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.*

The Commissioner of Patents.

The appointment of Hon. J. Holt to the office of Postmaster-General has left the Patent Office without its usual supreme director, and the minds of inventors are naturally stirred with much anxiety in regard to the person who shall be selected to fill such an important situation. The qualifications requisite for this purpose are peculiar. The Commissioner of Patents should not be merely a lawyer, mechanic, or man of science, but he ought to be well informed in the arts and sciences and patent laws. He should also possess laborious habits, an analytical mind, impartiality, and conscientiousness in a high degree. It is admitted by all that the two most successful Commissioners we have ever had were Judge Mason and Mr. Holt, both bred to the legal profession. They brought with them into this office cultivated minds, broad views, generous feelings and deep sympathies; and these qualifications gained for them general respect and a deep hold on the esteem of inventors and all who had business with the Patent Office.

In the appointment of such Commissioners by Presidents Pierce and Buchanan, it is much to their credit that they selected men who were more distinguished for mental endowments, and strict integrity, than for political influence. The same motives and spirit should prevail in making the selection of a successor to Mr. Holt. To administer the affairs of the Patent Office with a due regard for the interests and honor of our country and government, the Commissioner must be a man adorned with the qualifications we have here pointed out, and who will do his duty without fear or favor, in a spirit of honest uprightness and liberality with kindness of demeanor. He must make himself felt as the moving power of the department over which he presides, and he must endeavor to maintain the high reputation which it has recently acquired, or the effect will be deeply injurious to the important interests entrusted to his care. If an incompetent person should be appointed to this office, the result would be disastrous in its bearing upon the progress of improvements in the arts and sciences, and would create distrust in the minds of inventors with respect to the integrity of its management.

We have no name to present for the office. It would be manifestly out of place in us to urge any particular one for the position, but we have pointed out what should be taken into consideration in making the selection and we trust that at an early date we shall see the right man in the right place. We believe the President will be cautious in his selection to fill this important official trust.

Science and Poisoning.

One of the most important murder trials which has ever come before our City Courts, was terminated, after eighteen days sitting, on the 26th ult. in the conviction of James Stephens for poisoning his wife. We do not allude to this case as a criminal topic—because that would be entirely foreign to the legitimate order of our mission—but for the purpose of showing the power and subtility of science, in detecting arsenic, when used for criminal purposes. In this case the victim had been dead and buried for nearly a year before the matter was brought before the courts, the body was then exhumed and the intestines placed in the charge of Dr. Doremus for chemical analysis. The result of this was given in detail, in an examination of two hours on the witness-stand; the following is the substance of it:— He found from four to six grains of arsenic in the remains of the deceased woman. At such a period after death much of the arsenic swallowed by a patient, would be absorbed, and the quantity found in the remains was not an exact test of the amount of arsenic taken. The quantity of arsenic sufficient to cause death varied in different persons and under different circumstances. It was on report that a grain and a half had killed; Sir Benjamin Brodie was the authority for that. Two grains, three grains according to the circumstances, were sufficient to cause death. An analysis of two hundred cases of poisoning by arsenic, made by Dr. Lee, established Professor Doremus' conclusions on the subject of the symptoms produced by poisoning with arsenic, which were vomiting, pain in the pit of the stomach (described as a burning pain), a similar pain in the throat, nervousness, and prostration of the whole system, partial paralyzation, diarrhœa, swelling of parts of the body, and a peculiar anxious appearance of the countenance.

The Healthiness of Swill Milk.

On page 230 of the present volume of the SCIENTIFIC AMERICAN, we gave a table of analyses of milk from the Report submitted to the Academy of Medicine on swill milk by Dr. Saml. R. Percy; we purpose now from that report to give a brief explanation of the table:—

"It is proved conclusively by the analyses of swill milk made by Dr. Reid, Dr. Doremus and myself, that it is different in its component parts from milk obtained from cows in the country. Although the amount of solid particles are not much less than in country milk, the proportion of the different ingredients vary very materially. In all the instances in which an analysis of this swill milk is given, the butter and sugar are very largely decreased, while the casein (or curd) and the saline matters are largely increased. The butter is proved by minute analysis to be entirely deficient in the peculiar phosphoric organic compound which is appropriated specially by the brain and nervous system. Whether, upon minute analysis the casein would be found to contain the same proportionate amount of nitrogenous material, I cannot say; I can only imagine that it would not, from the starving condition that children are in who live upon this milk. The chemical and microscopic investigations I have made of this swill milk prove that it is different in its component parts from country milk, and that the globules which should be contained in it are diseased, dead and broken down, even before it leaves the udder of the cow, and that the majority of the butter globules are coated with a viscid substance, a product of their decomposition, which renders them cohesive and different from those in healthy milk.

"Minute chemical analysis, either vegetable or animal, is yet but imperfectly understood, and nothing is yet known which will detect the numerous gaseous poisons which are absorbed into the system, and float and mingle and destroy the vital properties of the blood and nervous system. Beneath the warm rays of the sun the insalubrious marsh pours forth its pestilential miasma, which prostrates the body in fever; but our senses cannot discover, neither can the microscope or the most delicate chemical tests detect, anything different from the common atmosphere. Chemical tests cannot detect animal poisons combined with the milk more readily than they can detect poisons in the blood; but that distillery milk produces injurious effects when taken into the stomach is as certain as that malarious districts produce ague, or foul unventilated crowded rooms produce typhus. Chemical analysis can at present do but little towards detecting the peculiar changes that take place in the milk of a woman when she is angry or frightened, or why that change should make the child sick, nor does it tell why thunder should turn milk sour.

"But chemical analysis does point out with unerring certainty that milk or blood in a natural state contains certain well defined elements, and any great deviation from this state renders these fluids unhealthy and unfit for sustaining life, How greatly these differ from the healthy standard, may be seen from the tables. Into the very minute chemical analysis I have not ventured, but physiological research, observation and careful attention to the symptoms of the little patients under my care, have proved to me that the secretions from unhealthy cows have produced sickness, disease and death, and that it is incapable of forming healthy tissues or an active vigorous nervous system."

Aluminum Becoming Cheap.

It is only a few years ago that this valuable metal was uncommon and expensive, owing chiefly to the difficulty of reducing it from its oxyde. We believe that about three years ago, the market value was no less than $18 per ounce, but so many improvements have since been made in the manufacture, that it now has become cheaper than silver. M. H. St. Claire Deville, of Paris, was the first chemist who succeeded in producing it in anything like large quantities, but his process was very expensive. The oxyde of aluminum had first to be converted into a chloride, and from this reduced to the metallic state by sodium in crucibles submitted to a high heat. When Deville commenced his experiments, the price of sodium was five dollars per ounce, and it required three ounces to obtain one of aluminum. In a very outcast region of the world—cold Greenland—an aluminous mineral called *cryolite* has been discovered in great quantities, from which the metal can be reduced at a very limited cost, and a large factory has lately been erected at Battersea, England, by M. Gerhard, for this very purpose. To 270 parts by weight of powdered cryolite, 150 parts of common salt, and 72 parts of sodium are added and all mixed together in an earthen crucible, which is then covered and exposed to a red heat in a furnace for two hours. The crucible is now removed, uncovered, and its contents poured out, when the aluminum is found in small buttons among the slag. These are again smelted with common salt, and by this means so reduced that when the scum is taken off, the aluminum is poured out into ingot molds. By this short process, M. Gerhard has been able to obtain aluminum at such a comparatively low cost, that he has been able to sell it for about one dollar per ounce.

Aluminum is the lightest of all the metals, its specific gravity being about the same as glass, or four times less than silver. This quality should recommend it for coinage, to take the place of coins of the lowest value. It forms an alloy with all the metals but mercury and lead, and is well adapted for electrotyping, as it deposits easily with the galvanic current.

The London *Mining Journal* states that very useful hard alloys may be made of aluminum and steel. By adding only 8 per cent of aluminum to common steel, a great improvement is effected, and a steel very similar to Bombay wootz, which is celebrated for making sabres, is the result. If common Kaolin, which contains aluminum, is added to iron when being smelted in a crucible, to convert it into steel, an improved product is the result.

EDWARD EVERETT.—We have received from T. H. Leavitt, Room No. 23, Park Building (above our office) an engraving on steel, of this distinguished statesman, orator and scholar. It is a highly successful work of art and does much credit to the engraver, H. W. Smith. The price of the engraving is $3.

Christian G. Ehrenberg.

This distinguished microscopist was born in Saxonia, and is, next to Humboldt, one of the oldest members of the Academy of Science in Berlin. He has devoted the last 40 years of his life to the investigation and microscopic analysis of one order of animalcules, the *Infusoria*. His patience and perseverance are unequaled; and as a reasoner on the observations he makes, he is generally logical and sound. The microscope owes him many improvements, and his name stands among the highest of those on Science's scroll of fame. Europe, Asia and Africa have seen him wandering in search of *Infusoria* recent and fossil, and his agents in America, Australia, and other countries keep him well supplied with specimens—some taken from the bottom of deep seas and the tops of high mountains, from the Arctic regions and the torrid zone. It is said that he makes 40 different microscopical analyses of every specimen. The works from his pen are numerous, his "Microgeology" being the best known and fullest of original thought and interesting discovery. When he is removed by death from the ranks of living men, a place will be left vacant that will not easily be filled up.

Mr. L. Breisach read a paper on the life and discoveries of this eminent naturalist at a late meeting of the Polytechnic Club of the American Institute, which was listened to throughout with great interest.

Infringements.

MESSRS. EDITORS:—Will you do me the favor of answering the following queries:—Any person using a patented improvement (knowing it to be such) without the consent of the patentee or owner of the right; is that piracy? and can he be prosecuted successfully on the part of the State as a criminal? Is it a Penitentiary act? I am impressed with the opinion that government having granted the patentee an exclusive right and property in his invention patented, makes it piracy for any one to take and use that property without consent of the patentee or owner of the right; just the same as for any one to take another's horse and convert to his own use and profit without consent or knowledge of the owner.

Yet I know it is usual to prosecute for infringement and get damages; but if against a poor willful man, what satisfaction can complainant get? If piracy, then the injured man can prosecute to some purpose, and defend his rights; if it is a criminal act, then there would be less danger of infringements, in such case, one would be more successful in deterring others from using his patent by prosecuting for piracy rather than infringement. I shall feel thankful for any light you may give me on the subject.

A SUBSCRIBER.

A patentee may apply to the Court for an injunction to prohibit an infringer from the manufacture of the patented article. And if the infringer disregards the order of the Court, by continuing to make the article after being enjoined, he is liable to punishment by imprisonment for contempt. The act of infringement, however, is not one of a criminal nature.—EDS.]

BELTING.—A correspondent—C. Green, of Bethel, Ohio—in alluding to the account of experiments with india-rubber and leather belting, published on page 216, states that the difference in adhesiveness of belting under different degrees of tension is very great. He asserts that belts kept in proper order—soft and pliable—have three times the adhesiveness of those made from the same leather, but which are hard and stiff. To keep leather belting in good condition he has never found any thing equal to fish oil mixed with spent gudgeon grease—the grease caught in the waste pans of journal boxes. This makes the leather soft and pliable—an important consideration, more especially for belting running rapidly over small pulleys.