

THE NEW PLANET.

Since the brief paragraph was in type announcing the discovery of a new planet, we have received Mr. Beswick's computation of its elements:—

| | |
|---------------------------|----------|
| Epoch, February 12, 1864. | |
| Distance..... | 0.4053 |
| Longitude of node..... | 321° 48' |
| Inclination..... | 10.77° |
| Period in days..... | 94.1326 |
| Daily motion..... | 3.82439° |
| Apparent diameter..... | 8" |
| Mass (Earth=1.00)..... | 0.11 |

Mr. Beswick saw this planet cross the sun's disk on February 12, 1864, at 8h. 20m. in the morning. It was then 10' 20" from the eastern limb, and 14' 20" from the southern limb of the sun. Its motion was exactly 711".66 in 100 minutes.

The whole time of transit was exactly 4 hours 33.5 minutes. The segment of the sun's disk which the apparent path of the body cut off was a complete diameter.

Its progress across the sun's face exceeded that of Venus and was less than that of Mercury. Its figure was that of a dark, round, and well-defined spot. Its size was 8", or a little less than that of Mercury at its greatest diameter. Indeed the whole appearance—figure, density, velocity and regularity of motion—was indicative of its being the transit of a planetary body whose path is included between the orbits of Mercury and Venus.

Mr. Beswick cites six previous observations by astronomers of the transit of a dark body across the sun's disk, which correspond exactly with the periods of this planet as computed by him:—

"The first recorded transit of an unknown body is that of Lescarbault, who saw a round body transit the sun's disk on March 26, 1859, at about four o'clock in the afternoon. He and Leverrier computed its orbit, and announced it as an inter-Mercurial planet, whose period is less than twenty days, and its distance about 0.1427. And Leverrier has given to this planet the name of Vulcan. But the planet's place is unknown, as it has never been seen since.

"Now, in computing back the times of inferior transit of the body seen by me February 12, 1864, I find that it would transit the same on the very day and hour when Lescarbault saw a body cross the sun's disk. For between February 12, 1864, and March 26, 1859, there are exactly 14 inferior transits, or

$$\frac{1784.9 \text{ days.}}{14 \text{ transits.}} = 126.817 \text{ days.}$$

So that the planet seen by Lescarbault in France, and named Vulcan by Leverrier, is doubtless the same planet as the one whose orbit I have computed, and which was seen by me in 1864. But its distance from the sun is 0.4053 instead of 0.1427, or nearly three times as distant as Leverrier supposed it to be; and its path, which lies between Mercury and Venus, instead of Mercury and the Sun, is 94.1326 days instead of less than 20 days, or nearly five times as great as Leverrier supposed it to be."

The next observation in going back was that of Schmidt, October 11, 1847, the interval being exactly equal to 33 inferior transits. The next was by both Stark and Steinhelb, June 20, 1820, the interval being just 80 transits. It was seen by Stark at the next earlier transit than that of June 20, 1820, on the 9th of October 1819. Fritsch saw an unknown body transit the sun on the 10th of October 1802, and this interval proves to be equal to exactly 49 transits. Finally the earliest known mention of this body was by Schentau and Crefeld on the 6th of June, 1764; 111 transits earlier than that observed by Fritsch.

Mr. Beswick gives the position of this planet on the following dates, so that observers will know where to look for it.

| Right Ascension. | | | Declination. S. | |
|------------------|-------|--------|-----------------|---------|
| h. | m. | deg. | deg. | m. sec. |
| May 5..... | 12 59 | 34.788 | 6 39 | 00.000 |
| 6..... | 13 10 | 48.492 | 59 | 22.926 |
| 7..... | 22 | 02.116 | 7 19 | 45.852 |
| 8..... | 33 | 15.820 | 40 | 08.778 |
| 9..... | 44 | 29.524 | 8 00 | 31.704 |
| 10..... | 55 | 43.228 | 20 | 54.630 |
| 11..... | 6 56 | 56.932 | 41 | 17.556 |
| 12..... | 18 | 10.636 | 9 01 | 40.482 |
| 13..... | 29 | 24.340 | 22 | 03.498 |
| 14..... | 40 | 38.044 | 42 | 26.334 |
| 15..... | 51 | 51.748 | 10 02 | 49.160 |
| 16..... | 3 05 | 05.452 | 23 | 12.086 |
| 17..... | 14 | 19.156 | 43 | 35.012 |
| 18..... | 25 | 32.860 | 28 | 27.064 |
| 19..... | 36 | 46.564 | 10 8 | 04.138 |
| 20..... | 48 | 00.268 | 9 47 | 41.212 |

A circle whose radius is 15°, with the sun as a center, will include the position of this planet up to May 10th. And during its Eastern elongation, which will continue to May 17, it is possible that the planet may show a phase distinct enough to be visible just before sunrise, to a good observer with a good instrument. Its next inferior transit across the sun's disk will be early in the morning of June 18, 1864.

About White washing.

The time for cleaning and fixing up has come, and one of the most important items is whitewashing. We often wonder that people do not do more at this. How much neater and more cheerful a whole place looks, if a few hours are spent in whitewashing the fence, the outhouses, the cellars, &c.; it changes the whole appearance of the homestead. One day's work thus expended will often make a place twice as attractive and add hundreds of dollars to its saleable valuation. Whitewashing a cellar with lime not only makes it lighter and neater, but more healthful, also. For cellars, a simple mixture of fresh slacked lime is best. For house rooms, the common "Paris-white," to be bought cheaply, is very good. We take for each two pounds of whiting, an ounce of the best transparent glue, cover it with cold water over night, and in the morning simmer it carefully without scorching, until dissolved. The Paris-white is then put in hot water, and the dissolved glue stirred in, with hot water enough to fit it for applying to the walls and ceilings. This makes a very fine white, so firm that it will not rub off at all. When common fresh-slaked lime is used, some recommend adding to each 2½ gallons (a pailful), two tablespoonfuls of salt and half a pint of boiled linseed oil, stirred in well while the mixture is hot. This is recommended for out-door and in-door work. For an out-door white-wash, we have used the following with much satisfaction: Take a tub, put in a peck of lime and plenty of water to slack it. When hot with slaking, stir in thoroughly about half a pound of tallow or other grease, and mix it well in. Then add hot water enough for use. The compound will withstand rain for years.—*American Agriculturist.*

Spectral Ray of Thallium Paralysed by that of Sodium.

It appears that if thallium be present in small proportions in a compound containing chloride of sodium, the action of the ray characteristic of the latter is so powerful that the thallic ray remains unperceived. Hence, although the thallic ray be not observed in the solar spectrum, it by no means follows that the metal itself does not exist in the sun. This is a fact of great importance, not only in regard to ordinary chemistry, but as it bears on toxicology. For in an analysis (spectral) of the animal tissues or liquids, one is certain to find chloride of sodium in abundance, and therefore, were thallium present in small proportions, it would escape detection by this method. If it be required to examine mineral waters and such-like for thallium, it will be necessary to separate the metal in the first instance from the excess of soda; this may be done by one of the methods pointed out by M. Lamy; viz., either by depositing it on zinc, or reducing it by galvanic means, or by precipitating it with sulphide of ammonium or iodide of potassium.—[See a memoir of M. Nickles in the *Comptes Rendus* for January, 1864.

Chemistry of the Oil of Nutmeg.

The nutmeg owes its peculiar aromatic properties and flavor to a volatile oil which is present in large quantities, but up to this it has not been submitted to a chemical examination. This oil may be extracted by boiling the kernel in an ordinary retort, but in this process only a portion of the essence is obtained. A preferable method appears to be the treatment of the finely-powdered nutmeg with bisulphide of carbon or sulphuric acid. The mixture is then filtered, and a stream of vapor is caused to play upon the residue, which then loses all the essence it contained. The composition of the essence obtained in this manner is the same as that of volatile oil of turpentine.

The stock of sugar in the British warehouses has been rapidly increasing for the last three years, and is greater now than it ever was before.

Direct Production of Wrought Iron and Steel in the Blast Furnace.

A very interesting method for obtaining the above result has recently been patented by Mr. Johnson, of Lincoln's Inn Fields, England. The process consists essentially in the introduction of finely divided oxide of iron into the blast, which, of course, conveys it to the metal in the furnace. The result of this introduction of oxide is that the cast iron becomes decarbonated in the blast-furnace itself, without being placed in puddling or other furnaces. Any other oxide which acts in a similar manner may be employed with equal advantage, and other substances may be employed for the purpose of purifying the metal. The crucibles which are usually employed must undergo some modification in order to admit of the patented system being carried into execution. It is thought advisable to heat the oxide to dull redness before allowing it to enter the blast pipe.

Newly-discovered Bone Cave.

The *Popular Science Review* says:—"In making certain excavations in the rock of Gibraltar, the engineers have come upon a very extensive cavern containing the bones of numerous extinct mammalia and of man. From what we have already heard, this grotto bids fair to throw more light upon the question of the age of pre-historic man than any hitherto examined. As yet we have had no minute description of the fossils discovered in this locality, but we have been informed that a very great number of specimens has been forwarded to this country by one of the Gibraltar authorities particularly interested in the geology of the excavation."

A WOMAN WITH HORNS.—The *New York Observer* of the 12th inst., contains a letter from its correspondent at Larnaca, in the Island of Cyprus (Turkish dominions), describes a most remarkable *Iulus naturae* recently discovered there. It is nothing less than a woman with horns growing out of her head! She has one large horn on the side of her head of the size and consistency of an ordinary ram's horn, besides three or four cornicles on other parts of the head. The writer states that he has seen her and that she has been visited by nearly all the Consuls and Europeans in that place, some of whom are making an effort to secure her for exhibition.

SPONTANEOUS GENERATION.—There is at last a prospect of the question of *equivocal generation* being settled. We learn, from the *Comptes Rendus*, that the Academy has appointed a commission to inquire into the evidence on both sides, and that M. Pasteur and Messrs. Pouchet, Jolly, and Musset have been invited to repeat their experiments in the presence of the commissioners. The invitation has been accepted by both parties, the advocates of spontaneous generation appearing to be quite sanguine of success, and reposing the most perfect confidence in the impartiality of the commission.

STAR MAPS.—The magnificent catalogue and star maps of Professor Argelander are now completed—the number of stars registered amounting to 324,198 altogether, which are visible in the northern hemisphere with a telescope of 4½ foot focus. The preparation of this great work has taken upwards of seven years, in which there were 635 clear nights, and the number of observations amounted to more than a million. The month of October was found to be best adapted for observations in the climate of Bonn, Germany.

VERDICT ON THE "CHENANGO" DISASTER.—In the *Chenango* disaster the verdict of the jury was that the boiler exploded through defective bracing. Just half the number of supports for the brace-rods, required by the specification, were put in the boiler, and the Government inspector is censured for neglecting to inform his superior officers of the departure from the contract. A minority report was also brought in by some of the jury, who agreed to consider the explosion as caused by superheated steam.

In the afternoon of the bloody day of Waterloo, as Wellington threw himself into one of the hollow squares of infantry, he observed to the officers, "This is hard pounding, gentlemen, but we will pound the longest." Again he remarked, "Three times I have saved this day by perseverance."