over the rails, and Israel Esmayne held his breath, momentarily expecting the awful crash which should stain his soul with the eternal brand of Cain.

Hush! An owl hooting afar off in the woods, the cry of some sad voiced night bird overhead, and then—another whistle clear and cheery. The express had passed through Hursley—passed through safe and sound! And Israel Esmayne, staggered to his feet, gazed around him an instant, clutching vaguely at the air, and then fell unconscious.

* * * * * *

"Uncle, he is coming to. O uncle I know—I KNEW that he was not dead!"

And the soft eyes of Dorothy Beers were the first thing Israel Esmayne saw as his soul came out of the world of shadow and oblivion, with old Jonathan leaning on his cane just beyond.

"Tell me, Dotty," he gasped. "How was it? The—the switches?"

"[illegible] did it," said the old man. "She com[illegible], and she heard the freight a whistling, and she see the switches wasn't right, nor no signal, nor nothin'. 'Something's happened,' says my girl. 'Israel's been took ill, or dead,' says she. And there lay the key in the middle of the track, and she catches it up, and she unlocks the switches—you showed her how to do it yourself, Esmayne, one summer afternoon—and she bangs up the white lantern. And there she stands, with her heart a beatin' fit to choke her till the freight gets off. And she called one of the brakesmen, 'Set this ere right for the express,' said she. 'Quick! or there may be a thousand lives lost.' 'Where's the switch-tender?' says he. 'God only knows,' said my Dotty. And she came back arter me, 'Uncle,' she says, all white and tremblin' like, 'come with me. 'What for,' says I. 'To look for Israel,' says she. 'I don't sleep this night.' says my Dotty, 'until we've found him!'"

"God bless her!" cried out Esmayne in a choked voice. "God be thanked for all his mercies."

"Was it in a fight?" said the old man curiously. "How did it come on?"

But Israel spoke no word on the subject either then or ever. He married Dorothy Beers in the spring, and he has sacredly kept his vow. If he lives to be a hundred years old, he will still keep it. And Dotty, though she never knew it, had redeemed him.

HOW ICHABOD STOW BOUGHT A WATCH.

Ichabod Stow was the shrewdest man in Grenville. He never let a favorable opportunity pass for earning an honest penny. No man in the remote region where he resided ever got the advantage of him in a horse trade. He knew the "pints of a hoss to a T," he was accustomed to say. If Ichobod, or "Ich," as he commonly called, had confined his judgment of the respective merits and demerits of the various equines which from time to time came under his critical eye, he might have remained prosperous and happy, but in an unfortunate moment he allowed his speculative disposition to take him out of the limits of his ordinary transactions, and he unexpectedly came to grief,—he bought a watch.

Now Ichabod did not really need a watch, for he had already an article of that discription in his possession that answered his purpose perfectly. It was the bequest of a diseased grandfather, and a marvellous keeper of time it was too. It was a watch of the old cylinder escapement and bull's eye pattern, shaped like the discription of the earth in the Primary Geography—round like an orange or apple, and flattened at the poles.

Ichabod once went to the city. If he had remained at home, as he afterwards wished he had, he would never have bought a watch, for I doubt if any citizen of Greenville would have been shrewd enough to sell him one. So he went to town to his subsequent sorrow, and bought a watch.

This is how it happened

He arrived in town without any mishaps. For a time he perambulated about the streets with the determination of not being "taken in" as he had heard accidently, some of his neighbors had been on previous occasions. He walked along, gazing with wonderful eyes upon the many new and beautiful objects about him, until he came to "a showy store whose front stood wide open," where an auctioneer was selling sundry articles for half their value—to invisible customers. Ichabod paused and looked in.

Louder and louder bawled the auctioneer. Deeper and deeper he deplored the lack of conscience his customers possessed in allowing goods to be sold at such a fearful sacrifice. "Who was a buyin' on 'em," Ichabod could not imagine. He walked in however, "jest to see what was a goin' on."

Soon after, a forlorn, pitable looking man limped into the room on a broken crutch. He was thin, emaciated, and upon the verge of starvation. In his hands he bore a heavy gold watch—the last remaining legacy of a beloved and departed father. It was a very valuable watch, but it must go—go to buy bread for himself, his sick wife, and starving children. Ichabod was moved, deeply moved by his sad story, not so much by a spirit of philanthrophy as a prospect of a sharp bargain.

The stranger handed the watch to the auctioneer who affirmed with the most solemn air that it was *wrong! wrong!* to put up so valuable a piece of property at such a ruinous sale, he would not permit it under any cirstances. It would start a financial panic in that community. If the man wanted bread here was money to buy it, and, wiping a tear from his eye, he handed the poor creature a piece of fractional currency. "What is a trifle to me?" he said. "cast your bread upon the waters and it shall return to after many days."

The man took the money, and with a reverent "God bless you," went his way. Ichabod followed him with alacrity, and soon overtook him.

"Say, mister," he said, "I always, had a feller-feelin' fur a fellow crecture. An' I reckon if you want to sell that watch o' yourn real bad, now we ken strike a trade."

The man declined to part with it, affirming that he had enough to satisfy his immediate need.

Ichabod grew very anxious to make a bargain.

"Come now," said Ichabod, "what'll ye take?"

They talked and argued for a long time.—Ichabod had the man at a disadvantage, he was in distress and want, and the bargain was finally closed. Ichabod paying him fifty dollars for the property, which, with the massive chain, he knew to be worth four times as much.

The man went his way with a face so sad and sorrowful that Ichabod remembered it ever after, but the expression of his own countenance was not less long and melancholy when, an hour later he stepped into a jewelry store to have "the thing set goin'," and the jeweller said:

"Set it going? *Why it hasn't any wheels!*"

And this is how Ichabod Stow happened to buy a watch.—*Fireside Friend.*

SCIENTIFIC.

THE LOST ARTS.

Mr. Wendell Phillips, the distinguished orator, has delivered no more brilliant discourse than that of which the following is an abstract. The "Lost Arts" is a subject of surpassing interest, not only as treating of knowledge long since dead to the world, but as affording evidence that many of our newest discoveries were known and practiced in ages of which history furnishes but meager record. Mr. Phillips began by stating that he had been charged with repeating useless fables with no foundation. Take the subject of

GLASS.

This material, Pliny says, was discovered by accident; some sailors landing on the eastern coast of Spain took their cooking utensils and supported them on the sand by the stones that they found in the neighborhood; they kindled the fire, cooked their fish, finished the meal, and removed the apparatus; and glass was found to have resulted from the niter and sea sand, vitrified by the heat. The story was rejected by scientific men as improbable, on the ground that no mere bundle of sticks could produce sufficient heat to cause vitrification. But Professor Shepherd, continued the lecturer, states that when he was in Mexico his party stopped on the road one day to cook some venison. They made their fire, on stones, of a wood resembling ebony. When the cooking apparatus was removed, there was pure silver got out of the embers from the intense heat of that almost iron wood, a heat more than sufficient to vitrify the materials for glass. Why then, can it not be supposed that Pliny's sailors used some such wood? It is stated that nothing has been observed in ancient times which could be called glass. In Pompeii, a dozen miles south of Naples, which was covered with ashes by Vesuvius 1,800 years ago, they broke into a room full of glass; there was ground glass, window glass, cut glass and colored glass of every description, and the house was evidently a glass maker's factory.

The chemistry of the most ancient period had reached a point which we have never even approached, and which we in vain struggle to reach to-day. Indeed the whole management of the effect of light in glass is a profound study. The Catholic priests, who penetrated into China two hundred years ago, say in their letters that they were shown a glass, trasparent and colorless, which was filled with a liquor made by the Chinese, that was shown to the observers and appeared to be colorless like water. This liquor was poured into the glass, and then, looking through it, it seemed to be filled with fishes. They turned this out and repeated the experiment, and again it was filled with fish. The Chinese confessed that they did not make them; that they were the plunder of some foreign conquest. Another story relates to the age of Tiberius, the time of St. Paul, and tells of a Roman who had been banished and who returned to Rome, bringing a wonderful cup. This cup he dashed upon the marble pavement, and it was crushed, not broken, by the fall. It was dented some, and with a hammer he easily brought it into shape again. It was brilliant, transparent, but not brittle. The possibility of glass being thus made is strenuously denied by learned and scientific men. The Romans got their chemistry from the Arabians; they brought it into Spain eight centuries ago, and in their books of that ago they claim that they got from the Arabians malleable glass. There is a kind of glass spoken of there that, if supported by one end, by its own weight, in twenty hours would dwindle down to a fine line, and that you could curve around your wrist. Von Beust—the Chancellor of Austria—has ordered secrecy in Hungary in regard to a recently discovered process by which glass can be used exactly like wool, and manufactured into cloth. In Rome, there is exhibited a bit of transparent glass, which is lifted up to show that there is nothing concealed, but in the centre of the glass is a drop of colored glass, perhaps as large as a pea, mottled like a duck, finely mottled with the shifting colored hues of the neck, and which even a miniature pencil could not do more perfectly. It is manifest that this drop of liquid glass must have been poured, because there is no joint. This must have been done by a greater heat than the annealing process, because that process shows breaks.

The ancient imitations of gems have deceived the most experienced connoisseurs. The celebrated base of the Geneva cathedral was considered a solid emerald, but when Napoleon after taking it to France, presented it to the Institute, the scholars, though asserting it not to be a stone, were unable to tell of what material it was.

ANCIENT AIDS TO VISION.

Cicero said that he had seen the entire Iliad, which is a poem as large as the New Testament, written on skin so that it could be rolled up in the compass of a nut shell. Now, this is imperceptible to the ordinary eye. Very recently the whole content of a London newspaper were photographed on a paper half as long as the hand. It was put under a dove's wing and sent into Paris, where they enlarged it and read the news. This copy of the Iliad must have been made by some such process. Pliny says that Nero, the tyrant, had a ring with a gem in it which he looked through and watched the sword play of the gladiators, more clearly than with the naked eye. So Nero had an opera glass. Mauritius the Italian, stood on the promontory of his island and could sweep over the entire sea to the coast of Africa with his *nauscopite*, which is a word derived from two Greek words meaning to see a ship. Evidently Mauritius, who was a pirate, had a marine telescope. The signet of a ring in Dr. Abbot's museum, said to belong to Cheops, who lived five hundred years before Christ, is about the size of a quarter of a dollar and the engraving is invisible without the aid of glasses. In Parma is shown a gem once worn on the finger of Michael Angelo, of which the engraving is two thousand years old, in which there are the figures of seven women. A glass is needed to distinguish the forms at all. Layard says he would be unable to read the engravings on Nineveh without strong spectacles, they are so extremely small. Rawlinson brought home a stone about twenty inches long and ten wide, containing an entire treatise on mathematics. It would be perfectly illegible without glasses. Now, if we are unable to read it without the aid of glasses, you may suppose that the man who engraved it had pretty strong spectacles. So, the microscope, instead of dating from our time, finds its brothers in the Books of Moses—and these are infant brothers.

THE OLD DYES.

For the Egyptians, color was a means of recording history. We find upon the stucco of their walls their kings holding court, their armies marching out, their craftsmen in the ship yard with the ships floating in the dock, and in fact we trace all their rites and customs painted in undying colors. The French, who went to Egypt with Napoleon, said that all the colors were perfect except the greenish white, which is the hardest for us. They had no difficulty with the Tyrian purple. The burned city of Pompeii was a city of stucco. All the houses are stucco outside, and it is stained with Tyrian purple—the royal color of antiquity; and the flaming hues are as bright as if painted but yesterday. Come down from Titian, whose colors are wonderfully and perfectly fresh, to Sir Joshua Reynolds, and although his colors are not yet a hundred years old, they are fading; the colors on his lips are dying out, and the cheeks are losing their tints. He did not know how to mix well. The French have a theory that there is a certain delicate shade of blue that Europeans cannot see. Ruskin says that we cannot imitate in colors that would last for twenty years the scarlet in old illuminated missals, now five centuries old. The Frenchman says: "I am the best dyer in Europe; nobody can equal me, and nobody can surpass Lyons." Yet in Cashmere, where the girls make shawls worth thirty thousand dollars, they will show him three hundred distinct colors, which he not only cannot make but cannot even distinguish.

(*To be Continued.*)

MESMERIC SLEEP.

Is there, we may ask, any such special form or mode of sleep as that denoted under the name—produced by a certain subtile power emanating from one person, and affecting, even without actual contract, the body of another? We may say at once that neither in the sleep produced, nor in the collateral effects assigned to it, do we find anything that has no kindred with the natural phenomena of sleeps and dreams, and which is not explicable by the anomalous forms these so often assume without any external influences. As regards the simple effects in question, we believe we might as well speak of sermon sleep, of rocking cradle sleep, of the sleep of an easy arm chair, or of a dull book, as of mesmeric sleep. The experiments of Mr. Braid, embodied under the name of Hypnotism, show the effects even of posture or fixed direction of vision in bringing on this state. So multiplied and various indeed, are the conditions, bodily and mental, tending to it, that the marvel of being awake is almost as great as that of sleep produced by the manipulations and other appliances which the mesmerizer brings to his aid. Among these appliances we must especially reckon the age, sex, and personal temperament of those who are usually the subjects of these exhibitions. Any one who cares to examine the records of them will see how important is the part those conditions play in the drama of mesmerism, Granted that the facts are strange and difficult of explanation. But so, and from the same cause, are all the ordinary phenomena of sleep and dreams.

ARSENIC COLORS.

Since the publication of our article on arsenic pigments, we have received numerous letters enclosing specimens of calico, wall paper, etc., asking our opinion in reference to their poisonous character. We have had some of these examined by competent chemists, and in all instances sufficient traces of arsenic have been found to prove the dangerous character of the articles presented. From Lee, Mass., we have a sample of calico, in which the green band is colored with arsenic, and no washing would render it safe to wear such goods. The misfortune is that even some of the aniline colors are so impregnated with arsenic that they are as dangerous as the older Scheele's green, of which we recently complained. Toy books with green covers are always to be suspected, and in fact the only absolutely safe thing to do is to avoid green colors altogether. The detection of arsenic is so simple that any one can perform the experiment in a few moments. We cut off a piece of suspected calico and immersed it in some strong ammonia, which we had poured into a tumbler; a blue color at once indicated the presence of copper A drop of the blue liquid put upon a crystal of nitrae of silver turned immediately canary yellow, which reaction denoted arsenic. This is an experiment that anybody can try. To confirm our suspicions we poured some of the liquid into a Marsh apparatus, and easily obtained the well known deposit of metallic arsenic on glass or procelain. With wall paper a neat and easy way is to put a drop of nitric acid on the green spot, then a drop of ammonia when the color will turn blue, and on addition of a drop of nitrate of silver, if arsenic be present a yellow stain will spread in a ring to the outer extremity.—*Scientific American.*

ARE THE PLANETS INHABITED?

The *Evening Mail* contains, under the above head, an argument tending to an affirmative answer to this question; but is founded more on poetical imagination than on sober truth. The writer says: "Reasoning from analogy, it is hardly possible that such magnificent worlds as are within telescopic inspection, far surpassing our own in magnitude and celestial beauty, are solitary globes, destitute of living forms organized for enjoying as much as we," etc., and he ends with the statement that the spectroscope has demonstrated that the composition of these worlds as to their metallic resources is essentially like that of the earth; and he asks, finally, "why not in all other respects?"

The answer to this question is that in all other respects the conditions required for organic life are exceedingly complex. One of them is a temperture between 32° and 100° Fah., and this condition prevails only on two of the planets, the Earth and Mars; all the others are too hot, and their moons are too cold; at least, it is probable that the moons of Jupiter, Saturn, an Uranus are as thoroughly cooled off as our own moon, which is as totally unfit for the existence of organic life as the tops of our Himalayas. If the spectroscope had not demonstrated that the celestial bodies were compounded of the same elements as our earth, we might perhaps argue that, for other elements unknown to us, another range of temperature might be required for organic life, but the revelations which this admirable instrument has given exclude such a supposition; and as, in connection with the telescope and photometer, it has also taught us that a temperature of 1000° Fah. and upwards prevails on all the planets except Mars, the idea that they are all inhabited *at the same time*, is fallacious.

We say *at the same time;* the moon may have been inhabited millions of years ago, when the surface of the earth was as red hot as that of jupiter is now; and when by further cooling during thousands of centuries our earth will have become desolate, it may be the turn for Jupiter and other planets to become the scene of the most luxurious organic life.

A German saying is: "God works slowly, because He is eternal." No doubt the universe was not created in a hurry; planets have been revolving around central suns for millions of centuries, and according to unalterable laws have their periods of preparation, disturbance, evolution, organization, then their period of full organic development, and finally of decay; it is already, *a priori*, very unlikely that these different periods of their history should exactly coincide, as the planets differ individually and are placed in different conditions; the larger ones must cool slower than the smaller, and those further from the sun faster than those nearer to that orb. Each has its own individuality, its own history, and will go through the different periods of its destiny in its own time, a time so long that our longest historical period is comparatively a mere instant; while it sweeps in its course through spaces so large that all the empires of the earth are comparativly a mere handfull.

ARISTOCRACY OF MIND.

Intelligence is the true criterion of greatness. We often see persons who are styled aristocracy, with feelings of pity, if not of contempt, realizing, as we do, the shallowness of brain, intellect and culture. Intellect is a [illegible] only fades when life expires. The rich man may lose by misfortune his wealth, or he who owes his position to the accident of birth, and invariably he fails to support himself in the walks of life in which the change of wealth places him. But the intellectual man has a source of never-failing riches within, which is like a good vein of ore, the more it is wrought the more it produces. Therefore, we claim, there is but one standard of greatness, and that is intelligence; and whether in the halls of the great, or the humble cot of the lowly, we are proud to render it homage. In our land successful intelligence is not confined, as in the Old World, to the lordly palace and gilded halls of the nobles, but we find it in the workshop, at the blacksmith's forge, behind the plow, and at the humble fireside of the poor. The humblest schoolboy may become the great statesman, the poorest student the eloquent orator.

A WONDERFUL ART.

The manufactory in Rome where pictures are copied mosaic, being thus rendered almost everlasting, or time proof, is the most celebrated establishment of the kind in the world, some of its productions being little less than miracles of artistic genius, beauty and skill. The mosaic is formed of tiny bits of opaque colored glass of various shades amounting, it is said, to the almost incredible number of 30,000 different and distinct shades, themselves so arranged as to form a picture pefect in every detail—in light, shadow, shade, and color. It is described as corresponding, in some measure, to the pictures formed in Berlin wool. The various pieces of colored glass are placed in their pre-arranged order on a table covered with a sort of cement, and when this tedious process is over—for there are many thousands of pieces in each picture—the surface of the picture is then smoothed and polished. These are main features, mechanically considered, of this wonderful art.

MYSTERIES OF THE SHAWL TRADE.

A Paris letter says:—"Before leaving this subject I must relate a curious discovery on this occasion. M. Guyetant took me to see one of his first artistes, who works at home. In the front room of a modest apartment was the intelligent artist working at his lathe, and in the back room was his wife working upon an Indian shawl. A fine cashmere, worth 4,000 francs, or, perhaps, $1,000 in New York, was cut into strings or figures, and on glancing at it I could not help crying, 'Ah! how in the world did this fine shawl get so badly damaged? Was it eaten by the rats? Madame Guyetant laughed, and said, 'Oh Monsieur, it isn't damaged at all, I'm re-arranging it.' Probably my lady readers will be as much surprised as I was to find that these costly shawls are purposely cut in pieces and then sewed together again. The philosophy of it is this:—Some years the fashion is for white figures, running about in scrolls as in cashmeres, and sometimes for black. Hence shawls with white ground figures are cut when black sell best, and the black cuttings sewn in. Sometimes, when a lot of shawls has been for many years on hand, the disposition of the figures is changed, in order of the prevailing taste. Now the work was done so well that I could not distinguish the seams but it seems to me that if I were to buy a shawl worth a thousand dollars, I should greatly prefer to have it as it came from the Indian loom. I was told that hundreds of these re-arranged shawls are annually sold to American ladies at very large prices; and if those who have them find that they come in pieces, they will understand the reason. They have only to send the shawl to some *vocommodeuse*, like the person of whom I write, and the work will be elegantly done again. This industrious artist and his not less industrious wife earn a very handsome living from their common labour."

A remarkable man, claiming to be the Messiah has recently appeared in Arabia, where his fame has spread far and wide. He came forth from the desert, where he spent many years mortifying the flesh, and he pretends to work wonders and perform miracles, and give the evidence of his divine mission. He has a melodious voice, remarkably brilliant eyes, and a fascinating appearance, and is winning followers.