan. Wil-
ARTIFICIAL MEMORY.

lissus, Sacrae Theolo. Bacch. 8°. Lond. 1618.

The treatise de Memoria naturali fovenda, was reprinted at Frankfort, in the year 1678, with five other tracts, in an octavo volume, entitled Variorum de Arte Memoria Tractatus Sex. The whole work was translated by Leonard Sowersby, a bookseller at the Turn-stile, near New-market in Lincoln's Inn Fields, and printed in the year 1661, with the following title:

43. Mnemionca; or, the Art of Memory, drained out of the pure fountains of art and nature, digested into three books. Also a physical treatise of cherishing natural Memory; diligently collected out of divers learned men's writings. By John Willis, Batchelour in Divinity, 8°. Lond. 1661.

As this book has become rare, and develops many of the principles of the local memory in an apt and intelligible manner, our extracts will be more copious than usual.

The worthy translator seems to have been a man of very unassuming manners. The dedica-
PRINCIPAL SYSTEMS of

ition, which we recommend all booksellers of the present day to peruse and imitate, has not its parallel for diffidence and humility.

"TO THE HONORABLE

"WILLIAM PIERREPOINT, ESQ.

"Honored Sir,

"If Lines were capable of Humane affections, these would blush, they are so mean a present to so Illustrious a person; at least conscious of their Masters presumptions, they would condole his unhappiness, that had not greater ability to accommodate some more worthy Fabrick to so fair a Frontispiece. The Original compiled by a learned hand, among some vulgar things and trifles, containeth very excellent and profitable matter; I hope it hath not lost its utility (though Grace) in English.

"Honored Sir, I fear, good intentions are no sufficient Plea for temerous Enterprises, especially the Undertaker being privie to his own imperfections; Therefore like a Criminal acknowledging my vanity in ambitiously affecting things above my Sphere, I humbly re-implore your Honors pardon and admittance to be what I was before,

Your Honors most
humble Servant
LEONARD SOWERSBY."
The author, in the preface, having compared his Art of Memory to a new-born infant; because it was then first presented to the world; proceeds to show the advantages attendant upon it. The first book treats of remembering common affairs, words, phrases, sentences, and speeches, by means of notes and writing.

Having despatched these vulgar ways of memory, our author proceeds to speak in the first chapter of the second book, 'of remembering without writing,' and says, "I descend to helps conducing to the same purpose without Handwriting, which is then most pleasant, when we are destitute of the aid of Paper, Ink, or Table-Books, or when by some obstacle we are debarred the free use of them. This consists of two operations, Reposition and Deposition.

"Reposition is the manner of charging Memory with Note-worthy things; herein it is not to be expected that each particular word of every sentence be retained; but onely, that the general sense be fastened in mind. At all times when a man is about to commit any thing in custody to his Memory, first let him study to drown all unnecessary thoughts in oblivion, that he may perfectly intend the things he is to learn. "

A ready remembrance most commonly proceedeth from right understanding the thing in hand; therefore a man must prepare himself diligently,
and so unite the force of his imagination, that he may as it were engrave and imprint occurrent things in his memory. *Lead* doth facily receive impression, because it is tenacious, which *Quick-silver* cannot admit, by reason of its *Fluxibility*: In like manner fleeting inconstant minds continually hurried into new & strange cogitations, is far from gathering fruit by any thing heard. The method of a speech is chiefly to be observed, regarding seriously what is the general subject thereof; Secondly, the greater parts, and with what Logical Arguments each part is handled; the perfect Method of a speech doth much conduce to remember the whole; or if the Contexture thereof be inartificial, imperfect, and unsatisfactory, comprehending many things forcibly applied, rejecting things of a like kind, yet a strong Memory will retain the same by observation of the absurdities and rude *Artifice* of the whole.

"*Deposition* is when we recollect things committed to memory; and having transcribed or transacted them, discharge our memories of them, which is always to be practised at the first opportunity: Things charged in Memory by day, are to be deposited at least before sleep, if not sooner; things charged by night, are to be deposited immediately after sleep, that the mind be no longer burthened than is convenient, and
that things negligently laid up in mind, be not forgotten, Writing being the faithfullest Guardian of Memorandums. If in dis-burthening your Memory, something charged happen to be forgotten, shut your eyes, that no external object may divert your mind, and try to recall it by importunate scrutiny; which operation may be called Revocation, and is an Art that by help of certain Rules teacheth the investigation of things lapsed out of memory.

"To conclude, Deposition, or discharging things committed to mind, is not unlike expunging writing out of Table-Books: If therefore there be any Art of Oblivion (as some affirm) it may be properly referred hither. So much in general; now to explicate the particular species thereof."

The second chapter treats of 'remembring by certain verses purposely born in mind,' the third 'of remembering by extempore verses,' and the fourth 'of exonerating things charged on memory ex tempore.' The manner of remembering by verses already composed, says Mr. Willis, is when a man doth excogitate or retain remarkable things by repetition of verses provided to that purpose. Suppose an attorney, be to wait upon Judges riding the Circuits from one County to another, it may be worth his labour to repeat these verses at leaving his lodging, lest he forget
some necessary thing, which we may imagine formerly framed by him to this end.

Scalpellum, calami, cornugraphiumq; libelli,
Charts, paullares, capisalis, cera, sigillum,
Sic crepide, gladii, cultellus, pagis, berrea,
Muccinium, indusiumq: manilia, penula, peces
Fascia crusalis, cruralis, dactylothes.

These useful hexameters are thus done into English, by the worthy Mr. Sowersby.

Pen-knife, Quilla, Ink-horn, Book, Paper, Table-Books, Caps; Take
Wax, Seal and Slippers, Sword, Knife and Dagger, safe
make;
Purse, handkerchiefs, Shirts, Rings, Coat, and for your own sake,
Combs, Garters, Stockins, Gloves.

The following memorial verses for a traveller, from Fitzherbert's Husbandry, will form a suitable companion to those of Mr. Willis. They are hexameters, but were by the Printer jumbled into prose, and have been restored by a correspondent in the Gentleman's Magazine for October 1767, vol. xxxvii. p. 487.

Purse, dirk,* cloak, night-cap, kerchief, shoeing-horn, buget,† and shoes;

* Dirk is a word of the same age. Dagger will not scan quite so well.
† Buget, budget.
Spear, nails, hood, halter, saddle-cloth, spurs, hat, with thy horse comb:
Bow, arrow, sword, buckler, horn, brush, gloves, string, and thy bracer;
Pen, paper, ink, parchment, red, wax, pomae,* books, then remember:
Pen-knife, comb, thimble, needle, thread, point, lest that thy girth break;
Bodkin, knife, lingel,+ give thy horse meat: see he be stowed well.
Make merry, sing as thou canst, take heed to thy geer, that thou lose none.

Having recommended the carpenter to apply himself to the Muses and register his tools in the day-book of Parnassus, Mr. Willis introduces the following verses composed by himself.


These quiddities are thus translated by Mr. Sowersby for the benefit of the English reader, and more particularly for the ladies, whose natural curiosity might well be excited by so formidable a list of quæres.

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* Pomae, perfumed wash-balls, pomanders.
† Lingel, an awk
How? what fashion? how much? by, of, in, and from what?
How long? how often? how manifold? whence came that?
Where, when, how many?

"These Verses (craving the Readers pardon for the ruggedness) contain twenty two Questions of excellent use to invent, retain, as also to recall to minde things of great concernment and worthy memory in urgent affairs.

* * * *

The most curious and interesting part of these "drainings out of the pure fountains of art and nature," is to be found in the third book; a large proportion of which we have reprinted.

CHAP. I.

"Repositories.

"The Art of Memory, which we now treat of consisteth of Ideas, and places, wherein we will first handle the Reposition of Idea's, and afterward their Deposition.

"Reposition of Idea's is, when things to be remembred, are charged upon Memory by Idea's, disposed in certain places of a Repository; but before I descend to the manner of Reposition, it
is necessary for better explanation, to speak of Repositories, Places, and Ideas in distinct chapters.

"A Repository is an imaginary fabric, fancied Artificially, built of heaven stone, in form of a Theater, the form whereof followeth; suppose the Edifice to be twelve yards in length within the walls, in breadth six yards, and in height seven yards, the roof thereof flat, leaded above, and parquetted underneath, lying wholly open to view, without any wall on that side supposed next us: Let there be imagined a Stage of smooth gray Marble, even and variegated with a party coloured border, which Stage is to be extended over the whole length and breadth of the building, and raised a yard high above the Level of the ground on which the said Edifice is erected: Let all the walls, that is, the opposite wall, & two ends be wainscotted with Cypresse boards, so artificially planed and glewed, that the joynts be indiscernable; suppose also a Groove or Gutter cut in the middle of the Marble Stage, three inches broad, extended from the opposite wall to the hither side of the Stage, whereby it is exactly divided into two equal parts, and that upon the further end of the said Groove, there is errected a Column, a foot and half thick, arising up to the Roof of the building, almost touching the opposite wall, and deviding it into two equal parts, as the Groove divideth the Stage; so that
by the *Groove*, and the *Pillar*, the whole *Repository* is parted in twain, and consisteth of two *Rooms*, siding each other, each of them being six yards long, six yards broad, and six yards high. For the better understanding this invention, I have caused a *Type* of the *Repository* to be here delineated, the explanation whereof immediately followeth.

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*That nothing might be wanting to elucidate this curious description, we have given a fac-simile of the original wood-cut. See next page.*
"The letters, \( a, b, c, d \), shew the length of the edifice, \( a, c, b, d \), the height, \( a, e, b, f \), the height of the stage, \( g, i, k, h \), are boundaries of the opposite wall, \( e, c, i, g \), the side wall upon the left hand, \( h, k, d, f \), the side wall of the right hand, \( c, l, m, d \), design the Roof, \( g, i, n, p \), the opposite wall of the first Room, \( e, g, o, p \), the stage of the first Room, \( r, q, k, h \), the opposite wall of the second room, \( s, r, h, f \), the stage of the second room, \( n, o \), the pillar dividing the opposite wall, \( o, p \), the groove wrought into the stage.

"A Repository according to this fashion, is to be represented before the eyes of our minde, wheresoever we are, as oft as we intend to practise this Art; supposing ourselves to stand about two yards distant, against the midst thereof.

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CHAP. II.

"Of Places.

"A Place (as to our consideration) is an apt space in a Repository, designed for reception of ideas.

"There are onely two places in every repository of equal form and magnitude, that is the
two rooms of each repository determinated as aforesaid by the pillar and groove.

"That place is said to be the former, which is on the right hand of the repository, that which is on the left hand, the latter; that part of the repository is said to be on the right hand, which is opposite to the left hand of a man standing against the middle of the repository, that on the left hand which is opposite to the right.

"Thus in the scheme exhibited in the former chapter, the letters g, i, n, o, demonstrate the opposite wall of the right hand part, or first place or room of the repository, and the letters, e, g, o, p, the stage thereof; so r, q, k, h, are indices of the opposite wall of the left hand part, or second place or room of the repository, and s, r, h, f, the stage of the same.

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CHAP. III.

"Of Idea's in general.

"An idea is a visible representation of things to be remembred, framed by a strong imagination, by help whereof the minde by reflexion calleth to memory, together with the idea, the thing represented. Idea's are to be vested
with their proper circumstances, according as their natures require, for like as writings, the fairer they are, are more facilly read; so idea's, the more aptly they are conceived, according to the exigency of their nature, are more speedily recalled to minde; and also consequently the things by them signified. *Motion* is to be attributed to idea's of moveable things; *quiet* to ideas of quiet things, and good or evil savours, to ideas representing things so qualified. Examples of moveable idea's, are artificers at work in their shops, women dauncing, trees shaken by the wind, water running from cocks, and such like. Idea's of quiet things, are henns laying in their nests, thieves lurking under bushes, &c. Idea's to which sound is ascribed, are a lion roaring, a bell ringing, whistling, murmure of trees, a quirister singing, a huntsman hollowing, &c. Moreover, if perfume, burning in a chafing-dish, be used for an idea, a sweet and pleasant odour must be attributed thereto, on the contrary to vaults under ground, a filthy, unwholesome stink, is to be assigned; so idea's of merry men, require cheerfulness of countenance, of sickmen, paleness and sadness. After this manner idea's of edifices, machines, and all artificial things whatsoever, ought to be signalised; proportion of form, and splendour of colours, must be attributed to pictures, grace and liveliness of letters, to
writings, glory and excellency of workmanship, to engravings; finally, every idea must have such illustration as may render it most notable and conspicuous, and seem principally coherent to its nature.

"But before I proceed further, it is expedient to take into consideration, the common affection of ideas, their species shall succeed after, in a more proper place.

The common affections of idea’s are three: quantity, position, and colour.

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CHAP. IV.

"Of the Quantitie of Idea’s.

"An idea in respect of quantity, is either equal, greater, or lesser then the thing represented.

"An equal idea is, when the thing represented, is bestowed in a place of the repository, in its proper and due magnitude, as being neither too great to be contained therein, nor so small it cannot be discerned by one standing before the repository; such are chairs, pictures, tables, beds, heaps of stone, piles of wood, two combatants in a single duel, and the like.

"An augmented, or greater idea, is when the thing to be remembered, is increased to a multi-
tude, that it may be better viewed at a distance, which else being small, would not fall under cognizance; as if the thing to be deposited in the repository, were a penny, a pearl, a grain of mustard-seed, or a spider, which are so small, that disposed in a room of the repository, they escape the sight of a man standing before the repository: in such cases, instead of one penny, imagine a heap of pence new coined; instead of one pearl, a multitude of pearls; instead of one grain of mustard-seed, fancy certain bushels scattered about the stage; and for one spider, suppose a multitude creeping about the opposite wall.

"A contracted or lesser idea is, when the thing to be remembered is so great, that it cannot be comprehended in its proper natural quantity, within such narrow limits of a room of a repository, and is therefore imagined to be pourtrayed with elegant lively colours, in a picture fixed to the opposite wall. Thus space of places how soever distant, and all great things, may be facilely represented in a picture: as if the thing to be remembered were a battel, a triumphant spectacle, hunting or hawking through woods and groves, a naval conflict, large territories, castles, a mountain, or church, &c. whose idea's cannot be contained in the memorial places, unless contracted, and aptly and artificially com-
prized in a picture, conceited by imagination hanging against the opposite wall, that so it may be fully comprehended.

CHAP. V.

"Of the Position of Idea's.

"Let the position of every idea be such as in vulgar use doth most commonly appertain to the thing signified; let the idea's of things usually hanged against a wall, be so disposed in the repository, as musical instruments, arms, looking-glasses, pictures, brushes, written tables, &c. Such things as are customarily fastened to, or in a wall, imagine them accommodated in the repository in like manner, as title-pages of books pasted against the pillar, proclamations, or printed pages nailed to the wall, funeral-streamers, or pendants, in the higher part of the opposite wall, as you see in churches: such things as are commonly set upon shelves, fancy them so placed in the repository; as vessels of gold, silver, glasses, books, mercery wares, &c. Such things as are usually placed on a table, conceive them so marshalled in the repository, as victuals, sums of money, table-boards, &c. such things as lye, or are any ways situate on ground, must
be so placed in the repository, as heaps of wheat, a cradle, chest, table, living creatures, whether standing, sitting, or lying, &c. Such things as are frequently under ground, are to be supposed under the marble-stage; for though they escape the eye of a man standing before the repository, yet they cannot be concealed from the eyes of his mind, which are only exercised in this matter; of this sort are graves, wells, wine-celiers, metaline-mines, subterranean passages, through which streams have their course, as blood in the veins, &c. Like method is to be observed in site and position of all other things.

CHAP. VI.

"Of the Colours of Repositories and Idea's.

"Here you are to be admonished, that although every repository is supposed to be uniform in building; yet they are distinguished from one another by the pillar in the middle of every repository, which must be imagined of several colours; as if you use ten, that which you design for the first, must be conceived to have a golden pillar; the second a pillar of silver; the third of black stone; the fourth of blew stone; the fifth of red stone; the sixth of yellow stone; the
seventh of green stone; the eighth of purple stone, the ninth of white stone, the tenth of cinnamon colour. Now for distinction sake, gold is called the colour of the first repository; silver the colour of the second repository; black of the third repository; and so successively as before. If you use more than ten repositories, you must repeat the same colours over again, as before; so that the eleventh is imagined to have a golden pillar, the twelfth a silver pillar, the thirteenth a black pillar, the fourteenth a blew pillar, and so the rest in order. After the same manner every idea must be conceived clothed, adorned, or some way illustrated with the proper colour of the repository, wherein it is imagined to be placed. Take an example or two for better explanation: suppose a saylor in a canvase suit be retained for an idea in the first repository, I represent him standing there with a golden chain over his shoulder like a belt; if in the second, imagine he weareth a silver chain about his neck, with a whistle fastened thereto: if in the third, that he hath black boots on his legs: if in the fourth, that he hath a blew skarf on his arm, tyed in a rose-not: if in the fifth, that he wears a Red Monmouth Cap on his head: if in the sixth, that he swaggereth with a yellow feather in his cap: if in the seventh, that he hath a green silk garter on his right leg: if in
the eighth, that his canvase coat is embellished with a border of purple velvet: if in the ninth, that his neck is beautified with a very white orient pearl; if in the tenth, that he hath a pair of cinnamon coloured breeches.

"Howbeit, if the idea of its own nature be any ways related to the colour of its repository, whereby it may be presently understood to have the colour thereof, it will need no other attribution: for example, if a mayor of a city, (who in regard of his office is dignified with a purple gown, and gold chain) be placed as an idea in the first or first repository, there will be no need of attribution of colour, because the golden chain doth manifestly represent the colour of the first repository, the purple gown of the colour of the first. In like sort, if a black bull be placed as an idea in either room of the first repository, his horns must be conceived gilded with gold; if in the second, with silver; if in the third, black, being the proper colour of that repository, excluding any other addition: if in the fourth, let him be decked with a chaplet of the blew flowers; if in the first, with a garland of red roses, &c. So a picture imagined to be painted on the opposite wall of the first repository, must be illustrated with gold in some convenient place; if in the opposite wall of the second repository, with silver; of the third, with black, &c.
"This attribution of a repository colour, is of marvellous use, both to keep in mind the idea's themselves, as also their order; hereby the mind re-perusing ideas formerly bestowed, hath always some certainty to guide itself, and recollect any idea at present latent; because it's unquestionable, that the missing idea is either wholly, or at least in part, illustrated with the proper colour of its repository.

"Moreover, in attributing a repository colour to an idea, (of it self not partaking thereof) you must be careful that the colour of the repository be accommodated to the most eminent part of the idea, or as near as may be: if the history of the prophet Jonah thrown into the sea by mariners, be used as an idea, it must be represented in a picture according to the third chapter preceding; in which, though the whale, sea, ship, and land are to be pourtrayed, yet the effigies of Jonah himself is the most remarkable part of the picture, because Jonah is of the history there painted: if therefore this story be to be deposited in the first repository, let the border of his gown be supposed of gold; if in the second, of silver; if in the third, let the gown be fancied black; if in the fourth, blew, &c. so the top of a heap of wheat is the most conspicuous part; therefore if a heap of wheat be placed in the first repository, imagine a golden streamer two foot long.
fixed in the top of the heap; if in the second repository, let the streamer be silver; if in the third, black; if in the fourth, blew, &c.

"Thus much may suffice for common affections of idea's, in quantity, position, and colour; their species follow.

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CHAP. VII.

"Of Direct Idea's.

"An idea is simple or compound: a simple idea is uniform, and is fourfold, direct, relative, fictitious, and written.

"A direct idea is when a visible thing, or conceived under a visible form, is bestowed in the repository, according to the same form, under which it is naturally apprehended: so a goat is the direct idea of a goat; a rhinocerot of a rhinocerot; a peacock, of a peacock; a dove of a dove. Thus a majestical man adorned with a scepter, imperial diadem and robe, is the idea of a king: a person arrayed in academical habit, of a schollar; an ancient woman in mourning weeds, weeping and wiping her face with an handkerchief, of a widow: a virgin appareled like a nun, of a nun: a satyr, as the poets describe them, of a satyr: so a temple is the direct idea of a temple, a book of a booke, a bed of a
bed, a sheath of a sheath, an image of an image, a picture of a picture, an epistle of an epistle, a bond sealed, of a bond: so good angels and spirits, though they be incorporeal and invisible, (seeing they are commonly conceived under visible forms) may be reposited as the other. To conclude, the minde of man doth naturally and immediately present direct idea's of all visible things, or such as are conceived under a visible form, that it is in vain to excogitate any, but rather use those that offer themselves. If a man hears the relation of a naval battel, doth not he presently seem to behold the sea, ships, smoke of great ordnance, and other things obvious in such matters. If speech be made of mustering an army, doth not the hearer form in his minde the effigies of the field, replenished with soulders marching in military postures. No precept in this kind is delivered, which nature it self hath not dictated; but onely to imprint these idea's more deeply in memory, we bestow them methodically in some place, lest otherwise they be forgotten through light apprehension. To explain this more evidently, I will use an example.

"An Example of remembring a History.

"Diogenes the Cynick entering Plato's hall, when he saw the table covered with a rich car-
pet, the shelves glittering with silver, gilt cups, vessels, and other sumptuous furniture, laid hold of the carpet with all his might, threw it to the ground, and trod thereon with his feet, saying, I tread upon Plato's pride: to whom Plato replied, But with greater pride.

"The idea of this story is not so great, but that it may admit reposition in its equal quantity: therefore I suppose in the place of the repository where it is to be bestowed, that there is a table covered with a rich carpet, which a sordid fellow in beggarly raiment, throws on the ground, a grave man clothed in honest sober apparel looking on. The attribution of the colour of the repository is not to be forgotten: if therefore it be the first repository in which this idea is to be placed, I imagine the carpet to be embellished with a fringe or border of gold: if in the second, of silver: if in the third, of black: if in the fourth, of blew, and so forth in the rest.

"An example of a Sentence to be remembred, the subject being visible.

"An ant is a small insect, the coldest and dryest of all creatures, and therefore the wisest; for cold and dry do chiefly contribute to wisdom. The idea of this sentence ought to be augmented; for the magnitude of an ant is so inconsi-
derable, that being bestowed in a memorial place, it escapeth sight: therefore I suppose an ant-heap in the middle stage of the memorial-place, seeming almost black with ants, swarming hither and thither; as for assignation of colour if this idea be placed in the third Repository, the colour of the Repository, is sufficiently noted by the blackness of the ants; if in the seventh, by the greenness of the ant-hill; so that there needeth no addition of colour, if placed in the third or seventh Repository: But if it be designed to the first Repository, let a triangular golden streamer be supposed fixed in the ant-hill, a foot high; if in the second, a silver streamer; if in the fourth, a streamer of blew silk; if in the fifth, of red; if in the sixt, of yellow; if in the eighth, of purple; if in the ninth, of white; if in the tenth, of cinnamon colour.

"All Histories, Actions, Fables, common Affairs; all visible things, or conceived under a visible form; finally, All sentences whose subject is visible, may be disposed in Repositories by Direct Ideas, in equal, augmented or contracted quantity."

Chap. viii. and ix. treat of relative and fictitious ideas. Chap. x. of written Ideas, and chap. xi. of compound Ideas.

In chap. xii. Mr. Willis gives the following rules for the 'choice of ideas.'
"Rule 1. All Histories, Actions, Fables, Apologies, common businesses, visible things, or conceived under a visible form, all sentences whose subject or matter is visible, and without any dependent written illustration, ought to be laid up in the Repositories by a Direct Idea, in quantity equal, augmented or contracted. *Cap. 1.*

"Rule 2. All Histories, Actions, Fables, Apologies, Morals and Similies, remarkable for some coherent Verses or Writings, as all Epigrams, Epitaphs, Anagrams and Impresses are generally to be expressed by a compound Idea, consisting of a Direct and Scriptile. *Cap. 2.*

"Rule 3. All Emblems and Sentences illustrated by some notable Example, or expressed Hyerogliphically, are to be bestowed in Repositories by a compound Idea, consisting of a Relative and Scriptile. *Cap. 2.*

"Rule 4. All Characters, single Letters, naked Numbers, Calculations of Nativities, Cosmographical descriptions and citations, are to be always disposed in Repositories by a Scriptile Idea.

"Rule 5. All single words signifying no visible thing, whose Idea either relative, fictitious, or compound of fictitious and scriptile, doth presently occur, is to be so placed in the Repository, either relatively, fictitiously, or compoundly: If
no such Idea occur, then it is to be represented by a Scriptile Idea.

"Rule 6. All Phrases and Sentences inexpressible by a Direct Idea, may be conserved by a Relative Idea, or compounded of a Relative and Scriptile, if any present itself commodiously, or if no such offer itself quickly, by a Scriptile Idea."

In chap. xiii. the following rules are given for 'reposing Ideas'.

"Rule 1. Every Idea is to be placed in its order, viz. that which first occurreth in the first place; the second in the second place of the first Repository; the third in the first, the fourth in the second place of the second Repository; fifth in the first, the sixth in the second place of the third Repository; the like method is to be used in all the Repositories, till all the Idea's be placed.

"Rule 2. Due quantity, convenient site, colour of the Repository, and peculiar attributes, are to be imposed on each Idea, and very carefully minded.

"Rule 3. After you have rightly disposed the first Idea of any Repository, note it very diligently with the eye of your mind, as if it really stood there, observing its kind, subject, quantity, site, attribution of the Repositories colour, and other
such like peculiar attributes, if it have any. For example, whether the Idea deposited in the first place of any Repository (as to the kind) be direct; as to the subject, concerning a man; in respect of quantity, equal; in regard of sight, placed on the ground; and as to peculiar attributes, whether moving or yielding a sound; go over all these things in your mind, saying, The Idea which I have here bestowed, is Direct, of a man, equal, placed on the ground, moving and yeilding a sound: For by such considerations an Idea is more firmly graven in memory.

"Rule 4. After you have fitly disposed the second Idea of any Repository, you must exco-gitate some apt relation thereof to the former, in respect of likeness or unlikeness of site, likeness or unlikeness of subject; or else in regard of the action of the latter Idea referred to the former; you can pitch upon no Idea which may not be related to the former by one of these five ways, which shall plainly appear by example: if both Idea's of one Repository, precedent and subsequent, be fixed to the wall, placed on a table, the ground, or under ground, &c. they agree in site: But if one be fastened to the Wall, the other placed on a Table, on the ground or under ground, they are unlike in site: When the subject of both Idea's is Justice, Sin, a Man, War, or Sleep, &c. they agree in subject; but when
the subject of one Idea is Justice, of the other Drunkenness, the one of a man, the other of a stone, or any other opposite thing, they disagree in subject. Take an example of transferring the action of a latter Idea to a former: Suppose that a man in a Gown, sitting at a Table, and overlooking some Books of Accounts, with Counters lying ready to compute the total sum, be an Idea disposed in the first place of a Repository; and the Idea to be placed in the second room of the Repository, be a Farrier giving a Horse a Drench with a Horn: In this case, that the action of the latter may have some dependance on the former, imagine that the Horse (as soon as the drench is poured into his mouth) leaps back and disturbeth the man in his reckoning, who sits at the Table in the first place of the Repository. This mutual Relation of Idea's placed in the same Repository, is as it were a linking of them together, and doth admirably conduce to the remembrance of both.

"Rule 5. If two or more distinct idea's concur, whose relation to one another is found so near, as if they were combined together; bestow them in one same Memorial Place: As if the Idea immediately preceding be a Silver Basin full of fragrant Water, set upon a joyned Stool, and the subsequent Idea be an idle man doing nothing; you may conjoin these two Idea's in one, imagining that this man washeth his hands
in that odiferous water; so if the former Idea be two Virgins talking together, the latter a Skein of Green Silk, to join these two Ideas by a proper connexion, you may fancy that one of the Virgins holdeth the Skein upon her wrists, whilst the other windeth it off her hands into a bottom. In like manner if the Antecedent Idea be Scriptile, and the Consequent likewise Scriptile, if so be you allow space enough in the Table, the latter may be subscribed under the former in a convenient distance from one another. Thus three Scriptile Ideas concurring together, if they be not too large for one Table, may be supposed written therein; the first in the highest place, the second in the middle, the third in the lowest, allowing nevertheless a fit distance. But always when you comprize two or three Ideas in one place, you must remember carefully, that so many Ideas were constituted in such a place.

"Rule 6. When you have laid up any Idea in its Place (whether it be in the first or second Room of the Repository) peruse all the foregoing Idea's in their order, if you have time, that they may reside more deeply in Memory, and make the stronger impression in minde. For as a School-boy by often reading over his lesson, learneth it by heart, so the more frequently you peruse Idea's, the more firmly you will retain them."
"Rule 7. Lastly, have a care not to load your Memory with a more numerous multitude of Idea's than is fit, for as it is unwholesome to burthen the stomach above its strength, so also to overwhelm the Memory with multiplicity of Idea's, doth lead into great confusion. Temperate men admit only so much meat as they think they can well concoct; so do you only commit such things to Memory, as you trust faithfully to remember; for it is better firmly to retain a few remarkable things, than many of mean base nature.

In chap. xiv. which treats "of the practice of the Art of Memory," we have the following

"Examples of ordinary business.

"I. Suppose (as taking it for granted) you were to go to some great Market Town, it concerns not our purpose whether the place be known, or unknown, and intend in the first place to enquire the price of Seed Barlie: imagine then in the first Place of the first Repositorie (that is the part on the right hand) you see a man measuring Barlie out of a Sack into a Bushel, with a company of men standing about him, as is the usual manner in Markets, not forgetting to fancy the Bushell handles to be Gold, that so the Idea in some part may be related to the Repository in colour, as is required in the sixth Chapter:
"II. Moreover, That in the same Town liveth a Labourer whom you know, and must enquire out to work in your Hay-harvest; fancy him to stand in the second place (on the left hand) of the first Repository, sharpening his Golden Scythe on a whetstone, as it were preparing for such Rustical imployment: I say Golden Scythe, that it may participate of the colour of the Repository; this Idea agreeth with the former in sight and subject, for both Idea's of this Repository are of men, and placed on the ground.

"III. A while after you call to minde some Aromatical Spices you are to buy: To remembere which, fancy the second place of the second Repositorie converted into a Grocers Shop, the opposite wall garnished with Nests of Boxes full of several Spices, with Titles writ upon the Boxes, after the usual mode; two foot on this side the wall, let there stand a Counter, the Wares exposed thereon you are to buy: as if the first thing you nominate to buy be Pepper, let a Siluer box full of Pepper stand upon the further end of the Counter; if the second thing design'd be Nutmegs, place a loose bagge of Silver gilt Nutmegs in the middle of the Counter; if the third be Sugar, set a Sugar loaf on the bither end of the Counter, with a Siluer string tyed about the top, that it may in some part bear the colour of the Repositorie. In this case you
must remember that three Idea's were bestowed in one Place, whose coherence with the Idea in the other Repository, is taken from their unlikeness of site; for that Idea was heaped on the ground, these three are placed upon a Counter.

"IV. Your next incident business is to remember to speak with a Counsellour of the same town (a man of a very great repute and credit for knowledge in the Law) about a friends sute depending in Chancery: Imagine that Counsellour in a Lawyers Gown, sitting in a Chair, overlooking some writings, in the first Place of the third Repository: seeing his Gown is black, you need no other attribution of colour of the Repository.

"V. If another new occasion present it self to minde, as that you are to buy a piece of Black Velvet of a Mercer in that town; the second Place of the third Repository must be transformed into a Mercers shop, a piece of Black Velvet neatly laid in folds of equal length, lying on the Counter, which doth in like manner as well denote the Repositories colour, as the Gown of the Counsellor sitting in the former Place; whence also is deduced a manifest relation to the precedent Idea, the Lawyers Gown supposed to be lined with Velvet.
CHAPTER XV.

"Of Dictation and Reposition.

"Moreover, the practical part of this Art is perspicuously seen in the Exercises of Dictating and Repetition.

"The use of Dictating is, when a person is to dictate to several Scribes or Secretaries, what every one must write, so as to direct and exercise them all at once, which is frequently incumbent upon Princes and Generals of Armies in perilous times: In such cases there must be assigned a peculiar Repository to every Scribe, wherein the affairs and sentences by him to be dispatched, must be reposed in order; that is, the first Repository to the first Scribe, the second Repository to the second, the third to the third, the fourth to the fourth, and so forth if there be more: All Idea's of things to be dispatched by the first Secretary, must have some attribution of Gold appertaining to them; all Idea's of the second Repository, something of silver; of the third, something of black, of the fourth, blew, &c. In this case also it is permitted to place two, three, or more Idea's if it be necessary, in one place of a Repository: All businesses and sentences being thus reposed in order, & faithfully digested before in mind, it is no difficult matter by the first
Idea of the first Repository, to dictate to the first Scribe what he must write first; by the first Idea of the second Repository, to tell the second Scribe what he shall write; by the first Idea of the third Repository, to inform the third; and in like manner all the rest in their order. Again, by the second Idea of each Repository, the second sentence is facilely delivered to each Scribe: By the third, every Scribes third business; by the fourth Idea their fourth, and so forward in the residue. This is the Exercise, which by some is called the Art of Dictating.

"Repetition is when a man repeateth sentences spoken by several persons, so as to return each persons sentence in order as it was delivered; as if six, seven, or more friends sitting together (to experience your happy memory) do every one in order speak some sentence, to have them repeated again, after the same or a retrogade manner, which way they please; dispose the Idea's of your first friends sentences in the first Repository; of your second friend in the second Repository; of your third friend in the third, and so forward in the rest. All which being rightly disposed, you may with little trouble restore to every friend his saying, either in the same order as they were spoken, or in a retrogade or inverted order.

"I have not thought expedient to illustrate
these with Examples, because I think them sufficiently explained by what hath been already said; as also, that this Exercise of Dictating and Repeating have little or no use, but vain ostentation; though I have inserted them here, it was not done as necessary, but because the knowledge of them did nor seem superfluous for such as are learned of this Art.

CHAP. XVI.

"Of irregular Reposition.

"I have thought good to annex a few words of irregular Reposition, which is onely one Rule, that is, a real Repository may be sometimes substituted instead of a feigned, which irregularity is admitted upon a double occasion.

"First, A thing itself being at hand, may be fully used instead of its proper Idea: As if a man sitting in his Study, light on some Book whose sheets are transplaced, which he intendeth when he goes forth of his Study, to send to a Book-binder to be amended: That Book is to be cast at the threshold of the Study, that the sight thereof may admonish him departing, to get it bound: So also if Ink be wanting, an Ink-Glass or Bottle may be set by the Book.

"Secondly, When a man must exonerate one
or more Idea's, as soon as he hath reposited them; as when something offers itself to a man's mind, talking to a powerful or rich man, which he judgeth convenient to be communicated to him with the first opportunity, let him speedily reposite the Idea of that thing in the same house, field, plain, or wheresoever he then is, in some certain place conversant before his eyes, that he may be always put in mind to propound the same when occasion serves: As if he think to do some friendly office for a person absent, by preferring some business of his to the rich man; let him imagine that Friend always obvious in some determinate place in sight, not suffering the object to slip out of view, till he have curteously performed his officious enterprise. Or if there intervene some thought of buying Jewels, whereof the rich man hath great plenty, let him suppose a great quantity of Wood piled up in some place not distant out of sight: This is all I have to say of irregular Reposition.

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CHAP. XVII.

"Of depositing Idea's.

"Having spoken copiously of repositing Idea's, now I will conclude with Depositing them.
"Deposition of Idea's is, when things charged upon Memory by Idea's, are recalled, and the mind exonerated of them, the Memorial Places after such Deposition, being left empty, and prepared to receive new Idea's. Now in this case, if it happen at any time that an Idea negligently reposited, is lost or forgotten, when it should be deposited, the recovery thereof must be endeavoured by these ensuing considerations."

"First, This is always assuredly known, every lost idea did bear the colour of his Repository, either in whole or part; therefore the first thing to be inquired is, in what respect the colour of the Repository did agree with the Idea sought; by this sole consideration, forgotten Idea's are oft discovered.

"The Idea being not discovered thus, make diligent indagation for its relation to the Idea placed in the same Repository, in regard of site, subject or action, Cap. 14. Rule 4. One Idea of a Repository being known, doth easily call the other to mind, by mutual dependance whereby they were connexed together, unless there did precede very negligent Reposition.

"If still you are disappointed, happily you may find it out by repetition of such things as are especially remarkable in laying up Idea's, of which I have spoken in the 13. Chapter. That is by enquiring whether the latent Idea's was
In respect of kind, 

\[
\begin{align*}
\text{Direct,} \\
\text{Relative,} \\
\text{Fictitious,} \\
\text{Scriptile,} \\
\text{Compound,} \\
\text{Double, treble, &c.}
\end{align*}
\]

In respect of subject, 

\[
\begin{align*}
\text{Of God,} \\
\text{Of Christ,} \\
\text{Of the Holy Ghost,} \\
\text{Of Angels,} \\
\text{Of Men,} \\
\text{Of Animals.}
\end{align*}
\]

In respect of quantity, 

\[
\begin{align*}
\text{Equal,} \\
\text{Augmented,} \\
\text{Contracted.}
\end{align*}
\]

In respect of site, 

\[
\begin{align*}
\text{Under ground,} \\
\text{Upon ground,} \\
\text{Upon a Table,} \\
\text{Upon a Shelf,} \\
\text{Against a wall.}
\end{align*}
\]

In respect of attribution, 

\[
\begin{align*}
\text{Moving,} \\
\text{Quiet,} \\
\text{Giving a sound.} \\
\text{Yielding a smell.}
\end{align*}
\]

"An Idea is oft recovered by discussing these few questions in a man's thoughts."

"If it be certain the forgot Idea was Scriptile, but the inscription is in oblivion, the first inquiry must be, whether it were a single word, proof, phrase, or sentence of one or more clauses; a single word, proof, or principal word of a sen-
tence, may be regained by applying each Letter of the Alphabet in the same manner as is prescribed in the second Rule of Poetical Revocation, in the second Book, Cap. 3. till you have obtained the first Letter; the other Letters may be found by transcendencies and gilded Vowels; the chief Word being obtained, the rest come easily to mind.

"If you cannot yet discover the Idea, have recourse to the third and fourth Rules of Poetical Revocation, 2. Book. 3 Chap. an Idea being revocable in the same manner.

"Finally, if it continue irreparable by all these ways, let it pass, and be no longer sollicitous in search thereof: For as a Book carelessly laid up in a Study, is not many times to be found when it is sought, though you remove several Volumes; yet afterward comes to hand beyond expectation, when another Book is reached that stands by it: So it doth oft happen in this business, though an Idea negligently reposited, cannot be found when it is sought, yet at another time when a Notion reposited in the cell of Memory near it, is excited, that also of its own accord discovereth it self.

"If a man do prudently follow these Rules of recovering latent Ideas, as with Ariadnes thred, he will doubtless wind himself out of the Labyrinth of blind Oblivion, and with admirable
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facility. recall to mind forgotten sentences, and vanished Idea’s.”

A Treatise ‘of cherishing Natural Memory,’ concludes the volume; in which are considered, 
“1. Of such [things] as debilitate Memory. 
2. Of things corroborating Memory. 
3. Of a prescript order of life. 
4. Of restoring a debilitated Memory. 
5. How to discern the temperament of the Brain. 
6. Of Dyet properly convenient to every temperament. 
7. Of Diseases of the Brain.”

Among those things which debilitate memory, are enumerated: bad air, particular drinks and decoctions, bad water, particular sorts of food, repletion, too much sleep, etc. etc. In the list of corroboratives are, wholesome air, sweet scents, and particular meats, among which are, the brains of sparrows, hares, conies, etc.;—herbs, bathing the feet in warm decoctions of camomile, etc. and ‘exercise in delightful places not subject to wind.’ The chapter concludes with this important admonition: “Finally, your apparel close fitted, walk leisurely abroad, if the wind breathe a gentle gale, otherwise within doors.”

In treating of the ‘prescript order of life,’” Mr. Willis, after very properly recommending frequent prayer for Divine assistance, in all our undertakings, which he enforces by a reference to the Epistle of James, chap. v. ver. 16, 17, di-
rects the reader to "comb his head every day, backward, fasting" "to abstain from all evacuation by virtue of Physick except upon necessity" "to eat twelve Raisons of the Sunne stoned, every morning without drink, instead of breakfast" "to let his supper be larger than his dinner"* "to observe accustomed hours of eating" "to refrain from labour after meats" "to shut all the windows at bed-time," "not to sleep under the moon-beams," and "not to lie out all night in the open air." The remaining rules are somewhat more rational: they recommend the morning as the best time for study,—the reading of

* Mr. Willis seems to have entirely forgotten the ancient distich.

Ex magna cæna stomacho fit maxima pæna;
Ut sis nocte levis, si tibi cæna brevis.

A correspondent in the Gentleman's Magazine for the year 1787, in answer to Immemor, who had been complaining of the weakness of his memory, advises him to follow this rule; "Instead of eating suppers, learn by heart some passages of poetry which please you, the last thing before you go to bed, and repeat them the first thing in the morning, at six in the spring and autumn, five in summer, and seven in winter. Study Watts' Logick, and his Improvement of the Mind, Locke, and Euclid. Let me know the effects of this regimen, accompanied with plain food and constant exercise, and I will then prescribe farther if it should be necessary." Gent. Mag. vol. lvii. part i. p. 22.
select authors,—a devotedness to the studies which we are pursuing,—a choice of fit companions,—and occasional relaxation.

The symptoms of cold and hot brains are explained at large for the benefit of all those who are disposed to read such "phantasies." Under the article of "Dyet" we have the following singular passage. "Strong sweet wine, as Muskadine, Ipocras, drunk temperately, is most restorative for old folks, and cold and sickly persons, more efficaciously gold (made red hot in the fire) quenched therein, both marvellously restore and exhilarate the heart. Concerning this matter, Roger Bacon, a famous philosopher in his Treatise of old age, hath this story; An ancient husbandman (saith he) wearyed with plowing, and thirsty with his hot labour, drank water of a Cytron colour, and after he had greedily swallowed the same, was changed both in complection and strength like one of thirty years of age, possessing more excellent discretion, memory and understanding, than ever he enjoyed before, from which time he lived eighty years in the King's Court. Bacon, who reciteth this, thought, that water or liquor received its yellow Tincture from Gold, as he there testifieth."

After a long and fruitless search, the only particulars which we have been enabled to glean,
respecting John Willis are,—that he was author of the 'Art of Stenography,' an edition of which was published in 1628, and that he was a Fellow of Magdalen College, Oxford. Of this latter circumstance, a communication in an early volume of the Gentleman's Magazine, is the only evidence. The writer of this article mentions a system of short-hand, said to be invented by a Fellow of Magdalen College; and this system is the identical one published by Willis.

44. Ars Memoriae localis, plenius et luculentius expositae, quam ante hab munquam, una cum applicatione ejusdem ad singulas disciplinas et facultates, 8°. Lips. 1620.

This book (says Morhof, in his Polyhistor) is to be preferred to all the treatises on Mnemonics, for perspicuity and arrangement. The anonymous author, as appears by the preface, was a Professor of Mnemonics in the University of Leipsic.


For an account of 'Lully's Art' see No. 51.

47. Lettera a Andrea Valieri ove si tratta della Memoria locale e del modo facile per acquistarla. MS.

This manuscript is No. 2259 in the Sloane Collection preserved in the British Museum. It treats of the arrangement of different places on the walls of the rooms in a house or monastery, to the number of 173; and gives directions respecting the formation and combination of images. It is in folio, and is dated October 30, 1623.


In this extremely rare volume, which abounds with curious plates, the system of Lambert Schenckel is given in detail; but, with many important additions and improvements.

Of this work we have not been able to procure a copy; the reader, therefore, must be contented with a memoir of the author, **John Conrade Dannhawer**, a Lutheran divine, was born at Brisgau in 1603: and he was raised to the chair of eloquence at Strasburgh, in 1629. He died in this city, aged 57. Before his death he was made preacher at the cathedral church, and Dean of the Chapter; he was very zealous for the sentiments he embraced, and entered into a severe controversy with those who contended for the union of the Lutherans and Calvinists. He has left behind him many theological works of considerable reputation.*


The system of Artificial Memory of that lu-

* Dict. Hist. art. Dannhawer.*
minary of science, Raymund Lully, was formed at a very early period; and he was, perhaps, the first modern who practised this art; but as the books on this subject have been noticed according to their dates, and we have not seen an earlier edition of Lully, he is placed among the writers of the seventeenth century.

"By this system, any one was enabled mechanically to invent arguments and illustrations upon any subject, and thus to reach the summit of science, at a small expence of time and labour. This Great Art professes to furnish a general instrument for assisting invention in the study of every kind of science. For this purpose, certain general terms, which are common to all the sciences, but principally those of logic, metaphysics, ethics and theology, are collected and arranged, not however according to any natural division, but merely according to the caprice of the inventor. An alphabetical table of such terms was provided; and subjects and predicates taken from these, were respectively inscribed in angular spaces, upon circular papers. The essences, qualities, and relations of things being thus mechanically brought together, the circular papers of subjects were fixed in a frame, and those of predicates were so placed upon them as to move freely, and in their revolutions, to produce various combina-
tions of subjects and predicates; whence would arise definitions, axioms, and propositions, varying infinitely, according to the different application of general terms to particular subjects."* This is the general idea of Lully's mechanical logic, which would enable a person to hold a disputation for a whole day upon any subject whatever, without knowing any thing of the matter.

Morhof in his dissertation de Arte Lulliana,‡ has preserved an elaborate account of the system, and has given a tremendous list 'ordine longo' of commentators on the art. The two principal expositors are Athanasius Kircher, in his Ars Magna Sciendi, [see No. 56] and Jean Belot, in his L'Oeuvre des Oeuvres, [see No. 54.]

Raymond Lully was born at Majorca, in the year 1236, and on account of his great abilities, obtained the name of the Illuminated Doctor. After excelling as a divine, he applied himself to physic and chemistry, that he might be enabled to cure the cancer of a young woman of whom he was enamoured. He was stoned to death in Mauritania, where he went as a missionary in the year 1315, at the age of 80. His

‡ Polyhistor, Tom. I. Lib. II. cap. 5.
works which are in general very obscure, are written in a style worthy of the barbarous age in which he lived. They were collected and published at Mentz, and treated of theology, history, medicine, law, and philosophy.

52. *Ars Mnemonica, sive Herdsonus Bruxiatus; vel Bruxus Herdsoniatus*, 8°. Lond. 1651.

53. *Ars Memoriae: The Art of Memory made plain* by Henry Herdson, late Professor by Public Authority, in the University of Cambridge, 8°. Lond. 1651.

No. 52 and No. 53 are printed and bound together, consisting in the whole of ninety-two pages. The first is in Latin, and is a republication of a part of *Adam Brux's Simonides Redivivus*, before noticed. [See No. 37.] A Latin dedication to 'his dearest mother, the University of Cambridge' follows the title, after which we have this singular address to the reader.

"Covteous Reader, If any thing in this BOOK seemeth obscure unto thee, and thou desirrest Instruction in the same, and clearly to gaine the full benefit of the Art, thou mayest
repaire unto me at the Green Dragon, over against Saint Antholins Church in London, where I shall bee ready to give thee sufficient Testimoniall, and Satisfaction of the Art, that the playnest and meanest Capacity may apprehend it. And so I rest thy Wel-wisher in Christ Jesus,

Octob. 21, 1651.  
HENRY HERDSON.

No. 55, the second article, being in English, in a small compass, and very scarce, we shall reprint the whole of it, verbatim.

"To my dearest Mother, the University of Cambridge, all the good of this life, and eternall Life.

"My dearest Mother, let the lovingest, though least deserving of your true sonnes, present you with one sparkle of living fire, raked up in your ashes, O your own ashes! The Phænix of Christendome, that never shall be put to death: The Angels of Heaven may sooner be extinct, than this Phænix: Be not discomforted that the Sunne is beclouded, the Clouds are but for a time. Bee not forgetfull, nor faithlesse; but rather accept this my little Booke, the Prospective Glasse, I send you to view the Art of Memory by. If you look on it at the wrong
end, unto the ignorant it will appear in a smaller volume, then in its poore Octavo: But if you looke on it at the right end with the right eye, it will grow bigger than your Expectation. He that hath but one eye I know will almost love it: Hee that hath but halfe an eye cannot despise it: But hee who by wilfulnesse & malice, will put both his eyes out, may stare in his conceits; and the next messe of his own crooked Broath, his hollow throat sinkes downe: he can as well crum his porrage with his eyes, as condemn my Art of Memory: And let it bee enough to choak him, that Lumen ex ipso bono est, & bonitatis Imago. But you who are ingenious Academicks: The God of Heaven and Earth send you eyes, Ears, and all your Senses, with all sutable objects, that piously may delight you in them all.

So prayeth your true Lover & Servant,

HENRY HERDSION.

"CLAVICULA, SIVE
Explicatio Libri:
The Key or explication of the Booke,

(C C. Chambers.)
(H. H. Houses.)
(D. Door. (W. Wall:) (S. Sided.)
(R. Repository.)
THE ART OF MEMORY.

LECTIO PRIMA.

Partis Theorica.

"Hee that desireth this art or any other, must bring along with him two things.

1. Love of the Art.

2. Desire of the Art, without which no man can learn or profit in any Art or Science.

And he must also resolve of a third thing, not to undervalue any Art or Science by the ex-ility and meanness of the grounds of the Art. For Divinity, Law, Physick, and the seven Liberall Arts, and all other Sciences are preserved in six and twenty Letters, and so transmitted to Posterity, from one Generation to another. Now how plain and mean the six and twenty Letters of the Alphabet be, every one knoweth; so let us also consider, that most rich stones, and precious Gems are digged out of the earth, and the most
stately trees do grow out of the earth: but if art be not added, wee make no use of these. By Art the stones are separated from the chalk, and fitted by the Artificer for the most sumptuous buildings: the Diamond, Saphire, Rubie, by the hand and skill of the Artificer are inthroned in the purest Gold; also the most harmonious and Ear-pleasing Musick that quickneth up, and enliveneth the drowsie vitals, consisteth but in three Keyes, and six Notes. We might instance the like exility in the Fundaments and grounds of the other Sciences and rarest Arts: Therefore if it be thus in these, he must needs be malicious and unworthy, that will contemne this Art of Memory for the meaneness of the Fundaments thereof, which be

"4. The Use or Exercise of them.
"1. The repositories be C. C. in H. H. which be of two sorts: either,
"1. Naturall, which we know: or,
"2. Artificial, which we imagine and make in our Fancie. And in both of them the Method is according to this Figure.
"Enter in at D under the Center of the North W. or S. Then move as the Sun moveth, beginning on the left hand, which is the East side of this C. and imagine this R or C (call it which you will) in every of the 4 W W.; or S. S. to be every way 10. yards square from Angule to Angule, then make the R. as followeth, viz. the first W which is East C and ten yards four square from angule to angule) hang'd or clothed with cloth of gold, dividing it into its parts, according to the Method of its figure; in the first 10. yards square, Paries, which is 1-2-3 4 5. 2 W also 10. yards 4 square, which is South, and adorned
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with the purest white Linnen or Taffaty, and divided into its five parts also, viz. 6, 7, 8, 9, 10. The third S. or W. which is West, of the same Latitude also, and clothed with rich Tapestry, and divide into its five parts, which be 11, 12, 13, 14, 15. The fourth Paries which is North 10 yards, four square, also hanged with an hanging, beset full of Diamonds, Rubies, Saphires, and all manner of precious Gems, and divided also into its five parts, viz. 16, 17, 18, 19, 20.

LECTIO II.

Partis Theoricae.

"When you are perfect in this, place in every Angule of every of these Paries, and in their several Centers so many large 4 square Tables, viz. In the first Paries of this Repository (which is East, and hanged with cloth of Gold) in the first Angule, Juxta terram, you have a large foure square Table of Gold: In the North-East Angule which is Cælum versus (and the second place) you have a large foure square Table, Jet or Ebony (for alwayes let the Colour of the one Table contrary the Colour of the other:) In the fourth Angule, Juxta terram, (which is also East by South) you have a large foure square Table
of the purest white Alabaster polished: In the Center of this East Paries, you have a large square Table also made of Saphire, Marble, Cristals, Diamonds, or what you will: And thus distinguish the other three Paries, or S. S. of this R. in their severall Tables, three ways.

"1. By the matter they are made of, as Gold, Wood, stone, &c.

"2. By the colour without a Carpet, as red, green, yellow, &c.

"3. By Carpets and Coverings with their colour, as black Velvet, Scarlet, &c. and so they be distinguished, it mattereth not how they be distinguished, so long as they be all large and four square Tables in every of their Angules and Centers.

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LECTIO III.

Partis Theorica.

"After you have this perfect, divide all these Tables in their several Places (as they stand in order) both in their Angules and Centers, into five parts in the lid or top, &c. into five parts by the four feet, and Center below; the top or lid aloft is like to the Scheam of the first Paries, and so are the four foot and Center below: Now the best method, is to leave out use of four feet and
Center below, and to spare them only for matter of the same nature, that may be added afterward, upon further study and serious deliberation: As no man can say so much at one time for his own or others satisfaction, but that he may say for his own content and others satisfaction, more and better at another time; because every sense of man is regulated according to the sense of tasting. The pallat delighteth hereafter some things both of dry and moist nourishment, above some things it liketh for present: So always in every thing what man can attain unto in all Arts, Sciences, and Languages. It must be confessed that in these, always Nos non sumus nos, what we heretofore approved, upon serious consult, we see (though that then did passe with us and others) yet now a better way is opened unto us. Exempli gratia, he that is in a tolerable bondage, and therewith contented, yet when his eyes are opened, will rather throw himself in the armes of his own Mother, than the unkindly nursings of a fawning step Mother. So then having divided all these Tables into ten parts, you have in the whole Repository twenty Tables, and in every Table ten places (though at first opportunity you make use but of five in the leafe of the Table, leaving the lower five parts for use as above-said,) so all the divisions of the twenty Tables are one hundred places in the top, and as
many in the bottom, and then you must place a Table in the Center of the floor of this Repository, dividing that as you did the other in which you have ten places more, but in the Center of this Table, tis your chief care to place the figure of 1. and look upon it when you first come into this Repository. Now this figure of 1. is a burning Taper, placed in the Center of the top of this Table, and that you may the better remember it, imagine it as it burneth casting a sweet perfume all the room over; for the five Sences of Hearing, Seeing, Smelling, Tasting, Touching, are the five excellent Rules for imprinting things in the memory.

"LECTIO IV.

"After you have thus done, in the fourth place, put so many of your acquaintance (I doubt I cannot say friends) in the several Angules and Centers of every of the tops, or lids, or leaves of the Table (call them what you will) and be sure you know what five friends are at the first Table, what five at the second, what five friends or acquaintance at the third, &c. in all four of the Paries twenty Tables, are in this Repository, and five friends or acquaintance at every Table, for
all the bottomes (viz.) four feet and Centers you leave empty and unused; so you have 105 friends or acquaintance in this Repository.

LECTIO V.

"Then that you may proceed to the practick part of this Art of Memory without loss of time, take the several characters of the figures, and place them in their order, in the right and left hand of every of your friends, as they are placed five by five, at every of the large four square Tables, in every of the Angules and Centers of the above said Paries of the Repository.

"The Ideas of these you have in this Table of figures (adding according to your own fancy more Ideas of every figure, as your fancy and invention please.)

"As for the figure of 1. a Candle, a Fish, a Staf, a Dart, &c. For 2. a Swan, a Duck, a Goose, a Serpent: For 3. a Triangle, a Trident, or any thing with three legs: For 4. a Quadrangle, a die, any four square thing: For 5. a foot of a man, an Hand, a Glove, a Sickle, a Peircr, a Shoemakers Knife, &c. For 6. a Tobacco pipe: For 7 a Carpenters Iron square, a Raiser bent thus 7: For 8. a pair of Spectacles, a
Sea Crab, Twin Apples, &c. For 9. a burning Glass, a riding Stick made of a Reed, twisted at the upper end thus 9 long Peares, &c. 10, 20, 30, &c. to a thousand, may be formed from these figures, taking any round for the ciphers 000 as an Orenge, a Ball, &c. for a Candle run through an Orenge is ten, a Swan with an Orenge in her mouth is twenty: But they may more profitably be made by single Ideas, as a Crosse of Gold, Silver, Wood, &c. for ten: for twenty a Jug, Dagger, or any thing you will fancy; for thirty a Bellclapper, or what you will fancy, so for all the rest of the cardinall numbers what your fancy will put, because it will be better to have single Ideas for the cardinall numbers.

This is the Theorick,
Now for the Practick Part.

LECTIO I.
The first Lecture of the Practick Part.

Now before we can come to the Practick Part, or exercise it selfe, 'tis necessary that we make some little Preface concerning Ideas.

An Idea is the figure of anything represent-
ed, now the Ideas of things visible are very facile and ready, but the Ideas of those things that be invisible, are to be found out by rule, whereby the Ideas of all things may be had in a readinesse; and for this there is need onely of but one generall rule (which in perfecting this Art I have found out:)

"An Idea is twofold:
"First, Proper.
"Secondly, Improper.
"First Proper, which is the Image of that thing it representeth, as if I put the Idea of Christ to represent Christ himselfe.

"2. Improper, as if I put the Image of Christ to represent a man; Logicians express this in few words; when the Image (say they) of the Individuall is put for the Individuall itselfe 'tis proper; but if it be put for the Species or Genus, 'tis improper. This Division is brought to shew that oftentimes improper Ideas are as usefull to stirre up the Memory as proper. A second Division of Ideas, is 1. Perfect. 2. Imperfect.

"1. Ideas are perfect, and such be of rare and excellent things, as of Daniel in the Lyons Den, of Jonah in the mouth of the Whale, the fact of Iudith, Esther, Ioseph, &c.

"2. Ideas are imperfect, as of obvious and vulgar things, as the rising and setting of the Sun
no man admireth, because it is daily, it raineth, it raineth not, &c. The Ideus of these be first imperfect, but they may presently be made such by some notable attribute, that they may become perfect; as for example, the wind bloweth, the Idea is imperfect, but the wind bloweth with such a force, and so tearingly, that Trees are rent up from the ground, and Houses blowne downe, now the Ideas are perfect, it raineth, so imperfect; but it raineth so thick that all the streets and wayes are of a swim: and filled with water: Now the Ideas be perfect; so the Sun ariseth with a huge great body and red colour, so the Idea is perfect. And so wee come now to give the Rules of the Practick part: And first de vocabulis intellectis of words which we understand, (for we shall appoint the Lection for Words we understand not afterwards:) Words which we understand are remembered by Ideas, put in the places of the R. with some famous action attributed, received from Writers sacred, or, prophane, or invented, and seigned by ourselves; (for no intellect word can be spoken but of ourselves) we may presently be able to fancy the perfect Idea of it, and apply unto it some notable action.
"LECTIO II.

Of the Practicke Part of Sentences.

"Sentences, or continued Texts are committed to Memory, and retained: The principall Ideas of their Words being put in the Methodicall places of the R. And these being made sure of, they bring the lesse principall Words of the sentence, or text by the helpe of the naturall memory into our Remembrance immediately. Now that we may be able to perform this, we must observe foure things.

1. Take speciall notice of the principall Idea of the whole sentence. And it matters not whether it be the principall or no, so we take it for the principall. 2. Marke diligently the first Word of every sentence; for if returning to the P. P. by the eye of our fancy, we see the first Word and principal Idea in every sentence, the naturall Memory will suggest the rest very safely: for as in Schools, Children, that have got a taske of Verses by heart, if they misse the repeating of them, and the leafe being doubted, may be but permitted to see the first Letters that every Verse beginneth withall, they will be able to repeat every one of the Verses both forward and backward, casting their eye upon the letter that every
Verse beginneth withall, the same is done here by the eye of Fancy. 3. We must have a great care lest we take one Synonyma for another, as to say *mulier* for *fæmina*, or silver for money, or a Sword for a Rapier. 4. We must have a care that every Word be repeated in the same order it is read, or spoken; now this is done by the strong application of the mind unto every Word, and its Collocation: as also by often exercise, by which alone all this is so exactly obtained, that in a short time exercising our selves herein, we cannot but admire our progresse and successse.

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"LECTIO III.

"Of unknown Words.

"Unknown Words are remembred four wayes.

1. By the Harmonie of Words, which various Languages have one with another, as the English word *Riche*, brings into my mind the Hebrew word *Riuch*, &c.

2. From the sound or echo, as *England*, *Isleland*, Presbyterie, Presbyter, &c.

3. From the beginning of the words, as for Back, Backwards."
4. By way of Division, as for Parrat, a pare, and a Rat.

LECTIO III.

De rebus Communibus, of businesses, and ordinary employments.

"As in the sun-shine the shaddowes follow their bodies, so common businesses, and ordinary employments are easily figured out by their proper Ideas; soone placed and certainly retained; as if a Shop-keeper would bare in mind how many yards of this or that stuffe silke, Velvet, &c. he hath, it is but fancying in the R. one of his acquaintance clothed with a suite or cloake of the same, and to hold the number of the yards in his right hand, the figure of 40. for 40. yards and if the price of it be 16. per yard, the figure of 16. in his left hand.
"LECTIO V.

De Memoria Concionum, To remember Sermons heard.

"When wee heare a Sermon, 'foure Rules are to be observed. 1. Diligent attention. 2. Carefull observing the Division of the Parts. 3. Methodicall Collocation of the Parts in the Places of the R 4. serious Meditation on the Ideas. If there be but two parts of the Text, place the first in the Center of the South, and the second in the Center of the North; if three parts, place them in the three Center Tables of the East, South, and North; if 4 in the fourth Center Tables of the fourth Paries. If five Parts, place the fift Part of the Text in the Center of the Flore; if yours be six Parts, Place the sixth Part in the Center Table of the East W. of the second R. if seven Parts, place the seventh in the Center T. of the South Paries, in the second R. and so on: after this manner, if there should bee more Parts, leaving the matter of every part to be expressed, first with its part, so far as the places will reach in the Center Table, which being filled, proceed unto the four Tables of the four Angules, according to their place and number."
"LECTIO VI.

De memoria Historiarum; to remember Histories.

"Histories be very easie to be remembered: three rules are to be observed.

"First, Propound unto your self the History, and Author of the History, and read some of it in the morning, some of it in the afternoon, and leisurely, and seriously imprint into your mind, the substance and chief passages of the History by Ideas put in some apt Repository, and you shall have it in readinesse by once or twice thinking of it.

"Secondly, When you are to remember divers Histories, they are all to be expressed by their singular and proper Ideas; in places by themselves; After this manner you may remember Scripture Histories in six, seven, eight conclaves; for example, you may divide the book of Genesis, into the History of Adam, Noah, Abraham, Isaac, Jacob, Joseph.

"Thirdly, If you desire leisurely, and with exactness to learn a History, divide it into principall parts, which you may represent by certain persons, giving of them convenient motion; for example, you may remember the History of
Joseph if you place the known men of the History, as Joseph, Jacob, Joseph's Brethren, and Pharaoh.

"LECTIO VII.

De memoria Citationum; to remember Scripture-Quotations.

"Take for every book of the Bible some friend or acquaintance of the name, near the name, or for the name, as one John for the Gospel of Saint John; one Genne for Genesis; some patient pious man for the book of Job, if you place not one Job you know, &c. Then always take the right hand for the Chapter, and left hand for the Verse.

"LECTIO VIII.

For sure imprinting the Ideas of all things in the memory.

"There be two sure directions:
"The first is called Paradise, which is the applying the most delightfull things and objects to every of the five Sences, viz. what most affect
ARTIFICIAL MEMORY.

eth Hearing, Seeing, Smelling, Touching, Tasting.

"The other is termed by the name of Hell, which is the applying of the most odious and loathfull objects to every of the five Sences.

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"LECTIO IX.

Of Shorthand-writing.

"There is a kind of a Short hand writing in this Art, by the Ideas of letters objected to the eye of the fancy, as the Alphabet is objected to the sight of the bodily eye. Now for brevity sake, using colours instead of vowels, the eye of a nimble fancy will read any thing by Ideas thus figured, as readily as if it were written in a book, and will retain what thus is written. Now the Ideas of this Alphabet be these, and such like as your fancy best pleaseth to make choice of; A. a pair of Compasses so made, b. a Lute, B. a Bow bent with an arrow in it, C. an Horn, &c. and so in like manner, take Instruments or any kind of Ideas for the rest of the letters, which be like the letters; and instead of vowels use these colours, A. for white, for E. blue, or green, for A. red, for O black, for U yellow."

This work is an enlargement of Lully's Art of Memory, and is much superior to the original system.*


This new torch does not shed a 'flood of light' upon the subject of local memory, but its rays if collected and concentrated, will serve to direct the steps of the mnemonic student.

36. *Athanasi Kircheri, Ars Magna Sciendi in xii Libros digesta, qua nova et universalis methodo [Lulliana] per artificiosum Combinationum contextum de omni re proposita plurimis et prope infinitis rationibus disputari, omniumque*

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*Morhof, in Polyhist.*
This curious work contains nearly five hundred closely-printed pages, and exhibits a complete exposition of Lully's Art, as applied to the various branches of human learning. [See No. 61.]

Athanasius Kircher, was born at Fulda, in the year 1601, and was much celebrated as a mathematician and philosopher. He commenced his noviciate in the Society of the Jesuits, in his seventeenth year, among whom he distinguished himself by a surprising proficiency in literature and science. His works amount to twenty-two volumes, folio, eleven in quarto, and three in octavo!!! He died in the year 1680.

57. Vario rum de Arte Memoriae Tractus Sex, 8°. Franc. et Lips. 1678.

The authors of these six tracts are, 1. Lambert Schenckel. 2. Johannes Austriacus. 3. Hieronymus Marastotus. 4. J. Spangenberg Herd. 5. Fr. Mart. Ravellin. 6. De Memoria naturali foveenda a Johan. Willisso. The whole of which have been already noticed, except the tract of Johannes Austriacus, and in
this there is nothing of a novel description, or
worthy of a particular remark.

58. The Divine Art of Memory: or,
The Sum of the Holy Scriptures,
Delivered in Acrostic Verses, so
that the Contents of the whole Bi-
ble, may readily be remembered; and
in what Chapter, each particular
passage is recorded. Written ori-
ginally in Latine, by the Reverend
and Learned John Shaw, and made
English by Simon Wastel, 12°.
Lond. 1683.

This rare and curious little volume, containing
more than 200 pages, is a translation from Shaw's
'Bibliorum Summula seu argumenta singulo-
rum capitum Scripturae Canonicae utriusque
Testamenti, alphabetice dictichis comprehensa,
8°. Lond. 1621-23.' a work which we have not
been able to meet with. The present 'Divine
Art' seems to have been first published in the
year 1629, under the title of 'The true Chris-
tian's daily delight; being a sum of every Chap-
ter of the Old and New Testament set down
alphabetically in English Verse, that the Scrip-
tures we read, may more happily be remembred,
Etc. 12°. (Lond. 1623.) This work was again
published under the Title of 'Microbiblion; or the Bible's Epitome, etc. 12°. Lond. 1629.'

The Prolegomena to this metrical version and abridgment of the Old and New Testament, are two Epistles Dedicatory; one from T. B. and the other from S. W. [Simon Wastell], and the Translators's Preface to the reader from the same person. All these are curious, and worthy preservation, as they explain the plan and objects of the work.

1. Epistle Dedicatory from T. B.

"To the Honoured
PAUL WENTWORTH, Esq.

Worthy Sir,

THIS laborious and useful Enchiridion was first taught to speak English in the Free School of Northampton, being translated by the painful hand of Mr. Wastel, quondam School-master there, (whose Memory, like a Box of precious Oyntment, still retains a sweet fragauncy in those Parts;) And was there by him humbly recommended to the Patronage of a Noble Lord, Baron Spencer of Wormleighon, especially upon the account of his indulgent Favours towards that eminent Seed-Plot and Nursery of Learning; being now therefore again to salute the Light in a new Edition, to whom more pro-
properly should it address itself than to your honour'd Name, who have been a liberal Benefactor to the same School wherein it was so happily educated, as to be render'd serviceable to our Country-men in general; whereas before, like some rare Jewel, whose value is known to none but the skilful Lapidary, it was justly admired, and made use of only by the Masters of the Latin Tongue.

'Tis one of the greatest Uses, and most laudable Designs of Epistles Dedicatory, to pay the Tribute of a Publick acknowledgment to generous Virtue, and the noble Encouragers of Learning. But since 'tis well known you as little desire Commendations as you do greatly study to merit them, and delight rather to be Good, than told so; All I shall say, is, That by endowing the Muses, you have made Learning your Debtor, which never fails to be a grateful Pay-master; and that your example will confute our Roman Upbraiders, and let them know, That 'tis no Discouragement to Good Works, to believe, they are not Meritorious, and that Charity is not grown Cold, since she left off to be Blind.

"The Piece that here presents itself to our view is indeed small, but may prove great in use; as it will help both to understand and remember what is contained in Sacred Scripture,
and make persons better acquainted with that Blessed Book which alone can bring us acquainted with the Almighty.

"That it may conduce to these ends; and particularly, that your worthy Selfe may, by a Belief, Adherence, and Practise of those Divine Dictates, enjoy an everlasting Memorial in the Book of Life, is the Prayer of

"Your Servant

"T. B."

2. Epistle Dedicatory from Simon Wastell.

"TO THE

"Right Honourable

"His singular Good Lord,

"SIR ROBERT SPENCER, Knt.
Baron Spencer of Wormleighton:

"S. W. wisheth all Happiness Temporal and Eternal.

"Right Honourable,

"THE manifold Favours received from your Lordship ever since my first placing in the Free-School of Northampton, as also Your Honour's late promised Assistance to help the said School to that Right whereof it hath been these many Years unconscionably defrauded, hath caused me
many times to which some good occasion might be offered unto me, whereby I might witness not only unto your Honour, but also to Posterity, how much I confess myself obliged unto you for the same. And therefore, having taken some Pains to turn the Contents of the Bible briefly into English Meeter, for the help of weak Memories; (being encouraged thereunto by the Persuasion of divers of my godly learned Friends, when they saw some Entrance made thereinto.) Your Honour being in the very Frontispiece of my dearest and worthily most honoured Friends, I determined to dedicate the same, together with my humble and best Service, unto your Honour; beseeching you, that both my self and it, as also our poor wronged School, may still be patronized and shrowded under the shadow of your Honourable Protection: so will I not fear what my back Friends can say to my Book; nor what they can devise or do against my self; so also shall your Honour (in respect of the School) have the praise of the Prophet, to be called, A Builder of that waste place, and a Raiser up of the Foundation thereof; a Repairer of that Breach, and a Restorer of those Paths to dwell in: And so be honoured and esteemed of me and all my Successors as the second Founder thereof, and be pa-
rallied and equalized with Thomas Chipsey, who was the first: For,

"Non minor est virtus quam quærere parta tueri.

'Tis no less pious, things lost to regain,
Than for first Founders to give to maintain.

"Vouchsafe I beseech you (my most honoured Lord) as cheerfully to accept of this my poor Present and Widows Mite (being a Pawn and Pledge of my ever dutiful and thankful Mind, as Artaxerxes is said to have received an handful of Water from the poor Country-man, whose Ability would afford no better a Gift. So will I ever pour forth my Prayers unto the Almighty Preserver of Mankind, the Giver of every good Gift, that he would be pleased to vouchsafe unto your Honour, and to all your Honourable Progeny, health of Body, length of Days, with Increase of Grace and Honour in this Life, and the Fruition of eternal Blessedness in the World to come.

"Your Honours

"ever to command,

"SIMON WASTELL."
The Translator's Preface to the Reader.

"Not long ago (Christian Reader) there was published a little Book in Latin Verse, called Bibliorum Summula, set forth by Mr. John Shaw, (a man whom both for his Learning and Gravity, as also for our old and antient acquaintance (being School-fellows in Westminister fifty years ago, and both of Queens College in Oxford) I did, and do much esteem and respect.) This Book I perceived to be much applauded of the godly learned Ministers, and of many other Scholars that had seen and read the same. And therefore, after he had sent me one, as a token of his love, I began to study how I might teach it to speak English, being as desirous to benefit the unlearned, as he was the learned; and having translated the Books of
Moses, and offered them to his and to other learned and grave Ministers view and censures, they did by their persuasions so prick and spur me forward, that I could not give over, until (through God's Assistance) I had gone through both the Old and New Testaments. I confess I have not precisely tyed my self to his Method and Manner, because the English tongue is far more copious than the Latin; but have taken liberty (according as the contents of each chapter were longer or briefer) to conclude them sometimes in two, sometimes in four; sometimes in more Disticks, with as much brevity (observing perspicuity) as I could. I have purposely laboured to speak plainly to the capacity and understanding of the simple and ignorant, rather than by Poetical strains to please the Ear, and the Eye of the curious learned Readers. Thou hast also not only the contents of every Chapter set down in order Alphabetically with figures to direct thee unto them, but also figures in every line to direct thee to the Verse where thou shalt find that presently which thou desirest to know, without reading over the whole Chapter. Thou hast also a Chronological observation of times from Adam to Christ, and from Christ to Antichrist. Thou hast also the names
of all the Books of the Bible, as they follow in order.

"Lastly, thou hast comforts and encouragements against the feare of death, called the old mans A. B. C. If it shall please thee (gentle Reader) when thou hast read or heard a Chapter, to read over the contents in meeter once or twice, thou mayest be able to rehearse and say the said contents by heart, and so in short time be acquainted with the History of the whole Bible. If any be so zealously affected with the knowledge of the Scriptures, as the Lord Cromwell was, who (as Master Fox recordeth in the Book of Martyrs, of the fifth Edition, page 1075, got by heart all the new Testament of Erasmus his Translation in his journey to Rome, he might in short time get by heart these brief contents of the whole Bible. If therefore the Law of God be thy delight, (as it was Davids) this little Book will be a comfortable companion, whether thou walkest abroad, or stayest at home. And finally if thou reapeth any increase of saving knowledge, justifying faith, or holiness of life, by these my poor labours to the Edification and Salvation of thy Soul, have all that I desire, saving that I would entreat thee to ascribe the Praise and Glory of all to God,
and to afford me thy charitable Censure, 
Well-wishings, and Prayers.

"Thine in any Christian service

"that he can perform,

"S. W."

A chronological table follows this preface, from the Creation of Adam to the departure out of Egypt, and the names of all the Books of the Bible, with the number of the Chapters. The specimens selected from the Divine Art, are the whole book of Genesis, and the old man's A. B. C.

GENESIS.

1 ALL things in 1 Heaven, in Earth and 8 Seas, our great 3 Jehovah makes:
He bade them 26 grow and multiply:
and Man Gods 26 Image takes.
2 BY him in 1 six days all were 2 made;
the 3 Sabbath, 4 Man of Dust:
Paradise 8, 24 Wedlock; Names 20 impos'd:
The Fruit forbear 17 Man must.
3 CLosely the subtil 2 Serpent temp'ts;
they 6 eat; are 10 bare; arraign'd:
The promis'd 15 seed; their strife, earth 17 curst,
Man 16 punish'd, 21 cloath'd, 24 disdain'd.
4 DUE 3 Sacrifice the 4 Brothers bring:
fierce Cain good Abel 8 slays:
Cain 22 vagrant made, Lamech's 4 great wrath:
Seth liv'd in holy days.

†1987 5 ENnoch, blest Enoch, is by God,
24 from Earth to Heaven translated:
The Patriarchs 4 lives: lines: 8 years, & death,
to 3 Noah's time related.
6 FAir forms make 2 matches: monstrous men
in monstrous 5 Sin abound:
This 7 brings the Flood but Noe and his,
(i' th Ark) 8 God's favour found.
7 God 1 sends all pairs, and Noe repairs unto the 5 Ark, wherein
They 7 being shut, the 8 flood o'reflows,
and drowns 13 all flesh for sin.

8 Heav'n 1 wrath aswag'd, the flood is swag'd:
the 7 Raven and the Dove:
Noah 18 goes forth, 20 doth sacrifice:
God 21 makes two leagues 22 of love.

9 IHo vah 1 gives laws, of Increase,
2 Fear, 4 Murther, 3 Meat, the Bow
Blood is 4 forbidden, Noe made 21 drunk,
mock'd, 25 Cham accurs'd also.

10KNow 1 here of Noe, 2 and of his 21 Sons
the mighty 6 Generations.
Nimrod first 8 Monarch: here begins,
dividing of the 32 Nations.

11LEarn here 1 one language, at the first;
confusion 5 Babel* rent:
Mark 10 Shem and Terah's 27 Progeny,
to Haran 31 Terah went.

12MAke hast, O 1 Abram,* leave thy land;
I will 2 preserve thy life:
A 10 Famine; Fear 11 doth make him fain:
the King 14 restores his Wife.

13NOW Lot and he 1 richly 2 return;
but discord 7 parts them both;
Lot's lot is 10 sinful Sodom's Soil;
to Hebron 13 Abram go'th.

14Oppos'd by four, 1 five Kings are slain,
Abraham 16 rescues* Lot:
Melchizedek 20 receiveth Tythes;
spoils, Abraham 23 takes not.
Promise of Seed cheers Abraham, which he believes most true:
But first his Seed must Servants be, And then their Foes subdue.
Quarrelling Hagar now with Child, Her Mistress doth disdain:
The Angel bids she should submit, And turn to her again.
Renewed is the Covenant sure:
Their names are chang'd, they blest:
Abraham here is circumcis'd,
Ishmael, and the rest.
Sara for laughing is reprov'd:
Sodom's Destruction shewn:
Abraham prays, for ten just men, it may not be o'rethrown.
TWO Angels Lot doth entertain,
Sodomites fiery Slaughters:
Lot's Wife a Pillar of Salt is made:
he drunk, defiles his Daughters.
Unwares the King takes Abrams Wife:
God him, he Abraham rates,
Restores, reproves, makes rich: he prays,
Then heal'd are all Estates.
With Joy Sarah her Son embrac'd:
the scoffing Lad and's Mother
Cast out, distress'd, refresh'd, Peace sworn between the King and th' other.
Up Abraham rose to slay hisSon:
The Angel holds his hand:
The Ram is offered up for him:
His Seed shall be as Sand.
ARTIFICIAL MEMORY.

23 With Tears did 2 Abraham bewail the death of || Sara old:
Macphelah bought to 16 bury in, Which Ephron to him sold.

24 A Abraham 2 sends: the 12 Servant prays:
asks 17 Water of the || Maid:
Gives 22 gifts, brings 61 home to Isaac her,
on whom 67 his love is staid.

25 BY 1 Ketur Abram had 2 moe Sons:
he 8 dies, and 21 Isaac prays:
Two 22 Twins do strive: Birth-right is sold,
and Jacob || Pottage 34 pays.

26 C Anaan 3 promis’d, Famine 1 sent:
his Wife he 7 Sister calls:
The 9 King reproves, he 13 rich, digs 18 Wells:
Sons Wives him 35 grieves and galls.

27 D Im-sighted 3 Isaac Veson craves:
|| Son 30 hunts, and comes too 21 late; ||2140

Jacob 27 is blest: Esau 38 doth weep:
And’s Brother 41 deadly hate.

28 E Esau’s ungodly 9 Marriages:
Jacob is 10 sent away:
A Ladder 12 sees, and 18 consecrates
a stone 22 whereon to pray.

29 F Or Rahel Jacob 13 seven years serves:
but 23 Laban Lea || gives,
He 28 serves seven moe: Lea 32 conceives,
but Rahel 31 barren lives.

30 G Riev’d Rahel 4 gives Jacob her Maid:
so 9 Leu: Jacob 31 hir’d.
Joseph is 24 born: by Jacob’s 37 art,
his Sheep and Wealth admir’d.
Here God bids *Jacob home return, the Idols Rahel takes:
Laban complains: charg'd not to chide: at Gilead peace he makes.
Jacob is by an Angel cheer'd:
7 fears; 9 prays: confess his faults:
Sends gifts, doth with an Angel strive, and ever after haults.

Neeling faint Jacob Esau meets:
they weep, they kiss: he takes
The gifts: departs: a field is bought;
Jacob an Altar makes.

Ewd Shechem. Dinah doth deflour.
and craves her for his Wife.
The People circumcise'd are slain:
good Jacob fears his life.

Making an Altar Jacob's blest:
he purgeth Idols all:
Reuben's foul Lust: a Pillar pitch'd:
a threefold Funeral. (7 wealth:

Now Esau's Wives: Sons: Dukes and
departure: habitation:
Are here set down: mules are found out:
the Kings of Edom's Nation.

Of's Brethren Joseph makes Complaint:
dreams twice: Jacob deceit'd:
Joseph is put into a pit:

is sold: his Father griev'd.

Pledge sending: Juda's Wife and Sons:
he in to Thamar went:
Would have her burnt: then clears her more:
two Twins to him are sent.
39 Quickly good Joseph is prefer'd:
of's Master much approv'd:
He flat denies: his Mistress lies:
he is in Bonds belov'd.

40 Rehearse your Dreams: O Butler! thou
a happy Man shalt be:
Have me in mind. O Baker! mark,
the Gallows groans for thee.

41 Sad Pharaoh's Dreams expounded are:
and Joseph grac'd as King:
Against the Dearth hoards up, sells Corn:
His Wife two Sons doth bring.

42 Ten sent for Corn: imprison'd are:
releast and sent away:
For Benjamin a Pledge is pawn'd:
but him doth Jacob stay.

43 Unwilling Jacob sends his Son,
they Presents bring to Court:
Joseph confers: his Brother calls:
and feasts in wondrous sort.

44 Within the Sack of Benjamin,
is Cup and Coin (they paid)
They fear confess: the Fathers Pledge,
for would now be staid.

45 Unto his Brethren Joseph's known:
he weeps, is sent before,
For Father sends, the King consents,
he goes, and grieves no more.

46 With Jacob (after Sacrifice)
God will go on the way.
Him meets and greets, they weep;
he tells them what to say.
47A Ged Jacob, with all his 1 Sons, before 7 King Pharaoh stand;

Goshen 11: all's bought save the 22 Priests Land;

*2255 bury * me 30 in my Land.

38BLEst Jacob sick 1 is visited;
†2280 Gives Ephrim 19 Preeminence:
Blesseth 29: relates 21 the Promise made:
foretells 31 their going thence;

49CALLing his 1 Sons he blesseth 8 them:

‖2300 doth future things || declare:
Gives charge about his 99 Burial:
of Soul the Lord takes care.

50DOleful 3 lamenting made 10 for him:
Troops bring him to his Grave:

2310 The Brothers 18 fear: he makes them 25 swear
his Burial there to have.

2. THE OLD MANS A. B. C.

Yea Saints on Earth be of good cheer,
The Darts of Death ye need not fear.

1 Cor. A Ccount'st thou death a dreadful thing,
15. 55. Which hath by Christ now lost its sting?
1 Thes. BE sure, as Spring doth Winter blasts;
4. 17. So follows death, a life that lasts.
1 Cor. COffin this corps and lay’t in grave,
15. 53. A glorious rising it shall have.
2 Tim. DEbt due to God I hereby pay,
4. -6. By dying at th' appointed day.
Exceeding welcome Death's to me,
All men must dye, no man is free.

Full happy man that dyes in Faith:
His good works follow him, Christ saith.

Glad are the Saints dissolv'd to be,
To live with Christ, his face to see.

He well may quake and fear to dye,
That in his filthy sins doth lye.

In Death is gain, it's gate of Life:
Last night; a sleep; and end of Strife.

Known God's Ambassador to be,
Death will I meet; I will not flee.

Lord paramount of death hath kill'd
Death by his death, and law fulfill'd.

Muse oft upon thy latter end, [mend.
The thoughts of Death will make thee

Nought but Christ's death doth sin remove
Admire the greatness of his love,

Of earthly Pilgrims, death from God
Makes us possesst of Heavens above.

Pass not for death, I daily die,
Why then doth death me terrifie?

Quiet thy self, thy day of death,
Excells that hour thou first took breath.

Receiving but our due deserts,
Why then should death afflict our hearts

Sith God from all eternity,
Hath so decreed that all must dye.

That deadly foe (last foe of all)
At last shall have a deadly fall.

Vanquished death I wish were nye,
It ends a Christians misery.

Heb. 9. 27.
Rev.
Phil. 1. 23.
Rev. 6. 16.
1 Thes. 4. 14.
Heb. 2. 24.
Psal. 9. 12.
Rom. 5. 8.
1 Cor. 5. 6.
2 Cor. 15. 31.
Eccles.
7. 1.
1 Pet. 2. 20.
Heb. 9. 27.
1 Cor. 15. 26.
Rom. 7. 24.
JOHN SHAW, according to A. Wood,* was a Westmoreland man born, and became a student of Queen's College, Oxford, in 1579, at the age of 19; he took one degree in Arts, left the College, and at length became Vicar of Oking, or Woking, in Surrey, where he was had in esteem, by many for his preaching, and by some for his Poetry. His works, in addition to that already mentioned, were: (1.) The blessedness of Mary, Mother of Jesus: a Sermon on Luke i. ver. 28, and 45, 8° Lond. 1618. (2.) The comfort of a Christian, by Assurance of God's Love to him, written in verse. (3.) The Complaints of a Sinner: the comfort of our Saviour—in verse also. These two last are printed with the Sermon.

SIMON WASTELL, was, according to Wood,† a Westmoreland man born, and descended from those of his name, living at Wastellhead in the same county. He entered as a student of Queen's College, Oxford, in 1580, or thereabouts, and took one degree in Arts five years after; at which time being accounted a great proficient in Classical Learning and Poetry, he was made Master of the Free-School at Northamp-

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* Athenæ Oxon. vol. i. col. 487. † Ibid.
ton, whence by his sedulous endeavours, many were sent to the Universities. He seems to have been a fellow-student of Shaw, and on terms of strict intimacy with him.


This anonymous work contains an ingenious and very full application of the local memory, to the fifty books of the Roman Pandects, and to the various titles and subdivisions of each book. To the Preface is appended the signature of R. C. The title is a complete bill of fare, and is a good model for all those who render this 'annonce' a *table of contents*, instead of a title-page.

60. *Copia Speciminum Artis Memoriam*
This small pamphlet contains an account of the different exhibitions of L. Schenckel, at the various cities enumerated in the title.


This is an excellent and useful little work; for, in addition to an explicit detail of the principles of the art, it includes instances of wonderful memory, in particular individuals, from the time of Adam, to A. D. 1690, and a list of writers on the subject. To neither of these sources, however, are we indebted for any of the materials in the present work, not having been able to procure more than a transient inspection of this rare and curious volume.

62. *The Art of Memory. A Treatise useful for all, especially such as are*

This is the third edition of D'Assigny,* and is ornamented with an 'elegant engraving on copper,' representing Jupiter with his fulmen reclining on a cloud;—the winged Hermes is seen flying with a caduceus, and a scroll in his hands, on which is inscribed Ars Memoriae. Three pedestals, the centre one circular, and the others square, occupy the fore ground of this beautiful picture. On one pedestal stands Minerva; in the centre Hercules Anglicus; and the remaining pedestal is adorned by the Gratiae Decentes, in their usual costume. At the foot of these illustrious personages are seen eleven 'human forms divine,' from whose ears issue eleven threads or lines, all meeting in one point, —the mouth of Hercules Anglicus!!!

We have been thus particular in describing this frontispiece, in the hope that some one who is 'pretty far gone' with the mania of illustrating, may be induced to seek for it; for, here, he might certainly indulge his favourite pursuit without a chance of injuring the book; a rare occurrence in the annals of the print-ferret. It is not, per-

* The first edition was published in 1697.
haps, known to all our readers, that a passion for books illustrated or adorned with numerous prints, exists to a very great extent; and, that the most valuable books are deprived of their engravings merely to illustrate some favourite production, by the portraits of the persons named in it. Mr. Dibdin, in his Bibliomania, p. 605, notices some curious examples. Seven hundred prints were collected by a lady to illustrate six chapters in Genesis: and 650 portraits by another person to ornament Scott's Edition of Dryden. The sum of £2000, was expended by the late Mr. Crowles in illustrating Pennant's London, which book he bequeathed, in the true spirit of virtu, to the British Museum.

The address 'To the Young Students of both Universities,' which precedes this Art of Memory, we recommend earnestly to the present race of Oxonians and Cantabs, as it is peculiarly applicable to their present state.

The following are the contents of this volume.

"Chap. 1. Of the Soul or Spirit of Man."
"Chap. 2. Of Memory, its Seat, and Excellency."
"Chap. 3. The Temper or Disposition of the
Body best and worst for Memory, with the natural Causes and Reasons of both.

"Chap. 4. Some General and Physical Observations and Prescriptions for the remedying, strengthening, and restoring a Memory injur'd by the ill Temper of the Body, or the Predominancy of one of the four Qualities in the Brain.

"Chap. 5. What is very much prejudicial to the Faculty, Habit, and Practice of Memory.

"Chap. 6. Of such Natural Things as may be assisting to, and may comfort Memory, from the Procurement of Nature, and the Contrivance of Art.

"Chap. 7. Rules to be observed for the Acts or Practice of Memory.

"Chap. 8. Rules to be observ'd to help our Remembrance of things that we desire to preserve in Mind.

"Chap. 9. Of Artificial or Fantastical Memory or Remembrance."

This book upon the whole (the dedication excepted) is rather dull, and not very profitable. In the fifth chapter, at the fifteenth section, we are told that "all such Motions of the body as cause giddiness or swimming in the head, are destructive to the memory. Therefore we should have a special care to avoid falls from high places, turning round [as the Dervishes we
suppose] or Blows upon the hinder part of the Head ! ! !"

The sixth chapter abounds with receipts for 'comforting the memory' taken principally from the early writers on this subject. A few of these we shall extract for the benefit of such as are inclined to use them.

"1. Sneezing Pouders.

'Sneezing Pouders well prepar'd are of great use, but may prove pernicious if any thing be offensive to the Brain in the Composition. Dried Leaves of Marjoram, Sage, Rosemary, the Roots of the Herb Pyrethrum, of Lingwort perfumed with Musk, are a choice sneezing Pouder, to comfort the Brain and Memory. And the Herb Galangal well dried, and reduced to Pouder, is very useful to strengthen Memory. Another good sneezing Pouder may be made of Pepper, with the Herb Condisi, white Lingwort, and Lillies, with some perfumed Gums. But we must have a care not to offend Nature by a too frequent use of these or other Snuffs, which may prejudice the Brain.

"2. Plaisters to prevent a decay of Memory.

'Divers Plaisters, when we find a decay in Memory, may be useful for helping the Brain: As a Plaister made of Mustard-seed, and clapt
to the hinder part of the Head, or the Oil of Mustard-seed when apply'd to that part. Or if you please to be at greater Expence, take Florentine Lillies, the Herbs *Hermodactyle* and *Pyrethrum*, leaves of the wild Vine, Pigeondung, Mustard-seed, of each an Ounce; mix them with *Moschata* Nuts, Spice, Cloves, Cinnamon, and Pepper, and make a Plaister; which you may likewise apply to the hinder part of the Head, and you will find it increase and help Memory. And a certain famous Author assures us, that the *Gall of a Patridge* anointed about the Temples does wonderfully strengthen the Seat of Memory; as also the *Brains of Birds* and *Fowls roasted*, and chiefly of *Hens* are not useless for the same purpose.

"3. A pouder for the Memory.

"Take the Seed or Leaves of *Orminum*, and reduce them to Pouder, and every Morning take a small quantity of a Glass of Wine. And they say that the *Shavings or Pouder of Ivory* produce the same effect, namely, the corroborating of the Brain and Memory; as likewise a Grain of white Frankincense taken in a Draught of Liquor when we go to Bed, dries up the offensive Humours of the Brain. And it has been observ'd, that the Application of *Gold* to that *Sutura*, which divides the Seat of Memory from the other
Closets of the Brain, strengthens the weakness of the Head, drives away all Pain, and has a wonderful Effect on the Faculty of Memory.

"An ointment.

"A famous Author tells us, That a firm and constant Memory, and quick Apprehension, many great Men have used this Medicine. Take Roots of wild Bugloss, Roots of Valerian, or Sweetwall, of each four Ounces; Roots of Rue two Ounces; reduce them to very fine Pouders: then take Juice of Ey-bright, Clary and Verven, of each four Ounces: strain the Juices well through a Cloth; then mix the Juices together, and the Pouders apart: afterwards take the Essence of Anacardi, or Cassia-nuts one ounce, and make a Poudra as before. Also take Bird’s Tongue, i.e. Ash-keys, and make a very fine Poudra: Then mix all the foresaid things together, viz. the Pouders and the Juices, and take an Earthen Pot glaz’d, and set it on the Fire, putting into it some Bear’s Fat, and suffering it to melt by degrees; then throw in the same Pouders, mixing them with the Juices, always adding some of the foresaid Fat, till a very thin Ointment be made; with which anoint the Temples, Forehead, and top of the Head towards the Nape. And this
do three or four times a year, and continue anointing more or less as there is occasion.

"5. A Lye, or wash for the Head.

"Again, another Experiment may be tri'd for the same purpose. Take eight Glasses of common Water, leaves of Ivy and Sticas, of each a Pound and a half; put them together in the Water to boil till the Water be almost consum'd; afterwards let it be well strain'd and squeeze'd, and put into it a small quantity of Turpentine wash'd with Rose-water: Then wash the Head with a good Lye, and after drying it, anoint with the aforesaid Liquor the Temples and hinder part of the Head.

"6. A perfumed Apple for comforting the Brain and Memory.

"Take Laudanum, Lignum Aloes, Storax, of each a Dram; Cloves, Nutmegs, sweet Basil-seed, of each half a Dram; with Rosewater, in which a small quantity of Mosch and Ambergrise has been dissolv'd, make an Apple.

"7. To strengthen the Memory or restore it when lost.

"To strengthen the Memory, or restore it when lost; or against giddiness: Take Rosemary, Borage, Chamomile, Violets, Roses, of each an Ounce; the Leaves of Laurel, Marjo-
ram, Sage of each two Ounces; chop them all together, and put them in the best Wine, and after a day's time distil thro a glass Alembic, and keep the distilled Liquor; in which put of sweet-scented Turpentine a Pound, white Frankincense eight Ounces, Mastic, Myrrh, Bdellium, Anacardi, or Cassia nuts, of each four Ounces: beat them altogether, and set them stand for five days, mix'd with the Distillation in a cover'd Vessel. Afterwards distil with a quick Fire till you get an Oyl out of them, which keep close shut up in a glass Bottle well stopp'd with Wax and Parchment. For use, take as much of it as would ly in a large nutshell down the Mouth, and anoint also the Memorial parts, viz. the hinder part of the Head, and all the Parts before-mention'd. You will find it to be very good.

"8. Pills for the use of Memory.

"Take Chubeds, Calamint, Nutmegs, Cloves, of each a Dram and a half; the best Frankincense, choice Myrrh, oriental Ambergrise, of each a Scuple and a half; Mosch, five Grains: with Morjoram-water make Pills. Take one in going to Bed, and two at Sun rising, five hours before Meat; in the Winter every Month, in the Spring and Fall more seldom."

The chapter which treats of Artificial or
Fantastic Memory or Remembrance is almost a literal translation from Grataroli.

Marius D'Assigny was the Author of *Rhetorica Anglorum, vel Exercitationes Oratoriae in Rhetoricam Sacram et Communem. Quibus adjiciuntur quaedum Regulae ad imbecilles Memorias corroborandas*, 12°. Lond. 1699. In this work, a chapter is devoted to the subject of memory, in which, as might be expected, a great part of his *Art of Memory* is 'done into Latin.'


This work is intended to facilitate the acquisition of Chronology and universal History, and the system is at once ingenious and simple. It
is composed in the form of a dialogue, and the author has compressed, into verse, the principal events and names of the different Sovereigns. The following are specimens of his verses.

_The first age commencing from the Deluge._

Le petit fils de Cam et qui fut fils de chus  
Est prince à Babilone et Nembrod dit Belus,  
Quand se forme sous lui l'état de l'Assirie,  
Vienent ceux des Chinois d'Égypte et de Scithie.  
Ninive avant deux mille est en Assur fondu,  
Et pour roi Sicon choisit Egialée.

_First part of the history of France._

Ses Loix en quatre cens Pharamond introduit  
Glodion Chiévelu qu'Aëtius vainquit,  
Merovée avec lui combatit Attila.  
Childéric fut chassé, puis on le rapela.  
Clovis vain à Soissons, fait veu d'être Chrétien :  
Defait Gombaut et tue Alaric Arien.

Vol. I. contains Sacred History and Chronology, Profane History and the History of France. Vol. II. A system of Universal Geography, for which verses are employed, as in the first volume. Vol. III. includes Chronology and History, from the birth of Christ to the time of Buffier's publication; Ecclesiastical history, and the history of the principal States of Europe.

_Claude de Buffier_ was born of French parents, in Poland, in the year 1661; he became
a Jesuit in 1679. After having travelled to Rome, he fixed his residence in the capital of France, and died in the year 1737, at Paris, in the College of the Society, aged 76 years. He has left behind him many works, besides that already noticed, the principal of which have been collected and published in his Cours des Sciences par des principes nouveaux et simple, pour former le language, l'esprit, et le cœur, fol. 1732. The style of Buffier, in his verse and prose writings, is more plain than elegant. He was a virtuous man, and very laborious in his studies.\(^*\)

65. **Memoria Technica: or, a New Method of Artificial Memory, applied to and exemplified in Chronology, History, Geography, Astronomy; also Jewish, Grecian and Roman Coins, Weights and Measures, etc. By Richard Grey, D.D. 8°. Lond. 1730.**

The *ninth edition* of this book has been just published, to which, and to the eighth edition are appended Lowe's Mnemonics, [see No. 66.] In 1802, a thin pamphlet was published, entitled, *Technica Memoria*, by M. W. Johnes; it

consists merely of extracts from Grey. In the Monthly Magazine for June 1805, Dr. Lettice inserted some proposals for publishing his, 'New Memoria Technica,' but we cannot learn that this work was ever put to press. It was intended to embrace a number of tables, in chronology, geography, &c. on the plan of Dr. Grey, but with considerable improvements.*

In order to enable those who feel so inclined to practise Dr. Grey's System, we shall extract from the fourth edition of the Memoria Technica published in his life time, so much as is necessary for the purpose.

"The principal Part of this Method is briefly this; To remember any thing in History, Chronology, Geography, &c. a Word is form'd, the Beginning whereof being the first Syllable or Syllables of the Thing sought, does, by frequent Repetition, of course draw after it the latter Part, which is so contriv'd as to give the Answer. Thus, in History, the Deluge happened in the Year before Christ two Thousand three Hundred forty eight; this is signified by the Word

* To this list may be added a work entitled Reminiscencia; or, the Memory's Assistant, by Samuel Needham, to be completed in three parts, on the plan of Dr. Grey. The first part only has yet appeared.
Deletok: Del standing for Deluge, and etok for 2348. In Astronomy, the Diameter of the Sun (Solis Diameter) is eight Hundred twenty two Thousand one Hundred and forty eight English Miles; this is signified by Soldi-ked-afei, Soldi standing for the Diameter of the Sun, ked-afei, for 822,148; and so of the rest, as will be shewn more fully in the proper Place. How these Words come to signifie these Things, or contribute to the Rememb ring of them is now to be shewn.

"The first Thing to be done is to learn exactly the following Series of Vowels and Consonants, which are to represent the numerical Figures, so as to be able, at Pleasure, to form a Technical Word, which shall stand for any Number, or to resolve a Word already form'd into the Number which it stands for.

\[
\begin{array}{cccccccccccc}
a & e & i & o & u & au & oi & ei & ou & y \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 0 \\
b & d & t & f & l & s & p & k & n & z
\end{array}
\]

"Here a and b stand for 1, e and d for 2, i and t for 3, and so on.

"These Letters are assign'd Arbitrarily to the respective Figures, and may very easily be re-member'd. The first five Vowels in order naturally represent 1, 2, 3, 4, 5. The Diphthong au, being composed of a 1 and u 5 stands for 6;
oi for 7, being composed of o 4 and i 3; ou for 9, being composed of o 4 and u 5. The Diphthong ei will easily be remember'd for eight, being the Initials of the Word. In like Manner for the Consonants, where the Initials could conveniently be retain'd, they are made use of to signify the Number, as t for three, f for four, s for six, and n for nine. The rest were assign'd without any particular Reason, unless that possibly p may be more easily remembred for 7 or Septem, k for 8 or Ὺκτω, d for 2 or duo, b for 1, as being the first Consonant, and l for 5, being the Roman Letter for 50, than any others that could have been put in their Places.

"The Reasons here given, as trifling as they are, may contribute to make the Series more readily remembred; and if there was no Reason at all assign'd, I believe it will be granted that the Representation of nine or ten numerical Figures by so many Letters of the Alphabet, can be no great Burthen to the Memory.

"The Series therefore being perfectly learn'd, let the Reader proceed to exercise himself in the Formation and Resolution of Words in this Manner.

10 325 381 1921 1491 1012 536 7967
ax tel teib aneb afna bybe uts pousoi

431 553 680 &c.

fib lut seiz &c.
"And as in Numeration of larger Sums, 'tis usual to point the Figures at their proper Periods of Thousands, Millions, Billions, &c. for the more easy Reading of them, as 172,102,795 one Hundred seventy two Millions, one Hundred two Thousand, seven Hundred ninety five; so, in forming a Word for a Number consisting of many Figures, the Syllables may be so conveniently divided, as exactly to answer the End of Pointing. Thus in the Instance before us, which is the Diameter of the Orbit of the Earth in English Miles: The Technical Word is Dorbérboíd áze-poul; the Beginning of the Word Dorbter, standing for the Diameter of the Orbit of the Earth, (D-iameter Orbitæ Terræ) and the remaining Part of it boid-aze-poul for the Number 172,102,795.

"N. B. Always remember that the Diphthongs are to be consider'd but as one Letter, or rather, as representing only one Figure. Note also, that y is to be pronounced as w, for the more easily distinguishing it from i, as syd=602, pronounce swid, typ=307 pronounce twip.

"The Reader will observe that the same Date or Number may be signified by different Words, according as Vowels or Consonants are made Choice of, to represent the Figures, or to begin the Words with, as

325 tel, or idu, 154 bus, or blo, or alf, or alo. 93,451 ni-ola, or out-fub, or ni-fla, or out-olb, &c.
"This Variety gives great Room for Choice, in the Formation of Words, of such Terminations as by their Uncommonness are most likely to be remembred, or by any accidental Relation or Allusion they may have to the Thing sought. Thus the Year of the World in which Æneas is supposed to have settled in Italy is 2824; but as this may be expressed either by ekef or deido, I chuse rather to join deido to Æneas, and make the Technical Word Ænededido than Ænekef, for a Reason which I think is obvious. Thus King John began his Reign A. D. 199. (one Thousand being understood to be added, as I shall shew hereafter;) but as this may be express'd by ano, or boun, or ann, I make Choice of the last, for then 'tis but calling him Jann instead of John, and you have the Time almost in his Name. Thus Inachus King of Argos began his Reign in the Year before Christ 1856; with a very small Variation in the Spelling, 'tis his Name Inakus. But this by the Way.

"To go on with our Art; 'tis further to be observ'd, that a and y being made Use of to represent the Cypher, where many Cyphers meet together, as in 1000, 1000000, &c. instead of a Repetition of azyzyzy, which could neither be easily pronounced nor remember'd, g stands for Hundred, th for Thousand, and m for Million."
Thus ag will be 100, ig 300, oug 900, &c. ath 1000, oth 4000, etho or othf 4004, peg 7200, dig 2300, lath 51000, am 1000000, azmoth 10.004,000, sumus 65.000,056, loun 59.000,000, &c. The solid Content of the Earth (Terra Magnitudo) is two Hundred sixty four Thousand, eight Hundred fifty six Millions of Cubick Miles; this is express'd by the Word Ter-magnit-éso-klaum; Termagnit standing for Terra Magnitudo; éso-klaum for 264,856,000,000 the Number of Cubick Miles.

"It will be sometimes also of Use to be able to set down a Fraction, which may be done in the following Manner: Let r be the Separatrix between the Numerator and the Denominator, the first coming before, the other after it; as iro ¼ urp ½ pourag ¾ or ,79 north ¾ or ,094 &c. Where the numerator is 1, or Unit, it need not be expressed, but begin the Fraction with r, as ½ re, ½ ri, ¼ ro, &c. So in Decimals, ,01 or ¼, rag, ,001 or ¼ rath.

1. Chronology and History.

"The Ages of the World before our Saviour's Time are by Chronologers generally divided into Six: The First from the Creation to the Deluge; the Second from the Deluge to the Call of Abraham, &c. according to the following Periods:
Before Christ.

1. The Creation of the World 4004
2. The universal Deluge 2948
3. The Call of Abraham 1921
4. Exodus, or the Departure of the Israelites from Egypt 1491
5. The Foundation of Solomon's Temple 1012
6. Cyrus, or the End of the Captivity 536

The Birth of Christ.

"All this is express'd in one Line, as follows:

Crotf Deletok Abaneb Exafna Tembybe Cyruts.

Cr denotes the Creation, othf 4004, Del the Deluge, Ab the Calling of Abraham, Ex Exodus, Tem the Temple, and Cyr Cyrus. The Technical Endings of each represent the respective Year according to the Rules already laid down.

"I shall explain two Lines more.

Nicsilcon ãritel, Codathé mateih, Ephcethe-nësfh.
Chálllemar-cudiola, Covijúst-Olut, C-agcozo-monseiz.

"These two Lines are a short History of the first Six General Councils; and every Syllable has its distinct Signification. The first represents the Place where it was held; the second shews who was Pope at that Time; the third under
what Emperor; the fourth against what Here-tick; the fifth, in what Year of our Lord. Thus the first Word is Nicsilcon áritel. Nic denotes the Council of NICE, sil Pope SILvester, con the Emperor Constantine, ari the Heretick ARIUS, tel the Year 325. The second Word is Codathé mateíb; Co denotes the Council of CONSTANTINOPLE, da Pope DAMASUS, the the Emperor THEODOSIUS, ma the MACEDONIANS, teíb 381. The third is Ephcethe-nésfib; Eph the Council of EPHESUS, ce Pope Celestine, the the Emperor *THEODOSIUS, nes the NESTORIANS, fib the Year 431. The fourth is Chálemar-eudíola; Chal the Council of CHALCEDON, le Pope LEO, mar the Emperor MARCIAN, eudi the Errors of Eutyches and DIOСCOrus, ola the Year 451. The fifth is Covijúst-Olut; Co stands for CONSTANTINOPLE, vi Pope VIGILIUS, just the Emperor JUSTINIAN, O the Errors of ORIGEN, lut the Year 553. The sixth C-ágcopo-monsoeiz; C stands again for CONSTANTINOPLE, ag for Pope AGATHO, copo the Emperor CONSTANCE POGONATUS, mon the MONOThELITES, sez the Year 680.

* THEODOSIUS JUNIOR.
"The Regal Table of England since the Conquest, and some of the most remarkable Princes before it.

Bef. Christ.

Casibelanus chosen chief Commander by the Britains against the Invasion of Julius Caesar [Casibelud] 52

Aft. Christ.

Queen Boadicea, the British Heroine, being abused by the Romans, raises an Army and kills 7000 [Boadaup] 67

Vortigern who invited the Saxons to the Assitance of the Britains against the Scots and Picts [Vortigfes] 446

Hengist the Saxon, who erected the Kingdom of Kent, the first of the Heptarchy [Hengful] 455

King Arthur famous for his powerful Resistance and Victories over the Saxons [Arthlaf] 514

Egbert who reduced the Heptarchy, and was first crown'd sole Monarch of England [Egbekek] 828

Alfred, who founded the University of Oxford [Alfrēkpe] 872

Canute the Dane [Canbau] 1016

Edward the Confederate [Confēsfe] 1042


William Rufus [Ruf kouis] Sept. 9. 1087

Henry I. [Henrag] Aug. 2. 1100

Stephen [Stephbil] Dec. 2. 1135

Henry the Second [Hensēcbuf] Oct. 25. 1154
Aft. Christ.

Richard I. [Ricbein]  
John [Jann]  
Henry the Third [Hethdas]  
Edward I. [Eddoïd]  
Edvardus secundus [Edsetyp]  
Edwardus tertius [Edtertes]  
Richardus secundus [Risetóip]  
Henry the Fourth [Hefotoun]  
Henry the Fifth [Herfúd]  
Henry the Sixth [Hénsifed]  
Edvardus quartus [Edquarfaux]  
Edward the Fifth [Esi.Rokt]  
Hennricus septimus [Hensepseif]  
Hennricus octav. [Hynoclyn]  
Edvardus sextus [Edsexlos]  
Mary [Maryluk]  
Elisabeth [Elislu]k]  
James I. [Jamsyd]  
Carolus Primus [Caroprimsel]  
Carolus secundus [Carsecsok]  
James II. [Jameisf]  
William and Mary [Wilseik]  
Anne [Anpyb]  
George I. [Gëobo]  
George II. [Gëosecdoi]  

"The Memorial Lines.

Casibelud Bóadaup Vortigfós Heng ful & Arthlaf.
Egbekch Alfrékpe Canbau Confésfe.
Wil-cousau Ruskoi Henrag.—
Stephil & Henséchuf Richein Jann Hetdas & Eddoid.
Edsetyp Edtertes Risetoip Hesotoun Hefisádque.
Hénsisfed Edquarfaux Esi-Rokt Hensépfeil Henocelyn.
Edsexlos Marylut Elsuk Jamsyd Caroprimsel.
Carsefök Jamseif Wilseik Anpyb Gëbo—doi.

"N. B. After Canute inclusive, One Thousand is to be added to each: It was thought unnecessary to express it, it being a Thing in which it is impossible that any one should mistake.

"If it be desired to remember in what Month, and Day of the Month each King began his Reign, it may be done by the following Lines:

Hen-gé-tel-an sex-chez gib-ged-ped Geor-ga-jah
An chei.
Car-chep-riz Ma-ls Jo-ps Ed-nás-loi rel-cho-pou rek-que.

"EXPLANATION.

"The Italick Letters represent the Day of the Month; the Letter immediately preceding represents the Month itself, r standing for January, f for February, ch for March, p for April, m for May, j for June, l for July, g for August,
s for September, t for October, n for November, and d for December.

"Thus Steph-de, Steph King Stephen, de Dec. 2. El-nap El Elizabeth, nap Nov. 17. In Words of three or more Syllables, the first Syllable stands for all the Kings of the same Name, and the following Syllables in Order answer to the first, second, third, &c. of that Name. So Jam-chef-fau; Jam denotes James I & II. chef (viz. March 24.) belongs to James I. and fau (viz. Feb. 6.) to James II. So Ri-ls-jeb-ed; Ri denotes all the Richards, ls (viz. June 6.) belongs to Richard I. jeb (viz June 21.) to Richard II. and ed (viz. 22. of the same Month) to Richard III.

"If this be thought either too difficult, or too minute, the Reader may pass it over."

In the Rev. J. Robinson's 'Grammar of History,' will be found a list of remarkable events from the Creation to the Battle of Trafalgar, with all the technical terminations of Dr. Grey. This is a useful supplement.

"2. Geography.

"In the first place are laid down the general Divisions of Europe, Asia, Africk, and America; then the particular Divisions of the several Kingdoms of Europe, into their respective Governments or Provinces. For every Division there
is one Technical Line, composed of the first syllables (or sometimes only of the first letters) of the Parts or places into which it is subdivided; which Syllables or Letters are distinguished from the rest, in the Tables, by Small Capitals, or an Hyphen following.

" 'Tis further to be observ'd, that the Beginning, Middle, and Ending of the Line answer, in order, to the Northern, Middle, and Southern Divisions of the Kingdoms or Countries; so that not only the Places themselves, but in some Measure their Situation with Respect to each other may be remember'd at the same Time. Thus in the Memorial Line for France,

Fra=P Nor-I-cham; Bret-O-BuL; Gui-La-DaP.

" P Nor-I-cham denotes the four Northern Governments, viz. P-icardy, NORMandy, I-sle of France, and CHampagne.

" Bret-O-BuL denotes the four Middle Governments, viz. BREtagne, O-rleanois, Bourgogne, and L-ionnois.

" Gui-La-Da-P denotes the four Southern Governments, viz. Guienne with Gascony, LANguedock, Dauphiny and P-rovence.

" It will be yet some further help to remember the Situation of Places, to observe, that in the several Divisions I begin at the West, and go on Eastward, as far as the Limits of the Coun-
try will allow, in a strait Line, unless where the Irregularity of the Position makes this Method inconvenient or impracticable: Where that is the Case, the Reader will supply the Defect by his own Observation, and by comparing with proper Maps.

"Observe further, that where the Syllables are connected with an Hyphen, the countries denoted by them are contiguous from West to East; thus,

"Nor-I-cham shews that the Isle of France joyns to Normandy on the East, and Champagne to the Isle of France on the East. Where the Syllables or Letters denoting two or more Countries are joyn'd together without an Hyphen, there the Countries are contiguous from North to South. Thus Gui-La-DaP shews that Languedock joyns to Guienne on the East, Dauphiny and Provence to Languedock on the East; and also that Provence is contiguous to, and South of Dauphiny. Such Syllables as have an Hyphen preceding, but are not by it immediately joyn'd to the foregoing Syllable, signifying that the Countries denoted by them lie Eastward, but are not contiguous. Thus Sp-It-Turk shews that Italy is East of Spain, and Turky East of Italy, but not contiguous.

"When the reader is become well acquainted with the General Divisions, he may then go on.
to charge his Memory with his chief Cities, and most remarkable Places of every Country; their Longitude and Latitude; the Correspondence of ancient and present Geography; the Geography of the Old and New Testament; the Proportions of the Kingdoms of Europe to Great Britain; the Situations of the most noted Islands; with other instructive and entertaining Particulars in Geography: All which he will find himself able to remember with greater Ease than he can possibly imagine, till he is acquainted with the Memorial Lines, contriv'd for that Purpose.

"The General Divisions of Europe, Asia, Africk and America.

"I. EUROPE is divided into,

1. Northern; Containing NOrway, S-weden, MOScovy; Den-mark:

2. Middle; Containing Nether-lands, Ger-many, POland, Little T-artary; FRANCE, SWITzerland, Hun-gary, Trans-ilvania, MOldavia, Valachia.

3. Southern; Containing Spain with Portu-gal, ITaly, Turky.

Eur=No-S-Mo D; Né-Ge-Po-IT Fran-Swits Hun-Tran Mo-Va Sp-It-Turk.
"II. ASIA is divided into,

1. Northern; Containing Great Tartary, Georgia.
2. Middle; Containing Turkey in Asia; Persia, Empire of the Mogul, China.
3. Southern; Containing Arabia, East Indies
   As = Ta-Geo; Tur-Pé-Mo-Chin; Arab-Ind——

"III. AFRICK is divided into,

1. Northern; Containing Barbary, Bilsidulgerid, Egypt.
2. Middle; Containing Zaara, Negroland, Guinea, Nubia.
3. Southern; Containing Congo, Abyssinia, Coast of Abyss, Coast of Cafferia, Monomotopa, Zanguebar, Coast of Ajan.
   AF = Babil-E; ZànëGui-N; Con-Abiss-Abe Caf-Mono-Zangu-Aj.

"IV. AMERICA is divided into,

1. Northern; Containing New Wales, New Britain, Lovisiana, Canada or New France, New Granada, Mexico, Florida, New England containing these seven Provinces, (Carolina, Virginia, Maryland, Pennsylvania, New York, New Jersey, New England properly so call'd,) lying from South-West to North-East.
2. Southern; Containing Terra Firma, Peru, Country of the Amazons, Brasil, Caili, Paraguay, Magellanica.

N-AM—Wal-Brit Lövi-Can GranMex-Flor (Cár-Vi-Ma
P-YorJ Eng.
—S-AM—Firm Per-Amáz-Bra Chi-ParMag.


"The Technical Endings affixed to the Beginnings of the Names of the Planets represent the Number of Miles of their Diameters, Distances, Magnitudes, &c. according to the general Key. Where the Beginning of the Word is Technical, it is composed of the Syllables or Letters distinguish'd in the Tables by Small Capitals.

"The Diameters, &c. of the Planets in English Miles, according to Dr. Derham's Astrotheology.

<table>
<thead>
<tr>
<th>Planet</th>
<th>Eng. Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luna</td>
<td>2175</td>
</tr>
<tr>
<td>Mercury</td>
<td>2748</td>
</tr>
<tr>
<td>Mars</td>
<td>4875</td>
</tr>
<tr>
<td>Venus</td>
<td>4987</td>
</tr>
<tr>
<td>Terrae Diam.</td>
<td>7967.8</td>
</tr>
<tr>
<td>Saturn</td>
<td>93,451</td>
</tr>
<tr>
<td>Jupiter</td>
<td>130,655</td>
</tr>
<tr>
<td>Solis Diam.</td>
<td>822,148</td>
</tr>
</tbody>
</table>
"The Diameters of their Orbits.

**Artificial Memory.**

<table>
<thead>
<tr>
<th>Planet</th>
<th>English Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturn [D-orb-Sátasob-les-teis]</td>
<td>1641526386</td>
</tr>
<tr>
<td>Jupiter [JuRBkoúl-atoth]</td>
<td>895134000</td>
</tr>
<tr>
<td>Mars [MaRBese-deid-nax]</td>
<td>262282910</td>
</tr>
<tr>
<td>Terra [D-orb-Terboíd-áxe-poul]</td>
<td>172102795</td>
</tr>
<tr>
<td>Mercury [MeRBseu-sebth]</td>
<td>66621000</td>
</tr>
<tr>
<td>Venus [VeRBbef-okoi-baf]</td>
<td>124487114</td>
</tr>
<tr>
<td>Luna [Dorb-lunopóu-nyl]</td>
<td>479906</td>
</tr>
</tbody>
</table>

Saturni Annuli Diam. or the Diameter of Saturn's Ring [Sát-anu didáx-daut] 210265

Ejusdem Latitudo, or the Breadth of Saturn's [latidóu-eg] 29200

Terra Superficie, or the superficial Content of the Earth [Ter-superaun-fof-exau] 199444206

Ejusdem Diameter [Dia pou-sai,k] 79673

Ejusdem Orbitae Perimeter [Permuuy-skau-del] 540686225

"The Magnitudes or Solid Contents in Cubick Miles of the larger Planets.

"Magnitudo.

<table>
<thead>
<tr>
<th>Surface</th>
<th>Cubic Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terra [Ter-magnitëso-klaum]</td>
<td>264856000000</td>
</tr>
<tr>
<td>Solis [Mag-sólisëóux-noia-mil-mil]</td>
<td>2909710000000000</td>
</tr>
</tbody>
</table>
PRINCIPAL SYSTEMS OF

Cubick Miles.

Jovis [Mag-jovnez-záb ezym] 920.011,200.000,000
Saturni [Sal-manit-oep-dak & izym] 427.218,300.000,000

"The Ambit or Circumference.

English Miles.

Jovis [Am-jovisipoú-zot] 379,043
T-erræ [Am-Tel-yib] 25,031
Solis [Am-sole-leid-koit] 2,582,873

"The Memorial Lines.

LuDdapu MercúDepok MarDokpu TerDiapousoi,k.
JuDaty-sii VeDoneip SaDni-ola, SolDiked-hsei.
D-orb-Sátasob-les-teiis JuRBkowl-atoth MaRBse-deid-maz.
D-orb-Terboid-áze-poul MeRBsaue-sebth VeRBbef-okoi-buf.
Sat-amn-didáz-daul—latidóu-eg D-orb-lumpóu-nyi.
Ter-superaam-fof-ezaun—diapousoi,k—Permufy-skaudel.
Mag-Jovnez-záb-izym Sat-magnitoep-dak & izym.
Am-jovisipoú-zot Am-Tel-yib Am-sole-leid-koit.


"The Beginning of the Words is composed of the Initial Letters; thus At-ta stands for Attick Talent, HEΤ for Hebrew T-alent; Aď for A-ttick D-rachm; Ald for Alexandrian D-rachm; HEΤO for Hebrew Talent of Gold; (HEΤ standing for HE-brew T-alent as before, and O for Or, or Gold) RoL for ROman
ARTIFICIAL MEMORY.

L-ibra, Den for DEnarius, Shek for ShEkel, GreF for GReCian F-oot, HeC for HeBrew C-ubit, RoFq for ROman F-oot Square, &c.

"The Italick Endings of the Words represent the Number of Pounds, Shillings and Pence, which are separted from each other by Hyphens, or else signified by the Roman Letters l. s. d. The double Lines denote Equality. Thus Am=drag=t-ei-n, signifies that an A-ttick M-ina, which is equal to 100 Drachms, was 3 Pounds 8 Shillings and 9 Pence. The Letters, though separated, are to be pronounced together; as t-ei-n tein. The Reader is to be reminded here that re signifies \( \frac{1}{2} \), ro \( \frac{4}{4} \), &c. But Note, that instead of the Fraction re, the Letter \( h \) is sometimes used for half, as oikbe-\( h = 7812\frac{1}{2} \) s.e. 7812 Pounds 10 Shillings."

This system of Dr. Grey reflects great credit on the ingenuity of the author. Of the Memo-ria Technica. Dr. Priestley observes, "it is so easily learned, and may be of so much use in re-collecting dates, when other methods are not at hand, that he thinks all persons of a liberal edu-cation inexcusable, who will not take the small degree of pains that is necessary to make them-selves masters of it; or who think any thing mean, or unworthy of their notice, which is so useful and convenient."*

Richard Grey was born in the year 1698, and was a learned divine of the Church of England. He took his degree of M. A. at Lincoln College, Oxford, in the year 1718–19. The first preferment which he obtained, was the Rectory of Kilncote, in Leicestershire, to which he appears to have been instituted at an early period of life; and afterwards he was appointed to the Rectory of Hinton, in Northamptonshire, and to a Prebend in the Cathedral Church of St. Paul.

In the year 1730, he published his Memoria Technica. In the same year also he published, "A System of English Ecclesiastical Law, extracted from the Codex Juris Ecclesiastici Anglicani, of the Right Rev. the Lord Bishop of London, for the use of young students in the Universities, who are designed for Holy Orders." 8vo. For this work the University presented him with the degree of Doctor of Divinity, by diploma, during the following year. It was afterwards reprinted, at different periods, with the addition of marginal references to the pages in the Codex.

In the year 1736, he published a large anonymous pamphlet, entitled, "The miserable and distracted state of Religion in England, upon the downfall of the Church established:" and in the year 1738, "A new and easy method
of learning Hebrew without Points. To which is annexed, by way of praxis, the Book of Proverbs, divided according to the Metre; with the massoretical Readings in Roman Letters, &c.
a grammatical analysis, and short notes, critical and explanatory, etc. 8°.” In the following year, he published, on a large single sheet, “Tabula exhibens paradigmata Verborum Hebraicorum regularium et irregulairum, per omnes Conjugationes, Modos, Tempora, et Personas, plenius et accuratius excusa;” and also, “Historia Josephi Patriarchæ, Literis tam Romanis, quam Hebraicis excusa, cum Versione Interlinearis S. Pagnini, & vocum Indico Analytico; præmittitur nova Methodus Hebraicè Discendi, diligentius recognita, etc. 8°.” These pieces were again reprinted in 1751.

In the year 1742, Dr. Grey published, “Liber Jobi in versiculos Metrice divisus, cum Versione Latina Alberti Schultens, notisque ex ejus Commentariis excerptis, etc. Edidit, atque annotationes suas ad Metrum præcipue spectantes, adjunct R. G. etc. Accedit Canticum Moysis Deut. xxxii. cum Notis variorum, 8°.” In the preface to this work some strictures were introduced on particular passages in Warburton’s “Divine Legation;” to which that gentleman replied in his “Remarks on several occasional reflections,” etc. This reply called forth from

K K
Dr. Grey, in the year 1744, an "Answer to Mr. Warburton's 'Remarks on several occasional Reflections,' so far as they concern the preface to a late edition of the Book of Job; in which the subject and design of that divine poem, are set in a full and clear light, and some particular passages in it occasionally explained," etc. 8°.

In the year 1746, Dr. Grey occupied the post of official and commissary of the Archdeaconry of Leicester. In 1749, he published, "The last words of David, divided according to the metre, with notes critical and explanatory," 4°. This last publication, except new editions of his former pieces, was an English translation of Mr. Hawkins Browne's poem, "De Animae Immortalitate," which appeared in 1753. Besides the articles enumerated above, Dr. Grey printed some single "Sermons," preached on public occasions. He died in 1771, in the seventy-eighth year of his age.*

66. Mnemonics delineated in a small compass and easy Method, for the better enabling to remember what is most frequently wanted, and most difficultly retained or recollected, 8°. Lond. 1737.

* Nichols' Anecdotes of Bowyer.
This extremely rare tract, compiled by Solomon Lowe, contains 14 pages in a very small type, besides the title and the advertisement which is printed on the back of the title, making a single sheet of demy, 8°. As Dr. Watts has considered this tract as a material improvement of Grey, and as some of the purchasers of the present volume may choose to practise the scheme of Grey and Lowe, we have thought proper in this edition, to reprint the whole of the original tract as it has become extremely rare; and although lately reprinted, it cannot be purchased without the incumbrance of the Memoria Technica of Grey; a sufficient specimen of which has already been given.

ADVERTISEMENT.

"The key to this art (so far as relates to the expressing of numbers by Letters) we owe to the ingenious Dr. Grey. What follows may be considered as a supplement to and improvement of his Memoria Technica: for most of the articles are what, perhaps, did not occur to
him: and the rest I think are reformed* to great purpose; particularly those of Weights, Coins, and Measures; of which I have given a full account in less than three pages, whereas the Doctor’s (though very defective) amounts to 31. Those who are curious will add such particulars, as they have most occasion for; in order to lay up a treasure of useful principles in their heads; for the greatest part of which they must, otherwise, from time to time, have recourse to books; or, where those are not at hand be disappointed; how much soever it may be to their discredit or prejudice. I need not inform those who have the education of youth, whether in schools, or universities, how much something of this nature would expedite the progress of their pupils, and show them to advantage; furnish betimes with a satisfactory certainty, readiness, and exactness, in things, of which Masters themselves, and men of reading, have generally but an imperfect and confused remembrance. I shall only add (to obviate an objection, that may naturally offer itself to such as are unacquainted with things of this nature) that how difficult and forbidding soever the jargon of this art may appear; nothing will stick

* We have preserved Mr. Lowe's orthography throughout.
more effectually in the memory, when once familiarised by frequent repetition so as to flow into the mind without reflection.—N. B. The accents denote the first syllable of a dactyl.

"SOLOMON LOWE."

The Key.

Directions for the better learning to remember figures or numbers expressed by Letters.

a e i o u a u o i e i o u y
1 2 3 4 5 6 7 8 9 0
b d t f l s p k m z
G 100. Th 1,000. M 1,000,000.

r denotes fractions, as follows: ,ro ¼, ,iro ½:
d,eri 2 ½: ,rag, ,01.

Arithmetic 1.

Arithmetical Characters.

+ and : — less: × multiplied-into: ÷ divided-by: = is, gives.

The Division of the old Roman AS, viz. any Integer, or Whole.


<table>
<thead>
<tr>
<th>AS, parts</th>
<th>Semissis</th>
<th>Deunx</th>
<th>Quincunx</th>
<th>Dextans</th>
<th>Triens</th>
<th>Dodrans</th>
<th>Quadrans</th>
<th>Bessis</th>
<th>Sextans</th>
<th>Septunx</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>6</td>
<td>11</td>
<td>5</td>
<td>10</td>
<td>4</td>
<td>9</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

k k 3
PRINCIPAL SYSTEMS OF

COINS.

Coins reduced to Farthings.

    Gui-bzyk. Car-bujo, Jac-beg.
    feil] Sh-aplê. Tal um dusîh.
    ‡ Statêr-ado.
    Dên-ib. Sp-oîl.] Aiür-oîpû.

* Drachm] Hêb-is. Att-tì. Alex-oid—
\{ Min] Att-tig. Ìtal-ekeïs.
† Stater (gold) Att-poîl Cyz-Phîl-Alex-
    dap. Croes-Dàrî-buly.
§ As weigh’d ounce’s-àd, U-C-bouz : e ; fouz;
    a ; lip : -îre ; leis.

MONEY.

Sums of Money, or Money of Account.

5 { (E) Penn-f. Gr-as. Pound-ousy. (G) TAL.
    \{ Min. Õgî′-g = uûs. 5 Ant-ûy = g.
6 { Bab-oiz = tuns. Pt-az = aztî. Sîr-al = poîl. Ty-
    rian-eiz = fatt.
7 (R) Sêstrfrâe—tô-ath, duo, bini nummi
    —tô-am, duo, bina,
8 —stertia ; or millia sestertiûm,—above by
    the adverbs, as follows :
9 { Bis sestertiûm, or bis ; understanding millia
    centum (or centena).

6 Abbreviations explained.

Æginëa mina, talentum (lin.) 5. Alexandrina
drachma, * ; stater, 4. Angel, 1. Antiochica min.

6 Synonyms and Equivalents.


1 N.B. The several coins, measures, and weights, being reduced to the lowest denominations, the memorial verses answer all the purposes of the largest tables: (1) The dif-
ference of any two terms being known by subtraction: and (2) How many of any make one of another, by division. e.g. (a) What is the difference between a Shilling and a Shekel? Answ. (Sh-abz) 110 — (Sh-ok) 48 = 62 q. i.e. S 2:3:2 — S 1 = S 1 1:3:2, the shekel more than the shilling. (b) How many Spans make a Fathom? Answ. Fath-oid) 72 — (Spa-n) 9 = 8. Accordingly, if it be asked, What is a fathom? (and so of any other) the answer may be made, the same way, in any of the prior denominations: e.g. 21 palms, or 6 feet, or 4 cubits, or 2 yards, or 1 1/2th pace, &c.

2 Any whole was called AS, and 1 twelfth of it UNcia [whence our terms of ounces for weight, and inches for length]. The several numbers of those unciae (between 1 and 19) were denominated, in order, as follows in text: viz. Sextans (i.e. 1-6th) 2 Quadrans (½) 3, &c., and express their manner of reckoning interest of money: thus uskra assae [centesimae] was 1 per month [12 per year] per cent. (suppose aurei, or pounds: deunces, 11 twelfths per month, and so on to uncia, 1 twelfth per month [1 per year] e.g. 20d. per month, 20s. per year.

3 Of the three apartments distinguished by brackets, in the 1st are Brass or Copper—æ, Silver; 3d, Gold-coins. ——NB. (1) Sh-ok (as appears by the Abbreviations explained underneath, and by the key above) signifies Shilling 48: i.e. a shilling is 48 farthings; and so of the rest. (2) y (the memorial letter) may be pronounced uce or wi, to distinguish it from i: e.g. Cr-efy, as if it were Cre-fwi.

4 i.e. in the year (Urbs Condita) from the building of the city of Rome, 190.—e.fouz; i.e. U. C. 490, when the Punic war had exhausted the treasury, it weighed but 2. and so of the rest.

5 i.e. the æginean mina was (ubss) 5656 q: (g) 100 of which made the æginean talent, and so of the rest.

6 N. B. In these lists—those in Italic are moneys of account, the rest, coins.——The Figures and Marks refer to the corresponding memorial verses,

(c) N.B. There are also Coind Half-guineas, Seven-shilling pieces, Half-crowns, Three-pences, Two-pences, Half-pennies; and such as are distinguished by a superior c.

MEASURES.

Cubic Measures reduced to Pints.

ARTIFICIAL MEMORY.


   Bath-sy. Hóm-auzu (uidi. 


   Le-dlaü. Hómmer-lat. 

5 { Coch-, ródy. Ch-royz. Myst, rok (g) Conch-, raf. 

   Oxyba-, rók- Metr-eis. 

6 { Coch-, ródy. Choen-bré. Mëdim-pé (dry) Cý- 

   Ox-Cóty-xest as the Roman. 

7 { Quart-, ro. Sè-ar, rl. Co-p. Ur-ek-rs (r) Qua- 


   Sè-ar, rú. † Mod-us, re. 

8 { Gallón contains inches (dry) doild, ro 2: 

   (beer)-eké: (wine) etá 3. 

9 { † Pottle Quarts (dr-) i (liquid)-e—† Modi- 

   Pints (liquid)-an (dry) bau, ro. 

Abbreviations explained. 

Acetabulum (lin.) 9, 8. Barrel, 1. Bath, 4. Bush- 


Homer, 4, 5. Hogshead, 1, 2. Kilderkin, 2. Last, 3. 


Metrés, 6. Modius, 9, 11. Mystron, 6. Oxybaph- 

phon, 7. Peck, 3. Pottle, 11. Puncheon, 1. Qua- 

drantal, 8. Quart, 1. Rundlet, 1. Seah, 4, 5. 


Tun, 1. Urna, 8. Wey, 3. 

Synonyms and Equivalents. 

Amphora, quadrantal. Amphoreus, metrétes. Ca- 


Coron, homer. Cotyle, hemina. Ephah, bath. Lin- 

gula, ligula. Omer, homer. Oxybaphon, acetabu-

1 i.e. A Firkin (1) of Beer 72 pints. (2) of Ale=64 pints. and so of the rest.
2 By act of parliament, in 1697, the gallon contains only 268 4/5 inches.
3 By experiment, made in 1688, it was found to contain only 224 inches.

*Long Measures reduced to Inches.*

1  
Cübê-bei. E (fl) ép (eng) ol.

2  
Mî-sîty. Le-miiles 3.

3  

4  

5  

*Proportions.*

6  
nad: euça: peldu 1. [Mœ- 6ixth.

7  
Foot—Eng-ath.—Grêk-xyp.— 3 Rom (coss)  
naup (st) oupe (vês) oukau.

*Abbreviations explained.*

Arabian pole, 3. Barley-corn 6. Cubit—pygen,  
Ell (flemish, english) 1. Ezekiel’s reed, 3. Fathom,  
2, 3. Foot—pous=pes 1, 5, 7. Furlong=stadium  
Nail 1. Orguai, 4. Orthodôron, 4. Pace=passus  
2, 5. Palm=doron 1, 3, 5. Palmipes, 5. Passus=  
pace, 5. Pes=foot, 5. Pygme, 4. Pygon, 4. Rod,  
2. Schôenus, 3. Span=spithame 1, 3, 4. Spithame  
Synonyms and Equivalents.


1 N. B. The Digit is sometimes divided into 4 grains; the Line into 6 points.
2 N. B. A Sabbath day's journey is reckoned to be 730 paces: 6 of which made the Parasang, 48 a Day's journey.
3 i.e. The proportion of the Roman foot to the English (divided into 1000 parts) is here express, as found—on the monument of Cossutius—on that of Statilius—on a songius of Vespasian.

Square Measures reduced to Square Foot.

\{ E. Yar-n, Pace-du. Pôle-épe,ro. Roöd azkoux. \\
  Acré-ötusy. \\
\{ G. Plethron—azasf. Aoura, the half: but \\
  Aëgyptian—itdoun. \\
  A-fôke (qu) at faux.

Abbreviations explained.


Multiplication Table.

\[
\begin{align*}
\text{from 7} & & \{ P-
\text{oi, on. P-ei,us. P-ou,si. K-ei,so} \\
\text{by 12} & & \{ K-
\text{ou,pê. N-ôu,eia.} \\
& & \{ F-
\text{ad,seî. L-ad,sy. S-ûd,oid. P-} \\
& & \{ \text{ad,ko. K-ad,oua, N-ad,azei.} \\
\end{align*}
\]

\[
\begin{align*}
7 \times 7 & = 49
\end{align*}
\]
PRINCIPAL SYSTEMS OF NUMERICAL LETTERS.

1 R. { In Numerals] A less number, afore, Abates; after, Encresses.
2 I-b. V-u. X-az. L-ux. C-azy. D-ityz, M (CII) ath; hence (CCCC) byth,
3 H. N-az p-ag, W-uh, from-ag by ננס to ouzy, CCCCC,
4 ath by the Units: but oftner by נינמ, prefixing the numbers [azyth.
5 G. α-b. i-az. ε-ag, η-au. (η) koppā-nū (ται) sanpi-ouy, 9 a (α α) azyz

1 e. g. IV 4, IX 9, XL 40, XC 90.
2 e. g. VI 6, XIV 14, XIX 19, XXIX 29—
3 Form'd, in current writing, from M: part whereof, united, (viz. 10) became D 500, hence 5000, 5000 50000.
4. i. e. Units, tens, hundreds, begin from the letters here specified; and are to be reckoned on, in order, from them.
5 Instead of נ, being the ineffable name of Jehovah.
6 e. g. 7 500, 6 600, 7 700, &c.
7 Before the letters expressive of hundreds; as, ליל
8 e. g. 1000, מִיָּמִים, 3000, מִיָּמִים 80000, &c.
9 The various figures and names of these numerical characters, see in my Table of Greek characters.
10 e. g. Δ (10) inscribed in Π (5) is 15 (50).

PRACTICE.

1. If one the sought into Price, or its factors; or by Aliquot parts, and by the Aliquots of Fractions of Sought (if any) divide Price.
2. What'll One the Price by Commodity; but, if too large, by its factors.
1 i. e. In questions, where the conditional term is 1: as, when we say, "If one cost so much, what will so much cost?

2 i. e. Multiply the question-term, or thing sought, into the price &c.—e. g. If one cost 10s. what will 20 cost? &c. Answ. 20 (the thing sought) × 10 (the price) = 200s. i. e. 10l.

3 viz. when more commodious.—e. g. If one cost 12 | 6, what will 14? Answ. The factors of 14 being 2 × 7; say 2 × 12 | 6 = 258: then 7 × 258 = 1758. i. e. 8l. 15s.—

N.B. If the multiplicator be not resolvable into factors, take those that come nearest it, and add the price for the odd one, or multiply it by what the factors want of the multiplicator.

4 Divide it by the Even parts of the denomination, in which you would have the answer.—e. g. If one cost 12 | 6, what will 14? Answ. 10s. being the 2 of 1l. and 2 | 6 (which makes up the 12 | 6) the 2 of 10s.: say 2 in 14 = 7l, then, 4 in 7 (the quotient of 14 by 2) = 1; and there remains 3l. which, in the next inferior denomination (viz. Shillings) is 60, then 4 in 60 = 15s.

Thus

\[
\begin{array}{cccc}
\text{Thus} & 14 & 14 \text{ pds. pks. &c.} \\
\text{divided by} & 2 & 5 & 7 \\
\text{by} & 6 \frac{1}{2} & 1 & 15 \\
\hline
& 6 & 4 & 7 \\
\hline
S & 12:6 & L & 8:15 \\
\end{array}
\]

5 As in the following example:

<table>
<thead>
<tr>
<th>C</th>
<th>qr.</th>
<th>lb</th>
<th>s</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>84</td>
<td>3</td>
<td>11</td>
<td>at</td>
<td>1</td>
</tr>
</tbody>
</table>

14. s 1 = 21 s

\[
\begin{array}{cccc}
\text{q} & 15 & \text{lb} & 7 \frac{1}{2} \\
\hline
\text{a} & 168 & 4 \frac{1}{2} & \text{lb} \\
\hline
4 \frac{1}{2} & 42 & - & \\
\hline
\hline
q, lb, 11.818:6 & 18 & 6 & \\
\hline
\text{allq. of fract. pr. of fract.} & \\
\hline
\hline
\end{array}
\]

In all... 1852:6 The answer: which, being halv'd 92:12:6; the price of C 84:

gives \( \frac{1}{2} \) qr. 3: lb 11.

6 i. e. In sums, wherein the Question-term is 1; as when we say, "If so much cost so much, What'll one cost?"

7 i. e. If 12 cost 10 | 6, what will 1? Answer, 12 in 10 | 6 \( \frac{1}{2} \) cannot have: but 12 in 10 × 12 (to reduce it to
pence) = 120 + 6 = 126; then 12 in 126 = 10d. and 6 remains; which multiplied into 4 (to reduce it to farthings) is 24: then 12 in 24 = 2 q.

Thus \[ \begin{align*}
\text{in s 10 : 6 : -} & \quad \text{or, by the factors of} \\
12 & \div 10 \div 2 & \div 12, \text{viz.} \\
2 & \times 6, \text{or} \quad 3 & \times 4; \text{as in the following:}
\end{align*} \]

8 The foregoing example will stand

\[ \begin{align*}
\text{in s 10 : 6 : -} & \quad \text{in s 10 : 6 : -} \\
2 & \times 3 & \times 2 & \times 3 & \times 6 \\
6 & \times 10 & \times 4 & \times 10 & \times 2
\end{align*} \]

So the answer is found more easily than by dividing by 12: much more so it will be, when that number is higher.

---

**RULE OF THREE.**

*All Questions in it answered (1) by one stating (2) the same way.*

(1) **CONDITIONAL** in one line: and, opposite, the terms **CORRESPONDING**:

(2) **DEND** is the **Ducing** of one **into** Duc’d of the other: the Rest **SOR**.

N. B. **No-Duc’d**: the facit of one line divide by that of the other.

---

1 i.e. The producing a terms of one line multiplied into the produc’d b of the other, give the diviDEND; and the rest of the terms multiplied together, give the diviSOR: the Quotient falls to the blank c.

(a) **Producing** terms are such as jointly produce any effect. e.g. whatever is considered as a cause, with the adjuncts of time, distance, measure, &c. (b) **Producing** terms are such as are connected with the others under the character of price, purchase, produce, gain, loss, interest, advantage, value or quantity of work, &c. (c) e.g. At the rate of 6 per cent: per ann. what is the interest of 200l. for 18 months? Answ. The terms being stated, as they offer (without any other regard than Which are conditional, and Which imply the question) Thus:

\[ \begin{align*}
\text{Interest} & \quad \text{Principal} & \quad \text{time} \\
6l. & \quad 100l. & \quad 12 \text{ m.} \\
\quad 200 & \quad 18
\end{align*} \]

or in any other order agreeable to the directions in the rule say "6" (the produced term of one line) \( \times 18 \times 200 \) (the
ARTIFICIAL MEMORY.

producing terms of the other) = 21600 (for the dividend):
And (the rest) 100 × 12 = 1200 (for the divisor). Then
21600 ÷ 1200 = 18, the answer; viz. 181.
2 i.e. If there be no produce’d term (as generally happens
in the single rule of three inverse) divide the facit, &c.
for e.g. How much stuff, yard-broad, will line 10 yards of
cloth, yard-and-quarter broad? The terms being stated
thus:

<table>
<thead>
<tr>
<th>broad</th>
<th>long</th>
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<tr>
<td>4 qrs</td>
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<tr>
<td>5</td>
<td>10 yard.</td>
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</table>

say 5 × 10 = 50
and 50 ÷ 4 = 12 24th
i.e. 12 yards and 2¼ or ½.

---

SUBTRACTION.

May be more commodiously performed by Addition;
as in the next article.

---

TABULATING.

To multiply and divide by Addition only.

1. Twice-double-Multiplicand facits † every multiplicant.
† gives the f. of.

1. In the Multiplication sum (1)
the facits of the multiplicand twice doubled, are, as they stand against
the digits 2 and 4. Then, To mul-
tiply the multiplicand—into 8
(the last figure of the multiplicator)
double the facit of the digit 4—
into 6 (the 2d figure, &c.) add
the facit of 4 to that of 2 (=6)
—into 7 (the next figure, &c.) add
together the facits of 1, 2, 4
(=7) placing each of them, as in
the common method of multi-
plcation.

2. In the Division-sum (II) (1)
Tabulate the divisor, as in the ex-
ample, viz. against the digit 2,
by adding the divisor to itself;
against 3, by adding together the

<table>
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<tr>
<th>Multipli-cand</th>
<th>98765</th>
<th>768</th>
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<tr>
<td>Digit. Facits</td>
<td>2</td>
<td>5</td>
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<tr>
<td>Dividend.</td>
<td>395060</td>
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<tr>
<td>Divisor.</td>
<td>790120</td>
<td>8</td>
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<td>592590</td>
<td>7</td>
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<td>691355</td>
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<td>75851520</td>
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<td>98765</td>
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<td>1929</td>
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<td>102</td>
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<td>6144</td>
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<td>6912</td>
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Quotient (III) 3840

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totals of 2 and 1; against 4, by adding the total of 3 to itself, or that of 3 to that of 1; and, in like manner, in the rest, by adding together the totals of any two or more digits, equal to the digit whose total is sought. Then, (3) Quote (or, for the quotient, take) the digit against the total next less, or under the first corresponding figures of the dividend, viz. 7585. Then, instead of subtracting, according to the common method, the facet of the divisor by 9 (viz. 6912) from (7585) the corresponding figures of the dividend (3) Subtract by addition, and say [not, 2 from 5, and there remains 3; but 2, and (so much as will make 5, viz.) 3 is 5: then 1, and (as much as will make 8, viz.) 7 is 8: then 9, and [what will make 15 (since 9 cannot be taken from 5 viz.] 6 is 15, then 1, that I borrow, and 6 is 7: and so on.—In the Division-sum (III) it appears that—All the tabulating necessary to find the quotient, is only to double the divisor: for, the total next less than (the 1st dividend) 987, is 969; therefore quote 1: then (the 2d dividend) 196 has no total less; therefore quote 0: then the next total less than (the 3d dividend) 1965, is (the 2d total, viz.) 1936; therefore quote 2.—And, in like manner, may be tabulated any sum, by steps, as there shall be occasion.

(a) N. B. 15, being the last sound in the mouth of the operator, does more readily and certainly remind him of what he borrow, than in the common way of subtraction; which is no small advantage to this method.

---

WEIGHTS.

Troy Weight, for Gold, Silver, Jewels, Grains, and Liquors.

Monyers reduced to Blanks.

1 Mon. Petit-ef-Droit-okey Mite-abth-okey Grain-disozy.

Goldsmiths and Apothecaries Weight reduced to Grains.

ARTIFICIAL MEMORY.

Averdupois-Weight, for Baser-metals, Bread, Mercery, Grocery, &c.

Wool, reduced to Pounds.


Other Things.

4 Pound-ounce-as. Hun-pounds-abe. hún-Fother-án-are: Tun-ez.

Hebrew Weights, reduced to Grains.


Greek and Roman Weights.

6 { Lens, kûrâbë. Lept aurek. Chalch-d, rë Sil, } t, rëk. Ob-ou-trek.

7 { Script-ak, traf. Dra-lf, ouraf. — Sext-oid, aurp. } Sicil-azn, erp.

8 { Duell, bol, uroi. — Unc-fip, roi. — Libra- lefu-lroi. } ²

Proportions.

9 GRAINS English-bif, re make French-alei, Dutch-apou.

10 OUNCE has grains Aver-ofei, Troy-fouz ³: as eiy to oii ⁴.

11 POUND Aver-heavier than Troy by 2 ounes, 4 drams, and 2 scruples.

Abbreviatures explain'd.


L L 3
SYNONYMS.


1 N. B. The Grains, us'd in weighing Diamonds, are somewhat lighter than those us'd in gold, &c.

2 i.e. 218, according to Bp. Cumberland: 268, according to father Mersenne.

3 So that the averdupois-ounce is less by 42 grains than the troy-ounce; which amounts to near a 12th part of the whole.

4 i.e. 73 ounces-troy make 80 ounces-averdupois.

ASTRONOMY.

MARCH.

The 1st Day, to find on what Day of the Week it happens.

1. The year, more 2 and even-4th, divide by 7: [given

2. By what remains (for 0 sat 1 sund. &nd-sd-on) it is

E. G. Ann. Dom. 26 + 2 + 6 (its even 4th) = 34 ÷ 7,
remains 6: i.e. friday; accounting saturday 0, sunday 1,
monday 2, &c. — Before Christ, reckon Backward; viz.
sunday 1, saturday 2, and so on to monday 0. e. g. Bef.
Ch. 7 + 2 + 1 (its even 4th) = 10 ÷ 7, remains 3; i.e.
friday. — Of the other months to find the 1st day, and consequently what day of the week any day is; V, Signs.

MONTHS,

The Number of Days in each, with the Days of the Nones and Ides.

Apr Sâ Nô June-iz 1: Mar Mâ Jûl Oc, No-p, Iû-al 2 —
in the Rest, l. . . at 3.
MOON.

Cycle and Epact.

Golden's remainder of year-more-1, divided by 19. Epact's the cycle into ab: above is by iz, the remainder 2.

Change and Age.

New's the remainder of month-from-march and epact, less iz, aux 3.


Full's 15 days from the change——Waining, east; Growing, west is enlightened 4.

Rising and Setting.

At Sun-set, sets New, rises Full; and, each day, minutes ub more.

Shining (in Waining) Subtract (in Increasing) Add to Sun-rise, set.

Southing and Tides.

Southing's the age into ok, by 60: from al, the excess take 5.

High-water at London-bridge: two hours and a half after Southing 6.

1 e.g. 1737 + 1 = 1738 ÷ 19 = 10: remainder 9, for the cycle, or Golden number.
2 e.g. 9 (the cycle) × 11 = 99 ÷ 30 (as being above 30) = 9: remainder 9 for the epact.
3 e.g. May 20 (1737) What is the moon's age? Answ. (the number of the month from march, inclusively) + 9 (the epact) = 12 - 10 = 18: the day of the new moon
when it is said to change. So the moon, on the 20th of may, is 2 days old.

4 i.e. The Horns are turnd, in Decreasing (from the Full) West-ward; in Encrasing (from the New) East-ward.

5 e.g. April 15 (1737) When comes the moon to the meridian? Answ. The moon's age is 26; the excess above (al) 15, is 11. Then $11 \times 48 = 528 \div 60 = 8$ h. 48 m. for the Southing.—For the reader working, the rule may be thus exprest: "Age into 4, by 5: into 12 the remainder gives minutes." e. g. $11 \times 4 = 44 \div 5 = 8$ h. remainder $4 \times 12 = 48$ m.

6 e.g. Apr. 15 (1737) The moon Souths at 8 h. 48 m. Then 8 h 48 m. + 2 h. 30 m = 11 h. 18 m. (N. B.) If the amounts to more than 12; the excess shows the hour.

---

THE 12 SIGNS

or Portions of the Zodiac, nam'd from Constellations once in them: their Names, Characters, and corresponding Months; with a Key to find the Sun's Place on any Day; and on what day of the Week the 1st Day of any Month happens.

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<th>γ</th>
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<td>Gēmī</td>
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<td>k s</td>
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<td>Gemini</td>
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<td>Cancer</td>
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<td>no</td>
<td>p ø</td>
<td>φ</td>
<td>Sagittarius</td>
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<td>Capricornus</td>
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<td>Piscē</td>
<td>feb</td>
<td>ba d</td>
<td>Χ</td>
<td>Pisces</td>
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</table>

1 The method is this: To the day of the month (+11 for the old style) add the number signified by the numerals n, ou, &c. the Sun (−30, if above 30) is in the degree of the sign corresponding to the day of the month. E. G.
ARTIFICIAL MEMORY.

Feb. 10 + 11 (for the old style) + 11 (for the numeral be) = 32—30 = 2° of X.

2 Thus: From the day on which March 1st happens (V. March) for any other month, count forward so many days as are signified by the numerals a, f, &c. E. G. Mar. 1st, 1787, was Tuesday; therefore Apr. 1st [counting (f) 4 onwards, Tuesday being one] is Friday; and, consequently, the 8th, 15th, 22d, 29th, are Fridays; whence may be known the rest. [N. B. Jan. and Feb. are reckoned from Mar. of the preceding year.

SUN.

The Time of its rising each Day.

1 Jän-o 1. 7 Febr-er. 6 Mar-by. 5 Apr-ou. M-ast. 4 Júl-p. 5 Aug-at. 6 Sept-ad. 7 O ... be. 8 N-alt. † JUN-da, the Longest, i fi 2. — the Shortest ei boi, DEC-EM-da.

For the intermediate Days.

Sought, into 60, by All, gives Min. fewer 1st line, more 2d 3.

The Time of its Setting, each Month, &c.

Setting's the complement of rising to 12; and, doubled, the day gives 4.

Cycle and Dominical Letter.

Cycle's the remainder of year-more-9 by ek 5: if 0, ek 6.

ek cycle's A; ep, B; and so on 7; e'ry 4th has 2 a (next after these 3ds: d E, au G, a-y B, bo D, aei F, de A, don C) and FORMER is us'd till Feb-do, in Leap-years; and, after, the LATTER.

To find the Sun's Place in the Zodiac, V. Signs.

1. i. c. On Jan. 4, the Sun rises at 8.
2. i. c. On Jan. 21, New style (which is the Longest day) the Sun rises at 3 h. 49'.
PRINCIPAL SYSTEMS OF

3. i.e. The day sought (reckoned from the day of the Sun's rising) multiplied into 60, and divided by the number of all the days between the day of the Sun's rising (specified) in any month, and the day of its rising in the next; gives the minutes fewer (or, to be subtracted from the hour specified) in the 1st line; more (or, to be added) in the 2d line. e.g. Apr. 13, I would know when the Sun rises. By 5 Apr-ou I find that the day sought (reckoned from the day of the Sun's rising, viz. the 9th) is 4 [for 9 + 4 = 13]. Then 4 × 60 = 240: and 240 ÷ 36 (the number of all the days from 5 in Apr. on to 4 M-as: i.e. from 9, the day the Sun rises at 5 in April; to 16, the day the Sun rises at 4 in May) = 6' [and 24-36th i.e. by reduction] 40"; — 5 h. (the day it rises on the 9th of April) = 4 h. 53', 20"; then, therefore the sun rises on that day, viz. Apr. 13.

4 Thus, Dec. 21, New stile, the sun rises at 8 h. 17 m. the complement of its rising to 12 is 3 h. 43' [for 8 h. 17 m. — 12 h. = 3 h. 43 m.]. The sun therefore sets at 3 h. 43 m. and this, doubled, gives the length of the day, viz. 7 h. 26 m. shorter by 9 h. 8' than the longest; which (by the same calculation) will be found to be 16 h. 34'.

5 e.g. 1737 + 9 = 1746 ÷ 28 = 62 the number of revolutions since Christ) remainder 10, for the number of the cycle.

6 i.e. If there be no remainder, it will be (ek) the 28th, or last year of the cycle.

7 i.e. The dominical letter answering to the year of the cycle 28 is A: to 27, B; and so on (backwards) to G, the 7th and last: after which returns A, B, &c.

8 e.g. Every 4th (or Leap year) has 2 dominical letters: the latter of which is us'd after Feb. 24, the intercalary day; which is therefore denoted by the same letter as the 23d. N. B. For the reader finding the dominical letter answering to any number of the cycle, I have given (in parenthesis) those of every third: thus (aei F) F answering to 18 (one of the 3ds these specified), 17 (the next 4th, reckoning backwards) will be G A; 16, B; 15, C; &c.

(a) For the reader finding Leap-year, the rule is this: "Year sought divide by 4; what's left will be, for leap-year, 0; for past, 1, 2, or 3." e.g. 1737 ÷ 4 = 434: remainder 1, for 1st after leap-year.
ARTIFICIAL MEMORY.

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Chronology.

Roman Manner of Dating.

(1) Kal. Non. Id. (2) Pridie. (3) Tert. quart: (ub)
The day sought substract from
One more than Idle-None-days; Two more than the month's, for the Kalends.

I. i. e.) For the days on which the Kalends, Nones, Ides
of any month happen (V. Months) write (e. g.) Kal. Dec.
on the kalends of december, viz. the 1st day of December.
(2) On the day preceding each of them, write (e. g.) Pridie
Kal. Dec. i. e. pridie kalendas decembris, on the day before
the kalends of december, viz. the 30th of November. (3)
For the days backward, write Tertio, Quarto, &c. i. e. on the
3, 4th, &c.

II. To find any of the days, e. g. —— (1) 10th of decem-
ber, What, in the Roman style? Answ. 10—14 (One more
than the days the ides happen on) = 4. i. e. 4to id. dec.
Again (2) 4to id. dec. What, in the English style? Anws.
4 — 14 = 10. i. e. the 10th of december —— (1) 20th of
november: Say 20—32 (Two more than the number of the
days in the month) = 12. i. e. 12mo. kal. dec. (2) 12mo.
kal. dec. say 12 — 32 = 20.
Their Commencement in the Julian Period

| Epochas | Principal Systems of
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**To find**

1. The year of the Julian period corresponding to any year in any Æra.
2. Any year of any Æra by the corresponding year of the Julian period.

1) JUL—for After add Comm-less-1—for Afore take from Comm.
2) ÆR—After, Comm-less-1 take for Corr—but Afore, Corr. from Comm.

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1. What year of the Julian Period is the year 1737 (1) before Christ? (2) after Christ?—Answ. (1) 1737 (before Christ) = 4714 (the year of the commencement of the Christian Æra in the Julian period) = 2977. (2) 1737 (after Christ) + 4713 (the commencement-less-1) = 6450, the year of the Julian period.

2. What year of the Christian Æra is the year of the Julian period (1) 2977? (2) 6450?—Answ. (1) 2977 (the year of the Julian period corresponding to the year of the Æra sought) — 4714 the commencement of the Christian Æra = 1737. (2) 6450 the corresponding year) — 4713 (the commencement-less-1) = 1737.

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* For the Number of Years from the Creation to the Birth of Christ.

—— The Christian vulgar Æra commences in the year of the world 4004, Jan. 1. [according to Helvius, Isaacson, &c. 3948]—— The Jews place the creation of the world, Later by 242 years, viz. in 3762, Oct. 7.—— The Greek historians, on the authority of the septuagint, Sooner by about 1490, or 1500 years, viz. the ecclesiastical, in 5494; the civil, in 5509.
398  **PRINCIPAL SYSTEMS OF**

**FESTIVALS,**

*Holy-days, Feasts, &c.*

**IMMOVABLE.**

*Christ.*

Nát-de, *du* ¹, Círc-ja,*b.* Epiph-ja,*s.* Lámm-*au,* *b.* HoRood-*se,* *bo.* Transf-*au,* *s.*

*Mary.*

Ann-már,*el.* Púr-féb,*e.* Nat-se,*k.* Vis-jul,*e.* Cónc-de,*k.* Ass-*au,* *al.*

*Saints.*


Mátt-se,*da.* Pául-Jan-*du.* Pétf-jun,*dou.* Phil Jaco-may,*a.*

Sím Jud-o,*ek.* Ste-de,*dau.* Tho-dec,*da.* Válentine-feb,*ef.*

*Royal Family,* 1737.

Cór-o,*ba.* Próclajun,*ab.* Born,*King-o,*ty : *seit.* Queen-mar,*a* : *seid.*

Wáles-ja,*ty* : *ppy.* -cess-n,*ak.* AnOr-o,*de* : *pyn.*

Ame-ma,*iz* : *pab.*


*Terms,* as in 1737.

Terms hold. weeks *al* : dáys Hilar-*eb.* East-*ép.*

Trin-*dy,* Mich-*tau.*

Bil from ján-*di* to feh-*be*—MICH from óc-*do* to nov-*ek.*

East, wéd-*e* áfter, begins : ends, áfter ascénsion, mond-*a.*

Trin, fríday áfter, begins ; and ends 3d wédnes-*day after.*

Vac. holds weeks *toi* : dáys Hilar-*oit.* East-*ap.* Tr-*abs.* Mich-*us.*
ARTIFICIAL MEMORY.

Quarterly.

State Holidays.

MOVEABLE.
1 Before and after Easter.2
   Pál-p. Maund-i. Good-Fri-d.
EASTER's the first Sunday after first Full-moon
after March-da.
2 { Low-oi 2. Roga-tu. Asc-in. Whits-on. Trín-
lau. Ad-eta.
EMBER-days. We Fri Sát, after Quá Whit Ho
Róod Luci-dec,at.

EASTER TABLE 3.

Paschal full-moons for the Golden-numbers, with
the Hebdomadal Letters.

1 A l d  8 A bei c  15 A a g
2 M el g  9 A oi f.  16 M ea c
3 A bi e  10 M eoi b  17 A n a
4 A e a  11 A bui g  18 M -eou d
5 M ed d.  12 A f c  19 A -boi b
6 A by b  13 M eo f
7 M iz e  14 A be d

Use of the Table.
Súm from Hebdóm to Domín (of the year sought)
add to the Month's day.4

Synonyms, &c.

Ash wednesday, 1st day of lent. Candlemas, pu-
ricularion of the virgin M. Crucifixion, good-friday.
Holy-thursday, maunday. Holy-week, last of lent.
John the Baptist, midsummer. Parasceue, good-

1 i. e. The nativity of Christ is on dec. 25. and so of the rest.
2 i. e. — Septuagesima-sunday is (st) 63 days before Easter [70 before the octave of easter] — Low sunday is (oi) 7 days after Easter, and so of the rest.
3 The Easter-table consists of 5 verses, each ending at a period mark; and may be read thus: "One ald, two melg, three-dit c, (four A e k, five medd.) &c.—Its Use is to find Easter-sunday for ever. V. n. 4.
4 e. g. A. D. 1737, the golden number is 9, the dominical letter B. then, against 9 (in the table) the hebdomadal letter is F, from thence to the dominical B. are (g a b) 3: which added to apr. 7 (the day of the month, in the table) gives ap. 10, for easter-sunday.—So A. D. 1736, golden-number 8, 1st dominical-letter C: then from C (in the table) to C (dominic.) 7 + apr. 18 = apr. 25.

Geography.

In the following verses (which contain as much, I think, as is necessary to charge the memory with by way of foundation) I have given the most general divisions of the several parts of the terraqueous globe; beginning, in each, with the most northerly parts, and, in descending southwards, proceed (to the right) from west to east: so that children, with a few hints and occasional helps, may be able to find them, by themselves; and thereby fix them better in their memory; after which they will easily get the verses by heart, and be well prepared to consult the gazetteer, or to go through any system, with pleasure, to good advantage.
LAND.

Continents, Isles, Peninsulas, Isthmus, Capes, Mountains.

CONTINENTS.

Europe, Africa, Asia, and America.

AF (8) Bar (féz mor a túi trípo bár) Bi (dar) Egý (álex cair)
Zaár (zu) Ne (tóm) Nubi (dáng) Gui (ma why ḫe lo cáng) Ethí (mon eaf)
AM (23) Green Brit Wa La Cán Acad Eng Jers Pén Mary Virg Car
Geor Kent Flóir (ang pens) Mex (uád mi ta jú chi gaut hou ver)
Firm (pa ca már venez ánd gra po cóm dari) Per (quito lìjm charc)
Am: Ñrås playoffs (sál seba vin) Chil (já) Para (guai tucu plat) Mag
AS (5) Tá (á sáb che thi) Turk (tú na cúrd sy di ár) Pe (der isp gomb)
Ind (mög ág beng: vis go bi mál: pe to sí co) Chi pek nank
EUR (18) Nor-berg Swede-stock (Scot-èdn. Ire-dúblín E-london)

AFRICA.


AMERICA.

Greenland, New-Britain, New-Wales, Labrador,

M M 3

ASIA.


EUROPE.


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Capes, Islands, Peninsulas, and Mountains.
Béi-flo. Ba Cú Jam Hi Ríc, Carib (ánt ne nò barb) mex. Fueg-mag.

CAPES.

ISLES:

PENINSULAS.

MOUNTAINS.
404 PRINCIPAL SYSTEMS OF

WATERS.

Oceans, Seas, Gulphs, Straits, Rivers, and Lakes.


SEAS: Ba de-Swede, Chan-éng, Med-éu,éfr, Black eu,as. Casp-tartar.


OCEANS.

Hyperborean or northern. Ethiopian. Eastern, Atlantic or western, Pacific or south, or mare del Zur. Icy near the South Pole.

SEAS.

Baltic, east of Denmark and Sweden. Channel, south east of England, Mediterranean, between Europe and Africa and part of Asia, Black sea, between part of Europe and Asia. Caspian, in Great Tartary.

GULFS.


STRAITS.

ARTIFICIAL MEMORY.

LAKES.


RIVERS.


A more particular Account

of the several countries of Europe may be exhibited, so as to give a precise idea of the situation of each sub-division, after the manner of the following specimen: in which (beside what was proposed in general, note 1.) such as are contiguous Southward, are joined; as in weLa-: such as are contiguous Westward, are hyphend; as in Che-De- &c.

ENGLAND.

Its Forty Counties.

Nor cum-dúr: weLa-yórk: che-de-not-linc: shróp-sta-le-rut norf:

FIRST MERIDIANS.

On either side of Teneriffe.

Abbreviations.

The Dutch placed the first Meridian at Teneriffe; the French, since 1634, at Ferro, two degrees west of Teneriffe. Others variously, as in the memorial verse. In most of the French maps and those copied from them two degrees must be allow'd on such as are calculated on the Dutch plan to make them correspond; as for example—Hamburgh is there said to be long. 29 deg. 20 m. E. consequently in the French maps it will be found in 31 deg. 20 m, and in similar manner are all the rest. Many modern geographers usually now calculate the first Meridian from the capital city of the state in which each resides: the English reckon from the Royal Observatory at Greenwich, near London; the North Americans from Philadelphia, situated 75 deg. 8 m. W. from London; and several of the French from Paris 2 deg. 20 m. E. of London.

History.

BIBLE.
The several Books of it, with the Time of their writing.

OLD TESTAMENT.
Its 39 Books.


Prophets.
NEW TESTAMENT.

Its 27 Books.

Phil Col Ephès Phile Jáme-se, Heb Act-si, Timothy Tit-su.
3. doi in iau.

1 i. e. Elihu is most probably supposed to be the author of the book of job, about 1750 years before the birth of Christ. So, Moscs, the author of the pentateuch, flourished in the year before Christ 1400. And so of the rest.———
N.B. Ezra is thought by the jewish doctors to have writ the chronicles [the 36th chapter of Genesis, the last of Joshua and Jeremiah; and to have revised and settled the cannon of the old testament.]
2 i. e. Mathew writ his gospel about the year of our Lord 41. And so of the rest.
3 i. e. 27 books (from the year 41 to 97) in 36 years.

ENGLAND.

Its Kings, since the Conquest, with the Commencement of their Reigns.

WILL Conq-sau,¹ Ruf-koî. HEN 1st-ag. STEPH-bil.
HE sec-buf.
RICH 1st-bein. JOHN-ann. HEN 3d-das. EDWARD
1st-doid.
Ed 2d-typ, 3d-tép. RI sec-ipp. HEN 4th-town,
5th fat.
6th-sed Ed 4th-saub, 5th, Ry 3d-seit. HE 7th-seil,
8th lyn.
ED 6th-lóp. MARY-lat. ELS-luk. JAME 1st-syt. Cā
1st-sel.
CAR 2d-són. JAME se-seil. WILL MA-sein. ANN-
pyd. Geor-paf, pep.
1 i. e. *William the conqueror* began his reign (accounting
the year to begin January 1) A. D. 1066—N. B. 1000 is
omitted throughout this list.

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**MONARCHIES.**

*The grand or universal ones, their Rise, Fall,
and Continuance.*

**ASS:** Ἰν(Ἀ.Μ.)-απόκ. Σαρ-τετά (Βαβ-ισαν, Περσ-
ταῦβοι, Ἑλλην) ↓

Cäs-sma-gre. Lys thrac-he-bós. Ptolem aë-lib-a-
pál-sy. Seleuc as.)

**BOM:** Jul-iny'd, Jov-otat ↓ East, Wést: taken

Cón-loze, Rom-otun:

A'lar(A.D)-obz, Attá-flá. Gëns-ful. Od-ops. Theód-
oni. Tot-lop.

---

i. e. The— Assyrian monarchy begun in Ninus (A. M.)
1748, and ended with Assaraddinus in 3335; being swallowed
up by the Babylonian, which ended (with Nabonadius) in
3419, (when Cyrus reigned over all Asia) so the kingdom
was translated to the Persians: from whom (by the con-
quest of Darius Codomannus) in 3617, Alexander translated
it to the Gærians: after whose death, in 3625, it was (↓)
divided (after the confusion of a few years) among four of
his followers. Cassander had macedon and greece: Lys-
imachus had thrace, with those parts of Asia that border on
the hellespont and the bosphorus: Ptolemy had egypt, libya,
arabia, palestine, and coelosyria: Seleucus, all the rest of
asia. The— Roman monarchy begun with Julius Ca-
sar, in 3902; and ended in Jovian in 4313: after whose
death it was (↓) divided into the Eastern, and Western em-
pires: the former of which ended by the taking of Con-
stantinople (under Constantine Palæologus) in 5402; the
latter by the taking of Rome (under Honorius) in 4850;
A. D. 410: by Aláric, king of the Goths: after whom it
was overrun and ravaged by Attila, king of the Huns, in 451;

by Genseríc, the Vandal, in 455; by Odoacer, king of the
Heruli, in 476; by Theodoric, king of the Ostrogoths, in
↓493; by Tusilas, the Ostrogoth, in 517.
ARTIFICIAL MEMORY.

WAR.

Bodies of Soldiers.

Legi-auth. Ph-eith.

áth,bag. Reg-ig,auth.

1. The Roman Legion consisted of (at a medium) 6000 men: though the number was different, at different times, from 3000 to 6666. And, in proportion, the other bodies, viz. Decuria, 10. Centuria, 100. Manipulus, 200. Turma, 300. Cohors, 600. Phalanx, 8000.

2. An English Regiment is from 300 to 1000 men. And, in proportion, the other bodies, viz. Company, 50-100. Squadron, 100-200. Battalion, 500-800. Brigade, 1000-1100.

Natural Philosophy.

PHYSICS.

ANNUITIES.

The Value, for several Ages of Life.

Ol-n,oub.


1. i. e. for (A) year of age, the value of an annuity is (bz,dei) 10,28 years purchase. And so of the rest. V. Halley, ap. Lowthorp, vol. 3. p. 669.

ARKS.

Of Noah, and of the Covenant Testimony, their Dimensions in Cubits.

D-iz; for Birds-eg, Qu-ag.
PRINCIPAL SYSTEMS OF

i.e. The Ark—of the COVENANT was a sort of Chest in Length, Breadth, Depth, 2½ : 1½ : 1½—of NOAH was a sort of Ship, 300 : 50 : 30: sufficient to hold (with food, &c.) all kinds of Birds (viz.) 200; Quadrupeds, 100. V. Gen. 6. 15. Exod. 25. 10.

ATMOSPHERE.

Its Height, Weight, Elasticity, &c.

Atmosphere (HIGH miles-òz ¹) on a foot-square presses esaus pounds;
On 15 feet (for a man) tuns-al: when least, tun-ar, re less ²;
Weighing as 1—to (water) eig—to mercury)
æth eig ³.
Compressed, on Earth, to atpawm ⁴; by Art, 60 times
more, to kesboz.

1 As appears by a calculation, made by M. de la Hire, from the crepuscula.
2 As appears by calculations made from the Torricellian experiments. V. Jurin, ap Varen. 1. 6. 19. 7.
3 i.e. The weight of air compared to that of water, is as 1
to 800, &c. V. Hauksbee's exper.
4 i.e. The common air we breathe, near the surface of the
earth, is compressed, by the bare weight of the incumbent atmo-
sphere, into a 13769th part of the space it would take-up,
were it at liberty. V. Boyle, ap. Wallis. hydrost. 13 Philos.
trans. n. 181.

DIVISIBILITY.

Of Matter, actually great.

By great EFFLUVIA, in a long time, bodies lose but
a small weight ¹.
Candle, an inch, converted to LIGHT—gives
parts a nonillion. ²
ARTIFICIAL MEMORY. 411

1 As is evident in perfumes, &c.
2 At which rate there must fly out of it, as it burns, in the second of a minute, 418,660,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000 particles: vastly more than a 1000 times a 1000 millions the number of sands the whole earth can contain; reckoning 10 inches to 1 foot, and that 100 sands are equal to 1 inch. V. Nieuwent. rel. phil. vol. 9. p. 858.

DUCTILITY.

Of Bodies, very great.

Microscopical Spiders 1 spin at-a-time, at least, threads-auth.

Glass may be drawn 2 as a web, and knit to the 4th of a line space 3.

Gold, on Silver-wire, is drawn 4 to the part of an inch-bom.

1 i.e. Such are not visible but by a microscope.
2 "As fine as a spider's web:" but not long enough to be woven.
3 i.e. So, that the space in the middle of the knot shall not exceed one 4th of a line, or one 48th of an inch.
4 "To the 14-millionth part of an inch, in thinness:" and yet is so perfect a cover to the silver, that there is not an aperture to admit alcohol of wine (the subtiliest fluid in nature) nor even light itself. Reaumur.

EVAPORATION

From Water, its Quantity.

Foot-square, by heat, in a day, evaporates half of a wine pint 1.

So, Medis tuns-udky'm 2; near a third more than's brought by the rivers 3.

1 According to experiments made by Dr. Halley, ap. Miscell. curios. vol. 1. To which it may be added, that the winds do sometimes carry-off more than rises by heat.
2 Estimating the Mediterranean at 40 degrees long, and 4
broad.
3 V. Rivers, and, consequently, from the whole watery
surface abundantly enough to furnish all the dews, rains,
spings, rivers, &c. that are convey'd into the ocean.

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**MAN.**

**Life, Marriage, Parts, Perspiration.**

LIVE, out of ág, but—at Alu, so—at As, fy—at
Es, bů—at Is, boa
&—at Od, sa—at Us, ou—&—at Aus, ñ—at Oís, a.

**MARR.** a ir ózf: bir-f (to bůr as a, ñu to a)
males-bo to fem at.

**BONES-er. MUSCLES-len, TEETH-id—BLOOD**
as ag to aay.

**Béats,** in an hour, times-óth: and an ounce, at a
time, is discharged:

52 feet in a minute; as pépt-ag to 1 in the ex-
tremes.

**PERSPIRE** through póres (betth-whereof by one
grain of sând may be coverd)

5 parts of 8 (á day's food) from hours 6, after meáls,
to the 12th, 39.

1 i.e. Of the children born, out of 100, there are living,
at 6 years of age, but 64. And so of the rest. V. Halley,
ap. Lowthorp. vol. 3. p. 699.—N. B. On observations
of this nature, drawn from the bills of mortality, is
computed the value of annuities for different ages of life. V
Annuities.

2 i.e. 1 in 104 Marry. King.

3. i.e. Marriages, one with another, do each produce 4
births. Derham.

4 i.e. Births to Burials are as 1, 6 to 1. Derham.

5 i.e. Males, born, to Females, are as 14 to 13. Graunt.

6 i.e. In a body, weighing 160 pound, 100 thereof are
Blood; understanding thereby not only the fluid contain'd
in the veins and arteries; but also that in the lymphas-ducts,
nerves, and the other vessels, secreted from it, and return
into it. Keil.
7 i. e. 250 pounds in an hour, at the rate of the whole mass, in 24 minutes.
8 i. e. The blood is driven out of the heart into the great artery, which would carry it 52 feet in a minute: a velocity to that of its motion in the remotest branches, as 100 septillions [7th period] to 1.
9 Within 5 hours after eating, there is perspir'd about 1 pound; from the 12th to the 16th scarce half-a-pound. Sanctorius.

---

RIVERS.

The Quantity of their Waters.

At Kingston-bridge, Thames (yards Broad-ág, Deep-i) 2 mile an hour Runs 1:
tuns-ëzm igoth in a day; rhe ti po ni do niest nieper
akdoim 2.

1. In a day, 48 miles, 84,480 yards; which multiplied by
(3 times 100, the profile of water at the bridge, viz.)
300 yards, gives 25,844,000 cubic yards of water, i. e.
26,300,000 tuns.

2 The most considerable rivers that fall into the Mediterranean sea, are the Rhone, Ebro, Tiber, Po, Danube, Nile, Don, Niester, Nieper. Each of these is supposed to carry-down 10 times as much water as the Thames (not that any of them is so great; but so to allow for the other lesser rivers that fall into that sea). Now the water of the Thames being computed, as above, at about 20,300,000 tuns; the 3 rivers aforesaid will amount, each, to 203,000,000; in all,
1,687,000,000 tuns. V. Evaporation.
Solomon Lowe was a schoolmaster at Hammersmith, and author of the following works.—I. The Protestant Family Piece, or, a picture of Popery, 8°. 1716.—II. KOINA KAINΩΣ: an appendix to Grammar, containing Rhetoric and Prosody, with directions for Composing, Construing, Parsing, Writing elegantly, and gaining a Copia of Thoughts and Words. To which are added, very short, plain, and comprehensive rudiments of the French and Greek Tongues, 8°. 1719.—III. A Specimen of a Latin Grammar, 8°. 1722.—IV. A Grammar of the Latin Tongue, with appendix and notes, 8°. 1724.—V. Italian Rudiments, 8°. 1728.—VI. Latin Rudiments, 8°. 1729.—VII. The Occasional Critique; containing, (1.) On the Dean of Rochester's Latin Grammar. (2.) On Dr. Busby's Latin Grammar, as improved by his successors. (3.) On Education, etc. (4.) A Proposal of a new scheme of Grammar, 8°. 1736*—VIII. English Grammar reformed, 8°. 1737.—IX. Rhetoric delineated, 8°. 1737.

Of the following publications we have not been enabled to ascertain the dates.—I. An easy method of initiating Children in the Latin

*These tracts were published separately under different titles and afterwards reprinted with the title of the Occasional Critique. No. 4, the last, was entitled The Whetstone, etc. and published in 1732.
Tongue, 8°.—II. A New System of English Examples to Latin Syntax, 8°.—III. A Vocabulary Latin and English.—IV. Sententiae pueriles, Latin and English.—V. English Examples to Latin Syntax.—VI. A Construing Book and Supplement.—VII. Greek Characters and Abbreviations, in a Table.


In this work there are two ingenious dissertations, 1. De Arte Lulliana similibusque inventis. 2. De Memoriae subsidiis. To these we confess some obligations; although Morhof, from unavoidable circumstances, was not consulted till most of the collections were made for this account of the Systems of Artificial Memory.

Daniel George Morhof, was born at Wismar, in the Dutchy of Mecklenburgh, in the Year 1639. He studied at Stettin and Rostock, and visited Holland and Oxford; and in 1665, was invited by the Duke of Holstein to become Professor of Poetry, Eloquence, and History, and Librarian in the University of Kiel. He
died in 1691. His principal work is the Polyhistor, a complete storehouse of miscellaneous literature.

68. *Cartas Eruditas y Curiosas, por D. Fr. B. J. Feyjoo, 4º. 5 tom. Madrid, 1781.*

In this work* there is a dissertation on remedies for the memory, and one on the Art of Memory, in which several books on the subject are named. In another essay, the principles of the art are stated to consist in particular places and images, and a sphere or globe is divided into various compartments. In the tenth section of this essay, Feyjoo speaks of remembering certain words by the means of images, and, in the eleventh section, illustrates the application of the art to poetry, by two examples taken from a treatise on Artificial Memory, by Count de Nolegar, which may be seen in another part of this work.†

Benedict Jerom Feyjoo was a Spanish Benedictine, and attempted by his writings and example to correct and reform the vitiated notions of his countrymen. His Theatro Critico, in 9 vols. and the Cartas Eruditas, in 5 vols. 4º. are works of considerable merit. Feyjoo censures, with great freedom and spirit, the igno-

* Tom. I. pp. 200—228.      † See p. 165.
rance and licentiousness of the clergy, and exposes the futility of pilgrimages, pretended miracles, and superstitious exorcisms. This conduct rendered him obnoxious to the pains and penalties of the church, and Feyjoo was, with difficulty, saved from the horrors of the Inquisition. He died in 1765.

We have not been enabled to procure the date of the following books; the titles, therefore, could not be inserted in regular order.

1. Anacardina à la Arte de Memoria.
3. Epiphaniæ de Moirans, Ars Memoriae admirabilis, omnium nescientium excedens captum.
5. Hieronymus Megiserus de Arte Memoriae.
6. Alvaro Ferreya de Vera, Trattato de Memoria artificiosa.
115. Hortensius, the celebrated Roman Orator, and contemporary of Cicero, was aided by uncommon powers of memory. He was able to repeat a whole oration in the words he had previously conceived it, without committing it to writing; and to go through all the arguments of an opponent in their proper order. As a proof of the degree in which he possessed this faculty, it is said that he once attended a whole day at a public sale, and at the end of it, recited, in regular order, the names of all the buyers, the articles sold, and their prices, with perfect exactness.
65. A. D.—SENECA. "Age (says Seneca) has done me many injuries, and deprived me of many things I once had: it hath dulled the sight of my eyes, blunted the sense of my hearing, and slackened my nerves. Amongst the rest I have mentioned before is the memory, a thing that is the most tender and frail of all parts of the soul, and which is first sensible to the assaults of age: that heretofore this did so flourish in me, as not only served me for use, but might even pass for a miracle I cannot deny; for I could repeat two thousand names in the same order as they were spoken, and when as many as were scholars to my master, brought each of them several verses to him, so that the number of them amounted to more than two hundred, beginning at the last, I could recite them orderly unto the first: nor was my memory only apt to receive such things as I would commit to it, but was also a faithful preserver of all that I had entrusted it with."

980. A. D.—AVICENNA, or Ebn-Sina, an Arabian philosopher and physician, was born at Arsena, near Bocchara, and possessed a ready genius, and a wonderful memory. At the age of ten he made great progress in the languages, and could repeat the Koran by heart. He read over the books of Aristotle's Metaphysics forty times; and by this means so fixed them in his
memory, that he could repeat them with facility.

1484. A. D.—Joseph Scaliger. The works of Homer, (says Wanley) are his Iliads and Odysseys, the former consist of twenty-four books, and so also the latter. His Iliads have in it thirty-one thousand six hundred and seventy verses, and I suppose his Odysseys have no less; and yet it is said of Joseph Scaliger, that in one-and-twenty days he committed all Homer to his memory.

1522. A. D.—Bishop Jewel had naturally a very strong memory, which he greatly improved by art; so that he could readily repeat any thing that he had written after once reading it. His own sermons were chiefly extempore from heads which he had penned down, and on which he used to meditate while the bell was ringing to summon the congregation to church. He is said to have taught his method of artificial memory to his old tutor, Dr. Parkhurst, while they were at Zurich; who in the space of 28 days, with only one hour's application on each day, learned all the 28 chapters of St. Matthew's Gospel so perfectly, that he could readily repeat the whole, or any particular verse, knowing at the same time what went before, or what followed after, any verse that was mentioned to him.

So firm was the memory of Bishop Jewel
that he used to say, if he were to deliver a premeditated speech before a thousand auditors, shouting or fighting all the while, they would not put him out. John Hooper, Bishop of Gloucester, who was burnt in the reign of Queen Mary, once, to try him, wrote about forty Welsh and Irish words. Mr. Jewel going a little while aside and recollecting them in his memory, and reading them twice or thrice over, said them by heart, backward and forward, exactly in the same order in which they were set down. And, at another time, he did the same by ten lines of Erasmus' paraphrase in English; the words of which being read sometimes confusedly without order, and sometimes in order by the Lord Keeper Bacon, Mr. Jewel thinking awhile on them, presently repeated them again.

1547. A. D.—Lipsius, an eminent philosopher and critic, born at Isch, near Brussels, was remarkable for the extent of his memory. He remembered the whole history of Tacitus, and pledged himself to recite word for word, any passage that might be required. So confident was he of having this book fixed in his memory, that he allowed a person to stand by him with a dagger, and to plunge it into his body if he did not repeat, faithfully, the words of the author.

1585. A. D.—Muret in his Variae Lectiones has the following anecdote. In Padua, near
unto me, dwelt a young man of Corsica, of good birth, and sent thither to study the civil law; in the study of which he had spent some years with that diligence and attention, that there was now raised amongst us a great opinion of his learning. He came almost every day to my house, and there went a report, that he attained to an art of memory, by assistance of which he was able to perform that which another could not believe unless he beheld it; when I heard this, I had a desire to behold these wonderful things, as one not very credulous of such matters as come by hearsay. I therefore desired him to give me some such kind of instance of his art as he should think fit. He told me he would do it when I pleased. "Immediately, then," said I; and when he refused not, all we who were present went into the next room; there did I dictate Latin, Greek, and barbarous names, some significant, others not; so many, and so different, having not the least dependance one upon the other, that I was weary with dictating, and the boy with writing what I dictated, and all the rest with hearing, and expectation of the issue. When we were thus diversely wearied, he alone called for more. But I myself said it was fit to observe some measure: and that I should be abundantly satisfied if he could but recite me the one half of those I had caused already to be set
down. He fixing his eyes upon the ground (with great expectation on our part,) after a short pause began to speak. In brief, to our amazement, he repeated all we had written in the very same order they were set down, without scarce a stop or any hesitation: and then beginning at the last, recited them all backwards to the first; then so as that he would name only the first, third, fifth, and in that order repeat all; and indeed in what order we pleased, without the least error. Afterwards, when I was more familiar with him (having often tried him, and yet never found him speaking otherwise than the truth,) he told me once, and certainly he was no boaster, that he could repeat in that manner thirty-six thousand names, and which was yet the most strange, things stuck in his memory, that he would say, with little trouble, he could repeat any thing he had entrusted within a year after. For my own part, I made trial of him after many days, and found he said true. He taught Franciscus Molinus, a young patrician of Venice, and who had but a weak memory, in the compass of but seven days, wherein he had learned of him to repeat five hundred names with ease, and in what order he pleased.

1649. A. D.—Famianus Strada, in his first book of academical prolusions, speaking of Franciscus Suarez, says, "he hath so strong
a memory, that he hath St. Augustine (the most copious and various of the fathers) ready by heart, alleging every where, as occasion presents itself, fully and faithfully his sentences, and, which is very strange, his words; nay, if he be demanded any thing touching any passage in any of his volumes (which of themselves are almost enough to fill a library,) I myself have seen him instantly showing and pointing with his finger to the place and page in which he disputed of that matter.

1661. A. D.—Dr. Thomas Fuller, the author of the Worthies of England, had so great a memory, (says Wanley) that he could name in order all the signs on both sides the way from the beginning of Pater-noster-Row at Ave-Maria-Lane, to the bottom of Cheapside to Stocks-Market.* And that he could dictate to five several writers at the same time, on as many different subjects. This gentleman making a visit to a committee of sequestrators sitting at Waltham in Essex, they soon fell into a discourse and commendation of his great memory;

* The site of Stock-Market is now occupied by the Mansion-House, and many other adjacent buildings. The celebrated Heidegger, it is said, could name all the signs from the Exchange to St. James's, on one side the street, after walking once to observe them.
to which Mr. Fuller replied, "'Tis true, gentlemen, that name has given me the report of a memorist, and if you please I will give you an experiment of it." They all accepted the motion, and told him they should look upon it as an obligation, laid aside the business before them, and prayed him to begin. "Gentlemen, (says he) I will give you an instance of my good memory in that particular. Your worships have thought fit to sequester an honest poor but cavalier parson, my neighbour, from his living, and committed him to prison; he has a great charge of children, and his circumstances are but indifferent, if you please to release him out of prison, and restore him to his living, I will never forget the kindness while I live." 'Tis said the jest had such an influence upon the committee, that they immediately released and restored the poor clergyman.

1676. A. D.—HUMPHREY BURTON, of Coventry, at the age of eighty-three, could (says Wanley) by the strength and firmness of his memory, give the sum of any chapter in the New Testament, and of the chapters in divers books of the Old Testament, in a Latin distich, with as much readiness, and as little hesitation, as if he had directly read them out of a book. I myself have frequently put him to the trial; wherein, though I have observed no order, but named
ere a chapter at the beginning, then one towards the end, then again returned to the middle, and so on purpose prevented any assistance he might have from an orderly succession and dependance; yet would I no sooner name the chapter and book whereof I desired the account, but he was ready with his distich.

1684. A. D.—Dr. Wallis. In the Philosophical Transactions for the years 1686-7, Dr. Wallis gives an account of his performing arithmetical operations in great numbers, by night in the dark; and conceives that we can use our memory with greater advantage at this time, than we can by day, when our thoughts are diverted by sights and noises. "Having had the curiosity (says Dr. Wallis) heretofore to try, how the strength of memory would suffice me, to perform some arithmetical operations (as Multiplication, Division, Extraction of Roots, etc.) without the assistance of pen and ink, or ought equivalent thereunto; and finding it to succeed well (for instance) in extracting the square Root from numbers of 8, 10, 12, or more places: I proceeded to try it (with success) in numbers of 20, 30, 40 places. But was not curious to keep memorials of the particular numbers which I had so considered, (as being but a curiosity, and not of

farther use,) till there happened an occasional discourse of it with a foraigner (Johannes Georgius Pelshover, Regio-Montanus Borussus) who coming to see the University was pleased, as divers other foraigners often do) to give me a visit: Feb. 18, 1669 at a time when I was afflicted with a tedious and severe quarten ague, (which held me for a whole year from about Michaelmas then last past, till about the same time in the year following;) which caused me to pass my nights with little or no sleep.

"He was desirous I would tell him some of those numbers which I had so considered. Which at the present, for the reason but now mentioned) I could not do; save only that, on Dec. 22, 1669, I had (by night in the dark) extracted the square root of 3 (with ciphers adjoined) contained to the twentieth place of decimal fractions: finding it to be:

1.73205080756887729353, fere.

Which is the square root of 3, with forty ciphers adjoined;
3,00000. 00000. 00000. 00000. 00000. 00000. 00000. 00000. (which I had chanced to write down, because $\sqrt{3}$ is a surd which I might after have occasion to make use of) but added, that I could at pleasure perform the like at any time."

174. A. D.—Antonio Magliabechi was born at Florence, Oct. 29, 1633. Such
was the poverty of his parents, that they thought themselves happy in getting him into the service of a man who sold herbs and fruit. Here he took every opportunity, though he could not tell one letter from another, to pore on the leaves of some old books that served for waste paper, declaring that he loved it of all things. A neighbouring bookseller, who observed this, took him into his service. Young Magliabechi soon learned to read; and his inclination for reading became his ruling passion; and a prodigious memory his distinguished talent. He read every book that came into his hands, and retained not only the sense of what he read, but often all the words, and the very manner of spelling, if singular. To make trial of the force of his memory, a gentleman lent him a manuscript he was going to print. Some time after it was returned, the gentleman came to him, with a melancholy face, and pretended it was lost. Magliabechi being requested to recollect what he remembered of it, wrote the whole without missing a word, or varying the spelling. He was consulted by all the learned who proposed to write on any subject. If a priest, for instance, was going to compose a panegyric on a saint, Magliabechi would tell him every author, to the number of an hundred sometimes, who had said any thing of that saint, naming the book and the page, and
the very words. He did this so often, and so readily, that he came at last to be looked upon as an oracle; and Cosmo III. Grand Duke of Florence, made him his librarian, the most suitable office to Magliabechi's genius. In the latter part of his life, when a book came into his hands, he would read the title-page all over, dip here and there in the preface, dedication, and prefatory advertisements, if there were any; and then cast his eyes on each of the divisions, sections, or chapters. After this, he could tell at any time what the book contained.

"Though Magliabechi must have lived a very sedentary life, yet he attained to the age of 81. He died July 14, 1714, in the midst of the public applause, after enjoying, during all the latter part of his life, such an affluence as very few persons have ever procured by their knowledge or learning. By his will he left a very fine library collected by himself, for the use of the public, with a fund to maintain it; and the overplus of the fund to the poor. It had been usual for every author and printer to make him a present of a copy of every thing they published.

"Though he was not an ecclesiastic, he would never marry. He was quite slovenly in his dress. He received his friends, and those who came to consult him on any points of literature, in a civil and obliging manner; though in general he had almost the air of a savage, and even
affected it; together with a cynical or contemptuous smile. In his manner of living, he affected the character of Diogenes: three hard eggs, and a draught or two of water, were his usual repast. When any one went to see him, they most usually found him lolling in a sort of fixt wooden cradle in the middle of his study, with a multitude of books, some thrown in heaps, and others scattered about the floor, all around him; and this his cradle or bed, was attached to the nearest pile of books by a number of cobwebs. At their entrance he commonly used to call out to them, 'Not to hurt his spiders.'*

1748. A. D.—WILLIAM LYON. In the Gentleman's Magazine for the year 1752,† there is the following singular anecdote. "William Lyon, a strolling player, who performed at the theatre at Edinburgh, and who was excellent in the part of Gibby, the Highlander, gave a surprising instance of memory. One evening, over his bottle, he wager'd a crown bowl of punch, (a liquor of which he was very fond,) that next morning at the rehearsal, he would repeat a Daily Advertiser from beginning to end. At the rehearsal, his opponent reminded him of the wager, imagining as he was drunk the night before, that he must certainly have forgot it; and

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* Spence’s Parallel of Hill and Magliabechi.
† Vol. xxii. p. 411.
rallied him on his ridiculous bragging of his memory. *Lyon* pulled out the paper, desired him to look at it, and be judge himself whether he did or did not win his wager. Notwithstanding the unconnected matter of the paragraphs—the variety of advertisements—and the general chaos which goes to the composition of a newspaper, he repeated it from beginning to end, without the least hesitation or mistake. *Lyon* died about four years ago at *Edinburgh*, where he had played with great success."*

1751. A. D.—*Jedediah Buxton.* A correspondent in the *Gentleman's Magazine* for February 1751,† gives the following account of this extraordinary man. "It is necessary to premise first that he is no scholar, not being able to scrawl his own name; and secondly that his attainments are of his own pure industry, for that he never had further help towards them, than his learning the multiplication table in his youth; yet without the assistance of pen, ink, or chalk, or any other mark, he will multiply 5 or 6 figures by as many, or divide as large sums off hand, in a very short time, sooner than the most concise of your arithmeticians pretend to.

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* "We have heard of this performance (says the editor) many years since, when the *Daily Advertiser*, though larger than other papers, was not so large and crowded as it has been of late."  
  † *Vol. xxii.* p. 61.
"I met with him by accident last summer, and after hearing of his performances, I first proposed to him the following random question: In a body whose 3 sides are 23145789 yards, 5641732 yards, and 54965 yards, how many cubic 4ths of an inch? After once naming the several figures distinctly one after another, in order to assure himself of the several dimensions and fix them in his mind, without more ado he fell to work amidst more than a 100 of his fellow labourers, and after leaving him about 5 hours, on some necessary concerns (in which time I calculated it with the pen) at my return, he told me he was ready: Upon which taking out my pocket-book and pencil, to note down his answer, he asked me which end I would begin at, for he would direct me either way. I chose the regular method, and to my great surprise, found that in a line of 28 figures, he made no hesitation nor the least mistake. Many such questions did several other people give him, which he never failed to answer truly; yea he often corrected those who wrought with the pen. What is more astonishing than this, he would suffer two people to propose different questions, one immediately after the other, and give each their respective answers, without the least confusion. So retentive is his memory, that he will repeat his answers a month or two afterwards if you ask him.
"He will stride over a piece of land or a field, and tell you the contents of it almost as exact as if you measured it by the chain. Some years ago he measured in this manner the whole lordship of Elmton, of some thousand acres, belonging to Sir John Rhodes, and brought him the contents, not only in acres, roods, and perches, but even in square inches; after this, for his own amusement, he reduced them into square hairs-breadths, computing (I think) 48 to each side of the inch, which produced such an incomprehensible number, that instead of entertaining the mind with any sort of pleasure, serves more to amaze and distract it.

"Millions, millions upon millions, tribes, cramps, and so on, (for in this manner he enumerates his long series of numbers) are as plain and familiar to him, as pounds, shillings, and pence; I may say more familiar, for he has seldom more than a week's wages before hand. It was but the other day, he set himself a voluntary question, to calculate how much one farthing doubled 140 times would amount to. This he desired me to set down in 39 places of pounds, and an odd £3. 8d. When I asked him if he could multiply this immense sum into itself, he said he would undertake it, and the odd fraction likewise if I pleased; but I dismissed him with the whole numbers, and shall not be more amaz-
ed at his bringing a true answer, than I have been already at his surprising performances, some of which have cost him many days study; but be the work long or short it is all one to him, because he reassumes the operation in the morning at the same place he left it over night, and so continues till he has finished it. If at any time you find an error in his answer, he will overhaul, as he terms it, and find out his mistake himself, rather than be convicted by your pen."

Another correspondent in the same Magazine for August 1751,* affords some farther information concerning Buxton. He says, "I perceive he has a good notion of the square, oblong, triangle, and circle. The first question I proposed was as follows: admit a field 423 yards long, and 383 wide, what was the area? After I had read the figures to him distinctly, he gave me the true product, viz. 162009 yards, in two minutes, for I observed by my watch how long every operation took him. I then asked him how many acres the aforesaid field measured? In 11 minutes he told me 33 acres, 1 rood, 35 perches, 20 yards, and a quarter just. I then proposed to him; how many barley corns would reach 8 miles? In a minute and half he answered 1520640 barley corns. He is the slowest in

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finding the area of a circle, but yet he finds it very near the truth, though he don't use the mathematical rules. Allowing the distance between York and London to be 204 miles, I asked him how many times a coach-wheel turned round in that distance, allowing the wheel's circumference to be six yards? In 13 minutes he answered 59840 times. The next proposition was, a tub or bin 346 inches long, 256 inches wide, 94 inches deep, how many gallons liquid measure and what corn will it hold? Answer, 3,454,464 solid inches, or 1,768,685,568 half quarters of solid inches, making 12,249,872 gallons liquid measure, or 12249 gallons, 3 quarts, and 34½ inches; or it will hold 191 quarters, 3 bushels, 3 quarterns, a half quartern, and 34½ inches remainder.

"Again, suppose a canal was to be dug 42 feet long, 263 wide, and 2 feet deep, how many cubical yards of earth to be removed? After pausing a quarter of an hour he answered, 10373 yards 24 feet. He will talk with you freely whilst he is doing his questions, it being no molestation or hindrance to him, but enough to confound a penman. His memory is so great, that he can leave off and reassume the operation again, at a week, month, or at several months end; he calls his figures all by their proper names, and is very ready at naming them either
backwards or forwards. From May, 17, 10 h. A. D. 1725, he told me he was drunk (to make use of his expression) with reckoning by his memory till June 16, following, and then slept soundly seven hours, but will never attempt so much reckoning again, for fear of falling into the same dilemma. I suppose what he means by his being drunk, was his being so much stupified with thought, as rendered him incapable of business; when it may well be said neque pès, neque mens satis suum officium facit.

"But, to proceed further with this uncommon man, I was led by curiosity to know what question it was that caused his drunkenness; to which he replied, in answering the following question. In 202,680,000,360 miles, and each mile reckoned to be cubical, how many barley-corns, vetches, peas, wheat, oats, rye, beans, lintels, and how many hairs, each an inch long, would fill that space, reckoning 48 hairs in breadth to an inch on the flat, as he found them to be so. I shall here subjoin his table of measures, which he founded on experiment.

\[
\begin{align*}
200 & \text{ Barley corns} \\
300 & \text{ Wheat corns} \\
512 & \text{ Rye corns} \\
180 & \text{ Oats} \\
40 & \text{ Peas} \\
25 & \text{ Beans} \\
80 & \text{ Vetches} \\
100 & \text{ Lintels} \\
2304 & \text{ Hairs 1 inch long}
\end{align*}
\]

are contained in one solid inch.
From which he calculated the following result: 14 thousand, 93 mill. 420 thous. 936 quarters, 1 bushel, 1 peck, 1 quartern, 3 pints, and 5 and a quarter solid inches of one sort of grain, are contained in one solid mile; or 5 thousand, 451 mill. 776 thousand yards in a cubical mile, being 254 millions of millions, 358 thousand, 61 mill. and 56 thousand inches in a cubical mile; and if every hair be an inch long, and 2304 hairs a cubical inch, then 586 thousand, 40 millions of millions, 972 thousand, 673 millions, and 24 thousand, will fill the space of a cubical mile: but if a hair be no longer than it is broad, he then found that there would be 23 tribes, 129 thousand, 966 millions of millions, 688 thousand, 805 millions, and 152 thousand hairs, to fill the space of a cubical mile.

"As we are come to that notation where he introduces the word tribe, it will be proper to set down that prolix number, arising from 140 nails, doubled at a farthing a nail, viz.

725,958,238,096,074,907,868,531,656,993,638,351,1067,22,8d.

which he reads thus:

725 Tribes of tribes,
958 Thous. of mill. of mill. of tribes,
238 Millions of millions of tribes,
096 Thousand millions of tribes,
074 Millions of tribes,
907 Thousand tribes,
868 Tribes,

P P 3
531 Thousand millions of millions,
656 Millions of millions,
993 Thousand millions,
638 Millions,
851 Thousands,
106 Pounds, 2 shillings, and 8 pence.

For the truth of which I leave those gentlemen that have leisure and curiosity to try it.

"I shall only mention one thing more with respect to this man's memory, and it shall be in squaring the above number. Now you see he is to multiply 39 figures by 39 figures, and all by the strength of his memory, without having recourse to human assistance, or pen, ink, and paper. What a prodigious task must this be to be operated by the head only, which he certainly did and after two months and a half, he brings the following answer, omitting the odd 2s. 8d. which he reads thus:

527 Tribes of tribes of cramps,
015 Thou. mill. of mill. trib. of cramps,
363 Mill. of mill. tribes of cramps,
459 Thou. mill. tribes of cramps,
557 Mill. of tribes of cramps,
385 Thousand tribes of cramps,
673 Tribes of cramps,
733 Thou. mill. of mill. of cramps,
542 Million of millions of cramps,
638 Thousand millions of cramps,
591 Millions of cramps,
721 Thousand cramps,
213 Cramps."
Further particulars respecting Jedediah, of an interesting nature, are found in the Gentleman’s Magazine for December, 1753.* This correspondent observes, “I accidentally met him one afternoon last week, and was not much above two hours in his company. In the first half hour, several persons being present, some trifling things were started and talked of; but as he was very desirous that I should propose some higher questions to him, I complied, and the company were all witnesses of his prodigious readiness in answering the following questions.

“QUESTION I.

“In a field 351 yards long, and 261 yards wide, how many acres?

“After 11 minutes, he answered—18 acres, 3 roods, 28 perches, and 14 remained.

"QUESTION II.

"Suppose sound moves 1142 feet in one second of time, how long then, after the firing of one of the cannons at Retford, may the same be heard at Haughton Park, taking the distance at five miles?

"After about a quarter of an hour he told me—in 23 seconds, 7 thirds, and 6 remained.

"QUESTION III.

"Admit I set 3594 brocoli plants in rows, 4 feet asunder, and the plants 7 feet apart, in a rectangular plot of ground, how much land will these plants take up?

"In near half an hour he said—2 acres, 1 rood, 8 perches and half.

"QUESTION IV.

"What dimensions must I give my joiner to make me a cubical corn bin, that shall hold me just a quarter of malt, Winchester measure?

"This question exercised all his faculties, and he declared it was the hardest he ever proposed; by this I perceived he had never engaged himself about the cube root: however, though so difficult it appeared to him, he was very desirous to answer it, before it was too late in the evening, and after some time, he said to himself there were nooks in it, but he would sift them out: he never regarded our talking, but sat as one heedless of every thing about him, except his pot of beer, which he took notice of. I gave him no hints, help, or assistance, but left it entirely to him, as I did the others, nor had he any thing in his hand to make any marks (which I must repeat, because he makes all his computa-
tions by his memory) after about an hour he told me, it would be a little more than 25\frac{1}{2} inches on a side, and 26 inches would be too much, all which is very true and very exact.

"I shall here subjoin an account he gave me of the quantity of ale or strong beer that he had drank on free cost, since he was 12 years of age, and the gentlemen's names where; and, as the account was a little particular, I asked him *huc and illuc* after I had committed it to paper, and he answered each demand as set down, at the houses of the following noblemen and gentlemen:

| Duke of Kingston       | 2130 | Rev. Mr. Pegge | 10 |
| Duke of Norfolk        | 266  | Mr. Richardson | 7 |
| Duke of Leeds          | 232  | Mr. Raynes    | 30 |
| Duke of Devonshire     | 10   | Mr. Stevens   | 5 |
| Lady Oxford            | 280  | Mr. Far       | 1 |
| G Heathcote, Esq.      | 160  | Mr. Greenwood | 77 |
| Sir G. Savile, Bart.   | 20   | Mr. Shaw      | 2 |
| J. Thornhagh, Esq.     | 20   | Mr. Barker    | 15 |
| Sir L. Pilkington, Bart.| 2    | Mr. Sisson    | 19 |
| John Bristowe, Esq.    | 92   | Mr. Major     | 8 |
| W. Villareal, Esq.     | 8    | Mr. Briggs    | 3 |
| Sir H. Hunlock, Bart.  | 2    | Mr. Pilkington| 2 |
| ...... Barton, Esq.     | 1    | Mr. J. Briggs | 4 |
| ...... White, Esq.      | 1    | Mr. Beestings | 45 |
| Dr. Burne              | 5    | Gathering for his dead cow | 72 |
| Mr. Hocks              | 251  | Rev. Mr. Hewet | 2 |
| Mr. West               | 201  | Col. Chadwick | 3 |
| Mr. Vesey              | 16   | Mr. Halfhead  | 15 |
| Rev. Mr. Hartshorn     | 19   | Mr. Wright    | 40 |
| Mr. Flint              | 317  | At Elton Manor | 300 |
| ...... Clarke, Esq.     | 20   | Mr. Sherwin   | 15 |
| ...... Hallows, Esq.    | 12   | Mr. Carteret  | 16 |
| Sir J. Jenkinson, Bart.| 1    | Mr. Lane      | 20 |
| Mr. Hancoek            | 54   | Mr. Whitehouse | 3 |
| Mr. Hall               | 63   | Mr. R. Parkin | 40 |
| Mr. E. Sharpe of Elkesly| 5 | Mr. R. Greenwood | 66 |
| Mr. Th. Sharpe         | 16   | Mr. Th. Clarke | 40 |
| Rev. Mr. Boawre        | 17   | Mr. Bullivant | 7 |
| Mr. Willets            | 17   | Mr. Padley    | 10 |
| Mr. Mayor of Chesterfield | 2 | At my own house | 19 |
"The whole amounts to 5116 pints, or winds, as he terms them, because he never uses above one wind to a pint, or two to a quart."

In the Gentleman's Magazine for June, 1754,* there is a portrait of Jedediah, in the forty-ninth year of his age, with this motto from Virgil, 'Numeros Memini.'† The editor of this Magazine having received many communications questioning the authenticity of the circumstances already related of Buxton, gave repeated assurances of the certainty of the facts, and appealed to the known integrity of the gentlemen by whom they were communicated; and, as an additional testimony inserted a sketch of


† In addition to this portrait there have been various others engraven at different times. (1.) A small etching, (æt. 57, 1764,) by Miss Hartley, 1764. (2.) A whole length—an etching in large 4o. by Holme. (3.) A ditto, in mezzot. J. Spilsbury. (4.) A ditto, an etching, 4o. by Topham, 1770. (Bromley.)
the life of this extraordinary man. "With this print* (says the editor) it was greatly to be wished

that some account of his life could be given: but the life of laborious poverty is necessarily uniform and obscure: the history of one day would almost include the events of all. Time,

* The portrait of Jedediah from which the above woodcut is taken.
with respect to Buxton, changed nothing but his age, nor did the seasons vary his employment, except that in winter he used a flail, and in summer a ling hook.

"The grandfather of Jedediah, John Buxton, was vicar of Elmeton, in Derbyshire, and his father, William Buxton, was school-master of the same parish; but Jedediah, notwithstanding the profession of his father, is extremely illiterate, having by whatever accident, been so much neglected in his youth as never to have been taught to write: how he came first to know the relative proportion of numbers, and their progressive denominations, he does not remember; but to this he has applied the whole force of his mind, and upon this his attention is constantly fixed, so that he frequently takes no cognizance of external objects, and when he does it is only with respect to their numbers: the same attention of his mind appears as well by what he hears as by what he sees. If any space of time is mentioned, he will soon after say, that it is so many minutes, and if any distance of way, he will assign the number of hair's breadths, without any question having been asked, or any calculation expected by the company.

"By this method he has greatly increased the power of his memory, with respect to figures,
and stored up several common products in his mind, to which he can have immediate recourse, as the number of minutes in a year, of hair's breadths in a mile, and many others. When he once comprehends a question, which is not without difficulty and time, he begins to work with amazing facility, and will leave a long question half wrought, and, at the end of several months, resume it, beginning where he left off, and proceeding regularly till it is completed.

"His memory would certainly have been equally retentive, with respect to other objects, if he had attended to other objects with equal diligence; but his perpetual application to figures has prevented the smallest acquisition of any other knowledge, and his mind seems to have retained fewer ideas than that of a boy of ten years old, in the same class of life. He has been sometimes asked, on his return from church, whether he remembered the text, or any part of the sermon, but it never appeared that he brought away one sentence: his mind, upon a closer examination, being found to have been busied, even during divine service in its favourite operation, either dividing some time or some space into the smallest known parts, or resolving some question that had been given him as a test of his abilities. His power of abstrac-
tion is so great that no noise interrupts him; and, if he is asked any question, he immediately replies, and returns again to his calculation, without any confusion, or the loss of more time than his answer required. His method of working is peculiar to himself, and by no means the shortest or the clearest, as will appear by the following example:

"He was required to multiply 456 by 378, which he had completed as soon as a person in company had produced the product in the common way: and upon being requested to work it audibly, that his method might be known, he multiplied 456 first by 5, which produced 2280, which he again multiplied by 20, and found the product 45600, which was the multiplicand multiplied by 160; this product he again multiplied by 3, which produced 136800, which was the sum of the multiplicand multiplied by 300; it remained therefore to multiply it by 78, which he effected, by multiplying 2280 (the product of the multiplicand multiplied by 5) by 15; 5 times 15 being 75; this product being 34200, he added to the 136800, which was the multiplicand multiplied by 300, and this produced 174000, which was 375 times 456; to complete this operation therefore, he multiplied 456 by 3, which produced 1368, and having added this
number to 171000, he found the product of 456 multiplied by 378 to be 172368.

"Thus it appears that his arithmetic is perfectly his own, and that he is so little acquainted with the common rules as to multiply 456 first by 5, and the product by 20, to find what sum it would produce multiplied by 100, whereas if he had added two noughts to the figures, he would have obtained it at once.

"The only objects of Jedediah's curiosity, except figures, were the king and royal family, and his desire to see them was so strong, that, in the beginning of the spring, he walked to London on purpose, but at last returned disappointed, the king having just removed to Kensington as Jedediah came into London. He was however, introduced to the Royal Society, whom he called the volk of the Siety Court: the gentlemen who were present asked him several questions in arithmetic, to prove his abilities, and dismissed him with a handsome gratuity.

"During his residence in London he was carried to see King Richard III. performed at Drury-lane playhouse, and it was expected either that the novelty and the splendour of the show would have fixed him in astonishment, or kept his imagination in a continual hurry; or that his passions would, in some degree, have been touched by the power of action, if he had
not perfectly understood the dialogue; but Jedediah's mind was employed in the playhouse just as it was employed at church. During the dance he fixed his attention upon the number of steps; he declared after a fine piece of music, that the innumerable sounds produced by the instruments had perplexed him beyond measure, and he attended even to Mr. Garrick only to count the words that he uttered, in which, he says, he perfectly succeeded.

"Jedediah is now safely returned to the place of his birth, where, if his enjoyments are few, his wishes do not seem to be more: he applies to his labour, by which he subsists with cheerfulfulness; he regrets nothing that he left behind him in London, and it is still his opinion, that a slice of rusty bacon affords the most delicious repast."

1808. A. D.—Richard Porson. The most remarkable among the intellectual powers of Richard Porson was unquestionably that of memory. It was at once obvious to every one who had the good fortune to be in his company, and it never ceased to excite the admiration of those who had most frequently an opportunity

* Jedediah died about the year 1774, aged 70, and left several children, none of whom have inherited the rare talents of their father.
of conversing with him. Every thing he had read (and what was there worthy, or, indeed, unworthy of literary notice, which he had not read?) appeared to be present to his mind with uncommon precision. Whenvsoever a subject connected with English, Latin, or Greek poetry was started, he would recite some brilliant and striking passage at considerable length in the words of the author. And in the latter language more especially, which was his favourite study, he was so completely master, not only of the words of the author in question, but of every circumstance relating to the words, that he would expatiate upon the various readings, and the points of grammar and criticism connected with them, in such a manner, as to produce the effect of a complete and well-digested Variorum Commentary. We remember to have heard him relate one or two

* It was one of the peculiar traits of his mind that it rejected no aliment. He was equally well read in Joe Miller, and the Fathers, as in Greek literature. And in the very lowest, as well as highest branches of human learning, his memory was equally retentive. In his power over figures, though he was at an early age diverted from mathematics, Mr. P. never knew his equal. His quickness in bringing out the result of a most intricate and manifold calculation by mental working was magical. He had formed for himself a species of short-hand in figures (if we may use the term) that had the most astonishing brevity and truth.

ΩΩΩ
incidents which occurred at different, although both early, periods of his life, which will illustrate this quality of his mind far better than any laboured detail.

When he was very young, perhaps at the time when he was under the care of Mr. Summers, returning to his father's cottage, he lost his way, and found shelter in the house of a little farmer, whose son, somewhat older than Porson, had just quitted school. With this boy Porson was to sleep; but instead of betaking himself to his slumbers, he began questioning his companion concerning what he had learned at school. He found him a most admirable arithmetician; and passed the night in proposing questions, which the other answered to his satisfaction as well as surprise; for at last he found him capable of multiplying 9 figures by 9 in his head, an operation which was quite familiar to our young Professor.

When at Eton, as he was going to his tutor's, to construe an Horace lesson preparatory to the business of school, one of the senior boys took Porson's Horace from him, and thrust into his hands some English book. The tutor called upon Porson to construe, and the other boys were much amused in considering the figure he would make in this emergency. Porson, however, who had Horace by heart before he went
to Eton, knowing where the lesson was to begin, began without hesitation,

Mercuri facunde, nepos Atlantis:

and went on regularly, first reciting the Latin and then giving the Latin and English, as if he had really had the author before him. The tutor, perceiving some symptoms of astonishment as well as mirth amongst the other boys, suspected that there was something unusual in the affair, and inquired what edition of Horace Porson had in his hand. "I learned the lesson from the Delphin," replied his pupil, avoiding a direct answer. "That is very odd," replied the other, "for you seem to be reading in a different side of the page from myself. Let me see your book."—The truth was of course then discovered; but the master, instead of shewing any displeasure, wisely and kindly observed to the others, that he should be most happy to find any of them acquitting themselves as well in a similar predicament.

It should be remembered to the honour of the Professor, that he never appeared in any degree vain of this astonishing talent; and he once observed, "I never remembered any thing but what I transcribed three times, or read over six times at the least; and, if you will do the same, you will have as good a memory." Indeed he
was at all times the warm advocate of a doctrine, which is as true as it is important in the conduct of education. He maintained that superiority of intellect and of attainments was not so much owing to a difference in the formation of the organs, as in the mode by which education was conducted. And although such a man as Porson could not have failed to have been distinguished for the strength and acuteness of his understanding, under any circumstances, yet it cannot be doubted that the habits of his earlier years contributed much to that force and precision in his memory, for which he was so eminently distinguished.

1811. A. D.—Dr. Leyden, the lamented author of the 'Scenes of Infancy in Teviotdale,' and friend of Walter Scott, was remarkable for the tenacity of his memory. When he was at Mysore, an argument occurred upon a point of English history: it was agreed to refer it to Leyden, and, to the astonishment of all parties, he repeated verbatim the whole of an Act of Parliament in the reign of James I. relative to Ireland, which decided the point in dispute. On being asked how he came to charge his memory with such extraordinary matter, he said that several years before, when he was writing on the changes that had taken place in the English lan-
guage, this Act was one of the documents to which he had referred as the specimen of the stile of that age, and that he had retained every word in his memory. Dr. Leyden fell a sacrifice to the climate of Java.

1812. A. D.—Zerah Colburn. The appearance of this young American, and rival of Jedediah Buxton, having excited considerable attention, we shall present our readers with the following interesting narrative, as drawn up by the ingenious and well known calculator, Mr. Francis Baily.

"London, Aug. 20, 1812.

"The attention of the philosophical world has been lately attracted by the most singular phenomenon in the history of the human mind that perhaps ever existed. It is the case of a child, under eight years of age, who, without any previous knowledge of the common rules of arithmetic, or even of the use and power of the Arabic numerals, and without having given any particular attention to the subject, possesses (as if by intuition) the singular faculty of solving a great variety of arithmetical questions by the mere operation of the mind, and without the usual assistance of any visible symbol or contrivance.
"The name of this child is Zerab Colburn, who was born at Cabut (a town lying at the head of Onion river, in Vermont, in the United States of America,) on the 1st of September 1804. About two years ago (August 1810) although at that time not six years of age, he first began to show those wonderful powers of calculation which have since so much attracted the attention and excited the astonishment of every person who has witnessed his extraordinary abilities. The discovery was made by accident. His father, who had not given him any other instruction than such as was to be obtained at a small school established in that unfrequented and remote part of the country, (and which did not include either writing or ciphering,) was much surprised one day to hear him repeating the products of several numbers. Struck with amazement at the circumstance, he proposed a variety of arithmetical questions to him, all of which the child solved with remarkable facility and correctness. The news of this infant prodigy soon circulated through the neighbourhood; and many persons came from distant parts to witness so singular a circumstance. The father, encouraged by the unanimous opinion of all who came to see him, was induced to undertake, with this child, the tour of the United States.
They were everywhere received with the most flattering expressions; and in the several towns which they visited, various plans were suggested to educate and bring up the child, free from all expense to his family. Yielding, however, to the pressing solicitations of his friends, and urged by the most respectable and powerful recommendations, as well as by a view to his son's more complete education, the father has brought the child to this country, where they arrived on the 14th of May last: and the inhabitants of this metropolis have for the last three months had an opportunity of seeing and examining this wonderful phænomenon,* and of verifying the reports that have been circulated respecting him.

"Many persons of the first eminence for their knowledge in mathematics, and well known for their philosophical inquiries, have made a point of seeing and conversing with his extraordinary powers. It is correctly true, as stated of him, that — 'He will not only determine, with the greatest facility and dispatch, the exact number of minutes or seconds in any given period of time; but will also solve any other question of a similar kind. He will tell the exact product arising from the multiplication of any number, consisting of two,

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* At the Exhibition Rooms, Spring Gardens.
three, or four figures, by any other number consist-
ing of the like number of figures. Or, any number,
consisting of six, or seven places of figures, being
proposed he will determine, with equal expedi-
tion and ease, all the factors of which it is com-
posed. This singular faculty consequently ex-
tends not only to the raising of powers, but also
to the extraction of the square and cube roots of
the number proposed; and likewise to the means
of determining whether it be a prime number (or
a number incapable of division by any other num-
ber); for which case there does not exist, at pre-
sent, any general rule among mathematicians.'
All these, and a variety of other questions con-
necting therewith, are answered by this child with
such promptness and accuracy (and in the midst
of his juvenile pursuits) as to astonish every per-
son who has visited him.

"At a meeting of his friends which was held
for the purpose of concerting the best method of
promoting the views of the father, this child un-
dertook and completely succeeded in, raising
the number 8 progressively up to the sixteenth
power!!! and in naming the last result, viz.
281,474,976,710,656 he was right in every figure.
He was then tried as to other numbers, consist-
ing of one figure; all of which he raised (by ac-
tual multiplication and not by memory) as high
as the *tenth* power, with so much facility and dispatch that the person appointed to take down the results, was obliged to enjoin him not to be so rapid! With respect to numbers consisting of two figures, he would raise some of them to the *sixth, seventh, and eighth* power; but not always with equal facility: for the larger the products became, the more difficult he found it to proceed. He was asked the *square root* of 106929, and before the number could be written down, he *immediately* answered 327. He was then required to name the *cube root* of 268,336,125, and with equal facility and promptness he replied 645. Various other questions of a similar nature, respecting the roots and powers of very high numbers, were proposed by several of the gentlemen present, to all of which he answered in a similar manner. One of the party requested him to name the *factors* which produced the number 247483, which he immediately did by mentioning the two numbers 941 and 263; which indeed are the only two numbers that will produce it. Another of them proposed 171395, and he named the following factors as the only ones that would produce it; viz. $5 \times 34279$, $7 \times 24483$, $59 \times 2906$, $83 \times 2065$, $35 \times 4897$, $295 \times 581$, and $413 \times 415$. He was then asked to give the factors of 36083; but he immediately
replied that it had none, which in fact was the case, as 36083 is a prime number. Other numbers were indiscriminately proposed to him, and he always succeeded in giving the correct factors, except in the case of prime numbers, which he discovered almost as soon as proposed. One of the gentlemen asked him how many minutes there were in forty-eight years; and before the question could be written down he replied 25,228,800; and instantly added, that the number of seconds in the same period was 1,513,728,000. Various questions of the like kind were put to him; and to all of them he answered with nearly equal facility and promptitude; so as to astonish every one present, and to excite a desire that so extraordinary a faculty should (if possible) be rendered more extensive and useful.

"It was the wish of the gentlemen present to obtain a knowledge of the method by which the child was enabled to answer, with so much facility and correctness, the questions thus put to him: but to all their inquiries upon this subject (and he was closely examined upon this point) he was unable to give them any information. He positively declared (and every observation that was made seemed to justify the assertion) that he did not know how the answers came into his mind. In the act of multiplying two numbers
together, and in the raising of powers, it was evident (not only from the motion of his lips, but also from some singular facts which will be hereafter mentioned,) that some operation was going forward in his mind; yet that operation could not (from the readiness with which the answers were furnished) be at all allied to the usual mode of proceeding with such subjects: and moreover, he is entirely ignorant of the common rules of arithmetic, and cannot perform, upon paper, a simple sum in multiplication or division. But, in the extraction of roots and in mentioning the factors of high numbers it does not appear that any operation can take place; since he will give the answer immediately, or in a very few seconds, where it would require, according to the ordinary method of solution, a very difficult and laborious calculation; and moreover, the knowledge of a prime number cannot be obtained by any known rule.

"It has been already observed, that it was evident, from some singular facts, that the child operated by certain rules known only to himself. This discovery was made in one or two instances, when he had been closely pressed upon that point. In one case he was asked to tell the square of 4395; he at first hesitated, fearful that he should not be able to
answer it correctly: but when he applied himself to it he said it was 19,316,025. On being questioned as to the cause of his hesitation, he replied that he did not like to multiply four figures by four figures: but, said he, 'I found out another way; I multiplied 293 by 293, and then multiplied this product twice by the number 15, which produced the same result.' On another occasion, his highness the Duke of Gloucester asked him the product of 21,734 multiplied by 543: he immediately replied 11,801,562: but, upon some remark being made on the subject, the child said that he had, in his own mind, multiplied 65,202 by 181. Now, although in the first instance it must be evident to every mathematician that 4395 is equal to 293 × 15, (and consequently that (4395)² = (293)² × (15)²; and further that in the second case 543 is equal to 181 × 3, and consequently that 21734 × (181 × 3) = (21734 × 3 × 181); yet, it is not less remarkable that this combination should be immediately perceived by the child, and we cannot the less admire his ingenuity in thus seizing instantly the easiest method of solving the question proposed to him.

"It must be evident, from what has here been stated, that the singular faculty which this child possesses is not altogether dependent upon his
memory. In the multiplication of numbers and in the raising of powers, he is doubtless considerably assisted by that remarkable quality of the mind: and in this respect he might be considered as bearing some resemblance (if the difference of age did not prevent the justness of the comparison) to the celebrated Jedediah Buxton, and other persons of similar note. But, in the extraction of the roots of numbers, and in determining their factors (if any), it is clear, to all those who have witnessed the astonishing quickness and accuracy of this child, that the memory has little or nothing to do with the process. And in this particular point consists the remarkable difference between the present and all former instances of an apparently similar kind.

"It has been recorded as an astonishing effort of memory that the celebrated Euler (who, in the science of analysis, might vie even with Newton himself,) could remember the first six powers of every number under 100. This, probably, must be taken with some restrictions: but, if true to the fullest extent, it is not more astonishing than the efforts of this child; with this additional circumstance in favour of the latter, that he is capable of veryfying, in a very few seconds, every figure which he may have occasion for. It has been further remarked by the biographer of
that eminent mathematician, that he perceived, almost at a simple glance, the factors of which his formulae were composed; the particular system of factors belonging to the question under consideration: the various artifices by which that system may be simplified and reduced; and the relation of the several factors to the conditions of the hypothesis. His expertness in this particular probably resulted, in a great measure, from the case with which he performed mathematical investigations by head. He had always accustomed himself to that exercise; and, having practised it with assiduity, (even before the loss of sight, which afterwards rendered it a matter of necessity,) he is an instance to what an astonishing degree it may be acquired, and how much it improves the intellectual powers. No other discipline is so effectual in strengthening the faculty of attention: it gives a facility of apprehension, an accuracy and steadiness to the conceptions; and (what is a still more valuable acquisition) it habituates the mind to arrangement in its reasonings and reflections.

"It is not intended to draw a comparison between the humble, though astonishing, efforts of this infant-prodigy and the gigantic powers of that illustrious character to whom a reference has just been made: yet we may be permitted to
hope and expect that those wonderful talents, which are so conspicuous at this early age, may by a suitable education be considerably improved and extended: and that some new light will eventually be thrown upon those subjects, for the elucidation of which his mind appears to be peculiarly formed by nature, since he enters into the world with all those powers and faculties which are not even attainable by the most eminent at a more advanced period of life. Every mathematician must be aware of the important advantages which have sometimes been derived from the most simple and trifling circumstances; the full effect of which has not always been evident at first sight. To mention one singular instance of this kind. The very simple improvement of expressing the powers and roots of quantities by means of indices, introduced a new and general arithmetic of exponents: and this algorithm of powers led the way to the invention of logarithms, by means of which, all arithmetical computations are so much facilitated and abridged. Perhaps this child possesses a knowledge of some more important properties connected with this subject; and although he is incapable at present of giving any satisfactory account of the state of his mind, or of communicating to others the knowledge which it is so evident he does possess,
tion; he, however, found the difficulty insurmountable. His father then asked Mr. H. the first number of the factor of three figures, which was named, viz. 7; still he could not accomplish it, then the second figure, 3, was told him; still he failed, but when he was made acquainted with the last figure, 9, to the great astonishment of Mr. H., he immediately called out that the other factor was 2347, which is correct.

We regret to find that this interesting youth is again exhibited to the public; the money collected for his education, we suppose, not being found sufficient for the purpose. If his parents intend to appropriate the sum gained by exhibiting him, in aid of the above fund, we heartily wish them success, and cannot, perhaps, do them a more essential service than by inserting the following notice, which appeared in the Chronicle of the 17th Dec. 1812.

"SINGULAR PHENOMENON."

"To be seen at Wigley's Exhibition Rooms, Spring Gardens, a child only eight years of age, who, without any previous knowledge of the common rules of arithmetic, possesses the power of solving arithmetical questions by the intuition of his mind alone. He will instantly tell the
number of minutes and seconds in any given time—multiply any two, three, or four figures by any others—find all the fractions in any number of six or seven places of figures—extract square and cube roots in the midst of his juvenile pursuits. Many eminent mathematicians, and other learned persons have witnessed his extraordinary powers with astonishment.—Admission daily from 12 till 4 o'clock, and from 8 to 9. One shilling each person."

Zerah Colburn still continues to astonish the mathematical, and numerical world, with his wonderfully prompt answers to the most difficult questions. Sept. 1813.

THE END.

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