

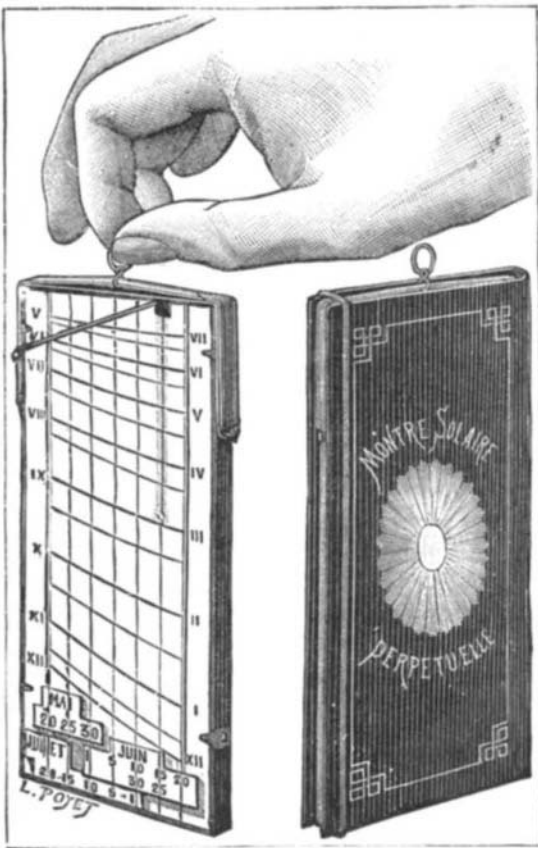
heave in the center—some mighty beast lifting up that floor! Now a wave runs round the incrustated marge, and there is an outburst, a blood-red fount, gushing and bubbling from one of earth's arteries. The broad disk of the lake heaves and trembles. Fitful gaseous flashes flit across. The moving floor cracks. A serrated fissure, like the suture of a skull, runs from marge to marge, and quick, darting streaks, sudden cracks of the crust, shoot across in all directions. These serrated streaks are at first rosy lines on the gray surface, then they widen like crimson ribbons, broadening to the view. They undulate with the billowy motion of the whole upheaving surface. Another crimson fount springs up along the now fretting and roaring rim of the lake, and another and another of the wildly up-leaping fountains of fire toss high their gory crests, even casting gout and clots of the red spray that fall and harden near the observer's feet. By this time the spirit of our inferno is aroused. The fierce red lake is all boil and leap and roar. It is more than the roar of sea surfs. The surging tide of the molten earth sounds a deeper bass than any note of the sea; and the heaved-up crust, broken into fragments, is churned and dissolved in the boiling flood. The roaring gulf is now, indeed, a vortex of indescribable glories and terrors.

#### DE COMBETTE'S SOLAR WATCH.

Sun dials are of two kinds: in one the hour is indicated by the inclination of the shadow, and in the other it is shown by its length. The inventor of the very simple little apparatus represented herewith has chosen the latter mode.

The arrangement of the "watch" is as follows: To the sides of a block of mahogany are affixed four clasps, which serve for holding in place the cards upon which are inscribed the different months. In the engraving, we have the card for the months of May, June, and July. Over the top of the block extends a rubber band which is fixed to the sides by means of rings. A third ring, through which the band passes, serves for holding the apparatus. A steel needle having an aperture at one extremity serves for projecting the shadow on the card.

To use the apparatus, the unperforated end of the needle is placed between the wood and the rubber, on the line of the day of the month. Thus, in the cut it is on the line of the 15th and 20th of June. The apparatus is then held by the ring, and turned to the right or to the left until the shadow exactly coincides with the line. The luminous point projected by the eye of the needle indicates at the right the hour for the morning, and to the left that for the afternoon. It will be



DE COMBETTE'S SOLAR WATCH.

at once seen, on reading the card, that on the 20th of June the sun is at its greatest elevation, and that on the 25th it is at the same height as on the 15th; and that on the 1st of July it is at the same height as on the 10th and 30th of June, etc.

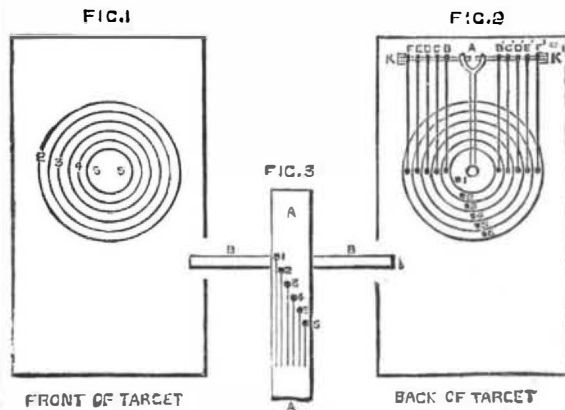
The figure to the right shows the apparatus inclosed in its case.—*La Nature*.

#### Scientific Exploration of the Northwest.

It is said on good authority that the Northern Pacific Railroad Company and the Oregon Railway and Navigation Company have united in putting a scientific exploring expedition into the field, for the purpose of examining into the mineral, agricultural, and other resources of the territory tributary to the two companies between Lake Superior and the Pacific coast. Prof. Raphael Pumpelly, until now in charge of the coal and iron department of the late national census, has been appointed chief of the expedition, and he has already started for Montana to examine the principal mining districts in that Territory. The work of the expedition will extend through several years.

#### SELF-REGISTERING TARGET.

The target here illustrated is the invention of Dr. Wilson, of Hawkhurst, Eng. It consists of a sufficiently thick plate of iron, out of which six circular disks or concentric flat faced rings of necessary breadth are made, as seen at Fig. 1. The rings must be of such diameters that there shall be a clear opening all round between each of them of about three-sixteenths of an inch or a quarter of an inch, so that the disk rings—see Fig. 2, back of target—hang by hooks of sufficient length on the cross rod, K K, and work on it, as an easy joint, may move backwards and forwards without



touching each other. They support in pairs—with the exception of No. 5—one of the disk rings, which form the face of the target, F F support ring 2; D E, D' E', support rings marked 3; B C, B' C', rings marked 4; and A supports 5, the bullseye. When the bullet hits the face of one of the disk rings, it swings back, but, by the ring's own natural weight, it immediately rights itself, and falls back into its original position. The spots, 1 2 3 4 5 6, are nipples or tongues. One is fixed in the back of each of the disk rings; and when the ring is suddenly forced back, its nipple plunges into a small hole—see Fig. 3—opposite, to correspond in the strong plank, A A, faced with iron, behind the target, and to which the target is fixed. The holes in A A, Fig. 3, are also marked 1 to 6; into these the nipple plunges deep enough to touch the sensitive needle, and through this medium sets a signaling apparatus in motion. The sensitive needle must be sufficiently deep in each hole to be entirely protected against any accidental breaking and flying about of pieces of the bullet. The electric apparatus can be made safe behind the broad plank, A A. On the inside of the crossbar, B B, Fig. 3, a short distance behind the target disk, there are pads or buffers, to deafen the harsh sound of the iron disk in dashing against an iron surface, and also to prevent the disk ring being thrown back too far by the impact of the bullet. In Fig. 1, 5 represents the bullseye; then 4 and 3 are each divided into two rings. If the bullet strikes the opening between 5 and the inner ring 4, forcing both back, it would not be a bullseye, but the best position on 4; if on the inner ring of 4 only, it would be a more valuable position than if it struck on the opening between the two rings marked 4, forcing both back, but this position of the shot again would be still more valuable than if the bullet hit the outer 4 ring only. These hits would point out a relative value, say equal to  $4\frac{3}{4}$ ,  $4\frac{1}{2}$ ,  $4\frac{1}{4}$ , 4, yet all equal to 4, but showing a difference, and they can be recorded with unfailing accuracy in the firing point at the moment the bullet hits the target. The rings marked 3 may be divided in the same manner. Thus eleven different values of hits may be recorded by this target. The hooks by which the disk rings hang require to be considerably bent outwards, all except F F, to allow the rings to swing sufficiently far back, and not touch any of the other's hooks.

#### Trade Schools in New York.

In the fall of 1880, under a joint arrangement between Richard T. Auchmuty, of this city, and the trustees of the Metropolitan Museum of Art, a technical school for the industrial education of artisans in the elements of mechanics and of design was established in a building specially erected and presented by Mr. Auchmuty for the purpose, and situated in First Avenue, near Sixty-eighth street. The school at once drew a large attendance. Classes were formed for practical instruction in drawing and design, decoration in distemper, modeling and carving, carriage draughting and plumbing, and no less than 143 pupils were enrolled. The school was open day and evening. Lectures were given by specialists in the trades and arts, but a prime feature was made of shop instruction by foremen and journeymen from factories in this city.

Since the schools were closed last spring a wealthy gentleman of this city has given \$50,000 to the Metropolitan Museum of Art, to be devoted to the advancement of art education. It has, therefore, been deemed best to withdraw the art classes from the building at Sixty-eighth street and to establish them on an independent basis at Glass Hall, in Thirty-fourth street. The artisan classes will remain in the Sixty-eighth street building, and be known as the New York Trade Schools. The school for the decorative arts will be under charge of Mr. John Buckingham, former manager of the schools, and the trade schools will be under the supervision of Mr. Charles F. Wingate, sanitary engineer, who had charge last winter of the classes in plumbing and sanitary engineering.

The course of instruction for the coming year will embrace many new features. There is a large and well appointed workshop, where instruction will be given in the manual branches of the trades. Attached to this workshop will be a collection of the articles and materials used in plumbing. It is proposed to make this collection as complete as possible. Dr. Chandler, president of the Board of Health, and Professor Egleston, of the School of Mines of Columbia College, will take part in the series of lectures to be given to the class.

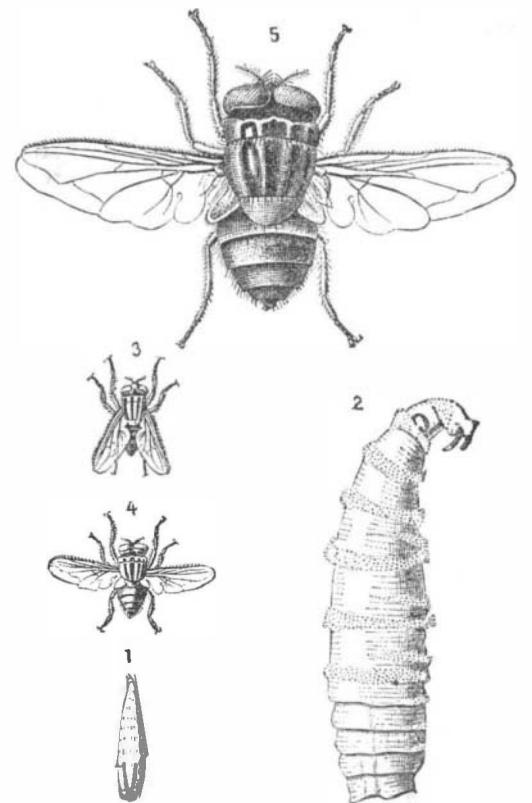
These trade schools are not intended to be either a charitable or a money making institution, the charges being based on the actual cost of the instruction given.

#### A DEADLY FLY.—NEW CASE OF MYIASIS OBSERVED IN THE ARGENTINE REPUBLIC.

Mr. P. Auguste Conil has recently described, in the *Annales des Sciences Naturelles*, some new cases of myiasis observed by him in the province of Cordoba (Argentine Republic). This affection, which is nearly always fatal, is brought about by a fly, *Calliphora anthropophaga*, Conil, represented herewith, and which, depositing its eggs in the nostrils of an individual, lays the germs of a horrible malady. We will allow Mr. Conil to describe in his own words one of the cases that he witnessed:

"The house situated alongside of mine is occupied by Mr. Auguste Ortiz, whose family lives at Totoral, a village lying sixty miles to the north of Cordoba, very near the line of railway connecting the latter with Tucuman. One of his sisters, Josefa Ortiz, aged 18, was taken sick, and experienced so acute pains that she decided to consult a physician, who, after questioning and examining her, said that she had an attack of angina and treated her for that affection. In spite of all the remedies administered, the pains, far from ceasing, increased in intensity, and the mother, justly alarmed, wrote to her son to consult another practitioner at Cordoba.

"He went at once to Dr. Lesbini, and gave him all the details that he had just received in regard to his sister's case. On Sunday, January 5, 1879, Josefa began to complain of insupportable itching in the right nostril, and, on the same day, had several attacks of bleeding at the nose. The days following she experienced violent pains in her face, nape of the neck, and throat. The physician in attendance, finding that he had made a wrong diagnosis, advised that the patient should be sent to Cordoba in order that she might be within reach of remedies and medical skill



CALLIPHORA ANTHROPOPHAGA.

1. Larva, natural size.—2. The same enlarged, side view.—3. The perfect insect, natural size.—4. The same, wings extended.—5. The same, enlarged.

"On the 14th of January her palate was perforated, and two larvæ, accompanied by matter, came out of her mouth. Having smelled a branch of basil, eighty larvæ, pretty well developed, escaped from her right nostril. The pains becoming more and more violent, Auguste Ortiz was notified and at once left for Totoral. Having arrived at home his sister's state seemed to him to be so grave that he resolved to take her with him to the city. He narrated in all its details the consultation that he had had with Dr. Lesbini, and said that, according to the opinion of the latter, Josefa's trouble was produced by larvæ, which, in the egg state, had been deposited in her nostrils by a fly. The relatives of the patient, notwithstanding the eighty-two larvæ expelled, could not believe such an assertion, as it appeared impossible that the worms that they had seen could come from a fly. They doubted it all the more, too, because the patient asserted that no fly had entered her nose.

"Struck by what she had heard, one of the sisters of the