Scientific American.

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REMOVAL.

The SCIENTIFIC AMERICAN *Office has removed from its old location,* 128 *Fulton st.* (*Sun Building*), *to No.* 37 *Park Row* (*Park Building*), *where all letters, packages, and models should hereafter be addressed. Entrance is had to the office also at No.* 145 *Nassau st. Munn & Co.'s American and European Patent Agency is at the above office.*

Is Electricity Hydrogen or Iron?

Our attention has been called to an article which appeared in the *N. Y. Tribune*, of the 15th ult., by E. F. Barnes. Its object is to adduce what is supposed to be some proof in favor of the hypothesis that hydrogen is iron in a gaseous state, and that electricity is hydrogen plus heat. We will endeavor to present the substance of the article briefly, and then point out the defective character of the proofs and conclusions advanced in support of such a theory.

In Groves' battery the nitric acid contained in the porous cup soon turns blue in color. This effect suggested to Mr. Barnes that there must be copper present to cause this; and upon a test being made, he found this was the case. The wire between the two poles was copper; when an iron wire was used for the same purposes there was no such effect. As is well known, the copper was carried by the electric current, however mysterious the action, through the porous cup into the nitric acid. From this it is concluded by Mr. Barnes, that iron is electricity, but he does not state whether he tested the nitric acid for iron as he had for copper; and as the nitrate of iron is an amber color, the same as the acid itself, while the nitrate of copper is blue, he in all likelihood was deceived by *appearances*.

He says, it is well-known that an iron wire heated to redness and plunged into a vessel of oxygen gas will burn rapidly, and the product of such combustion is water. Water is composed of hydrogen and oxygen. Is iron therefore solidified hydrogen in whole (if a simple is claimed), or in part if a compound. The late Prof. T. Spencer, in his chemistry of common life, claims to have demonstrated that electricity is hydrogen plus heat.

"Here is a field for the scientific and curious. I should be pleased to see the subject commented upon by others."

From some of the characteristics of hydrogen, the base of it has been supposed by chemists to be a metal, but as yet this is mere supposition. To found such a theory on the above would be erroneous. The only data for such a conclusion, as it regards hydrogen being iron in a gaseous state, is based upon the statement that when a red-hot iron wire is plunged into a vessel containing oxygen gas, it is consumed, the iron disappears, and nothing is left but water. Were this true, the conclusion would be inevitable that hydrogen was iron in a solid condition; but it it is not true, and we cannot conceive whence Mr. Barnes derived such information. When an iron wire is burned in a vessel containing oxygen gas, neither water nor a gas is the result of this action, but a solid which is common rust—the oxyd of iron. And it is found to be just so much heavier than the original iron wire, as the amount of oxygen which united with it; there is not an atom of hydrogen present. There is no metal further removed, apparently, from hydrogen than iron. In commerce there is not a pound of this metal obtained pure; that which is called iron is an alloy of carbon, silicon and iron. To obtain it pure for experimental purposes in the laboratory, it is fused in burning hydrogen, which removes all the impurities and leaves pure iron as the result. This fact should convince any person that the hypothesis advanced by the writer in the *Tribune*, that iron is the base of hydrogen, is destitute of the least foundation in chemical science.

Young's Coal Oil Patent.

The specification of James Young's patent for making coal oil, published on page 116, present volume of the SCIENTIFIC AMERICAN, has attracted considerable attention, and many letters have been addressed to us in reference to it. One party admits that it is a broad patent, covering, abstractly, the manufacture of oil from bituminous coals, but asserts that it does not apply to bituminous shales. Now we confess we do not see the force of this position. It is our opinion that Young's patent covers the manufacture of oil from bituminous shales, as well as coals. In his specification he speaks of the "treatment of certain bituminous mineral substances," specifying three as best fitted for the purpose, and particularly refers to some of them as containing a larger amount of mineral matters, but as not materially interfering with the performance of his process. Now if oil can be obtained from shales by the process described and claimed in Young's patent, it will not be easy for parties to dispose of it by mere words; they must upset his patent, else they may find themselves in an uncomfortable box.

The following letter will show how the subject strikes one who is engaged in the business:—

MESSRS. EDITORS—In reading over your last number, I remark a description of Mr. James Young's patent for the manufacture of coal oil by the distillation of coal in retorts. His claim (the distillation of oil from coal by heating it, and then condensing the rising vapors in a cooling worm) covers the whole ground; all coal oil manufacturers are eventually infringing upon Mr. Young's patent, and the gentlemen interested in the same should not lose time to cash their fees. In the year 1842 I lived in Austria, and witnessed the process of distilling oil from cannel coal; it was put into an iron vessel, and distilled through a condensing worm. These facts could be identified, if important, provided the costs were paid. Mr. Young's patent is rather lengthy. What American manufacturer will not get frightened at the idea of keeping coal oil *a whole week* at 100° Fah.? Why, it must take nearly three weeks to bring the oils into marketable condition. Does Mr. Young really use *red* litmus paper, as stated in your journal? If so, it would give a good patent claim; we have enough blue papers in this country, a little red would be a change.

Please, Messrs. Editors, do not frighten our capitalists. There are now a great many ready to engage in the manufacture of coal oil and the mining of cannel coal. Tell them that there are better and much quicker processes of manufacturing coal oil and paraffine, all invented in this country, and which can be secured at less cost than those of English importation. A. L. FLEURY.

Baltimore, Feb. 10, 1859.

Our correspondent treats this matter rather flippantly. Supposing he did see oil extracted from coal in Austria seventeen years ago, it would not affect the question of the validity of Young's patent. If the process of making it had not been published, nor the manufacture of it introduced into our country until the patent referred to was secured, our law would protect the patentee. Our correspondent cautions us not to frighten our capitalists, who are ready to engage in the business of manufacturing coal oil. We have no desire to frighten any one; but we consider it our duty, as faithful journalists, to spread before our readers correct information upon all subjects within our legitimate sphere. The advantage of our position is that we have no pecuniary interests, directly or indirectly, in the business of coal oil making, and can, therefore, look at these questions from an unselfish point of view. We know nothing of Mr. Young, or of the parties interested with him; but he is a patentee, under our laws, and whether imported or domestic, his rights are the same to us, and also to our laws.

Our correspondent thinks that American manufacturers of coal oil would never have the patience to wait on a process three weeks in order to bring the oil into a marketable condition. We are not blind to the fact that our people are of the go-ahead stamp, and as there is a great deal of complaint against much of the coal oil vended in the market, it might serve the consumers interest, and possibly the makers, in a long run, if the latter would but exercise a little more patience—even to keep, if need be, the coal oil a whole week at 100° Fah.

Cocoa Oil.

If the fruit of the cocoa-nut is grated down finely, then boiled for half an hour in a considerable quantity of water, and allowed to stand for a few hours afterwards, until it becomes quite cool, a thin stratum of oil will be found floating on the surface. It is devoid of smell, is clear as water, is excellent for burns, and it also makes a good toilet oil, if kept in close bottles. In the island of Ceylon, the oil of the cocoa-nut is used for burning in lamps, and in England great quantities are employed in making soap. When the oil is made in large quantities, the nuts are rasped in a mill, then placed in coarse bags, and submitted to severe pressure in powerful presses. A considerable amount of moisture is extracted with the oil, but this is all dispelled by boiling, and the oil obtained is of very good quality. Ten nuts yield about one pound of oil.

A cosmetic called "cocoaine," because it is of a white, milky appearance, is sold at pretty high prices. Such preparations are very deceptive; their names afford no reliable data for judging of their composition. A milk-white preparation resembling it can be made by dissolving olive oil in a weak solution of pearl ash and a little ether, and it can be scented with bergamot, oil of cinnamon, or any other perfume.

Canals versus Railroads.

In Indiana, the canals seem to be dying out. The receipts of the Wabash and Erie Canal, in that State, were no less than $193,000 in 1852 (the year when railroads began to compete with it), but since that period they have fallen off so rapidly that in 1858 they only amounted to a little over $60,000—an amount which really does not cover its working expenses. Unless the State grants money to maintain this canal in working order, it will have to be abandoned at no distant day. This would prove very detrimental to the interests of those who dwell in the towns and villages through which it passes, and also to the farmers in the vicinity. The only remedy which we can recommend is to adopt steam as the propelling agent, so as to enable the boats to compete on more favorable terms with the railroads. Let the commissioners or trustees who have the superintendence of this canal endeavor to galvanize some steam life into it.

Museum of Woods.

A new room has recently been opened to the public in the British Museum, London, for the above purpose. It contains sections of trunks of trees, showing their structure; also specimens of wood in a polished and unpolished condition, from every part of the world. It seems that a large collection of California woods has already been secured in London, and some of these are very beautiful for cabinet-work. There could not be a more useful room of a museum established in any part of our country than one containing specimens of all our native woods, in the rough, and also in a polished state. We recommend it to the attention of our State governments as worthy of adoption.

The Atlantic Cable Again.

By recent accounts from Europe, we learn that Mr. Henley has been sent out to Newfoundland, to try and galvanize some life into the Atlantic cable at this end. He might as well try to resuscitate a dead whale. A banquet was recently given to Professor Thomson, in Glasgow, in honor of his abilities and the services which he rendered without fee or reward in laying the Atlantic cable. The only signals of reliable character ever sent through it were transmitted by his instruments, which are simple, delicate signalling galvanometers. He is of the opinion that another cable of superior construction will be laid in the Atlantic at no distant day, but he has no hopes of the present one ever being able to convey messages.

It has been announced that a fresh company has been organized in London for laying a new cable, constructed in a totally different manner from the last. Its whole strength is to be placed in the conducting wire inside, and no outside spiral shield is to be used.

Constantinople Enlightened

Istamboul—the City of the Sultan—is fast becoming infidel, and it promises at an early date to be illumined with a stream of light from Christendom. Gas pipes are now being laid down, by the order of the municipal council, in its streets which, heretofore, have been been almost impassable after dark. Knowledge and science are bound by no conservative prejudices on national peculiarities. They attend the footsteps of the enterprising in all ages, and desert the laggards. in the progress of civilization. Athens, once the school and center of the world's civilization in arts and sciences, has lately been illumined with gas by English mechanics; and Constantinople, once the focus of eastern learning, is now seeking light from the same source. Schools of philosophy and art flourished at Athens and Constantinople, when the people of England lived in caves and had no written history. Rome—the Imperial City—once mistress of the world, has also lately been receiving gas light from England, once her furthest and most insignificant colony.

Another Turn in our History.

The period has again arrived for many of our readers to renew their half-yearly subscriptions for the SCIENTIFIC AMERICAN; we believe they have only to be reminded of this, and they will do so with their usual promptness. None should neglect to secure all the numbers of every volume, as a single number forgotten or overlooked may contain the very information which a reader has been in search of, for years. Money cannot be invested to a better purpose by our inventors, mechanics, and artisans. As heretofore, all their wants shall be consulted by us, and endeavors made to supply them from every reliable source. Our readers have a great advantage over others engaged in the same pursuits, as they acquire a knowledge of all the new improvements of the day, and such information as cannot be otherwise obtained.

We wish it to be distinctly understood that the engravings which illustrate the columns of the SCIENTIFIC AMERICAN are executed *expressly for this paper*, and that whatever the reader finds, from week to week, illustrated therein, he can depend upon as being original, having never been printed in any other paper or magazine.

It costs but four cents a week to ensure the weekly visit of the SCIENTIFIC AMERICAN; for so small a sum, then, who can afford to be without it? We again urge upon our friends to procure new subscribers, and also send us the names of those most likely to take the SCIENTIFIC AMERICAN.

White partridges have appeared in considerable numbers, about Quebec, this winter. They are seldom found so far south, their habitat being in the cold polar regions. They are thickly feathered down to the talons, and are said to be very beautiful birds.