A Balloon Experiment.

After waiting several days for favorable weather, Prof. King's balloon, "Great Northwest," was started on its way to the East from Minneapolis, Minn., September 12. Prof. King was accompanied by Mr. Upton, of the Signal Service, and five newspaper correspondents. The balloon rose about 3,000 feet, and drifted slowly in a southeasterly course. It dropped near Fort Snelling, and nearly fell into the Mississippi River. A liberal discharge of ballast secured another ascent, but a brief one, and the balloon came to ground in the woods near St. Paul. When the wind rose it was deemed too violent, and the project was abandoned.

Passenger Birds.

According to a writer in *Nature*, the small migratory birds that are unable to perform the flight of 350 miles across the Mediterranean Sea are carried across on the backs of cranes. In the autumn many flocks of cranes may be seen coming from the north, with the first cold blast from that quarter, flying low, and uttering a peculiar cry, as if of alarm, as they circle over the cultivated plains. Little birds of every species may be seen flying up to them, while the twittering songs of those already comfortably settled upon their backs may be distinctly heard. But for this kind provision of nature, numerous varieties of small birds would become extinct in northern countries, as the cold winters would kill them.

Natural Gas in Iron Works.

A correspondent of a Pennsylvania paper thus describes the use of natural gas in the Kittanning (Pa.) Iron Works. The gas is brought from a well some three miles distant, in four inch casing, and at the mill is distributed among eighteen boiling furnaces. The furnaces are the same as those in which coal is used. The gas enters the rear of the furnaces in three small pipes, shaped at the end like a nozzle. There being quite a pressure, the gas enters with considerable force, and by means of dampers to regulate the draught, an intense and uniform heat is obtained. After a heat the furnace is cooled and prepared for the next heat, in the same manner as with coal. When the metal is in place the gas is turned on, and the operation of puddling is the same with the exception that it is somewhat slower.

The puddlers like the gas very much, as it reduces their labor to some extent, and they say they can make better weight than with coal. The furnaces being free from sulphur, a better quality of iron is produced, and it brings a slightly advanced price in the market. These furnaces have been running all the time for some months past, and have used nothing but gas for fuel, which has proved satisfactory in every respect, is found to be much cheaper than coal, and has demonstrated the fact that this vast amount of natural gas, now going to waste, might be used in all our iron manufactories.

Mr. R. L. Brown, having purchased another and larger well, has organized a stock company, and is about negotiating for the erection of a steel works, to be run with gas. Mr. Brown claims that he has a process by which he can manufacture steel of a superior quality and with less expense than by any process now in use.

Should this latter enterprise prove a success, the same parties who have control of the old Cowanshannock gas well propose to erect glass works, and will apply the gas to the manufacture of glass.

The gas which I have referred to as supplying the boiling furnaces is brought, as I said, a distance of three miles west of Kittanning, in East Franklin township, about ten miles from any oil development, the nearest oil well being at Great Leather. The gas well was put down two or three years ago as a test well for oil on the Reed farm; and was left to burn and go to waste until Major Beale and others bought the well with the idea of making lampblack. But the mill proposed to utilize it for fuel, and it has done so with the most satisfactory results. Only one half of the well's production is in fact consumed by the eighteen furnaces here described.

Notes on Wheel Making.

The first thing that gives way on a buggy is commonly the wheels. I have frequently seen new buggies go out of the shop, and before they had been out a dozen times the spokes would commence to squeak and work in the hub, or one or more of the wheels would dish back. The question then arises, is the woodworker to blame, or is it the carelessness of the smith in setting the tire, or does the fault lie in the selection of the timber used in making the wheels? Let us try and see where the trouble lies.

In the first place, the manufacturer may make a grand mistake in the selection of his timber. Some have an idea that they must have good spokes any way, but are not so particular about the hub or rim; while others must have the hardest hub they can find, saying: "I have got a fine set of hubs, but mixed or forest growth spokes will do well enough." Now we will see how such wheels turn out. We find, after they have been run a short time, that around the mortise of the hub the paint is cracked, the dish is out of the wheel, and the owner of the buggy is mad enough to kill the wheelmaker and blacksmith, and swears he never will pay the balance due on that buggy until he puts on a new set of wheels.

Well, the carriage maker goes to work and puts in a new set of hubs that he happens to have in the shop of much softer timber than the first ones. He thinks these are good enough, but gets the best second-growth spokes he can find. The new wheels are finished, but in a short time they work just the same as the first.

Now the difficulty in the first set was a soft spoke driven in a hub as hard as iron; while, in the second case, a hard spoke was driven into a soft hub. Point first: Care must be taken to have the hub and spoke of the same hardness. Point second: A tolerably good set of wheels can be made out of softer timber, providing this rule is observed.

Next, wheels should be made with the spoke driven straight, and the tenon on the spoke should have but little taper, as by driving spokes like a wedge into a hub they are more liable to work back and get loose.

In regard to the rims, great care should be taken not to have them too long, for this prevents the tire from supporting the wheel.

A great deal has been said in the *Hub* about the proper dish of a wheel, some claiming one-half of an inch, while others claim that one-fourth of an inch is sufficient. A wheel with but little dish looks well to the eye, but my experience has been that three-quarters of an inch is not too much to make a durable wheel. SCOTT SMALLWOOD.

Chicago, July 23, 1881.

Statistics of Cotton.

The report of Census Agent Eugene W. Hilgard, just submitted, shows the acreage and production of cotton by States for the year 1879, as follows:

States.	Acres.	Bales.
Mississippi	2,093,330	955,808
Georgia	2.617,138	814,441
Texas	2,173,732	803,642
Alabama	2,330,086	699,654
Arkansas	1,042,976	608,256
South Carolina	1,364,249	522,544
Louisiana	864,787	508,569
North Carolina	893,153	389,598
Tennessee	722,569	330,644
Florida	245,595	54,997
Missouri	32,711	19,733
Indian Territory	35,000	17,000
Virginia	24,900	11,000
Kentucky	2,667	1,367

The average product per acre in pounds was:

States.	Seed Cotton.	Lint.	Cotton Seed.
Mississippi	651	217	434
Georgia	444	148	296
Texas	528	176	352
Alabama	429	143	286
Arkansas	831	277	554
South Carolina	546	182	364
Louisiana	837	279	558
North Carolina	621	207	414
Tennessee	651	217	434
Florida	318	106	212
Missouri	861	287	574
Indian Territory	693	231	462
Virginia	654	28	436
Kentucky	729	243	486

Rain in the United States.

Mr. Henry Gannett, geographer of the tenth census, has issued a report showing the distribution of rain-fall throughout the United States and the distribution of population according to rain-fall. It appears that the highest annual rain-fall in the country has been 150 inches, which was reached for one year only in Puget Sound. The average annual fall upon the surface of the United States, exclusive of Alaska, was, in 1880, 29 inches. This average implies a large area unfit for the purposes of vegetation, which with the rapid evaporation that occurs on this continent, requires a much higher ratio of moisture. Hence, population is found to center principally on such parts of our surface as have from 35 to 50 inches of rain. The following table from Mr. Gannett's compilations will show the relation between rain-fall and number and density of population in the United States in 1880:

Inches of Rain-fall.	Population.	Pop. per Sqr. Mile.	Percentage of total Population.
60 and above	855,680	12·4	1·70
55–60	2,813,866	19·7	5·61
50–55	4,311,502	22·1	8 60
45–50	12,754,479	57·7	25·43
40–45	11,357,292	40·1	22·65
35–40	10,057,170	38·6	20·05
30–35	4,993,336	23·0	9·96
25-30	1,179,136	8·7	2·35
20–25	829,340	3·8	1·65
15–20	537,323	1·3	1·07
10–15	309,438	0·6	1·62
Below 10	154,304	0·6	0·81

The heaviest population is in the classes between 35 to 50 inches, which comprise $71\frac{69}{100}$ per cent of the total population of the country, while the classes between 30 and 60 inches comprise $92\frac{2}{10}$ per cent of the population. The densest settlement is in the class 45 to 50, which also contains the greatest absolute population. In this class also is the greatest absolute increase in density. A rain-fall of 45 to 50 appears to best suit the purposes of wealth-making; for a larger number of our people have settled within an area having that fall than in any other. From the data above given, we reckon that the total rain-fall in the United States, exclusive of Alaska, in 1880, was 414.999,040,307,660,000 cubic inches, or 1,796,532,642,000,000 gallons, which is about double the water contents of Lake Erie and Lake Ontario combined, these lakes containing 893,158,008,000,000 gallons. This will afford some idea of the extent of the evaporation effected on our 3,026,494 square miles of surface within twelve months.

MECHANICAL INVENTIONS.

An improvement in pistons has been patented by Mr. Henry Waterman, of Brooklyn, N. Y. This improvement relates to pistons having their main portions formed by expansible rings carried by a central hub and face plates. The invention consists in the combination, with these essential portions, of devices that give solid and adjustable backing to the rings; also, in a metallic packing disk for the joint between the face plate and rings.

Mr. William P. Brosius, of Richmond, Va., has patented a seam gauge for determining the amount of lap in sewing together two pieces of leather in the manufacture of boots and shoes, or in connecting parts of any other material, so that a uniform amount of lap is preserved and the line of stitching kept at the proper distance from and in parallel position with the edge. It is an improvement in that form of gauge in which a guide face is arranged to rest in the plane of one of the sections of work and bear against its edge, and a second guide face is arranged in the plane of the other sections of the work and is arranged to bear against the other edge, and the distance between which two faces may be varied to regulate the width of the lap.

An improved nut lock has been patented by Mr. John B. Abernathy, of Covington, Ky. The invention consists in a nut provided with a threaded central recess or cavity in its upper surface to receive a central threaded projection of a second nut, which is screwed on the bolt after the first nut, the threads of the projection taking in those of the cavity, thus uniting the two nuts.

Mr. Samuel W. Evans, of New Orleans, La., has patented an improved apparatus for holding a hose nozzle in any position, thereby enabling a person to direct a stream of water in any desired direction. The invention consists in a ring or sleeve for receiving the nozzle, and provided with trunnions journaled in uprights of a plate swiveled on an upright pivoted to a folding base frame, provided on the under side with spikes to prevent it from slipping.

Gelatine Emulsion.

Mr. A. L. Henderson, of London, lately gave a demonstration of the method of preparing a gelatino-bromide emulsion he has for some time past been working with great success. The following is his formula and method of working:

Make a solution of 200 grains of silver nitrate in 4 ounces of water, then add sufficient ammonia to redissolve the precipitate thus formed (about 2½ drachms of ammonia are requisite for this purpose). This solution of ammonia nitrate of silver is now heated to about 100° Fah., and the following solution, also heated to about the same temperature, is poured slowly into it (the mixture being stirred with a glass rod meanwhile): Gelatine, ½ ounce; ammonia-bromide, 150 grains; ammonia, 2 drops; water, 4 ounces.

The emulsion is now cooled as rapidly as possible, and then forced through a fine gauze disk, and washed by means of a stream of water. The emulsion thus obtained is of a grayish-blue tint, of a very fine grain, and extremely sensitive. The rapidity is increased in the same proportion as the silver nitrate is converted into ammonia nitrate, thus (for example), if 20 per cent only is converted into ammonia nitrate, the plate will not be nearly as rapid as if the whole, or nearly the whole, of the silver is converted.

Another important point in this process is that the bromide of silver is formed in an excess of silver, thereby giving greater rapidity and density.

This emulsion is so rapid that even an Edwards lamp with a ruby chimney (that will stand the spectroscopic test) and two thicknesses of ruby paper is not too safe a light.

The emulsion may be converted into pellicle by pouring it slowly (after washing) into three times its bulk of alcohol, stirring meantime. The precipitated emulsion will cling round the rod in a spongy form, but by a little working with the hand the whole will be reduced to the size of a walnut, It must then be torn into small pieces and dried in a current of air. The weight of this quantity, when thoroughly dried, will be about 6 drachms.

This pellicle will keep an indefinite time, and when wanted for use has only to be redissolved in 10 to 12 ounces of water, and strained, when it is ready for coating.

Photo Substitute for Glass.

Professor Stebbing, of Paris, has made a new film substitute for glass plates, which has been laid before the French Photographic Society. The basis of the support is gelatine, rendered insoluble, and the tissue is of such thickness as to be easily handled even when wet, without the slightest danger of injury. It is pliable and "leathery" in its character, thus obviating any tendency to fracture from accidental bending as would be the case possibly if the gelatine were more brittle. The development of these film negatives is extremely simple. It is first of all necessary to take means to prevent the developing solution from passing between the sensitive film and the support. This is effected by drawing the edges of the undeveloped tissue between the thumb and forefinger, which have been previously slightly greased with tallow. The film is then laid in a dish and developed in the ordinary way. When the action of the developer is complete the solution is poured off and the negative washed while still in the dish; in fact, the whole of the operations are performed in the one dish, so that the film is submitted to as little handling as possible. After a short immersion in chrome alum the negative is finally washed and spread upon a sheet of glass to dry. Here the great difficulty previously experienced in getting the films to dry flat has been overcome by Mr. Stebbing in a very simple way. When the film negative has been laid smoothly upon the glass a narrow strip of gummed paper is laid along each edge, attaching it firmly to the glass, so that when dry it is stretched perfectly tight; the paper can then be cut and the negative detached.

Fire Risk from Spontaneous Combustion.—An Invention Wanted.

The President of the Boston Manufacturers' Mutual Fire Insurance Company, Mr. Edward Atkinson, states in a recent circular to millowners that since the beginning of 1878 the several mutual companies have lost over $300,000 from fires in dry-houses or finishing departments of print works,all caused by the spontaneous combustion of dyed cotton goods or yarn. The loss to the millowners must have been much greater, since, as in the recent fire in the finishing and packing department of the Slater Mills, a comparatively small fire may seriously interrupt the business of a large establishment. Within the period mentioned there were nine other fires from spontaneous combustion of dyed goods, which were extinguished with little or no loss. All the fires of this class occurred in the night or in the early morning before bell-time. In several cases the watchman passed the points where the fires originated a little before the outbreak, and perceived no smell or other sign of fire. In one case a watchman entered a room in which there was a pile of dyed yarn upon the floor. There was no smoke or other sign of fire; but as the watchman approached the yarn it burst into flames. The movement of the air, or the influx of fresh air when the door was opened, probably supplied the oxygen needed for rapid combustion.

According to a report of the Massachusetts State Assayer, Mr. S. Dana Hayes, to whom the question of the origin of such fires was submitted, there are several colors produced in calico print-works and in dye-houses which are sources of danger from combustion, and which should be most carefully made and controlled. They are the colors developed, after the materials have been applied to the cloth or yarn, by chemical reactions in the tissues, with the production of heat, and also by the aid of heat applied to the fabrics in the aging boxes and chambers.

The development of these colors is believed to be obtained by oxidation—by the union of oxygen, derived from the atmosphere or from oxidizing ingredients of the color-mixture, with the coloring matter itself, on the cloth—in much the same way that the oxygen of the air unites with linseed-oil, when exposed upon rags or other porous materials, producing heat and "spontaneous" combustion. That dangerous chemical action goes on is proved by the increase of temperature, and, in the case of developing colors, by the disengagement of acetic acid and other vapors.

The color dyes in the aging of which heat is developed to a degree making combustion liable are: black made from aniline or its salts, and even in logwood and iron blacks; browns made from catechu, cutch, gambier, or terra japonica; iron buffs; indigo blue; and in preparing cloth with oil for Turkey red.

These colors are produced by oxidation, and are therefore dangerous.

They may cause fires, and they often weaken fabrics unless the aging process is carefully watched.

The most effective means of preventing loss from fires spontaneously generated have proved to be automatic sprinklers and plastering overhead on wire lathing with the covering of exposed woodwork with tin. To prevent the loss incident to the injury of goods by over-heating is not so easy. The insurance company named above are convinced that the problems involved must be reinvestigated in a complete and systematic manner before any hope can be reasonably entertained of economically preventing the risks and difficulties now encountered.

To further such investigations they have engaged a graduate of the Massachusetts Institute of Technology, who, under the supervision of Prof. John M. Ordway, will make a special study of the processes now in use to see if some general principles or methods cannot be determined of wider application than any now controlling the common practice.

The main fault in the usual methods of drying yarns, Mr. Atkinson believes to be that "no consideration has been given to the fact that *air* is merely an *instrument* which may be used to take up moisture from the goods and carry it somewhere else; or that its power is greater or less, as such an instrument, not only in proportion to the heat imparted to it, but in some measure in proportion to the removal of the moisture already in it, before it is used."

It seems scarcely credible that this obvious truth has been so largely overlooked as Mr. Atkinson asserts; in other words, that practical men would expect to dry yarn in air already saturated, however hot.

But facts are stubborn things, and facts like the following are significant. Mr. Atkinson says:

"In one case the air intended to be used for drying purposes has been taken from a wet scouring-room, where it had already become saturated with moisture, and could only become a suitable instrument to take up more by being heated to excess. In another case, the same air has been kept in circulation at a very high degree of heat, with no ventilation, and no chance for fresh air to come into the room except through cracks. In this case, the only deposition of moisture of any great moment must have been at night, when the room became cooler."

Mr. Atkinson states as a well ascertained fact that if drying can be compassed at a degree of heat less than 120° Fah. no injury will be done either to the stock of cotton or wool; but if a degree of heat greater than 120° is used, the fibers are more or less baked and the yarn made harsh and brittle. Most of the drying of dyed cotton and dyed yarn is now done at a higher temperature than 120°, and it is commonly held that a less heat would not dry with sufficient rapidity.

There is obviously an opportunity here for a profitable invention by means of which yarn can be dried at a low temperature, and the heat developed in the oxidation of dyes in yarns and fabrics carried off so rapidly as to obviate the risk both of spontaneous combustion and the injury of fabrics by internal heating. Our inventive readers will do well to think of it. Meantime it is to be hoped that managers of print-works will further wherever possible the investigation which the insurance company's expert is making. Prof. Ordway's report of results cannot fail to be valuable.

Spontaneous Forests.

A writer in a West Virginia paper combats the opinion, held by many arboriculturists, that an open country is never converted into a forest through the operation of natural causes, and, as establishing the fact that such change does sometimes occur, brings forward the case of the Shenandoah Valley. When first settled, about 160 years ago, it was an open prairie-like region covered with tall grass, on which fed herds of deer, buffalo, elk, etc., and having no timber, except on ridgy portions of it; but in consequence of its settlement, the annual fires were prevented, and trees sprang up almost as thickly and regularly as if seed had been planted. These forests, having been preserved by the farmers, cover now a large part of the surface with hard wood trees of superior excellence. These facts would also seem to substantiate the theory that the treeless character of the prairies of the West is due to the annual burning of the grass by the Indians.

Boil Doubtful Milk.

It is with the following words that Dr. Pichon closes his account of the epizootic of 1879-80: "Most authors are silent as to the quality of the milk yielded by cattle during the prevalence of epizootics. It is possible that experience has not as yet supplied sufficient ground for its condemnation, and it is true that while a diminution of milk secretion is usually an early symptom in almost all diseases of the cow, complete suppression of that secretion accompanies any aggravation or prolongation of disease. The source of danger is thus removed by the operation of natural causes, and the discussion is narrowed to the question whether milk secreted at the very onset may not have acquired hurtful properties. In this state of uncertainty, which has not been cleared up by any authority on hygiene, the precaution of boiling the milk should be adopted. Boiling destroys any infective germs that it may contain."

How Our Fresh Meat is Handled.

A prominent dealer in live stock gives the *Tribune* the following facts and figures relative to the trade in cattle, sheep, and hogs in and around this city:

The cattle come to Jersey City mostly by the Pennsylvania Railroad, which brings the cattle shipped by the Baltimore and Ohio from Southern points. Many also come by the Erie Road. The majority are shipped from Chicago, St. Louis, and Cincinnati, by dealers in those places who are either interested with the sellers in New York or have their stock sold on commission, the charge for which is generally $1.50 per head. The best bullocks for beef come at this time of year from Ohio and Kentucky, and in the winter from Illinois and Missouri.

The breeds are usually natives or grade Shorthorns and Durhams. Illinois, Iowa, Missouri, and Kansas are the States where the most corn is fed to bullocks, and the stock from those States, therefore, makes superior beef. A great many beeves are coming from the plains of Colorado, and are very fair stock. About 40 per cent. of the arrivals at this time of the year are Texans and Colorado half-breeds. They are composed in a great measure of bone and horn, and usually bring very low prices. As the country is more thickly settled the Texas cattle become tamer and easier to handle, but they are still the subject of a few stray "cuss words" from drovers and butchers.

The Cherokee cattle raised by the Indians are much like the Texans, only smaller and neater. Some dealers buy the Texas cattle and fatten them on corn in Illinois, Kansas, and Missouri, and so make fair beef of them. Others, in Cincinnati, Chicago, Sterling, and Peoria, Ill., and Cynthiana, Ky., fat many Texas steers on distillery refuse or "slops"—the grain after it has been distilled. This feed makes healthy meat of fair quality. Some say, however, that the meat of this kind is softer and more flabby, and that a distillery-fed animal will die in very warm weather, when a corn-fed one will be in good condition.

The cattle-growing part of the country has moved West rapidly in the last few years, as the new States have been opened up, until now the most of the stock coming to this market is raised west of the Mississippi. Kansas, Nebraska, Colorado, Iowa, and Missouri have taken the business from Ohio, Indiana, and Illinois, and many farmers in the latter States are turning their attention to raising sheep and hogs as more profitable. Chicago is the great cattle depot of the country, and handles about 30,000 head a week, while New York's average was, last year, 13,018. But Chicago is a distributing point, while New York is a market. New York eats most of the live stock she receives, while Chicago has much more than she can masticate, and so sends it away.

Live stock usually stops over several hours in Chicago, and is again unloaded, watered, and fed at Pittsburg, or some other point on the way to New York. The trains arrive at Jersey City at all hours of the night. The cars are open or "slatted," and the animals are found to ride best put in loose with no stalls. Extra floors are put in for sheep and hogs. The cars hold fifteen to nineteen native bullocks or twenty to twenty-five Texans. The arrivals are nearly a hundred and fifty cars daily.

At daylight the sales begin and last till about 12 o'clock. The buyers are wholesale slaughterers and shippers. These glance through the yard, look at the bulletin of animals, and then begin to bargain for some lot of cattle which has struck their fancy. If the supply is small, however, they will not bargain long, for fear a rival may step in and "leave them in the cold." There are three market days at the cattle yards—Monday, Wednesday, and Friday—Monday being the principal one. At one time Sunday was the principal day for selling cattle. When a slaughterer has selected his cattle they are driven up to the scales, on which about forty can be weighed at once.

A well-fatted native steer will weigh from 1,200 to 1,500 pounds; occasionally they go as high as 2,500 pounds. The dealers in New York have a curious way of selling bullocks, which is different from any other market, and as unique in its way as the tenaciousness with which the New York potato dealers cling to the "York shilling" in their business. A bullock is sold at its dress weight before it is dressed—that is, a lean animal would be estimated to dress fifty-three to fifty five pounds a hundred, a good one fifty-six to fifty-nine, and fancy ones sixty to sixty-two pounds. Thus, for every hundred pounds of live weight the price per pound of dressed beef is charged on the number of pounds the animal is estimated to dress a hundred.

The Jersey City Stock Yards are owned by the Central Stock and Transit Company, and they are a heavy-paying investment. The charge for every head of cattle coming to the yard is 45 cents, called "yardage," and this pays for very little more accommodations than a railroad company usually furnishes for nothing in the shape of depots. The company also charges $2.50 per hundred for hay, an outrageous price, but one which the cattle men are compelled to pay. The charges are about as heavy at the other principal market of this city, the Sixtieth-street yards, the two being virtually under the same management. The Sixtieth-street yards accommodate particularly the stock coming over the New York Central and Erie railroads, and nearly as many cattle arrive there as at the Jersey City yards. The method of handling and selling is the same.

The hog yards for the New York Central Railroad are situated at Fortieth street and Eleventh avenue, where about 10,000 hogs are now arriving and being slaughtered every week. New pens for the brutes are building, which will lessen the inevitable smell from the swine. They are shipped mainly from Chicago, which now far eclipses Cincinnati in its hog traffic, and which handles from 100,000 a week in summer to 50,000 and 60,000 a day in winter.

The supply of sheep is divided about equally between Jersey City and Sixtieth street. They are shipped largely from Ohio, Indiana, and New York. Lambs now are arriving mainly from Kentucky and Virginia, and they later will come from New York State and Canada. The stock yards around New York have changed a great deal in the past few years, the old ones at Communipaw, Weehawken, and other points being discontinued, until they have narrowed down to three large yards, one of which—Fortieth street—is solely for swine.

To Remove Ink Stains.

The *Journal de Pharmacie d'Anvers* recommends pyrophosphate of soda for the removal of ink stains. This salt does not injure vegetable fiber and yields colorless compounds with the ferric oxide of the ink. It is best to first apply tallow to the ink spot, then wash in a solution of pyrophosphate until both tallow and ink have disappeared.

Stains of red aniline ink may be removed by moistening the spot with strong alcohol acidulated with nitric acid. Unless the stain is produced by eosine, it disappears without difficulty. Paper is hardly affected by the process; still it is always advisable to make a blank experiment first.

Pearl Hunting in Tennessee.

The search for pearls in the mussels of Ohio has been a considerable industry for years. The Nashville *American* reports an outbreak of pearl hunting in Stones River, Rutherford County, Tennessee. Not less than 500 people were engaged daily in raking the bottom of that stream, delving down in the mud for mussels, which are piled along the banks, opened, and critically examined for the treasures contained in many of them. One pearl is reported for which $80 was paid in New York. The general range of value, however, is said to be from 50 cents to $25.

A Shoe Black Plant.

The "shoe-black plant" is the popular name of the *Hibiscus rosa sinensis* in New South Wales. Its showy scarlet flowers contain a mucilaginous juice which gives a glossy finish to leather. The plant grows freely in almost any kind of soil, and the flowers are much used when dry as a substitute for shoe-blacking. They may be used with or without a brush.