MISCELLANEOUS.

The Composition of Water.

MESSRS. EDITORS—I notice in your paper of the 15th inst., some remarks from the "Year Book of Facts," on the composition of water. The writer says, that "if any scientific fact is established, it is the composition of water. The conditions of oxygen and its broad distinctions from hydrogen, have been determined by the most able investigations the world ever produced—Lavoisier, Watt, Cavendish, Davy, and Faraday, are not to be treated lightly, because a pseudo-scientific American press proclaims to the world its new views." Permit me, in reply to the "Year Book," and your own remarks, to submit the following extracts of a paper read before the Royal Society, on January 24, by M. Daniel Paret, "On the Gaseous Transformation of Water, by means of a Pile in two separate compartments, having no other electric communication between them besides conducting wires of copper, and giving in the one oxygen alone, and hydrogen alone in the other." This arrangement and result is precisely what I have been ridiculed and abused for announcing, for the last five years. After premising that, at the present time, it is the generally received opinion that water is a compound of oxygen and hydrogen, M. Daniel Paret states that he now brings forward an experiment which proves, not that water is a compound, but really a simple element, since, without being decomposed, a given volume of water may be entirely transformed, at will, either into oxygen or hydrogen. Thus he considers it is no longer a decomposition of pre-existing elements which is effected, but really a gaseous transformation into two sub-elements, which are formed at the expense of the water, by the transposition of its combined or coercitive electricity, which places itself in the water, which becomes oxygen at the expense of another volume, which becomes hydrogen. After describing the experiments which support his theory, the author observes —"these experiments prove, first, that, contrary to the indefensable theory, a compound electric fluid, which is decomposed and recomposed, there is a true transfer of fluid in the current, which, besides, would be sufficiently evident by its motive power. Second, that the electric fluid is really the coercitive agent of cohesion. Third, that water is not a compound, is not an oxide, but truly a first element—the generator of oxygen and hydrogen. Fourth, in fine it reveals a body unknown until now, and very likely many other bodies are in the same condition as water."

No one questions the high attainments of Lavoisier, and others cited by the "Year Book," but I do question the right of any one to assume that these eminent men have exhausted scientific research—that no more can be known than they knew. But it is no evidence that Davy himself doubted that water was a compound, for he says, "that it may yet be found that water is but the basis of those gases."

In conclusion, I would remark that M. Daniel Paret, is but one of many that have proven my theory true, and he is also but one of many who treat the matter as their own discovery, in spite of the fact that I have been denounced as a humbug, for years, on the score of announcing myself as the discoverer. This is hardly fair. I have borne the odium and I will have the honors. HENRY. M. PAINE.

Worcester, Mass., May, 1852.

[If Mr. Paine will describe the manner, minutely, of resolving water into either oxygen or hydrogen, we shall then be able to test the truth or incorrectness of his alleged discovery. We have tried, but have not been able to resolve water all into oxygen nor hydrogen, and Mr. Paine has not made his plan public. We place but little dependence upon what Mr. Paret says, and do not take his opinions more than any other man's, for facts, without the demonstrations. A few years ago a respectable Edinburgh chemist announced he had made the discovery that all matter could be resolved into like substances—iron to gold, &c. This was a mistake; the old philosopher's stone revived. It is true that chemistry is but a young science, and no man should be bigotted respecting former discoveries, for what was a fact in chemistry five years ago, is a fiction to-day,—we only want the facts in this case, not the allegements.

The Cultivation of Madder and other Dyes.

A correspondent of the U. S. Gazette, living in Frankfort, Pa., directs the attention of our agriculturists to the cultivation of madder. The use of madder as a dye for our browns, reds, pinks, and lilacs—all fast colors, renders this dye indispensable to the dyer and color maker. All the madder used in America is cultivated in France and Holland; the French sells for 14 cents, the Dutch for 10 cents per pound. If our commerce with Europe were obstructed where should we look for our madder? To ourselves to be sure. We have every variety of soil and climate, and it can be cultivated here as well as in France, and certainly it would be a very profitable crop, for at the very lowest calculation one acre will produce 2,000 lbs., which would be nearly $280. It is believed that 10,000 tons are used annually, the cost of which is $2,000,000. It will be a long time before our farmers will be able to supply this demand, and while they may be striving to do so its use will be extending so fast that we cannot conceive of a period where, as a crop, it may be unprofitable. We do not use one-twentieth the quantity we might It dies a variety of beautiful colors, from a jet black to a lilac and deep red. The rich Turkey red, a piece of which is not dyed in our country, is colored with madder root, and to dye one pound of cotton it takes at least more than one pound of madder.

When our manufactures are more extended, we will have to cultivate the madder root, or else the price of the foreign article will greatly advance. We therefore hope that many of our agriculturists will devote more attention to the cultivation of this drug. The correspondent of the Gazette spoken of says:

"My attention was first called to this matter during the last autumn by a gentleman from Delaware, Dr. Allen V. Lesley, of New Castle, whose intelligence and public spirit will, I, trust, ere long, place him in the same niche in the temple of fame with Junius Smith, as a benefactor to his country. He has now upon his plantation about twelve acres of madder growing beautifully. I saw it a few days since, when it was about six inches above ground, far in advance of all other vegetation, except asparagus. He intends, I believe, to occupy his whole plantation, of 170 acres, with it, and will, I presume, introduce its culture generally, and, perhaps, simultaneously, with the tea by Mr. Smith. The Doctor sent me, some time since, a sample of the first lot that he gathered, about ninety pounds, which I had tested at the Frankford Print Works, where it was pronounced superior to the French madder that now sells at fourteen cents. This now fully establishes, to my certain knowledge, the adaptation of our country to its production, if it had not been established before. The Doctor informed me, however, that an individual in Herkimer county, New York, had been for several years cultivating it, and that one acre of ground afforded him an ample support, which was the height of his ambition."

We are glad to know that some of our enterprising farmers have commenced the culture of madder, it will no doubt afford them ample remuneration.

There is another dye drug which might be more extensively cultivated; we mean indigo. There is no good indigo made in the United States. The best indigo in our markets, is that which comes from Bengal, in the East Indies, and the next best is that which comes from Guatamala, in Central America. It appears to us that good indigo might be cultivated and manufactured in South Carolina, Florida, some parts of Georgia, Texas, Louisiana, and Alabama. A considerable quantity is cultvated in the Southern States for domestic use, but like our *sumac*, it is never for sale in the market; we have never seen a sample of it to compare with the poorest *Spanish float*. If we are not much mistaken South Carolina cultivated the indigo plant more extensively and made better indigo eighty years ago than is made in that State to-day. This should not be, and need not be. The Bengal indigo sells for two dollars per pound, a good price truly, and enough to incite our people, we should think, to make strong exertions to rival it.

There is another dye, but it is not a vegetable production, for which a great amount of money is expended, we mean cochineal. It is employed for producing the most brilliant scarlets, reds, and pinks, on silk and woolen goods. No other dye can approach it. All the cochineal used in our country comes from Mexico and some of the South American States. It is a small insect which feeds upon the cactus, and which, when dried and ground in a coffee mill, and boiled along with the hydro-chloride of tin and tartar, in a clean vessel, dyes the beautiful red on white wool. Owing to its high price—about two dollars per pound—a substitute for it, named *lac*, is extensively used. This latter substance is also an insect product, and comes from the East Indies. We are therefore dependent upon foreign countries for those dye drugs which have become a necessity to us, for where is there a man or woman in our whole country that is not indebted to the practical chemist for the coloring of some article of dress? We have been informed that the cochineal can be successfully cultivated in Florida; we have not doubt of it, but then it is not. It is our opinion that by quiet national expansion, the flag of our Republic will, in twenty years at the farthest, be the national banner of Mexico, and in that case we suppose more attention would then be devoted to the raising of cochineal, but for all this it would be good policy to cultivate all those expensive dye drugs now, in those parts of our country where this can be done successsfully and profitably. We wish to direct the attention of our people to these objects; we have done so before, and may do so again. There are other dye drugs which we might speak about, and will do so at some other time.

The Discovery of Jupiter's Satelites.

When Galileo first turned his telescope to the planets, he was delighted to perceive that they exhibited a round appearance like the sun or moon. Jupiter presented a disc of considerable magnitude, but in no other respect was he distinguished from the rest of the superior planets. Having, however, examined him with a new telescope of superior power on the the 7th of January, 1610, his attention was soon drawn to three small but very bright stars that appeared in his vicinity two on the east side and one on the west side of him. He imagined them to be three fixed stars, and still there was something in their appearance which excited his admiration. They were all disposed in a right line parallel to the plane of the ecliptic, and were brighter than other stars of the same magnitude. This did not, however, induce him to alter his opinion that they were fixed stars, and therefore he paid no attention to their distances from each other, or from the planet. Happening to examine Jupiter again on the 8th of January, he was surprised to find that the stars were now arranged quite differently from what they were when he first saw them. They were all now on the west side of the planet and were nearer to each other than they had been on the previous evening; they were also disposed at equal distances from each other. The strange fact of the mutual approach of the stars did not yet strike his attention, but it excited his astonishment that Jupiter should be seen on the east of them all, when only the preceding night he had been seen to the west of two of them. He was induced on this account to suspect that the motion of the planet might be direct contrary to the calculations of astronomers, and that he had got in advance of the stars by means of his proper motion. He therefore waited for the following night with great anxiety, but his hopes were disappointed, for the heavens were on all sides enveloped in clouds. On the 10th he saw only two stars, and they were both on the east side of Jupiter. He suspected that the third might be concealed behind the disc of the planet. They appeared as before in the same right line with him, and lay in the direction of the zodiac. Unable to account for such changes by the motion of the planet, and being at the same time fully assured that he always observed the same stars, his doubts now resolved themselves into admiration, and he found that the apparent motions should be referred to the stars themselves, and not to the planet. He therefore deemed it an object of paramount importance to watch them with increased attention. On the 11th he again saw only two stars, and they were also both on the east side of Jupiter. The more eastern one appeared nearly twice as large as the other, although on the previous evening he had found them almost equal. This fact, when considered in connection with the constant change of the relative positions of the stars, and the total disappearance of one of them, left no doubt on his mind of their real character. He therefore came to the conclusion, that there are three stars in the heavens revolving round Jupiter in the same manner as Venus and Mercury revolve round the sun. on the 12th he saw three stars; two on the east side of Jupiter and one on the west side. The third began to appear about three o'clock in the morning, emerging from the eastern limb of the planet; it was then exceedingly small, and was discernable only with great difficulty. On the 13th he finally saw four stars. Three of them were on the west side of the planet, and the remaining one on the east side. They were all arranged in a line parallel to the ecliptic, with the exception of the central star of the three western ones, which declined a little towards the north. They appeared of the same magnitude, and though small, were very brilliant, shining with a much greater lustre than fixed stars of the same magnitude. The future observations of Galileo established beyond all doubt that Jupiter was attended by four satellites. He continued to examine them until the latter end of March, noting their configuration, and recording the stars which appeared in the same field of view with them.—[Grant.

The Crystal Palace.

It has been decided by the British Parliament that this structure must come down. It has been sold, we believe, for about $350,000. It was thought by many that it would be retained and kept in Hyde Park as a public green house, and this was suggested and advocated by Paxton. But it was allowed to be erected in Hyde Park with a pledge that it should come down after the World's Fair was over, and it was no more than just and honorable that the pledge should be fulfilled. Public parks are public property, and no buildings but temporary ones for important purposes should ever be erected on them. It is also well, as affording a subject to talk about, that the building should be removed. Let it be a thing of memory, rising grand in the past, canopying pilgrims for a happy season, from all countries under the sun. It was the Congress of nations paying homage to peace and good will as connected with the "Arts and Sciences,"—to use it for another purpose would be desecration.

Compensating Pendulums.

MESSRS. EDITORS—In the last number of the "Scientific American" I noticed an article on "Compensation Pendulums," by Wm. E. Lukens, who would like to have the fallacy of his plan shown.

Now, in the first place, his wooden support, with the rod, would not be so firm to hold the pendulum, as to have the pendulum hung in the slit of the brass cap that is screwed to the plate, thus every jar affects it. If his plan be adopted, the clock case will expand, thus lengthening the vibrating part of the pendulum, and of course compensating only as accurately as the expansion of wood will allow. Would it not be better merely to have a pine or maple pendulum rod, as it would be compensated just as near perfection as it would with his extra rod and fixtures?

D. R. HALE.

Lowell, Mass., May 17, 1852.

The London Artizan.

The advertisement of this able monthly appears in this number; it is longer, by several lines, than we are in the habit of inserting, but as this journal is one of sterling merit, we cheerfully comply with the Editor's request to publish at length. Persons wishing to obtain it can do so by ordering through Messrs. Willmer & Rogers, corner of Liberty and Nassau streets.