# Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors. PUBLISHED WEEKLY AT

### No. 361 BROADWAY, NEW YORK.

O. D. MUNN.

A. E. BEACH.

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### HOW TO MAKE WINTER EVENINGS PROFITABLE.

This is the season of short days and long evenings, the best time of all the year for study and improvement.

commercial employment. One of the best passports in apparently mean to do it thoroughly. They have inthat direction, next to good character, is good hand-vited those interested to submit plans, and there are writing. Of course, you know how to write, but like the already over a hundred schemes represented at the great majority, probably, you have never trained yourself to write well. No merchant wants his books disfigured by awkward and illegible scrawling. No lawyer | now being catalogued. The commissioners expect to will submit to badly written copies. We suggest you devote yourself this winter to persevering endeavors to cities where underground systems are in operation. improve your penmanship. You will be surprised at the With the help of experts, they will then begin the difimprovement which real effort in this line will achieve. | ficult task of sifting out the best and most feasible

May be you would like to learn stenography and type writing. The faithful employment of your winter evenings in this work may make you a first-class, result in no definite proposition until next spring. It graduate before the long days come again, and enable is hoped that the plan selected may be carried into opeyou to earn a handsome support.

Do you wish to become expert as a mechanical draughtsman? There are excellent instruction books, carried out, as a matter of economy in the long run, sold very cheaply. The industrious occupation of your and are doing what they can to aid the work of the evening hours as a learner will surely be fruitful of Commission. When a plan is finally selected, the comresults. We know of excellent draughtsmen, now missioners have full authority to compel its adoption enjoying good salaries, who taught themselves to draw in evening hours, while companions idled away their any kind. time in smoking, cards, or gossip.

all times to study up and think out plans for new con-ready submitted to him; but as the search is for the trivances is in the quietude of evening. The results of best, the competition is still open. earnest thought in the production of inventions are simply astonishing. In general, it is the improvements in simple devices, things of everyday use and that everybody wants, which are the most profitable. The patent for the little invention of the spring window shade roller, now so generally employed in all dwellings, has brought great wealth to the fortunate inventor. He is now a millionaire. His device was truly | proposed consists in clamping a small sheet of glass dia happy thought. We know of a lady in Chicago whose patents for the invention of a moving belt for drying eggs, albumen, etc., have revolutionized certain great branches of trade, and now bring her a great income. The people want improvements in every conceivable form. Not only is the field of invention vast, but it is open to everybody. There are no distinctions in respect to sex or age. The way to invent is to "keep thinking;" the way to accomplish anything is to "keep working."

### THE NOVEMBER METEORIC SHOWERS.

The meteoric display of Nov. 27th was visible to the was observed at Teheran, Persia, and was unusually mitted light. brilliant in other parts of Asia, as well as in Naples and London. What was seen in our own locality during the evening was only the end of the main shower. At the condenser. the Yale observatory, shortly after six o'clock, forty-four shooting stars were counted in twenty-four minutes. per minute. They appeared to radiate from Andromeda, and as one observer can see but about one-sixth of those ably have been counted in a minute had the staff of observers been sufficient.

The display is due to the breaking up of Biela's comet, a dissolution first noticed in 1846. Since then the work has progressed rapidly, until the comet is now in millions of fragments. In ages past the wanderer by a single party. The display of 1879 was less strik- of the flame through the film while it is dry. almost up to Christmas-time.

and to see that within a reasonable time all poles and cities. In New York city, Messrs. Charles E. Loew,

panies then in existence to present plans for the transfer of their lines to underground conduits, giving them sixty days in which to respond. As the companies failed to present a satisfactory scheme, the commis-Perhaps you are a young man desirous of obtaining sioners are investigating the subject themselves, and rooms of the Commission, 23 West 23d St. These form a veritable museum of electrical contrivances, and are visit Chicago, Washington, Philadelphia, and other scheme.

> It is a work of some magnitude, and will probably ration during the summer. The companies themselves are stated to be anxious to have the underground plan by all who use the streets for carrying electric wires of

We judge that the Secretary of the Commission, Mr. Are you of an inventive turn of mind? The best of Moss, has an embarrassment of riches in the plans al-

### PHOTOGRAPHIC NOTES.

To Prevent the Cracking of Lantern Condensers.— When the oxyhydrogen light is used in the optical lantern, accidents often happen by the cracking of the condenser from unequal heating, by reason of its close proximity to the light. One method which has been rectly against the face of the condenser, and in also providing, by perforations in the surrounding metal band, for the free circulation of the air between the lenses. Should the heat become too intense, the glass plate will crack and thereby save the condenser.

At one of the recent meetings of the Amateur Photographic Society in this city, Dr. Laudy stated that he had used for some time, with perfect safety, a thin sheet of mica in contact with the face of the lens toward the light.

The streaks in the mica did not show on the screen, and but very slightly retarded the light. It was advised that a very clear sheet be selected, as a yellow inhabitants of more than a quarter of the globe. It specimen would interfere too much with the trans-

> It is undoubtedly a wise precaution to use some screen of a refractory material between the light and

Testing the Thickness of Gelatine Films.-Concerning the manufacture of dry plates and the recent tend-Many of them had considerable brilliancy, and left ency of the manufacturers to increase their sensitivetrails of light behind them. Later in the evening, the ness without regard to other desirable qualities, such meteors were less numerous, but were estimated at 100 as opaqueness to resist halation, the Photographic News remarks:

A good way of testing if the thickness of a film is visible, something near six hundred meteors could prob-sufficient to give the required opacity is the following: The film is wetted, and the plate is placed between the observer and a bright gas or lamp flame. If the film is thick enough, the shape of the flame will not be seen through any part of it; in other words, it (the film) will be translucent, but not transparent. Of course, the actual plate experimented on will be spoiled, traveled among the fixed stars, but its path eventually but the destruction of one plate is a small matter if it approached so near to the sun that the intense heat is will enable the photographer to determine whether he supposed to have started the disintegration. Detached will be wise in purchasing a batch of plates or not; fragments trailing after the comet formed its tail. In and if he desires to try several, he may use any safe 1840 it was observed to have become divided into two artificial light in which no diffusing medium is used, parts. This destruction has continued until the comet in which, that is to say, the flame of the light is visiis but a mass of fragments, which follow the old orbit. ble. But with the safest light possible, the examina-Once in about six and two-third years the earth passes tion must be very rapidly performed if the plates are through this meteoric belt. The fragments of the sensitive. They must be held near the light, and at comet are made luminous by their rapid movement the best the test is not so searching as with an unthrough the atmosphere, and not unfrequently fall to covered light. Of course, the plates used may have rethe earth. The display lasts as a rule for two or three ceived an exposure, and the test may be performed hours, but varies greatly in its brilliancy. The last one immediately before development, so that there is no of any importance was in 1872, when between fifty and waste. Plates which show a flame as described should one hundred thousand stars could have been observed be rejected, much more those which show the shape

ing. The next contact with the ruins of the comet. We have so far pointed out the evils which result occurs in 1892. Though the main shower lasts for from the use of plates too thinly coated, and the but a short time, an occasional meteor may be seen readiest way of judging of a film whether or not it is thick enough; and now we have to make a somewhat serious charge against plate makers in general. We Underground Electrical Conduits in New York City. have no hesitation in saying that the average opacity The New York State law of June 13,1885, provides that of the films of plates in the market has greatly fallen the authorities of the larger cities of New York State off during the last few years. One cause of this is shall appoint commissioners to examine into the merits doubtless to be found in the fact that the average senof different systems of underground electrical conduits, sitiveness of plates has, during the same few years, considerably increased, and that, therefore, the opacity overhead wires are removed from the streets of these has decreased, apart from any reduction in the amount of silver used. Every one who has experimented Theodore Moss, and Jacob Hess were appointed com- with emulsion knows that, as a rule, increase of senmissioners. In compliance with the further terms of sitiveness means decrease of opacity and covering