

provided in section 2482 of the revised statutes.

The conclusion thus reached the court holds is in accordance with the general principle of law, well established and that "in the absence of any restrictive provision of statute, municipal officers hold over until their successors are elected and qualified."

On the question as to whether Pratt is entitled to the emoluments of the office during the time of his suspension the court says:

"Thus during all the time from the 14th of July, 1897, to the 1st of January, 1898, the officer remained suspended by order of the board and thereafter, in effect, suspended, by the refusal of the Mayor to recognize him as an incumbent, without a hearing or an opportunity to be heard as provided by law; and now, after such an unwarranted and remarkable proceeding, in direct opposition to the plain provisions of the statute and to judicial interpretation, this court is asked to declare in solemn judgment, that the incumbent, thus denied a hearing, so far as the record shows, is not entitled to the emoluments of the office during the time of his suspension.

"Upon what ground, it may be asked, shall we so declare? The record answers, because the board and Mayor have failed to perform their duty under the law respecting the charges.

"This proceeding was a manifest violation of the very letter and spirit of the statute. To hold that, under the circumstances of this case, the incumbent of a public office had forfeited his right to the emoluments of the office, would be a menace to good government, because it would enable the suspending power to be exercised from mere ill will, caprice, or other improper motive, regardless of the public weal.

"Competent persons would doubtless be loath to enter the public service, under such a condition of affairs, if their salaries could be forfeited and their reputations attacked, for an indefinite period, by mere suspension without an opportunity to be heard. No such power will be aided by judicial construction. It savors too much of despotism and injustice, and will not be countenanced, except upon the mandate of positive law.

"Whether the suspension in the first instance was merited we have no means of knowing, and because of the total failure of the suspending power to provide for a hearing, we would not be justified in assuming that it was so. If, however, the appellant failed in the performance of his duty, or was guilty of improper conduct, he ought to have been suspended, and then his case properly heard, and if upon the hearing it had been ascertained that the charges were sufficient and sustained, he ought to have been promptly removed, or suspended without pay, as the evidence might have warranted. In such event forfeiture of salary, could not have been questioned. Plain business principles as well as the law dictate such a course and persons endowed with a public trust must not forget that they are bound by every principle of honor to discharge public affairs with the fidelity as they would their own.

"But aside from these considerations, we have already decided that the appellant was and is the lawful incumbent, or de jure officer, and in the absence of a lawful suspension without pay, the right to hold the public office includes the right to receive the salary which is an incident to the office itself. This is the settled rule in this State."

The court then gives it as its opinion that Judge Cherry erred in sustaining the demurrer and dismissing the petition and therefore orders a reversal of the case and the issuance of the writ.

The opinion is delivered by Justice

Bartch, concurred in by Chief Justice Zane and Justice Miner.

STATUS OF THE CASE.

The city has twenty days within which to petition the Supreme Court for a re-hearing of the case. If at the end of that time no petition is presented or granted, a remittitur will be sent down from the clerk of the Supreme Court to the district court and the writ of mandate will then issue to Auditor Swan compelling him to issue Pratt a warrant for the salary from August 31, 1897, to February 1, 1898, amounting to \$750.

Mr. Pratt being chief and entitled to the emoluments will undoubtedly assume the office at the earliest possible day.

SCIENTIFIC MISCELLANY.

Recent investigations of M. Camille Flammarion, the versatile French astronomer, have been applied to problems in plant growth. Cultivating plants under red, green, blue and colorless glasses, he has found not only that the growth is wonderfully stimulated under red glass while the development of woody fiber is greatest under clear glass, but that the color and shape of leaves, flowers and fruits are often affected by the color of the light. Lilies that were pink in ordinary light became white under green glass. The size, shape and color of geranium and coleus leaves varied greatly in light of different colors as well as in that of varying intensity, temperature proving to have little influence. A German reviewer of these experiments finds that all plants may be divided into three principal groups. In the first the influence of light on the nutritive process in the cell causes the colors of leaf and flower; in the second, the color is influenced by the direct effects of sunlight; and in the third, the coloring of certain parts is not dependent on light.

A disappointing feature of the "Turbina," whose performance not many months ago astonished the world, was the lack of any means of reversing the motor. Mr. Parsons at first thought to overcome the difficulty by the crude plan of using a separate engine for running astern, but has now announced that he has succeeded in applying to the steam turbine a system of butterfly reversing steam valves by which the steam may be made to act on the blades of the motor in either direction.

Wearing for eight days a mask fitted with inverting lenses, projecting upon the retina erect instead of the usual inverted images, Prof. Geo. M. Stratton, of the University of California, soon learned to see objects right side up, but to his surprise everything appeared upside down when he first removed the apparatus. He concludes that seeing right side up is a mental rectification of the visual image actually projected upon the retina.

Precise measurement of the velocities of projectiles—which now reach half a mile per second—requires ingenuity. The ordinary chronograph consists of a shutter suspended by an electromagnet, the shutter being dropped as the cannon-ball breaks the first of a series of wires, and given a knife-cut at the point reached in its fall as each of the other wires is broken. The velocity is calculated from the knife-marks and the known speed of falling bodies. A new and more delicate chronograph—the invention of Prof. Cushing Crehore of Dartmouth College, and Lieut. Owen Squire, U. S. A.—depends upon the modern discovery known as the Faraday effect, a tube of carbon bisulphide between the two Nicol prisms of a polariscope allowing

the rays of light unusually intercepted by the crossed prisms to pass when a strong magnetic field is producer. The magnetic field is given by a coil of wire surrounding the tube. The recording apparatus includes, besides the polariscope and tube, a camera with a revolving sensitive plate and a falling shutter with two apertures, one opening admitting the polarized light and the other a ray from the vibrating prong of a tuning fork. The vibration is known and the dots formed on the sensitive plate constitute the time scale for the projectile record. The projectile breaks the magnetizing circuit—extinguishing the light—as it cuts the first wire, restores the circuit by a simple device as it reaches the record wire, breaks it again at the third, and so on, four circuits giving a record of eight time intervals. By suitable placing of the wires any portion of the projectile's path may be studied. A striking observation already made is that the projectile increases its velocity for two or three yards after leaving the canon, slowing down to muzzle velocity in about 25 yards. A modified apparatus makes it possible to follow the ball's course inside the cannon. The quickness of the measurements is marvelous, ten points having been taken in thirty inches, the time interval being .2000 of a second.

Peat is treated in an English process, patented by Mr. Blundell, by being formed into paste, moulded into tubes four or five inches through, then cut into sticks and aired for three or four weeks. Thus prepared, the material can be used as fuel, or it can be more profitably made into charcoal in retorts. Three tons of peat make one ton of charcoal. The process is to be tested in Italy, where are large deposits of peat.

A remarkable fabric now being made in Brussels is flexible, transparent, and impervious to water. Its surface, like that of glass, can be washed with a wet sponge. The material is made by a patented process, which consists in filling the meshes of a wide-meshed fabric, such as muslin, with chrome gelatine, rendering the gelatine insoluble by exposure to light, and then giving both sides several coats of boiled linseed oil or fat varnish. The fabric is ornamented by printing, and is designed especially for portieres, window-shades, umbrellas and similar uses.

The theory that gold nuggets have been deposited from a solution around a nucleus has been a subject of investigation by Prof. A. Liversidge, the Australian mineralogist. He finds that etched sections of nuggets show more or less crystallization, often large and well-defined crystals, sometimes with inclusions of quartz and other impurities, but never concentric layers. Gold that had been fused had a similar crystalline structure. He does not think this necessarily proves that native gold has been in a melted condition, but believes that it has been deposited from solution and usually in veins and cavities, although possibly around a nucleus.

The daily expansion and contraction of the Eiffel tower at Paris have been studied for ten years by Col. Bassot. The lightning-rod at the top is kept always in motion, expansion producing a torsion movement of about four inches from sunrise to sunset, and contraction reversing this as the mass of iron and steel cools at night. This twisting, which does not compromise the solidity of the structure, is greater in summer than in winter.

The phosphorescence of decaying wood proves to be due to minute vegetation, instead of to purely chemical