HOME AND FARM.

—Without fresh, clean water, no bird can be healthy.—*Exchange.*

—Potatoes require the most potash, beans the most lime, corn the most phosphoric acid and the cereals the most nitrogen.—*N. Y. Telegram.*

—If buttermilk is used for griddle cakes it should be diluted one-third with water, so as to prevent the cakes becoming sticky.—*Cincinnati Times.*

—Who has not seen a dirty cat that would have been handsome but for the discoloration. Such a one may be thoroughly cleaned by washing in warm water and drying before the fire, combing and brushing at the same time.—*Chicago Journal.*

—A lamp standing for some time in a cold room and then filled full of coal-oil, will run over through the expansion of oil when taken to where it is warm. Then the lamp may be blamed for leaking. To obviate this, never fill the lamp quite full.—*N. Y. Times.*

—If you would have orderly stock, go around the pasture and put the fence in order before turning out the cattle. If they find one weak place and get through a few times, it will be almost impossible to make that spot strong enough to stop them.—*Troy Times.*

—Sandwiches—Chop ham very fine, season well, and place between two slices of nicely buttered bread. Then with a sharp knife cut off the crusts, and cut diagonally across the rest, making two little three-cornered sandwiches. These are very dainty looking.—*The Caterer.*

—Oilcloths should not be scrubbed with a brush, nor should strong soap-suds be used upon them, as this dims the colors and destroys the fibre. Wash them every week with warm milk and water, allowing a quart of skim milk to a pail of warm water, and wiping after with a woolen cloth.—*Boston Globe.*

ROAD IMPROVEMENT.

How Dirt Roads Can Be Kept In a Reasonably Good Condition.

The matter of country roads and their improvement is to many like the roof of the man's house which could not be made water-tight when it rained, and when it was dry weather it did not require repair. It often happens that poor roads, especially what are commonly called dirt roads, are found to be tremendous inconviences when they are miry or impassable, and then when it is dry and pleasant wheeling and riding it is unnecessary to rebuild them or abolish their defects.

Prof. G. E. Morrow, of the University of Illinois at Champaign, has given this subject much careful attention, and recently read a paper on dirt roads at the convention of Highway Commissioners at Springfield. The broad view is taken that good roads in every neighborhood are essential not only to the economical transportation of produce, but also to the best development of the people, socially, intellectually and religiously.

The perfect road is straight, level, smooth and hard. The main difficulty lies in keeping the roads in good condition during wet weather. In a level country it is necessary to make adequate provision for promptly removing or carrying off the surplus water. As Prof. Morrow forcibly remarks, to most effectively do this is the great object of work in making or repairing dirt roads on the prairies. Chiefly to secure this the road-bed is raised above the general level, its surface is "crowned," and ditches are made at the sides, and tiles are sometimes laid, frequently the most important point of all, because they most effectively prevent trouble from stagnant water. Doing these things in the best way, and then frequently smoothing the surface and preserving its slopes, is about all the wisest can do in securing good earth roads, aside from building and caring for bridges and culverts and reducing the grade where it is exceptionally great.

It is a suggestion worth considering that it is sometimes economy to vary the rule requiring roads to follow section lines. The departure from this rule is to run the roads along ridges or high and dry land rather than to blindly and rigorously go through thick and thin, ponds, slough or sags, which can not be easily drained. The road-bed should be graded, also, so that the surface is made higher than that of the land on either side, but this should not be done to the exclusion or neglect of good ditches, kept well opened and with free outlets. In recent tests at the University at Champaign it has been found that dry soil will take up from thirty-eight to forty per cent. of its weight of water by capillary attraction. Where there is standing water at the road-sides, or where the soil is saturated, it will draw much water even to the height of three feet. The engineering on railroads has this always in view, and the engineer prevents, as far as possible, water standing within three feet of the surface, even though the cars move on the rails held in place by heavy ties, often ballasted with stone or gravel. A narrow, raised road-way is recommended in preference to one of greater width, as the surface drainage will be better, but a very narrow bed with heavy slope to the sides is almost always objectionable, as not giving enough choice in travel, thus causing deeper ruts.

In wet land, lines of tile laid at the sides of the road, inside the open ditches, are recommended as a great help in carrying off water, which would otherwise have to be removed by evaporation. This tile work should be well done and the drain outlets kept free. Highway or road commissoners have considerable authority, let it be remembered, over the land beyond the narrow limits of the road itself, and diches and their outlets come within their jurisdiction, and can be made to contribute materially to the success of road-making and repairing will be done by men whose special business this is, and not men working out their tax. The throwing of a lot of unpacked earth on the surface at certain seasons is alluded to as an abomination, and particularly, it may be added, when that loose earth is too often dragged up from the still damp ditches and put into the middle of the road, only to make vile pitch-holes during moist months of the year, and an indifferent road at any time.—*Chicago Inter-Ocean.*

METALIZING THE DEAD.

Interment, Cremation and Embalming Outdone by This New Art.

At the great electric exhibition in Paris in 1881 there were to be seen parts of a corpse that resembled a most elaborate casting of copper or bronze, retaining at the same time their natural forms. At the subsequent exhibition, in April, 1885, this art of galvanizing organic frames had been improved inasmuch as they did not only seem to be electro-galvanically coated but metalized throughout, the surface of the subject even being copper, bronze, or whatever the alligation consisted of. These preparations proved suggestive to the engineer, J. Vergovatz, who quite seriously, made the proposal to enshrine all human corpses galvano-plastically in a metallic husk, thus putting the question of the disposal of the dead in a new, unprecedented phase. "Interment he said, "is condemned from a sanitary standpoint, without mentioning the most dire feelings of survivors. Cremation is even more repugnant to some and deprives justice of the means of discovering crimes and prosecuting their perpetrators; embalming, finally, is too expensive for the great bulk of men. It is galvano-plastic art that has all the disadvantages of the present mode of burrying or cremating the dead, and is, at the same time, within the reach of all. Poor people will be put in zinc, the wealthy will suffer to be coppered, the very rich can afford to be silvered and gilded."

The process itself is simple. The organic body to be metalized is washed with alcohol and covered with fine graphite powder. This will be rubbed all over the surface of the body with a cloth of cotton, so that it obtains the appearance of glittering coal, or looks like a finger on which a lead pencil has been rubbed. The body, now able to conduct electricity, is suspended in an earthen vessel filled with a concentrated solution of sulphuric oxide of copper, or, if it is to be silvered, nickeled, covered with zinc, gilded with appropriate solutions of these metals. In this vessel, furthermore, is put a plate of metal proportionate in size to the body to be metalized and connected with the positive pole of a dynamo machine or a strong galvanic battery, while its negative pole is connected with the body. The action of the current causes now a wonderful transformation. The metal of the plate, the positive pole, gradually comes off while the negative pole, represented by the graphited body, attracts metal out of the solution covering, corresponding to the prior form, the whole surface with remarkable firmness and evenness. The longer the current is suffered to act the thicker the coat will be. It makes the cover of the organism air-tight so that, in consequence of this perfectly hermetical sealing, putrefaction can not take place. The body thus secluded dries up, turns into a mummy, whereas the metallic coat remains unaltered in the original shape of the deceased.

The expense of making such a metallic coat is small. It is represented by the value of the metal, the labor expended, and the cost of the coal necessary to set a dynamo machine in motion, if steam-power is used; the value of gas, if a gas-motor, or that of chemicals, if a battery is applied. If this very simple method of conserving the dead should be carried out, it would afford a similar instance to the work of the Egyptians, who preserved the original form of their dead by embalming them and depositing them in great vaults. Electricity, which of late has opened to the living such a manifold and unforethought field of activity, would now even after death lend us its services by preserving the form and shape of once living creatures.

The inventor of this new art has tried it successfully on eleven human corpses and over a hundred cadavers of animals.—*Chicago Tribune.*

ORIGIN OF MOLASSES.

Sugar a Commodity Known to and Used by the Ancient Jews.

As molasses first came to us from the West Indies, where sugar was one of the great products, it is probably a Portuguese or Spanish word. The Spanish spelling is malaza, the z being sounded like th in bath, which would hardly cause the sound of ess, so that in this case it may come from the Portuguese melaco, where the c is sounded like ess. The Spanish word for molasses is melaza, the Italian melassa, the French melassa, the Latin mellaceaus—made with honey, hence honey-like. Portuguese melado—mixed with honey. Molasses proper is that which drains from the sugar while in the process of making. Treacle, or known in America as sugar-house molasses, is the fluid result that comes from the process of refining sugar. In the seventeenth century the spelling of the word was nearly always melasses (by English-speaking people,) as shown by old records and invoices. In connection with this it will prove interesting to know that sugar was well known to the ancient Jews. Nearchus, one of the Admirals of Alexander, who was a great wanderer, found sugar cultivated in the East Indies B. C. 325, and brought quantities of it back with him.

The seed cane was first introduced into Europe from Asia, A. D. 625, and although active efforts were made to cultivate it in Italy and Southern Spain, the results were not at all satisfactory. In 1510, sugar cane was introduced in the West Indies, by Columbus. In 1751, sugar culture was actively begun in what is now known as the State of Louisiana, but no report of the product is on record earlier than 1823. The cultivation of sorghum in China dates back beyond record. This was used entirely for making sirup, the same as is now produced largely in the States of Illinois, Wisconsin, Ohio and Iowa. Sorghum sirup very seldom granulates or crystalizes, and for this reason it is very much appreciated by the Celestials in the manufacture of their preserves and candied sweets.—*Robert M. Floyd, in Chicago Journal.*

—Contentment is better than money and just about as scarce.—*Altoona Sunday Morning*

INJUSTICE CORRECTED.

Convincing Verification of Widecast Public Statements.

To our Readers:

In common with many publishers and editors, we have been accustomed to look upon certain statements which we have seen in our columns as merely adroit advertising. Consequently we feel justified in taking the liberty of printing a few points from a private letter recently received from one of our largest patrons, as a sort of confession of faith to our readers. We quote:

"We have convinced ourselves that by telling what we knew to be true, we have produced at last a *permanent conviction* in the public mind. Seven years ago we stated what the national disease of this country was, and that it was rapidly *increasing*. Three years ago we stated that a *marked check* had been given it.

"The statistics of one of the largest life insurance companies of this country shows that in 1883 and 1884 the mortality from kidney disorders *did not increase* over the previous years; other companies stated the same thing. It is not presumptuous for us to claim *credit for checking* these ravages.

"Seven years ago we stated that the condition of the kidneys was the key to the condition of health. Within the past five years *all careful life insurance* companies have conceded the truth of this statement; for, whereas, ten years ago, the chemical analysis to determine the condition of the kidneys was not required, to-day *millions of dollars in risks are refused*, because chemical examination discovers *unsuspected* diseases of the kidneys.

"Seven years ago we stated that the ravages of Bright's Disease were insignificant compared with other unsuspected disorders of the kidneys of many misleading names; that ninety-three per cent. of human ailments are attributable to deranged kidneys, which fills the blood with uric acid, or kidney poison, which causes these many fatal diseases.

"The uric acid, or kidney poison, is the real cause of the majority of cases of paralysis, apoplexy, heart disease, convulsions, pneumonia, consumption and insanity; over *half* the victims of consumption are first the victims of diseased kidneys.

"When the recent death of an honored ex-official of the United States was announced, his physician said that although he was suffering from Bright's Disease, that was *not the cause* of death. He was not frank enough to admit that the apoplexy which overtook him in his bed was the fatal effect of kidney poison in the blood, which had eaten away the substance of the arteries and the brain; nor was Logan's physician honest enough to state that his fatal rheumatism was caused by kidney acid in the blood.

"If the doctors would state in official reports the *original* cause of death, the people of this country would be alarmed, yea, nearly *panic stricken*, at the fearful mortality from kidney disorders."

The writers of the above letter give these facts to the public simply to *justify the claims they have made*, that "if the kidneys and liver are kept in a healthy condition by the use of Warner's safe cure, which hundreds of thousands have proved to be a specific, when all other remedies failed, and that has received the indorsement of the highest medical talent in Europe, Australasia and America, many a life would be prolonged and the happiness of the people preserved. It is successful with so many *different* diseases, because it, and it *alone*, can remove the uric acid from the blood through the kidneys."

Our readers are familiar with the preparation named.

Commendation thereof has often appeared in our columns.

We believe it to be one of the best, if not the best, ever manufactured. We know the proprietors are men of character and influence.

We are certain they have awakened a widespread interest in the public mind concerning the importance of the kidneys. We believe, with them, that they are the key to health, and that for their restoration from disease and maintenance in health there is nothing equal to this great remedy.

The proprietors say they "do not glory in this universal prevalence of disease, but having started out with the purpose of spreading the merits of Warner's safe cure before the world, because it *cured our senior proprietor, who was given up by doctors as incurable*, we feel it our duty to state the facts and leave the public to its own inferences. We point to our *claims*, and to their *public and universal verification* with pride, and if the public does not believe what we say, we tell them to ask their friends and neighbors what they think about our preparations."

As stated above, we most cordially commend the perusal of this correspondence by our readers, believing that in so doing, we are fulfilling a simple public obligation.

—"Was she his wife?" asked a married woman of an acquaintance. "Yes. Why do you ask?" "Because they were so jolly together. You don't often see married people jolly together in public, you know."—*Harper's Weekly.*

The small boy who plays circus with the "trick goat" in his back yard, should see that the St. Jacobs Oil bottle is not empty.

Friends of Thomas A. Edison think that he may never return from Florida. He had a severe attack of pleurisy last December, and it left his lungs hopelessly diseased. His recovery is deemed impossible.

"Michael Strogoff."

Mr. G. C. Staley, while playing the leading part in "Michael Strogoff," at Oakland, Cal., became so hoarse from a severe cold that he despaired of being able to continue his part. Two bottles of Red Star Cough Cure entirely cured him. Does not nauseate.

LINCOLN AS A SOLDIER.

His Achievements During the Famous Black Hawk Indian War.

Among those who enlisted at the first tap of the drum was Abraham Lincoln, and equally to his surprise and delight he was elected Captain of his company. The volunteer organizations of those days were conducted on purely democratic principles. The company assembled on the green, an election was suggested, and three-fourths of the men walked over to where Lincoln was standing; most of the remainder joined themselves to one Kirkpatrick, a man of some substance and standing from Spring Creek. We have the word of Mr. Lincoln for it that no subsequent success ever gave him such unmixed pleasure as this earliest distinction. It was a sincere, unsought tribute of his equals to those physical and moral qualities which made him the best man of his hundred, and as such was accepted and prized.

As soon as he was mustered out of his captaincy, after several uneventful weeks, he re-enlisted on the same day, May 27, as a private soldier. Several other officers did the same, among them General Whiteside and Major Stuart. Lincoln became a member of Captain Elijah Iles' company of mounted volunteers, sometimes called the "Independent Spy battalion," an organization unique of its kind, if we may judge from the accounts given by one of its troopers. It was not, says Mr George W. Harrison, "under the control of any regiment or brigade, but received orders directly from the commander-in-chief, and always, when with the army, camped within the lines and had many other privileges, such as having no camp duties to perform and drawing rations as much and as often as we pleased," which would seem to liken this battalion as nearly as possible to the fabled "regiment of brigadiers." With this elite corps Lincoln served through his second enlistment, though it was not his fortune to take part in either of the two engagements in which General Henry broke and destroyed forever the power of Black Hawk and the British band of Sacs and Foxes at the Wisconsin bluffs and the Bad Ax.

After Lincoln was relieved of the weight of dignity involved in his captaincy the war became a sort of holiday, and the tall private from New Salem enjoyed it as much as any one. He entered with great zest into the athletic sports with which soldiers love to beguile the tedium of camp. He was admitted to be the strongest man in the army, and, with one exception, the best wrestler. Indeed his friends never admitted the exception, and severely blamed Lincoln for confessing himself defeated on the occasion when he met the redoubtable Thompson and the two fell together on the turf. His popularity increased from the beginning to the end of the campaign, and those of his comrades who still survive always speak with hearty and affectionate praise of his character and conduct in those rough yet pleasantly remembered days.

It was on June 16, a month before the slaughter of the Bad Ax, that the battalion to which Lincoln belonged was finally mustered out at Whitewater, Wis. His final release from the service was signed by a young Lieutenant of artillery, Robert Anderson, who, twenty-nine years later, in one of the most awful crises in our annals, was to sustain to Lincoln relations of prodigious importance, on a scene illuminated by the flash of the opening guns of the civil war. The men started home the next day in high spirits, like school-boys for their holidays. Lincoln had need, like Horatio, of his good spirits, for they were his only outfit for the long journey to New Salem, he and his messmate Harrison having had their horses stolen the day before by some patriot over anxious to reach home. "But," as Harrison says, "I laughed at our fate and he joked at it, and we all started off merrily. The generous men of our company walked and rode by turns with us, and we fared about equal with the rest. But for this generosity our legs would have had to do the better work; for in that day this dreary route furnished no horses to buy or steal; and whether on horse or afoot, we always had company, for many of the horses' backs were too sore for riding." It is not hard to imagine with what quips and quirks of native fancy Lincoln and his friends beguiled the way through the forest and prairie. With youth, good health and a clear conscience, and even then the dawn of a young and undefiled ambition in his heart, nothing was wanting to give zest and spice to this long, sociable walk of one hundred leagues. One joke is preserved, and this is one at the expense of Lincoln. One chilly morning he complained of being cold. "No wonder," said some facetious cavalier, "there is so much of you on the ground."—*Nicolay and Hay, in Century.*

A Conscientious Man.

Nathaniel Ripley Cobb, of Boston, one of the merchants of the earlier days was generous-hearted and conscientious in the highest degree. In fact, he was so benevolent that in November, 1821, he drew up the following remarkable document: "By the grace of God I will never be worth more than $50,000. By the grace of God I will give one-fourth of the net profits of my business to charitable and religious uses. If I am ever worth $20,000 I will give one-half of my net profits, and if I am ever worth $30,000 I will give three-fourths, and the whole after my fiftieth thousand. So help me God, or give to a more faithful steward and set me aside." He adhered to this covenant with the strictest fidelity.—*Boston Herald.*

Exceedingly Polite.

"Well, sir, did you succeed in collecting that bill?"

"No, sir."

"It's just as I expected. That Jones never pays any thing. He's a perfect boor."

"Why, sir, I found him very polite."

"In what way?"

"He asked me to call again."—*Philadelphia Call.*

THE SLEEP WHICH THE DRUGS BRING.

Sleep bringing drugs mean mischief. They bring sleep, it is true, but they bring more mischief than rest. The sleep produced is not healthy. There is no refreshment in it. The more you take these drugs the more they rack your nerves, demoralize your brain, and give occasion for more and more drugs. "How, then, shall I procure sleep?" asks the nervous and shattered victim of insomnia.

The records of the victories of Compound Oxygen are full of cases in which sleepless sufferers have been blessed with quiet and refreshing slumber. That of Mr. Arthur Hagan, of Philadelphia, a well known merchant, may be mentioned as one. On taking Compound Oxygen, with faithful perseverance and good nursing, his shattered nervous system was restored to health, his dyspepsia departed and he entered into the enjoyment of good health.

Mr. J. B. Kenyon writes from Bedford, Ohio: "Your Compound Oxygen has worked wonders for me; has made a new man of me; have not had an attack of *asthma* since using it; was in very bad shape when I commenced; Would not do without Compound Oxygen for *ten times its price; first time I inhaled it I went to sleep at once and never rested better in my life.*"

A hint to the sleepless: Don't take drugs in order to induce sleep. Write to Drs. Starkey & Palen for the treatise on Compound Oxygen, which contains much that every sufferer from sleeplessness ought to know. Address 1529 Arch Street, Philadelphia, Pa.

Orders for the Compound Oxygen Home Treatment will be filled by H. A. Mathews, 615 Powell Street, San Francisco.

The British ship Kapunda, which left London December 11th for Freemantle, Western Australia, with emigrants, came into collision with an unknown vessel near the coast of Brazil and was sunk. Three hundred of those on board were drowned.

A CHANCE FOR HEALTH

Is afforded those fast sinking into a condition of hopeless debility. The means are at hand. In the form of a genial medicinal cordial, Hostetter's Stomach Bitters embodies the combined qualities of a blood fertilizer and depurent, a tonic and an alterative. While it promotes digestion and assimilation, and stimulates appetite, has the further effect of purifying the life current and strengthening the nervous system. As the blood grows richer and purer by its use, they who resort to this sterling medicinal agent, acquire not only vigor, but bodily substance. A healthful change in the secretions is effected by it, and that sure and rapid physical decay, which a chronic obstruction of the functions of the system produce, is arrested. The prime causes of disease being removed, health is speedily renovated and vigor restored.

A shooting affray near Dekalb, Texas, resulted in the killing of four men and the wounding of a boy.

OUR PROGRESS.

As stages are quickly abandoned with the completion of railroads, so the huge drastic, cathartic pills, composed of crude and bulky medicines, are quickly abandoned with the introduction of Dr. Pierce's "Pleasant Purgative Pellets," which are sugar coated, and little larger than mustard seeds, but composed of highly concentrated vegetable extracts. By druggists.

An effort is being made in England to prevent the publication of full reports of divorce cases.

A LITTLE LEAVEN LEAVENETH THE WHOLE LUMP.

A disease in one part of the body will eventually fill the whole body with disease. Every year or two some part of the system grows weak and begins to decay. Such part should be removed at once and new matter be allowed to take its place. There's no need of cutting it out with the surgeon's scalpel. Purge away the old, diseased and worn out parts with Brandreth's Pills. Then the new body will take care of itself.

All signs fail in dry times except the legend "No Trust" in the saloons.

For colds, fevers and inflammatory attacks, as well as for cholera morbus, diarrhœa, dysentery or bloody flux, colic or cramps in stomach, use Dr. Pierce's Extract of Smart-Weed, composed of the best Grape Brandy, Smart-Weed or Water Pepper, Jamaica Ginger, and Camphor Water.

Over 100 horses perished in a livery stable fire in St. Louis.

Bronchitis is cured by frequent small doses of Piso's Cure for Consumption.

You can secure the best prices and terms from Palmer & Rey.

For Throat Diseases, Coughs, Colds, etc., effectual relief is found in the use of *"Brown's Bronchial Troches," Sold only in boxes.* 25 cents.

"THE OLD RELIABLE" GORDON

Job Press is the strongest. Registers accurately, at high speed. Is the easiest running press in the market. Is sold at a figure within reach of all. Has patent throw-off and chase-hook. Palmer & Rey, Portland, have all sizes on hand. Is made in two sizes—8x12 and 10x15—with throw-off. For sale by Palmer & Rey at prices that defy competition. Address Palmer & Rey, Printers' Supplies, Portland, Or.

Go to Towne & Moore when in Portland for best Photographic and Crayon work.

Try Germea for breakfast.

BABY'S SKIN & SCALP CLEANSED PURIFIED AND BEAUTIFIED BY CUTICURA.

FOR CLEANSING, PURIFYING AND beautifying the skin of children and infants and curing torturing, disfiguring, itching, scaly and pimply diseases of the skin, scalp and blood, with loss of hair, from infancy to old age, the Cuticura Remedies are infallible.

Cuticura, the great Skin Cure, and Cuticura Soap, an exquisite Skin Beautifier, prepared from it, externally, and Cuticura Resolvent, the new Blood Purifier, internally, invariably succeed when all other remedies and the best physicians fail.

Cuticura Remedies are absolutely pure and the only infallible skin beautifiers and blood purifiers, free from poisonous ingredients.

Sold everywhere. Price, Cuticura, 50c.; Soap, 25c.; Resolvent, $1. Prepared by the Potter Drug and Chemical Co., Boston, Mass.

Send for "How to Cure Skin Diseases."

BABY'S Skin and Scalp preserved and beautified by Cuticura Medicated Soap

KINDERGARTEN

A select family paper 4 children and big folks. Teaches home elevation—American principles—Kindergarten methods—Every family in America needs it—managed by ladies—regular subs. 50c. per year—but send right now, 20 cents in stamps, the lowest price in clubs of 500, and it will be sent one year post paid.—Send by first mail to "Kindergarten," 420 Montg. St. S. F. Cal.

LICK TELESCOPE

The Delicate Grinding Required for the Great Lens of the Instrument.

There is something almost romantic in the design and construction of the monster Lick telescope. Being the greatest work ever undertaken, presenting difficulties that had never before been encountered; inviting and suffering drawbacks and disasters that seemed to be sufficient to stagger the most persistant and painstaking skill; watched from day to day by a whole world of anxious observers; hovered over and caressed by the united wisdom of a generation—the lens has come into the world with its great cyclopean eye ready to pierce the mysteries of the heavens. Captain Thomas Fraser, superintendent of the observatory, furnishes some hitherto unpublished and highly interesting information concerning the grinding of the crown-glass lens, and the plan adopted for transporting it from Cambridgeport, Mass., to San Jose. On the subject of the grinding, he says that the closest measurement at command was the 110,000th part of an inch; but on grinding the great lens it was discovered that even this infinitesimal fraction was two large. A still finer measurement was required in reducing the lens in numberless places to a thickness (itself unequal) that would exactly concentrate parallel rays of light filling a circle three feet in diameter to a point a little larger than a pin. In order to reduce the fine measurement already at command, the following ingenious arrangement was employed by Alvin Clark & Sons, makers of the lens: A gas jet was placed before a mirror, which sent the rays of light through the telescope to the great lens, thus magnifying the rays. The magnified light, passing through the great lens was still further immensely magnified, and after having passed through this lens, it was observed through a second telescope and thus further magnified. In this way the least failure of the great lens to concentrated perfectly was detected, and there was also determined the amount of glass in it, at any given point, that had to be ground off in order to secure a perfect focus. Thus a measurement of the 2,000,000th part of an inch was secured. It took very little grinding to remove so small a thickness of glass from a given point, a gentle rubbing with the thumb being sufficient, as the glass is softer than common window glass.—*Boston Transcript.*

—Colonel Ravenshill recently arrived at Fort McLeod, Oregon, from England, on a tour of inspection and to purchase horses for the English army. He found very few among the numerous bands of horses in that section which fulfilled his requirements. He stated that the British Government would purchase about four thousand head of horses yearly if suitable stock could be raised, and would pay $150 a head for them, halter broke, delivered at Montreal. The horses are required to be of good color, black or gray preferred, four to six years old and fifteen to sixteen hands high.—*Chicago Mail.*

HALL'S SARSAPARILLA

Cures all Diseases originating from a disordered state of the BLOOD or LIVER. Rheumatism, Neuralgia, Boils, Blotches, Pimples, Scrofula, Tumors, Salt Rheum and Mercurial Pains readily yield to its purifying properties. It leaves the Blood pure, the Liver and Kidneys healthy and the Complexion bright and clear.

J. R. CATES & CO., Proprietors,
417 Sansome St., San Francisco.

IT IS A BLESSING TO OVERWORKED WOMEN. IT REMOVES FAINTNESS, FLATULENCY, ALL CRAVING FOR STIMULANTS, AND RELIEVES WEAKNESS OF THE STOMACH. CURES LEUCORRHŒA. MENSTRUAL PERIODS PASSED without PAIN.

Sold by Druggists. Price $1. per bottle.

"THE FAVORITE"—A NEW PAPER CUTTER

This Paper Cutter is the best medium priced 30-inch cutter ever offered to the trade.

It is strong.
It is substantial.
It is ruled to inches.
It is all iron and steel.
It has front and back gauges.
It cuts accurately.
Cuts 30 inches. Price, $175.
Kept in stock by

PALMER & REY,
Portland, Or. Printers' Supplies.

Agents Wanted in every township to take orders for the best book ever issued **"The Heart of the World."** Valuable premium **Free** with every book. Extra inducements to agents. Write at once for circulars containing full particulars to

J. O. HESTWOOD & CO.,
429 J Street, Sacramento.

WORK FOR ALL. $30 a week and expenses paid. Outfit worth $5 and particulars free. P. O. VICKERY, Augusta, Me.

Marvellous Memory DISCOVERY.

Wholly unlike Artificial Systems—Cure of Mind Wandering—Any book learned in one reading. Great inducements for postal classes. Prospectus, with opinions of Mr. Proctor, the Astronomer, Hons. W. W. Astor, Judah P. Benjamin, Drs. Minor, Wood and others, sent post free, by

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