

Archimedes.

This extraordinary man was a native of Syracuse, a city of Sicily: and, according to the most authentic accounts, was born about 288 years before the birth of our Saviour, and about 50, though some say 100 years, after the much-famed Euclid. Who his parents were, and what was their rank in life, are not particularly known: though it is, on all hands acknowledged, that he was paternally related to Hiero, the king of Syracuse. It is said that Hiero considered himself greatly honored by such relation; and there can be no doubt that royalty has more cause to boast its alliance to genius, than genius to be elated by its connection with royalty. It is probable that the name of the monarch would have been long ago sunk in oblivion, had not that of the philosopher served to float it along the stream of time to the present day. By whom he was instructed in the elements of education and what was his progress, history fails to inform us: but it tells us, that he became ardently attached to the study of mechanics and geometry; and that, for the sake of these tranquil pursuits he contemned the prospect of wealth and honour, which was presented to his view by his connection with monarchy. The beauty of mathematical demonstration, and the great efficacy of mechanical power, had, for his mind, more charms, than the glitter of courts, or the conquering of cities and provinces.

After studying at home, probably till he had exhausted all the scientific knowledge which the place could afford him, he repaired according to the prevailing custom of the age, to Egypt, that he might more successfully prosecute in Alexandria, what he had so happily begun in Syracuse. Egypt, if not the birth place of the sciences, was at least the place where, at that time, they were most effectively taught; and was the great theatre of learning, to which persons from all quarters, but particularly from the different provinces of Greece, regularly resorted. We are unhappily left in the dark, with regard to the length of time he remained in Egypt; but we are informed, that during his stay he applied with assiduity to his favourite studies, and distinguished himself by some singular inventions. During his residence upon the banks of the Nile, he enjoyed the society and friendship of some of the most distinguished characters of his day, but especially of Conon, a famous mathematician of the island of Samos. Their friendship being founded upon their love of science, the most disinterested of all friendships, without the appearance of the slightest jealousy, they had a mutual esteem for each other's talents and attainments, and often submitted problems to each other for solution. Having enriched his mind with the intellectual treasures of Egypt, he at length revisited the land of his nativity, that his countrymen might share in the fruits of his exertions.

Some of the most ardent admirers of Archimedes, have maintained, that he imparted to the Egyptians, as much as he received from them; but this is nothing but mere assumption, and, therefore, entitled to little attention. Whatever benefit he conferred upon the Egyptians, there can be no doubt, that the people of that country were, long before that period, in possession of arts and inventions, which had enabled them to accomplish works, which, with all our modern improvements in mechanics, might not a little try the skill of the present day.

Archimedes, after his return to his native city, is said to have relaxed neither the vigor of his pursuit after knowledge, nor yet the intensity of his application. His studies were the engrossing objects of all his thoughts. He not unfrequently prosecuted them to the almost total neglect of his person; food and sleep were often sacrificed to the perfecting of some mechanical invention, or the solution of some difficult problem. To prevent the ruin of his health, his servants were sometimes obliged to interpose physical strength, in order to compel him to recruit his exhausted system by air, exercise, and the use of the bath. His devotion to the study of mechanics stands almost without a parallel. Hiero at one time expressing his admiration of some of his inventions, Archimedes replied, with enthusi-

asm, that he required but a place to fix his machines upon, to be able to move the earth itself."

Thus passed the days of this wonderful man in the peaceful bowers of philosophic seclusion, till the safety of his native city, drew him from his retirement, and prompted him to engage in its defence. During the protracted struggles between the Romans and the Carthaginians, the Sicilians, and especially the Syracusans, had remained for a long time either neutral, or in alliance with the Romans. At length, from some political movements in the city, the Carthaginian interest gained the ascendancy, and attempts were made to extend it over the rest of the island. So soon as the news of this reached Marcellus, the Roman general, he hastened with a strong force into Sicily, and after having reduced several other places to subjection, he determined to lay siege to Syracuse. Here the successful career of the Roman conqueror met with an unexpected check. The inventive genius of Archimedes, enabled the Syracusans to baffle all the efforts of the besiegers, for the space of three years. Never before was so happily illustrated the admirable sentiment, that "Knowledge is power." He so improved the warlike instruments for the discharge of missiles, as to spread consternation and dismay throughout the enemy, who were more than once, on the point of retiring from the siege, believing that the city was defended by the gods. By means of long and powerful levers, together with grappling irons he is said to have destroyed many of the Roman galleys, when they approached the walls of the city; and when they retired for safety, to a great distance, to have inflamed them by a particular combination of burning glasses. The reports of these achievements of Archimedes having been transmitted to us chiefly by the Romans themselves, there is no doubt that the difficulty they felt in reducing the city, caused them to magnify the obstacles which he opposed to their success, in order that no impeachment might be brought against their courage. But whatever allowance may be made for exaggeration, it cannot be doubted, that science and art gained a noble triumph on this occasion.

The city, if it could have been taken at all, might, it is said, have resisted the assaults of the enemy for a much longer time, had not the success of the besieged lulled them into a fatal security.

During the celebration of a festival in honor of Diana, in the midst of their indulgencies, overlooking the safety of the city, they neglected to place guards on some particular part of the walls; and the Romans observing this, and taking advantage of the supineness of their adversaries, scaled the ramparts, and quickly made themselves masters of part of the city. Their chief difficulties being now surmounted, after a few vigorous efforts, they gained possession of the whole city. Amidst the plunder and carnage which ensued, sad to relate! Archimedes did not escape, though orders had been given by the Roman general for his safety and protection. Various accounts are given of the circumstances of his death, though they all agree in ascribing the merit of his horrid deed to a Roman soldier. Some say, that he was slain in his study, while engaged in solving a problem, in consequence of his hesitating to obey the imperative command of a soldier to accompany him to Marcellus, till he had completed its solution. Others say, that he was put to death in the streets, while he was drawing mathematical figures in the sand. A third report states, that he met his unhappy fate, while bearing some boxes of mathematical instruments to Marcellus, and that the perpetrator did the deed without knowing who he was, persuaded that the boxes contained some valuable treasure. This mournful event happened about 210 years before the Christian era, and when Archimedes, notwithstanding his intense application to study, had reached the advanced age of 75 or 76.

Marcellus was inconsolable at this event; and, to make all the reparation in his power, he sought out his relatives, and distinguished them by every mark of attention. The Roman paid the last debt of nature to the remains of him whose loss he deplored, and erected on

his tomb a monumental stone with a suitable inscription, and some figures engraved upon it, emblematic of his discoveries as a geometer.

The Effect of Steam on Timber.

Mr. Violitter has lately presented to the Academy of Science in Paris, a very able communication on the dessication of different kinds of wood by steam. He stated that steam raised to 482° Fah. was capable of taking up a considerable quantity of water, and acting upon this knowledge he submitted different kinds of oak, elm, pine and walnut, about 8 inches long and half an inch square to a current of steam at 7½ pounds pressure to the square inch, but which was afterwards raised to 482 degrees. The wood was exposed thus for two hours. It was weighed before it was exposed to the steam and afterwards put into close stopped bottles until cool, when the samples of wood were again weighed and showed a considerable loss of weight, the loss of which increased with the increase of the temperature of the steam. For elm and oak the decrease in weight was one half ash and walnut two fifths, and pine one third. The woods underwent a change of color as the heat was rising from 392 degrees to 482, the walnut became very dark, showing a kind of tar, formed in the wood by the process, which was found to have a preserving effect on the wood.

It was found that wood thus treated became stronger—having an increase in the power of resisting fracture. The maximum heat for producing the best resisting fracture power for elm was between 302 and 347 degrees, and between 257 and 302 for the oak, walnut and pine. The oak was increased in strength five ninths, walnut one half, two fifths for pine, and more than one fifth for elm. These are but preliminary experiments which may lead to very important results, and are therefore interesting to architects especially. By this process, the fibres of the wood are drawn closer together, and maple and pine treated in the steam to a temperature of 482, were rendered far more valuable for musical instruments than by any other process heretofore known. This is valuable information to all musical instrument makers—who knows but this is a discovery of the Venitian fiddle maker's great secret.

An Accomplished Woolen Draper.

Among the numerous candidates for the office of librarian to the Advocates' Library, Edinburg, Scotland, vacant by the resignation of Dr. Irving, is Mr. Samuel Halkett.—This gentleman has acquired an extensive knowledge of philology and can not only read and speak most of the living languages of Europe, but has a profound acquaintance with the Eastern tongues, including Hebrew and Arabic, while his translation of scientific papers in Swedish, Norwegian, and Danish, have been much appreciated. The most singular circumstance connected with the history of Mr. Halkett is his application to a business during the whole period of his life that might be considered uncongenial to his literary pursuits, being of the firm of Harrison and Halkett, woolen drapers, North bridge. He now seeks for a situation which is more suited to the cultivation of his singular powers.

Singular Discovery in Turkey.

The Constantinople Journal gives some curious details regarding a city said to have been discovered in Asia Minor by Dr. Brunner, one of the agents employed by the Government of the Sublime Porte of the Empire for the purpose of taking a census. While occupied in exploring the sandjak (excavations) of Bousouk, on the confines of Pontus, Cappadocia, and Galatia, Dr. Brunner, whose attention was attracted by the bold and curious passages opened into the living rock, was accosted by a villager, who offered to show him things far more interesting on the other side of the mountain if he would trust to his guidance. After some hesitation, the Doctor armed himself, and followed his guide, taking his servant with him. Half an hour brought them round the mountain, and then the Doctor found himself, says the narrative, in presence of the ruins of a considerable town.—These ruins are situated in the south-east part of the village of Yanken, and to the north of

the village of Tscheque, half a league from each other; and the Doctor's profound study of all accounts, ancient and modern, of Asia Minor furnishes no trace by which he can identify them. The site of the town is half a league in length. It contains seven temples with cupolas and 218 houses, some in good preservation, others half choked up with their own ruins and with vast fragments of rock detached from the overhanging mountain. The houses have compartments of three, four, and six chambers. The largest of these edifices is 20 feet long by 28 wide. So far as the ruins would permit the Doctor to estimate it, he conjectured the height of some of the temples to be from 20 to 30 feet. There are traces of plaster on the interior walls, but not an emblem or indication, says Dr. Brunner, to suggest the origin or date of the ruined city. Dr. Brunner proposes his deserted city as a puzzle for the Archæologists.

Enormous Application of the Electro-type Process.

An enormous application of the electro-type, or galvano-plastic process, has been made in the sculpture of the Cathedral of St. Isaac at St. Petersburg, Russia, by the architect. After having made very important experiments, he was authorized to adopt this mode in the execution of the metallic sculptures and carvings for the following reason: 1. The identical reproductions of the sculptures without chiselling. 3. The lightness of the pieces, which enabled the architect to introduce sculptures of higher relief than any hitherto known, and to fix the pieces suspended from the vaultings, without fear of accident, or of their being detached. 2. The great saving of expense between these and casting in bronze. The gilding also was effected by the same process, and presented equal advantages. The seven doors of the cathedral will be of bronze and electro-type, the frame work being of the former and the sculptured parts of the latter. Three of these doors are 30 feet high, and 44 feet wide the four others 17 feet 8 inches wide. They contain 51 bas-reliefs, 63 statues, and 84 alto-relievo busts, of religious subjects and characters. The quality of metal employed in the dome is as follows: Ducat gold, 247 lbs.; copper, 42½ tons; brass, 321½ tons; wrought iron 524½ tons; castings 1068 tons. Total—1966½ tons.

Roman Catholic Statistics.

The Catholic Almanac, published in Baltimore, and which is generally recognized as good authority, represents no increase in the Roman Catholic dioceses of Baltimore, New-Orleans, Louisville, Boston, Philadelphia, New-York, Charleston, Mobile, Detroit, Vincennes, Natchez, Pittsburgh, Little Rock, Milwaukee, Albany, Galveston and Buffalo, while in the diocese of Cleveland there has been an actual loss of 5000 from the last year's computation of 30,000. The only green spots in this wide-spread desert, says the Freeman's Journal, are, the diocese of Cincinnati, where there has been an addition of 15,000 to the 50,000 of last year; Dubuque, where there is a gain of 500 on the former sum of 6,500; Nashville, where the last year's number of Catholics has doubled, being now 3,000, while it was only 1,500 a year ago; Chicago, where 3,000 have been added to the 20,000 of last year, and Oregon, with the parts adjacent, where 7,500 had grown up to 8,100, being a gain of 600—Indians and others. The Almanac represents the total decrease of Roman Catholics in the United States during the year as being one hundred and nine thousand four hundred; and the present number of the denomination in this country as 1,276,300.

Fluency of Speech.

"The common fluency of speech, in many men and women, is owing," says Swift, "to a scarcity of words. For whoever is master of language, and hath a mind full of ideas, will be apt in speaking, to hesitate upon the choice of both; whereas, common speakers have only one set of ideas, and one set of words to clothe them in, and these are always ready; so people come faster out of church when it is nearly empty, than when a crowd is at the door."