

THE FLOWER MARKETS OF FLORENCE, ITALY.

The city of Florence: in which are to be found an unequalled number of art treasures, ancient and modern, where are the "Venus di Medici," the "Niobe and Her Children," the wondrous dome of Brunelleschi, the gates of Ghiberti, the church of Santa Croce (in which are the tombs of Michel Angelo, Machiavelli, Galileo, and Alfieri), and a world of other relics and shrines of beauty, art, and science: is renowned among all the capitals of Europe for the magnificence of the flowers exposed for sale in the markets. It is asserted that nowhere is the trade in flowers so extensive as in Florence, and the exhibitions of the floriculturist's art are numerous and very popular. They are to be found in the "Mercato Vecchio" and "Mercato Nuovo" (the Old Market and the New Market), and in a more modern building, called the Central Market, of which we publish an engraving. It is a large and well built structure, with a lightness and grace in the roof which is admirably in keeping with the purpose for which it was built. In extent it rivals the Floral Hall in Covent Garden, London, and the celebrated *Marché aux Fleurs* at Brussels, while it has an advantage over both buildings in its exterior garden and its open surroundings. We are indebted to *L'Illustrazione* for the engraving.

RECENT ARCHÆOLOGICAL EXPLORATIONS.

Of late years progress in the exhumation of lost relics of ancient life has made such gigantic strides that, viewing the various explorations in the aggregate, it would be difficult to ascribe to any one a special importance as compared with the others. To detail all the interesting discoveries made, or even to trace out the proper significance and bearing of the knowledge thus acquired of past generations, would necessitate both a review of historical facts and an amount of antiquarian discussion, the writing of which would swell the present article to a volume; so that merely a passing glance at recent explorations among the ruins and buried cities of the old world is all that we can hope to offer in the following lines.

Since the removal of the Italian capital to

ROME,

the government has undertaken extensive researches, which have resulted in the discovery of many statues and works of art of great archæological value. At Ostia, about a dozen miles from the city, extensive explorations are in progress; and, as the locality was once a town of 80,000 inhabitants, many important discoveries are anticipated. Some time ago the Italian Parliament voted \$60,000 for the purpose of excavating the whole of the Palatine Hill, with the slopes around it, as far as the Forum and the Arch of Janus on the north; and it is in this locality that many of the finest remains have been found. The most extensive archæological researches in the Eternal City have, however, been conducted by Mr. J. H. Parker, C. B., the record of which fills two volumes, recently published in England. Nineteen aqueducts, we are

told, have been traced, which served to convey water to the city from the elevated regions of Subiaco, forty miles away, through pipes of stone. At every half mile great reservoirs or filtering places were located, the construction of which completely disproves the idea that the Romans did not know that water rises to its own level. Within the city the principal buildings belonging to various eras were readily recognized. Portions of the Arx of Romulus yet remain on the Palatine Hill. The stones employed are 4 feet long by 2 feet wide and deep, and were split from the *tufa* quarries by iron wedges, exactly as at the present day. They are roughly dressed. Fragments of the wall of Servius Tullius are to be found, connecting, by a great road, the several citadels of the famous seven hills. In this wall the stones are wrought and closely fitted and secured to one another by iron clamps, not run in with lead. Portions of other walls of equal antiquity are built of concrete, the great durability of which is ascribed to the lime used being burnt on the spot where required, and to its mixture with rough and gritty Pozzolana sand and broken bricks. From these samples of the art of the mason 2,600 years ago, down to the splendid productions of the time of Hadrian, archæology can trace the progress of the builder's art and the development of the city.

PALESTINE.

In the Holy Land, the Palestine Exploration Society of England has been foremost in carrying on investigations. Little has been accomplished toward definitely locating the sites of the Temple of Solomon, the sepulchre of David, or of many other structures mentioned in the Scriptures. In Jerusalem a mysterious tomb was opened; and in it, below a bed of rough clay brick, a human skeleton was found, its head turned to the South, but past all identity of race or period. Throughout all the territory there is inextricable confusion of origin and date. There are tombs with Greek inscriptions bordering upon Roman roads, and over all are signs of the changes caused by the wars which have swept over the land. Over two hundred excavations have been made in and about Jerusalem. The remains of a large building facing the cardinal points have been found among the ruins of an entire town which, situated twelve miles west of Nablus, once covered a square mile of area. The edifice was probably an ancient monastery. Some interesting examinations have been made concerning the Holy Sepulchre and the Dome of the Rock, the materials used in the pillars of which appear to be the remains of older structures.

The English Ordnance Survey of Palestine now extends over three elevenths of the area of the country, or 1,800 square miles. This includes a map of Jerusalem, which shows that the original rock on which the city was built is now covered with from 25 to 120 feet of *débris*. There appears every reason for believing the truth of the tradition that Jerusalem was utterly obliterated by the Roman Governor Turnus Rufus, and its site plowed over.

Lieutenant Conder, R. E., has examined the ruins of the

great temple at Baalbek, of which but six columns now stand. He concludes that the structure was not of Phœnician origin, and considers that the rubbish about its foundations hides statues and treasures of the greatest archæological value.

TROY.

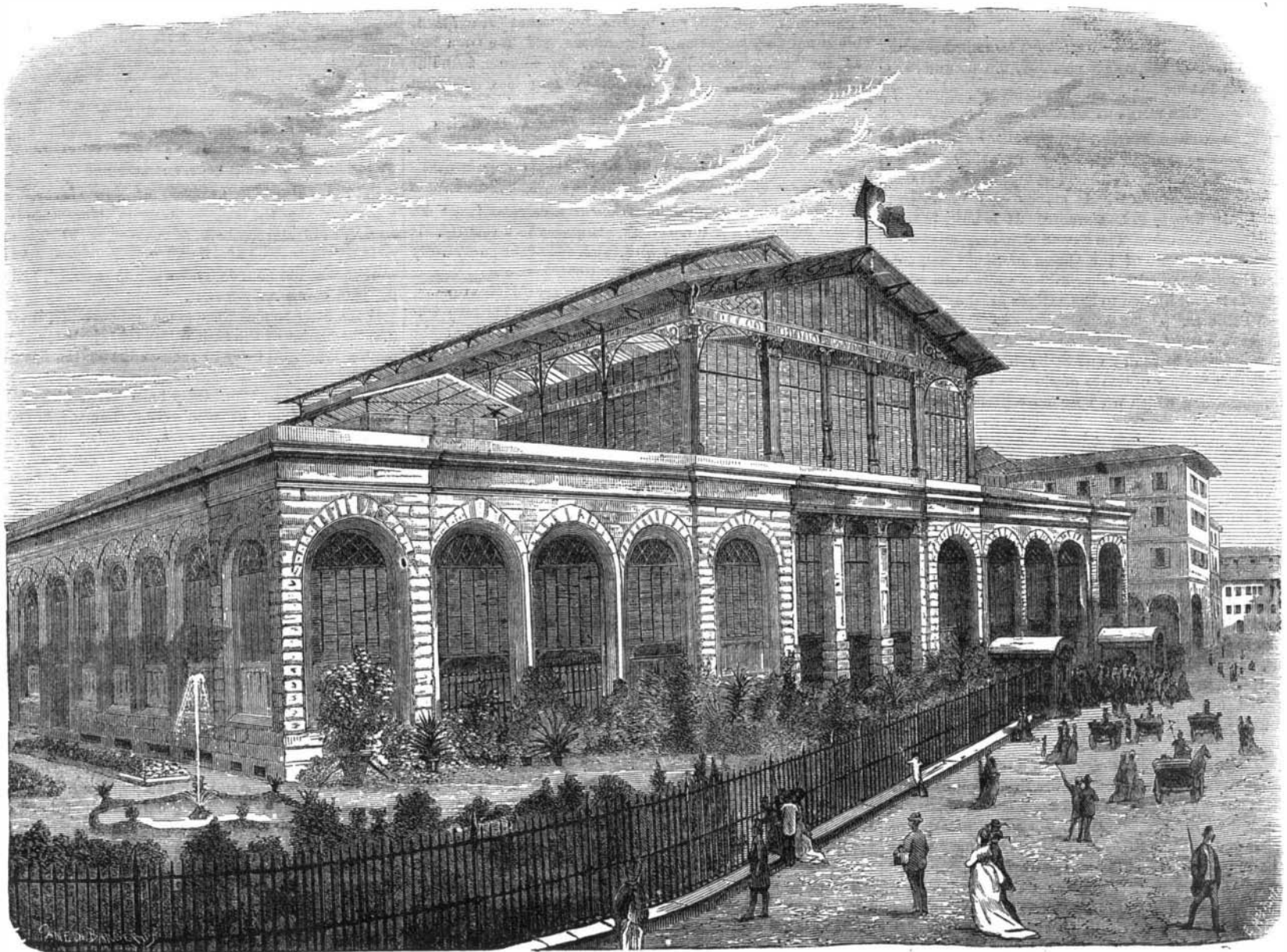
In attempting to prove that the Iliad is not a myth, that Paris and Helen, that Priam and Hecuba, and all the Greek heroes did live, Dr. Schliemann undertakes an arduous task, but he bases his speculations on the actual revelations of the relics dug up at the site of the ancient city. About four years ago excavations were begun at modern Hissarlik, and the first discovery was the remains of a city of Greco-Roman origin, in which none of the articles found were of a later date than the seventh century B. C. This town, it is believed, was built about 700 B. C., and destroyed by the Roman Emperor Constantine II. Soon after, within a mound, were found walls of a Greek city, and beneath these a still older structure which served as their foundation. Encouraged by these discoveries, the explorer opened an enormous trench, and laid bare three distinct strata, in the lowest of which, upon the virgin rock, were found fragments of pottery, in the next ashes and calcined fragments, all bearing the marks of a great conflagration, and, in the last, houses of small or cut stone joined with mud.

More extended excavations revealed the walls of a grand temple of Minerva, 240 feet in length, in which were found vases of gold and silver, copper, weapons of war, and ornaments of every description, numbering some twenty thousand in all, and all traceable to a period earlier than that of the Greeks.

The tools brought to light were either of hard stone or of bone. There are saws made of silex and knives of obsidian. Hammers had holes for the reception of handles cut by the action of sand and water. Nothing resembling a lathe was found. Pottery was molded entirely by hand. Mills for grinding grain existed in profusion; but bread could not have been known, as nothing resembling a baking apparatus was met with. The work in gold and silver was beautifully executed, apparently entirely by hand; and from the fact that much of it was made in the figure of an owl, sacred to Minerva, the tutelary deity of the Trojans, the explorer finds additional evidence for his belief that the remains discovered are veritable relics of Homer's Troy.

EPHESUS.

For some time past Mr. J. T. Wood, an English archæologist, has been making excavations with a view of determining the site of the Temple of Diana. These researches at first uncovered the remains of a gate, with the vestiges of a portico or colonnade. Then another gate was reached, and then roads converging from the two. Following these paths the excavators actually struck upon the angle of the outer wall of the great temple, bearing inscriptions recording its restoration by the Emperor Augustus. The Western face of this wall was followed some 1,200 feet. Soon after, Mr. Wood



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came upon a fine white marble pavement, laid in Greek fashion on a lower bed of black marble, the very floor of the temple itself.

ASSYRIA.

The excavations at Nineveh, carried on many years ago by Layard and others, have lately been continued by Mr. George Smith, of the British Museum, in the interest of the London Daily Telegraph.

CYPRUS.

General Di Cesnola is still prosecuting researches for pure Phœnician relics on the island. The collection, at present located in the Metropolitan Museum of Art in this city, is the result of seven years' exploration;

SCOTLAND.

Mr. J. S. Phené, F.S.A., has opened a number of mounds in Scotland, which, it appears, served as tombs for the early inhabitants. These tumuli are of exactly the same construction as the similar heaps found in Mexico.

THE RUINS OF OPHIR.

Mr. Mauch, an African traveler, believes that he has found the veritable remains of Scriptural Ophir, in lat. 20° 15' S., long. 26° 30' E. One edifice is still 30 feet high, and is formed of granite with beams of cedar.

Excavations are now in progress in Athens, Greece; and recent researches in Malta and Sicily have resulted in the discovery of a variety of tombs of Etruscan and Phœnician origin, regarding which we note no especial points of interest.

Correspondence.

Hardening and Tempering Tools.

To the Editor of the Scientific American:

In reply to your correspondent John T. Hawkins, whose letter appeared in your last issue, I would say that he is correct in stating that the difference in the degree of hardness to be obtained, simply by "the different temperatures at which the tool has been originally dipped," is practically very slight, providing, however, that the tool is heated to a red heat.

With reference to the colors produced upon steel, in the process of tempering it, being due to the formation of a film of oxide, it is not my purpose to treat upon the chemistry of metallurgy, but to confine myself to workshop practice as the workman understands it.

so easily or accurately obtained under a rapid as under a leisurely lowering of the color, especially in the case of taps or other tools having protruding parts or edges, because such parts receive the heat (and hence temper) more readily than the body of the tool.

To dip a cold chisel in the water in such a manner as to only require "a few seconds" to bring the cutting edge to a blue, as your correspondent asserts may be done, is an error, because in such a case the band of blue will be very narrow, and but very few grindings of the chisel will remove the part tempered.

If, however, from an error of judgment in heating or dipping, it becomes necessary to impart to the chisel additional heat, to assist the tempering, it should not be imparted by holding the chisel over "the clear coals," because, in such a case, the extreme end of the chisel, from its excessive exposure to the heat and from its being the thinnest part, receives the heat, and tempers, more quickly than the metal behind it;

New York city. JOSHUA ROSE.

To the Editor of the Scientific American:

In my communication on "Hardening and Tempering Tools," published in your issue of August 1, I notice three typographical errors; and as two of them are quite serious ones, particularly the last, I shall ask you to correct the two last mentioned below in your next.

1st column, 18th line from bottom, for "takes" read taken. This is not very important. 1st column, 22d line from bottom, for "temperature" read temper. 2d column, 29th line from top, for "strongly" read slowly. This last is almost exactly the reverse of what is intended.

62 Cannon street, New York city. JOHN T. HAWKINS.

Treatment of Erysipelas.

To the Editor of the Scientific American:

I have just been reading an article on erysipelas (page 40, current volume), and it induces me to give you a remedy. It is powdered charcoal mixed with thick sour milk, outwardly applied with a swab as often as the itching occurs.

One of my children was attacked with erysipelas at noon. In an hour his eyes were entirely closed, and his face was frightful to be seen. I made constant application of the above, and at 3 P.M. the swelling had subsided, leaving his face full of wrinkles. The disease then passed to his neck and thence downward till it traversed every inch of him, getting to his feet at midnight, twelve hours after its first appearance.

I will add that erysipelas is hereditary in my husband and in myself. I have used this treatment many times, and always with the best success.

ITALIA.

The Relations of Planetary Motions.

To the Editor of the Scientific American:

In your issue of July 11, you refer to some recent researches of mine in regard to the asteroids. The second of the propositions quoted, permit me to say, is an error committed by myself in transcribing from my note book. The following instances of remarkable relations between the mean motions of certain asteroids are especially interesting:

Let n^(11), n^(50), etc., represent the mean motions of Parthenope, Pales, etc., the numerals in parentheses denoting the minor planets in their order of discovery; and n^V, n^VI represent the mean motions of Jupiter and Saturn. Let also L^(11), L^(50), etc., represent the mean longitude at a given epoch. Then n^(50) - 3n^(78) + 2n^(11) = 0 (1) L^(50) - 3L^(78) + 2L^(11) = 180° (2).

The exact similarity of these equations to those found by Laplace, connecting the motions of Jupiter's first three satellites, is at once apparent. The origin of the relation, whether we accept the nebular hypothesis or Proctor's theory of planetary accretion, may be accounted for as in Note VII., Vol. II., of Laplace's "System of the World."

But were the relations expressed by (1) and (2) rendered rigorously exact by the mutual attraction of Pales, Diana, and Parthenope? This, to myself, seems wholly improbable. The required explanation is to be looked for in the perturbing influence of Jupiter and Saturn. A comparison of mean motions gives the following equations:

2n^(11) - 9n^V + 7n^VI = 0 (3)

n^(50) - 3n^V + 2n^VI = 0 (4)

n^(78) - 4n^V + 3n^VI = 0 (5).

Eliminating n^V and n^VI from (3), (4), and (5), we obtain equation (1). The mean motions are taken from the Annuaire for 1874.

DANIEL KIRKWOOD.

Bloomington, Ind.

A Queer Looking Prescription.

To the Editor of the Scientific American:

Your article in No. 4 of the present volume, entitled as above, is both sensible and just; and the facsimile of the prescription referred to is indeed a queer looking thing, but it can be matched by those of a Brooklyn M. D., as a number of druggists can testify.

Thinking that some of your readers would like to know what they were taking, should they conclude to have this recipe compounded, I send an elucidation of it:



"R. Tinct. colombae, 3 drams. Mistura camphorae, 1 oz. Spir. eth. nitr., 1 dram. Aqu. menth. pip., 1 oz. Aqua dist., 2 drams. Capiat cochleare amplum, ter in die.

JAMES CLARK."

In plain English, it is a mixture of tincture colomba, camphor water, spirit of niter, peppermint water, and distilled water, with directions to take a tablespoonful three times a day.

J. M. HUGHES.

187 De Kalb avenue, Brooklyn, N. Y.

Petrifaction vs. Putrefaction.

To the Editor of the Scientific American:

In The Columbian Register, of New Haven, June 20, it was stated that the body of Alanson Dyer, who died at Rutland, Vt., in March, 1872, of congestion of the lungs, was recently disinterred and found to be petrified. At death the weight was 145 pounds, and when disinterred, 1,200 pounds, the gain being 700 per cent.

If the body retained the same proportions, it seems to me that the claims of the skin worm are rejected, and that petrifaction takes full sway as soon as the sexton has finished his work.

This bone has undoubtedly been often picked by the savans, but have any of them ever broken the bone, examined the marrow, and found the reasons why? If they have, and will answer the following questions, I should like very much to see their answers in the columns of the best scientific paper in the world: 1. What prevents putrefaction and decay? 2. What elements are combined to produce petrifaction? 3. From what source or sources comes this tremendous accumulation of weight?

Stratford, Conn.

TRUMAN HOTCHKISS.

REMARKS BY THE EDITOR.—Putrefaction is not a process of oxidation, but the presence of oxygen is necessary to its commencement. Every case of putrefaction begins with decay; and if the decay or its cause, the absorption of oxygen, be prevented, no putrefaction occurs. The most putrescible substances are preserved indefinitely by enclosure in metallic cases from which the air has been completely removed and excluded. Chemical matter recently liberated is ready to form new chemical compounds. This burial undoubtedly took place in very damp ground. This earth was charged with water containing a great amount of lime, silica, alumina, etc., in solution. The water being taken up by the body during putrefaction, the mineral ingredients accumulated in it and formed a hard, stone like mass.

EVERY day sends to the grave a number of obscure men, who have only remained in obscurity because their timidity has prevented them from making a first effort; and who, if they could have been induced to begin, would, in all probability, have gone great lengths in fame.—Sydney Smith.