Communications.

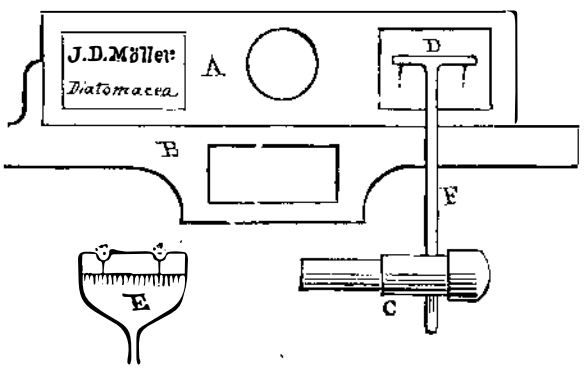
A New Object-Finder for Microscopes.

To the Editor of the Scientific American :

Enclosed I send you a sketch and short description of a finder for minute microscopic objects, a little device of my own, which has worked so well that I thought it might be useful to others.

A represents a microscopic slide *in situ* against the stop, B, of the stage, supposed to contain a diatom, perhaps several. C is a brass pin with the rake, F D, firmly fastened thereto. This pin is to be inserted into a little post fixed on the back part of the stage; or where the bar of the microscope always sustains the same relation to the stage, this pin, with a little modification of the stem, F, of the rake, can be inserted into a hole in the bar, thus avoiding the post. The collar on the pin, at C, always brings the finder to the same position, laterally, and, being fixed to the rake, F D, always has the same position longitudinally.

Having found the object on the slide and brought it into the center of the field, ink the points of the finder and press them on the label. This registers the position of the object at once; and in case the slide contains several objects, this simple process can be repeated for each. Afterward, when wishing to find the same objects put the finder in place in the post or bar, and, adjusting the rake close to the paper, bring the dots under the points. The object can then be



seen in the microscope. At E is another form for the rake, D. A piece of brass, beveled to a thin edge, containing two semicircular openings, is substituted for the D part of the rake. To register an object, put a pencil in the openings and make the dots. With a high power objective, if the object should be out of the field at first, it can soon be brought into it by moving the stage so that the dots move around in the little circle, one half of which is formed by the semicircular openings. It will take no longer to do this than to find the numbers each time on a Maltwood finder.

The following are some of the points in its favor: 1. All the objects on the slide can be found without removing it, thus avoiding the continuous changing, as with the Maltwood finder. 2. It costs only about one fifth as much as a Maltwood. 3. With decent usage, it is practically indestructible, whereas a slight accident or a careless move shatters the glass finder; and in such a case a new glass finder is entirely useless until the whole collection of slides are reregistered, which in large collections would be no simple task. In case my finder is lost, a new one can be constructed from one registered slide, which would be correct for all. 4. With $\frac{1}{6}$ or $\frac{1}{8}$ objective, it works well. F. L. BARDEEN.

Stevens Institute of Technology, Hoboken, N. J.

A Word About Railroad Disasters.

To the Editor of the Scientific American :

In reading the accounts of the too frequent railroad disasters, I cannot avoid thinking that many of them might in part be prevented. In cases of a locomotive being thrown off the track by a brokenrail, axle, or wheel, or of an obstruction on the track, an open bridge draw, or a broken bridge, the whole train is dragged to destruction because there is no mode of uncoupling quickly enough to ensure safety. This evil should be remedied, and directly. The connection between tender and cars should couple automatically, and be readily uncoupled under all ordinary conditions; and in cases of the engine or other portion of the train being thrown from the track by any of the common or uncommon causes, it should disengage automatically, thereby preventing much damage and loss of life.

In cases of collisions of cars being thrown from the track, it frequently occurs that an auxiliary in the shape of fire is on hand to join in and complete the general misery and destruction. Why not avoid this horror by making the cars of steel or iron, using as little as possible of combustible material in building and fitting up, both inside and out? I have no doubt if the ingenuity of inventors should be encouraged by railroad companies, and strongly endorsed by the traveling public, and more especially by the press, plans and models would be brought out, which, if followed up and tried, would solve the problem, and save much property from destruction and many valuable lives.

Stratford, Conn. TRUMAN HOTCHKISS.

Success in Life.

To the Editor of the Scientific American:

I never could understand why a workman should be precluded from making what is known as a success in life. Our young men are constantly told that success lies in application, study, energy, etc., to be used as levers whereby to lift themselves as far as possible and as quickly as possible from the position of the workman. Now since success is thus pointed out as consisting in not making skill in a handicraft the objective point: and since a large majority of those who learn a trade must of necessity remain workmen, the advice, *per se*, is valueless to the greater part of those to whom it is tendered, and is therefore, upon general principles, bad. What young man starting out with the determination to achieve that which he is taught is success in life, and bending every energy to that end, can help feeling, when after a number of years of toil he finds himself still working with his tools, that his life has been a failure? And how many of us pause to think of the disappointment and indifference that such a feeling must produce in the mind of a thoughtful man? Now where is the justice, not to say the philosophy, of a doctrine which thus compels, by force of circumstances, most of those to whom it is addressed to make a failure in life?

The striving of workmen to rise out of the ranks undoubtedly raises the general standard of excellence, and the best qualified to rise are almost sure to do so. Both these premises may be allowed; but should not the many of those who have raised that standard be entitled to some consideration and to be accredited with a measure of success? If in the race to govern others, a workman is outstripped, should he not be able to turn to his tools and feel that he can earn with them a degree of success that his fellows will regard to be as meritorious as that achieved in managing a shop or bartering the products of his skill? It may be advanced that such an idea of success would tend to destroy the ambition to rise; such, however, is not the case, because the incentive of personal comfort and even the personal cleanliness incidental to superior positions may always be relied upon to render such positions desirable.

If we examine into the circumstances of the ninety and nine, as the operative workmen may aptly be termed, we shall find that success, that is to say, the financial success to which men bow, is to them utterly unattainable through any existing avenue except it be through piecework. The system of piecework is not, however, so largely introduced in this country as it is in England; and its benefits, both to employer and employed, are not so well understood. Once let the workman see that it is to his advantage to work by the piece, and the love of gain will make him independent of the arbitrary rules laid down by trades' unions, which have done so much to hinder men from rising in the social scale and to make them dependent on the class to which they belong. The ninety and nine, if once convinced of the difficulty of individual progress, will fall back on what they consider the next best thing, the protectionafforded by the unions, which, under existing circumstances, are, while their energies are directed to maintaining or increasing the existing rate of wages and other not illegal ends, as justifiable as are the laws and usages by which lawyers and other professional gentlemen protect their interests, or the agreements by which commercial combinations regulate the prices of commodities. There is this difference, however, between the two: commercial men may achieve success in life independently of such combinations, and the extra measure of success, attained by a combined effort to unnaturally advance the price of a commodity, is therefore far less excusable than the effort to improve a career which, as everyday experience proves, cannot end in what men as a rule regard as a success in life, and such a career that of the workman must be conceded to be.

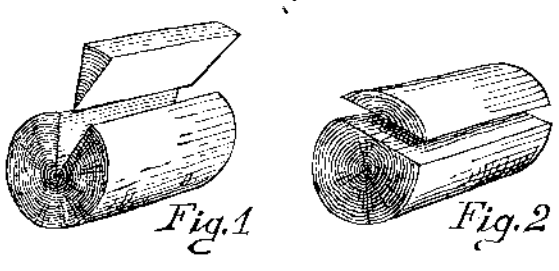
New York city. J. R.

Something on Violins.

To the Editor of the Scientific American :

I notice that some of your correspondents ask as to what purpose the twofold division of the back and belly of a violin serves. Some makers are inclined to the belief that it gives the instrument a better tone, but this I do not think is the reason that it is done, for some of the finest violins which Joseph Guarnerius ever made had whole backs. My opinion is that it is because the wood can be used to better advantage this way than it could if the back and belly were made whole. To give you a clearer idea, I will illustrate the two modes of cutting the log:

Fig. 1 represents the mode of cutting the log to get the back in two pieces, the piece which is separated from the log being afterwards divided. Fig. 2 shows the method of obtaining the whole back or belly. It will thus be seen that,



by dividing the log as in Fig. 2, we could get but four backs at the most, therefore most of it would be wasted; while by the method adopted in Fig. 1 the whole can be used, which is a great advantage where one has a fine log to cut. The two pieces are glued together with the edges that were next to the bark inwards; the under side is planed flat, and the upper or outside is planed down somewhat like the roof of a house, that is the highest in the center and sloping gradually towards the edges. The form is then scooped or worked out to the taste of the artist, in doing which a pair of double caliper compasses are used in order to maintain a due thickness in the respective parts. In Germany and France, where the manufacture of cheap violins is carried on to a large extent, the backs and bellies are formed by steaming and then compressing them in hot iron moulds. This is done only for very cheap and toy violins, it being impossible for an instrument with the back and belly so formed to produce a good tone.

Rockland, Mass. E. P. WHEELER.

Ideation in Utero.

To the Editor of the Scientific American :

In answer to B.'s objections, I would say:

(1) Upon thinking a moment, it will readily appear to any one that, the greater our experience in a certain branch or subject, the more readily do we comprehend anything in reference to it; and the better we comprehend it, the better and easier is it impressed upon our memory. For instance, a child might read a few pages in a book, say of chemistry, and lay it aside without remembering a word of it, simply because its experience on this subject is not sufficient to enable it to comprehend what it reads. But if the book contained stories, or some other such reading, which the child's experience allowed it to understand, it might remember the several pages for a long time afterwards. Hence experience lays the foundation for comprehension, and comprehension is the great and deep impresser of our memories.

Now if the mind of the mother has connection with and influence over that of the embryo (as it no doubt has), anything which should strongly affect her mind might implant an impression upon its mind which would be deeper and hence more lasting than any conveyed there during the first few months after birth, when its experience, and therefore comprehension, is small and insignificant. This may seem incongruous; but if such strange cases of recognition of localities as you mention in the SCIENTIFIC AMERICAN for January 27th, 1877, do occur, this, it seems to me, is the only way to account for them.

(2) B. must remember that we are all twins in one sense—that is, we have two brains (lobes), arms, legs, etc.; but all, however, supplied with one set of vital organs. Hence they bear a closer relation to each other than did the Siamese twins, but yet they are capable of acting independent of each other. In both cases, though, neither was born of the other.

Philadelphia, Pa. H. M. S.

Dangerous Bridges.

To the Editor of the Scientific American :

Your last issue contains an article suggesting, as a safeguard for dangerous bridges, the bracing of two or four wire cables tightly drawn under each span. The idea is a good one; but it is often the case that the truss bridge, which is the form generally to be so aided, is above navigation, and the deflection necessary to the strength of the cables could not therefore be allowed. Even if this difficulty were overcome, by attaching the cables to the tops of the end posts of the truss and limiting their deflection to its height, the objection remains that a faulty proportion of strains is communicated through the truss from the supports of the cables. If, therefore, cables are to be added, they must be supplemented by additional posts and chord. The expense attending this safeguard would be far greater than that necessary to render the bridge safe at first.

I would suggest that the merits and choice of a bridge should be in all cases determined by the chief engineer, and not limited by a board of directors, who may be ignorant of the principles of bridge construction and who have no real responsibility, although the engineer may declare the structure to be unsafe. H. V. HINCKLEY.

Marston's Mills, Mass.

The New President of Dartmouth College.

In consequence of declining health, the venerable Asa D. Smith, D.D., LL.D., has resigned the presidency of Dartmouth College after fourteen years' active and faithful service. The trustees of the college have passed resolutions very complimentary to the retiring president, and this is simple justice; for no officer of any educational institution ever worked more assiduously or accomplished greater results in raising its standard, or was more successful in obtaining funds for carrying on its work, than the wise and good Dr. Smith, who labored so long and so earnestly for Dartmouth College.

While we join the trustees in regretting the necessity of Dr. Smith's retirement, we congratulate them on their wise selection of a successor in the person of Rev. Samuel C. Bartlett, D.D., who was elected president of Dartmouth College a few days ago. Mr. Bartlett graduated in the class of 1836, and was once tutor in the college, afterward pastor of the Congregationalist church at Monson, Mass., and was for six years since Professor of Intellectual Philosophy and Rhetoric at the Western Reserve College in Ohio. He is now Professor of Sacred Theology at the Chicago Theological Seminary, where he has been for eighteen years. Professor Bartlett is one of the ablest men in the West, and his influence has been felt all over the country. His published addresses are numerous, and he is a vigorous contributor to several leading journals.

We have known both the retiring and incoming presidents for a quarter of a century, and the citizens of New Hampshire can rely upon the success of their college as long as they have such men as either at its head.