

Mary had a little lamb,  
She sold it to the Trust  
Mary's clipping coupons now  
And her scissors never rust.

The merry war in the Philippines still goes on. The war in Africa is not yet concluded. Other nations are getting ready to fight, and this reminds us of the wonderful beneficence of a Christian civilization.

Congress has passed a law making it a criminal offense to play ball in the District of Columbia on Sunday. Thank Heaven they have put no restrictions on the High Ball!

Mark Hanna says his friend Rathbone is innocent. It is a distinguished mark in Hanna's character to so declare, and his conduct in securing bail, a new trial, a revision of the law, speak volumes, not only for the indefatigable labor of the Senator, but also for the faith that is in him as well as the goodness of his heart.

Congressman Loud, of California, has charge of the bill introduced in Congress providing for an increase of pay for letter carriers. We hope the Congressman will report in favor of the bill. If it is worth \$5000 a year to deliver speeches in Congress, it is easy to figure out what the man ought to have who delivers them to the long suffering constituents. By all means raise their pay.

This is going to be a hard year. We have had volcano eruptions in the West Indies; a tornado in Texas, a coal strike in Pennsylvania, a cave-in of a mine in Tennessee, a cloudburst in Wisconsin, the 17-year locusts in Maryland and now Congress says it will not adjourn for another month. There is but little solace in the reflection that Carrie Nation is in jail.

It is reasonably sure that the outrageous free seed distribution will never be abandoned until congressmen find some substitute by which they can reach their constituents in a complimentary way. They are an affront to ordinary intelligence. Every farmer who receives these relatively worthless seeds should come out boldly, resent this so-called bid for future support and notify his representative at Washington that he would acknowledge receipt through the ballot box by voting against him.

That rural free delivery has brought farm life into closer relations with the active business world, is everywhere conceded. Congress shows a willingness to be fairly liberal with appropriations for extending the service. And well it may. The postmaster general last year said that this service had become a potent educational force, had increased the general intelligence and enhanced farm values. Next in order should be a carefully arranged parcels post system, enabling one to send small packages at low cost with as little difficulty as the forwarding of a letter. The postal congress league, with James L. Cowles of Farmington, Ct., secretary, is promoting the cause looking toward favorable action by congress.

Flora—I'm writing to tell Jack that I didn't mean what I said in my last letter.

Dora—What did you say in your last letter?

Flora—That I didn't mean what I said in the one before—Brooklyn Life.

Bridget and Pat were sitting in an armchair reading an article on "The Law of Compensation."

"Just fancy!" exclaimed Bridget, "accordin' to this, when a man loses war av' sines another gets more developed. For instance, a blind man gets more sense av' he'nin' an' touch an'—"

"Shure, an' it's quite thrue," exclaimed Pat. "O've noticed it meself. When a man has wan leg shorter than the other, begorra the other's longer."—Philadelphia Times.

A story that might be true of purchasing agents in more than one city is told by the Brooklyn Eagle. One need not question its verity too closely, for it has enough of humor to make it worth retelling.

A physician on the city health commission ordered five pounds of sponges. In the course of time he received two sponges that together weighed less than a pound. Later he received a voucher for him to sign in order that the contractor might get his pay from the city. The physician refused to sign it.

"Why won't you sign?" asked the contractor.

"Because the order calls for five pounds, and the sponges you sent me don't weigh more than five ounces."

"Nonsense, man! I weighed them meself."

"So did I. If you don't believe my figures, there are the sponges. Weigh them yourself."

"What!" cried the contractor, looking at the shrunken sponges. "You don't mean to say you weighed them dry!"

## The Diamond Lens

### A Fascinating Story of Mystery and Love.

I.

From a very early period of my life the entire bent of my inclinations had been towards microscopic investigations. When I was not more than ten years old, a distant relative of our family, hoping to astonish my inexperience, constructed a simple microscope for me; by drilling in a disk of copper a small hole, in which a drop of pure water was sustained by capillary attraction. This very primitive apparatus, magnifying some 50 diameters, presented, it is true, only indistinct and imperfect forms, but still sufficiently wonderful to work up my imagination to a preternatural state of excitement.

Seeing me so interested in this rude instrument, my cousin explained to me all that he knew about the principles of the microscope, related to me a few of the wonders which had been accomplished through its agency, and ended by promising me one regularly constructed, immediately on his return to the city. I counted the days, the hours, the minutes, that intervened between that promise and his departure.

Meantime I was not idle. Every transparent substance that bore the remotest resemblance to a lens I eagerly seized upon and employed in vain attempts to realize that instrument, the theory of whose construction I as yet only vaguely comprehended. All panes of glass containing those oblate spheroidal knots familiarly known as "bull's eyes" were ruthlessly destroyed, in the hope of obtaining lenses of marvelous power. I even went so far as to extract the crystalline humor from the eyes of fishes and animals, and endeavored to press it into the microscopic service. I plead guilty to having stolen the glasses from my Aunt Agatha's spectacles, with a dim idea of grinding them into lenses of wondrous magnifying properties, in which attempt it is scarcely necessary to say that I totally failed.

At last the promised instrument came. It was of that order known as Field's simple microscope, and had cost perhaps about fifteen dollars. As far as educational purposes went, a better apparatus could not have been selected. Accompanying it was a small treatise on the microscope,—its history, uses, and discoveries. I comprehended then for the first time the "Arabian Nights" entertainments. The dull veil of ordinary existence that hung across the world seemed to roll away, and to lay bare a land of enchantments. I felt towards my companions as the seer might feel towards the ordinary masses of men. I held conversations with Nature in a tongue which they could not understand. I was in daily communication with living wonders, such as they never imagined in their wildest visions. I penetrated beyond the external portal of things, and roamed through the sanctuaries. Where they beheld only a drop of rain slowly rolling down the window-glass, I saw a universe of beings animated with all the passions common to physical life, and convulsing their minute sphere with struggles as fierce and protracted as those of men. In the common spots of mould, which my mother, good housekeeper that she was, fiercely scooped away from her jam pots, there abode for me, under the name of mildew, enchanted gardens, filled with dells and avenues of the densest foliage and most astonishing verdure, while from the fantastic boughs of these microscopic forests hung strange fruits glittering with green and silver and gold.

It was no scientific thirst that at this time filled my mind. It was the pure enjoyment of a poet to whom a world of wonders had been disclosed. I talked of my solitary pleasures to none. Alone with my microscope, I dimmed my sight, day after day and night after night poring over the marvels which it unfolded to me. I was like one who, having discovered the ancient Eden still existing in all its primitive glory, should resolve to enjoy it in solitude, and never betray to mortal the secret of its locality. The rod of my life was bent at this moment. I destined myself to be a microscopist.

Of course, like every novice, I fancied myself a discoverer. I was ignorant at the time of the thousands of acute intellects engaged in the same pursuit as myself, and with the advantages of instruments a thousand times more powerful than mine. The names of Leeuwenhoek, Williamson, Spencer, Ehrenberg, Schultz, Dujardin, Schacht, and Schleiden were then entirely unknown to me, or if known, I was ignorant of their patient and wonderful researches. In every fresh specimen of Cryptogamia which I placed beneath my instrument I believed that I discovered wonders of which the world was as yet ignorant. I remember well the thrill of delight and admiration that shot through me the first time that I discovered the common wheel-animalcule (Rotifera vulgaris) expanding and contracting its flexible spokes, and seemingly rotating through the water. Alas! as I grew older, and obtained some works treating of my favorite study, I found that I was only on the threshold of a science to the investigation of which some of the greatest men of the age were devoting their

lives and intellects.

As I grew up my parents, who saw but little likelihood of anything practical resulting from the examination of bits of moss and drops of water through a brass tube and a piece of glass, were anxious that I should choose a profession. It was their desire that I should enter the counting room of my uncle, Ethan Blake, a prosperous merchant, who carried on business in New York. This suggestion I decisively combated. I had no taste for trade; I should only make a failure; in short, I refused to become a merchant.

But it was necessary for me to select some pursuit. My parents were staid New England people, who insisted on the necessity of labor; and therefore, although, thanks to the bequest of my poor Aunt Agatha, I should, on coming of age, inherit a small fortune sufficient to place me above want, it was decided, that, instead of waiting for this, I should act the nobler part, and employ the intervening years in rendering myself independent.

After much cogitation I complied with the wishes of my family, and selected a profession. I determined to study medicine at the New York Academy. This disposition of my future suited me. A removal from my relatives would enable me to dispose of my time as I pleased, without fear of detection. As long as I paid my Academy fees, I might shirk attending the lectures, if I chose; and as I never had the remotest intention of standing an examination, there was no danger of my being "plucked." Besides, a metropolis was the place for me. There I could obtain excellent instruments, the newest publications, intimacy with men of pursuits kindred to my own,—in short, all things necessary to insure a profitable devotion of my life to my beloved science. I had an abundance of money, few desires that were not bounded, by my illuminating mirror on one side and my object-glass on the other; what, therefore, was to prevent my becoming an illustrious investigator of the veiled worlds? It was with the most buoyant hopes that I left my New England home and established myself in New York.

### II.

#### THE LONGING OF A MAN OF SCIENCE.

My first step was, of course, to find suitable apartments. These I obtained, after a couple of days' search, in Fourth avenue; a very pretty second-floor unfurnished, containing sitting room, bedroom, and a smaller apartment which I intended to fit up as a laboratory. I furnished my lodgings simply, but rather elegantly, and then devoted all my energies to the adornment of the temple of my worship. I visited Pike, the celebrated optician, and passed in review his splendid collection of microscopes,—Field's Compound, Higham's, Spencer's, Nacet's Binocular (that founded on the principles of the stereoscope,) and at length fixed upon that form known as as Spencer's Trunnion Microscope, as combining the greatest number of improvements with an almost perfect freedom from tremor. Along with this I purchased every possible accessory,—micrometers, draw-tubes, a camera lucida, lever stage, achromatic condensers, white cloud illuminators, prisms, parabolic condensers, polarizing apparatus, forceps, quatic boxes, fish-tubes, with a host of other articles, all of which would have been useful in the hands of an experienced microscopist, but, as I afterwards discovered, were not of the slightest present value to me. It takes years to know how to use a complicated microscope. The optician looked suspiciously at me as I made these wholesale purchases. He evidently was uncertain whether to set me down as some scientific celebrity or a madman. I think he inclined to the latter belief. I suppose I was mad. Every great genius is mad upon the subject in which he is greatest. The unsuccessful madman is disgraced, and called a lunatic.

Mad or not, I set myself to work with a zeal which few scientific students have ever equaled. I had everything to learn relative to the delicate study upon which I had embarked,—a study involving the most earnest patience, the most rigid analytic powers, the steadiest hand, the most untiring eye, the most refined and subtle manipulation.

For a long time half my apparatus lay inactive on the shelves of my laboratory, which was now most amply furnished with every possible contrivance for facilitating my investigations. The fact was that I did not know how to use some of my scientific accessories,—never having been taught microscopes,—and those whose use I understood theoretically were of little avail, until by practice I could attain the necessary delicacy of handling. Still, such was the fury of my ambition, such the untiring perseverance of my experiments, that, difficult of credit as it may be, in the course of one year I became theoretically and practically an accomplished microscopist.

During this period of my labors, in which I submitted specimens of every substance that came under my observation to the action of my lenses, I became a discoverer,—in a small way, it is true, for I was very young, but still a discoverer. It was I who destroyed Ehrenberg's theory that the Volvox globator was an animal, and proved that his "monads" with stomachs and eyes were merely phases of the formation of a vegetable cell, and were, when they reached their mature state, incapable of

the act of conjugation, or any true generative act, without which no organism rising to any stage of life higher than a vegetable can be said to be complete. It was I who resolved the singular problem of rotation in the cells and hairs of plants into ciliary attraction, in spite of the assertions of Mr. Weismann and others, that my explanation was the result of an optical illusion.

But, notwithstanding these discoveries, laboriously and painfully made as they were, I felt horribly dissatisfied. At every step I found myself stopped by the imperfections of my instruments. Like all active microscopists, I gave my imagination full play. Indeed, it is a common complaint against many such, that they supply the defects of their instruments with the creations of their brains. I imagined depths beyond depths in Nature which the limited power of my lenses prohibited me from exploring. I lay awake at night constructing imaginary microscopes of immeasurable power, with which I seemed to pierce through all the envelopes of matter down to its original atom. How I cursed those imperfect mediums which necessity through ignorance compelled me to use! How I longed to discover the secret of some perfect lens whose magnifying power should be limited only by the resolvability of the object, and which at the same time should be free from spherical and chromatic aberrations, in short from all the obstacles over which the poor microscopist finds himself continually stumbling! I felt convinced that the simple microscope, composed of a single lens of such vast yet perfect power, was possible of construction. To attempt to bring the compound microscope up to such a pitch would have been commencing at the wrong end; this latter being simply a partially successful endeavor to remedy those very defects of the simple instrument, which, if conquered, would leave nothing to be desired.

It was in this mood of mind that I became a constructive microscopist. After another year passed in this new pursuit, experimenting on every imaginable substance,—glass, gems, flints, crystals, artificial crystals formed of the alloy of various vitreous materials,—in short having constructed as many varieties of lenses as Argus had eyes, I found myself precisely where I started, with nothing gained save an extensive knowledge of glass-making. I was almost dead with despair. My parents were surprised at my apparent want of progress in my medical studies, (I had not attended one lecture since my arrival in the city,) and the expenses of my mad pursuit had been so great as to embarrass me very seriously.

I was in this frame of mind one day, experimenting in my laboratory on a small diamond,—that stone, from its great refracting power, having always occupied my attention more than any other,—when a young Frenchman, who lived on the floor above me, and who was in the habit of occasionally visiting me, entered the room.

I think that Jules Simon was a Jew. He had many traits of the Hebrew character; a love of jewelry, of dress, and of good living. There was something mysterious about him. He always had something to sell, and yet went into excellent society. When I say sell, I should perhaps have said peddle; for his operations were generally confined to the disposal of single articles,—a picture, or a pair of duelling pistols, or the dress of a Mexican caballero. When I was first furnishing my rooms he paid me a visit, which ended in my purchasing an antique silver lamp, which he assured me was a Cellini,—it was handsome enough even for that,—and some other knick-knacks for my sitting room. Why Simon should pursue this petty trade I never could imagine. He apparently had plenty of money, and had the entrée of the best houses in the city,—taking care, however, I suppose, to drive no bargains within the enchanted circle of the Upper Ten. I came at length to the conclusion that this peddling was but a mask to cover some greater object, and even went so far as to believe my young acquaintance to be implicated in the slave trade. That, however, was none of my affair.

On the present occasion, Simon entered my room in a state of considerable excitement.

"Ah! mon ami!" he cried, before I could even offer him the ordinary salutation, "it has occurred to me to be the witness of the most astonishing things in the world. I promenade myself to the house of Madame ——. How does the little animal—le regard—name himself in the Latin?"

"Vulpes," I answered.

"Ah! yes,—Vulpes. I promenade myself to the house of Madame Vulpes." "The spirit medium?"

"Yes, the great medium. Great Heavens! what a woman! I write on a slip of paper many of questions concerning affairs the most secret,—affairs that conceal themselves in the abysses of my heart the most profound; and behold! by example! what occurs! This devil of a woman makes me replies the most truthful to all of them. She talks to me of things that I do not love to talk of to myself. What am I to think? I am fixed to the earth!"

"Am I to understand you, M. Simon, that this Mrs. Vulpes replied to questions secretly written by you, which questions related to events known only to yourself?"

"Ah! more than that, more than that," he answered, with an air of some alarm. "She related to me things— But," he added, after a pause, and suddenly changing his manner, "why occupy ourselves with these follies? It was all the Biology, no doubt. It goes without saying that it has not my credence. But why are we here, mon ami? It has occurred to me to discover the most beautiful thing as you can imagine,—a vase with green lizards on it, composed by the great Bernard Palissy. It is in my apartment; let us mount. I go to show it to you."

I followed Simon mechanically; but my thoughts were far from Palissy and his enamelled ware, although I, like him, was seeking in the dark after a great discovery. This casual mention of the spiritualist, Madame Vulpes, set me on a new track. What if this spiritualist should be really a great fact? What if, through communication with subtler organisms than my own, I could reach, at a single bound, the goal which perhaps a life of agonizing mental toil would never enable me to attain?

While purchasing the Palissy vase from my friend Simon, I was mentally arranging a visit to Madame Vulpes.

### III.

#### THE SPIRIT OF LEEUWENHOEK

Two evenings after this, thanks to an arrangement by letter and the promise of an ample fee, I found Madame Vulpes awaiting me at her residence alone. She was a coarse-featured woman, with a keen and rather cruel dark eye, and an exceedingly sensual expression about her mouth and under jaw. She received me in perfect silence, in an apartment on the ground floor, very sparsely furnished. In the centre of the room, close to where Mrs. Vulpes sat, there was a common round mahogany table. If I had come for the purpose of sweeping her chimney, the woman could not have looked more indifferent to my appearance. There was no attempt to inspire the visitor with any awe. Everything bore a simple and practical aspect. This intercourse with the spiritual world was evidently as familiar an occupation with Mrs. Vulpes as eating her dinner or riding in an omnibus.

"You come for a communication, Mr. Linley?" said the medium, in a dry, business-like tone of voice.

"By appointment,—yes."

"What sort of communication do you wish?—a written one?"

"Yes,—a wish for a written one."

"From any particular spirit?"

"Yes."

"Have you ever known this spirit on this earth?"

"Never. He died before I was born. I wish merely to obtain from him some information which he ought to be able to give better than any other."

"Will you seat yourself at the table, Mr. Linley," said the medium, "and place your hands upon it?"

I obeyed.—Mrs. Vulpes being seated opposite me, with her hands also on the table. We remained thus for about a minute and a half, when a violent succession of raps came on the table, on the back of my chair, on the floor immediately under my feet, and even on the window panes. Mrs. Vulpes smiled comically.

"They are very strong tonight," she remarked. "You are fortunate." She then continued, "Will the spirits communicate with this gentleman?"

Vigorous affirmative.

"Will the particular spirit he desires to speak with communicate?"

A very confused rapping followed this question.

"I know what they mean," said Mrs. Vulpes, addressing herself to me; "they wish you to write down the name of the particular spirit that you desire to converse with. Is that so?" she added, speaking to her invisible guests.

That it was so was evident from the numerous affirmative responses. While this was going on I tore a slip from my pocketbook and scribbled a name under the table.

"Will this spirit communicate in writing with this gentleman?" asked the medium once more.

After a moment's pause her hand seemed to be seized with a violent tremor, shaking so forcibly that the table vibrated. She said that a spirit had seized her hand and would write. I handed her some sheets of paper that were on the table, and a pencil. The latter she held loosely in her hand, which presently began to move over the paper with a singular and seemingly involuntary motion. After a few moments had elapsed she handed me the paper, on which I found written, in a large, uncultivated hand, the words, "He is not here, but has been sent for." A pause of a minute or so now ensued, during which Mrs. Vulpes remained perfectly silent, but the raps continued at regular intervals. When the short period I mentioned had elapsed, the hand of the medium was again seized with its convulsive tremor, and she wrote, under this strange influence, a few words on the paper, which she handed to me. They were as follows:

"I am here. Question me."

"LEEUWENHOEK."

I was astounded. The name was identical with that I had written beneath the table, and carefully kept concealed. Neither was it at all probable that an uncultivated woman like Mrs. Vulpes should know even the name of the great father of microscopics. It may have

been Biology; but this theory was soon doomed to be destroyed. I wrote on my slip—still concealing it from Mrs. Vulpes—a series of questions, which, to avoid tediousness, I shall place with the responses in the order in which they occurred.

I.—Can the microscope be brought to perfection?

Spirit.—Yes.

I.—Am I destined to accomplish this great task?

Spirit.—You are.

I.—I wish to know how to proceed to attain this end. For the love which you bear to science, help me!

Spirit.—A diamond of one hundred and forty karats, submitted to electro-magnetic currents for a long period, will experience a rearrangement of its atoms *inter se*, and from that stone you will form the universal lens.

I.—Will great discoveries result from the use of such a lens?

Spirit.—So great that all that has gone before is as nothing.

I.—But the refractive power of the diamond is so immense, that the image will be formed within the lens. How is that difficulty to be surmounted?

Spirit.—Pierce the lens through its axis, and the difficulty is obviated. The image will be formed in the pierced space, which will itself serve as a tube to look through. Now I am called. Good night!

I cannot at all describe the effect that these extraordinary communications had upon me. I felt completely bewildered. No biological theory could account for the discovery of the lens. The medium might, by means of biological rapport with my mind, have gone so far as to read my questions, and reply to them coherently. But Biology could not enable her to discover that magnetic currents would so alter the crystals of the diamond as to remedy its previous defects, and admit of its being polished into a perfect lens. Some such theory may have passed through my head, it is true; but if so, I had forgotten it. In my excited condition of mind there was no course left but to become a convert, and it was in a state of the most painful nervous exaltation that I left the medium's house that evening. She accompanied me to the door, hoping that I was satisfied. The raps followed us as we went through the hall, sounding on the balusters, the flooring, and even the lintels of the door. I hastily expressed my satisfaction, and escaped hurriedly into the cool night air. I walked home with but one thought possessing me—how to obtain a diamond of the immense size required. My entire means multiplied a hundred times over would have been inadequate to its purchase. Besides, such stones are rare, and become historical. I could find such only in the regalia of Eastern or European monarchs.

### IV.

#### THE EYE OF MORNING.

There was a light in Simon's room as I entered my house. A vague impulse urged me to visit him. As I opened the door of his sitting room, unannounced, he was bending, with his back toward me, over a card lamp, apparently engaged in minutely examining some object which he held in his hands. As I entered he started suddenly, thrust his hand into his breast pocket, and turned to me with a face crimson with confusion.

"What!" I cried, "poring over the miniature of some fair lady? Well, don't blush so much; I won't ask to see it."

Simon laughed awkwardly enough, but made none of the negative protestations usual on such occasions. He asked me to take a seat.

"Simon," said I, "I have just come from Madame Vulpes."

This time Simon turned as white as a sheet, and seemed stupefied, as if a sudden electric shock had smitten him. He babbled some incoherent words, and went hastily to a small closet where he usually kept his liquors. Although astonished at his emotion, I was too preoccupied with my own idea to pay much attention to anything else.

"You say truly when you call Madame Vulpes a devil of a woman," I continued. "Simon, she told me wonderful things tonight, or rather was the means of telling me wonderful things. Ah! if I could only get a diamond that weighed one hundred and forty karats!"

Scarcely had the sigh with which I uttered this desire died upon my lips, when Simon, with the aspect of a wild beast, glared at me savagely, and rushing to the mantelpiece, where some foreign weapons hung on the wall, caught up a Malay creese, and brandished it furiously before him.

"No!" he cried in French, into which he always broke when excited. "No! you shall not have it! You are perfidious! You have consulted with that demon, and desire my treasure! But I will die first! Me! I am brave! You cannot make me fear!"

All this, uttered in a loud voice trembling with excitement, astounded me. I saw at a glance that I had accidentally trodden upon the edges of Simon's secret, whatever it was. It was necessary to reassure him.

"My dear Simon," I said, "I am entirely at a loss to know what you mean. I went to Madame Vulpes to consult with her on a scientific problem, to the