

Dr. W. L. Coleman, of San Antonio, Texas, who was ordered by the National Board of Health to investigate the origin of the yellow fever prevailing in Memphis, has been at work for a month past, and his investigations convince him that the germs were imported direct from the West Indies, and that they passed the New Orleans quarantine unchallenged, and arrived in Memphis some time in June.

**THE COMMISSIONER OF PATENTS IN A DILEMMA.**

It will be remembered that in 1877 the roof of the Patent Office building was destroyed by fire, and a great number of models were burnt and broken. Since then a great deal of discussion has arisen as to what improvements should be included in the repairs, and considerable time consumed in getting the necessary appropriation allowed by Congress before the work could proceed. But finally a plan was decided upon and an appropriation granted, and the work has progressed quite rapidly during the summer.

The iron work for the support of the roof and the new gallery is already nearly completed and in place, and the whole building is expected to be roofed in by the middle of October. But owing to the breaking up of the old roof to allow the ironwork to be placed in position, considerable inconvenience has been experienced from the rain. A correspondent of the Philadelphia *Bulletin* relates the observation of a gentleman who had business with the Commissioner of Patents, and called upon that official during one of the days of the late severe rainstorm, and found him sitting in a corner of his office, having moved his desk away from the usual place in the center of the room, in order to escape the rain which was trickling down through the roof and the floors above. A colored messenger, having collected all the available spittoons, was engaged in moving them about from place to place in the Commissioner's room wherever he saw signs of a new leak, in order to protect the carpet from the rain. Several of the adjoining rooms occupied by the Deputy Commissioner and clerks of the Patent Office and a portion of the hall of the main floor were in a still worse plight. Beyond the temporary inconvenience of the officials no damage was done, as the records and files of the Patent Office were kept in better sheltered quarters.

**THE RED SPIDER ON ROSES.**

H. M. Hill, Clancey, Montana, sends us specimens of his roses, the leaves of which are seared and yellow, and asks the cause and cure.

A careful examination shows that the plants have suffered from what is commonly known as the red spider (*Tetranychus telarius*). It is a true mite and not a spider, though belonging to the same subclass.

Among the mites we find many species, some beneficial to man, others noxious. In a list of the former we may mention the locust mite (*Trombidium locustarium*, Riley), which preys upon both the locust and its eggs. It is an important auxiliary in checking the multiplication of the Rocky Mountain locust. Another species (*Uropoda Americana*, Riley) preys upon the Colorado potato beetle; while still another (*Trombidium muscarum*, Riley) infests, in the larva state, the common house fly.

Among the noxious species are the itch mite, the cheese mite, the jigger or harvest mite of the more Southern States (*Leptus Americanus*, Riley), and the one at present under consideration, the red spider.

A curious fact in the life history of these tiny creatures is that they are born with but six legs, though in the adult state they have eight.

The red spider, which is such a pest to the florist, thoroughly dislikes water. It cannot thrive in a humid atmosphere nor on plants often drenched with water. On the other hand it multiplies rapidly in a dry air, so that some florists consider it a certain evidence that their plants are not receiving sufficient water when the spider appears.

Drench the leaves of infested plants often with water in which is a little whale oil soap. See that every leaf is thoroughly moistened, and repeat the sprinkling frequently according as the weather is hot and dry, and the pest will soon disappear. It is bad on vines and shade trees only in the hot, dry weather of midsummer, and needs most watching then.

**RAPID PHOTOGRAPHING.**

Mr. Muybridge's method of photographing horses in rapid motion has lately been applied in San Francisco to the study of human action, particularly that of athletes while performing their various feats. In order to display as completely as possible the movements of the actor's muscles, they wore brief trunks only while performing, and thus all the intricate movements of boxing, wrestling, fencing, jumping, and tumbling were instantaneously and exactly pictured.

The first experiment was in photographing an athlete while turning a back somersault. He stood in front of the camera motionless, and at a signal sprang in the air, turned backward, and in a second was again in his original position, and in his very tracks. Short as was the time consumed in making the turn, fourteen negatives were clearly taken, showing him in as many different positions.

The same man was also taken while making a running high jump. The jumping gauge was placed at the four foot notch, in order to give an easy jump, as in making it fourteen stout hempen strings had to be broken, as in photographing trotting horses. From the camera to a point beyond the line on which the jump was made, a number of strings were stretched. The two base lines were only a few

inches above the ground, and from them to the apex the strings were placed an equal distance apart. In jumping, seven of the strings were broken in ascending and seven in descending. The strings were tautly drawn, and so connected with the camera that as each one parted a negative was produced.

Other pictures were taken of men raising heavy dumbbells, and the various movements of boxing, fencing, and the like.

**CURING BEEF BY INJECTING BRINE.**

The infiltration system of salting beef, by filling the blood-vessels with brine, is attracting considerable attention in Australia. In some recent experiments at Brisbane, bullocks were treated as follows: At the instant of killing the animal's heart was laid bare, and incisions were made in both ventricles. Into the orifice of the left ventricle a pipe was inserted, and a stream of weak brine was forced through the bloodvessels, washing out all the blood. Pressure was obtained by having the brine in an elevated tank. After the expulsion of the blood the right ventricle was closed by a clamp, and stronger brine was forced in until all the bloodvessels were full. In this way the distribution of the brine through every part of the meat is said to be complete and the curing perfect. It is proposed to send to the Sydney Exhibition a whole bullock thus preserved.

**LIFT LOCKS AND LOCKING-TIME.**

At the Paris Canal Congress one of the chief objections urged against a ship canal with locks was the alleged great delay incident to locking. It was said that from one to two hours would be consumed in entering a ship, closing the gates, filling the lock, opening the gates, and leaving. The eminent English engineer, Sir John Hawkshaw, said that fifteen minutes would suffice for all these operations. Admiral Ammen says that this estimate is still further reduced by General Weitzel, U. S. Engineer, to eleven minutes. General Weitzel has for many years been engaged in building and operating locks, and in July next will have completed, at Sault Sainte Marie, Michigan, the largest lift lock on the globe. Its dimensions are: Length, 515 feet; breadth, 80 feet; lift, 18 feet; gates to admit vessels of 60 feet beam.

**The Mississippi River Commission.**

The first session of the Mississippi River Improvement Commission was held in Washington, August 20. A committee was appointed, composed of General Harrison, of Indianapolis; Professor Mitchell, of the United States Coast Survey, and Major Suter, of the Engineer Corps, to submit recommendations as to the best method of obtaining and compiling statistics of the trade, commerce, etc., of the Mississippi Valley, and such other data as may be required for the use of the commission. Another committee was appointed, consisting of General Comstock, of the Engineer Corps; Professor Mitchell, of the Coast Survey; Major Suter, of the Engineer Corps; and Major Harrod, of New Orleans, to prepare a plan for the future work of the commission, and to make such recommendations as they deem necessary with regard to the use and expenditure of the existing appropriation of \$175,000.

St. Louis has been selected as the permanent headquarters of the commission, and the office there will be under the immediate charge of the permanent secretary, who will be the executive officer of the commission, and act under the direction of a committee to be selected from among the members who reside in the West.

**Sir Rowland Hill.**

Sir Rowland Hill, to whom the world is so largely indebted for cheap postage, died at his home in Hampstead, England, August 27, at the age of eighty-four years. Sir Rowland was born in Yorkshire, December 3, 1795. His first occupation was as mathematical tutor in a school near Birmingham. As secretary of the South Australian Commission, he aided, in 1835, the founding of the colony of South Australia. It was about this time that he first turned his attention to the defects in postal organization, and in 1837 he published a pamphlet on the much needed postal reform. His exertions resulted, in 1838, in the appointment of a special committee of the House of Commons, and in August of the same year the commission reported in favor of adopting the plan of a uniform low rate of postage, as recommended by Mr. Hill, the evidence having proved that injurious effects resulted from the old state of affairs to the commerce and industry of the country, and to the social habits and moral condition of the people. In 1839 more than two thousand petitions were presented to Parliament in favor of the scheme, and in 1840 it was carried out.

The labors of Mr. Hill in putting the scheme into execution were protracted and severe. For many years he held the office of Secretary to the Postmaster General. He was knighted in 1860, and retired from office in 1864, on account of failing health.

**Henry J. Rogers.**

Henry J. Rogers, who assisted in the erection of the first telegraph line between Baltimore and Washington, died at his residence in Baltimore, August 20, aged sixty-nine years. He was subsequently superintendent of the North American Telegraph Company, and was the author of the code of marine signals now in use at all the ports of the country.

**THE AMERICAN SCIENCE ASSOCIATION.**

The annual session of the American Association for the Advancement of Science began, August 27, at Saratoga, New York, with an unusually full attendance of members. Considerable preliminary business was transacted, but no papers were read.

The address of President Barker was the principal feature of the morning session. In the course of his remarks, the object of the association was declared to be the advancement of science not only by the discovery of new truth, but also by the diffusion of that already known. To this end it extends a cordial recognition to all organizations of what ever sort whose objects are akin to its own. Being itself national in character—for science knows no country and no section of country—it gives its indorsement to all local enterprises, and stands ready to assist them in any legitimate way. Whether it be a State, geological, or topographical survey, an academy of science, or association or individual seeking to unravel nature's secrets, the association desires to strengthen their bonds and to uphold them in the communities where they are located. Its province is to awaken an interest in pure science; or, where such interest already exists, to develop it to the full. It invites all interested in science to its membership, and opens its sessions to all comers. That its periodical and migratory meetings, in the words of the constitution, have actually done what they were intended to do, have promoted intercourse between those who are cultivating science in different parts of America, have given a stronger and more general impulse and a more systematic direction to scientific research, and have procured for the labors of scientific men increased facilities and a wider usefulness, no one who has watched its history can doubt.

Less perfect acceptance, we fancy, will be accorded Mr. Barker's subsequent remarks, in which he excludes inventors from the ranks of original investigators and discoverers. It is true that in very many instances the discoverer has not been an inventor, and that discovery has usually been the real mother of invention; true, also, that original research is the storehouse out of which comes invention. But it will not do to assume, as Mr. Barker appears to, that discoveries are made only or generally by men who "patiently investigate truth for its own sake," and "deny" themselves "the good things of this life to obtain it." There is rising up among us a generation of inventors, who are also explorers and discoverers of the most energetic and successful type; and they push the work of investigation and invention with no intention of denying themselves the good things of life. Their inventions pay; but their discoveries are none the less scientific and honorable.

On the second day the proceedings of the association assumed their regular scientific character. A number of interesting papers were read and discussed, and in the evening the retiring president, Prof. O. C. Marsh, delivered the customary address, reviewing the "History and Methods of Paleontological Discovery." It will be found in full, commencing in the current issue of THE SCIENTIFIC AMERICAN SUPPLEMENT.

In Section A, the address of Prof. Ira Remsen, Chairman of the Sub-Section of Chemistry, was read, in the absence of the author. It was devoted to the chemistry of the organic compounds, a department sadly neglected in American colleges. This paper was followed by one on the "Experimental Determination of the Velocity of Light," by Albert A. Michelson, U.S.N., specially describing and illustrating the experiments lately conducted at the Naval Academy at Annapolis. This valuable paper also appears in full, with numerous illustrations, in this week's SUPPLEMENT. The result obtained—186,305 miles a second, with a probable error of 3 miles—falls nearly midway between those of Foucault and Cornu. Prof. Newcomb, who has been conducting a series of similar investigations, expressed the belief that Mr. Michelson's results are probably within  $\frac{1}{5000}$  of correctness.

In Section B, the first paper was by Prof. Warren Upham, of the Geological Survey of New Hampshire, on the "Succession of Glacial Deposits in New England." It was read by Prof. C. H. Hitchcock, and discussed by Profs. Martin, Lislie, Gardner, S. H. Cook, W. H. Niles, Worthen, and Hall. The conflict of opinion showed how far the subject is from being thoroughly and satisfactorily worked out.

The second paper was by Prof. J. M. Safford, of Nashville, on "The Thinning Out and Absence of Upper Silurian and Devonian Formations in Tennessee."

It was followed by a discussion, after which the recently discovered copper veins at Blue Hill, Me., were described by Professor C. H. Hitchcock, of Dartmouth College, who exhibited specimens of ore containing 34 per cent of copper. Evidences of silver and even of some gold have been discovered, and probably the silver will be ultimately worked with success. Major Powell spoke of the work done on the eastern flanks of the Rocky Mountains and on the eastern side of the Sierra Nevada.

Among the remaining papers of the day, that by Dr. Clarence J. Blake, on the "Consonantal Expression of Emotion," was the most interesting. A number of linguists and ethnologists took part in the discussion which followed, bringing out many curious and amusing peculiarities in the pronunciation of foreign, cultivated, and savage languages.

A PNEUMATIC DISPATCH TUBE.—Shavings from a planing mill in Chicago are, by an air-blast, blown 700 feet, through a 15 inch sheet iron pipe, to a distillery, where they are burned for fuel.