

### Professor Sumner on the Times.

A refreshing change came over the work of the Congressional Labor Committee when Professor Sumner, of Yale College, was called to give his views with regard to the financial and industrial condition of the country. Up to that time the witnesses had chiefly been men of very limited knowledge, backed by limitless assurance. Professor Sumner did not pretend to know everything, nor to have an infallible specific for all labor troubles, real or imaginary. On the contrary, the years of candid study he had given to the relations of capital and labor in this country had taught him how very meager and unsatisfactory are the means for forming decided conclusions in regard to the matter. He must be a very bold man, the Professor said, who would claim that he had solved this problem. Great industrial revolutions have taken place all over the world during the past ten or fifteen years, and this country has had its share. And local causes have intensified the effects produced by general causes the world over. The professional political economist would be very timid about his own conclusions in regard to either causes or cures. The Suez Canal, the Pacific railroads, the cable telegraphs, and other agencies of speedy communication have revolutionized commerce. Stocks of goods are now telegraphed for, where formerly orders were given by ship communication. In former times the merchant had to carry a large stock of goods, enough to meet several months' demand. Now he can replenish his stock, by telegraph and steam, promptly and surely, and is thus enabled to get along with a minimum supply. The immediate and temporary effect has been an oversupply of goods, and consequently a glut of capital. But this derangement of trade could not last long; people would soon get accustomed to the new order of things, and the ultimate effect would be a great improvement in the condition of the laboring classes.

Thus, when the Suez Canal was completed, it was thought to be a failure, because the immense stock of goods which was immediately accumulated caused a glut, this glut a crisis, and then a reaction set in naturally, which checked business through the canal. But as soon as the goods that had accumulated were worked off, things adjusted themselves, and the Suez Canal business soon recovered. The increased movement of productions brought about by the opening of the canal must result in a very great improvement, and in a great development of the well being of all classes.

So in like manner it has been with machinery. Its first effect naturally is to destroy wealth, displace labor, and lock up capital. For example, the building of railroads had, as a matter of necessity, displaced stage coaches, etc., and thrown the men employed in that business out of work. It was the same with the introduction of the loom, and, indeed, wherever machinery has been employed. This, undoubtedly, caused a temporary irksome distress, but it is the penalty society has to pay for its gains. Ultimately society, which includes everybody, is benefited by the use of machinery. A century ago an agricultural laborer, or one of the operative class, lived in one or two rooms, with no sanitary comforts, no good means of lighting, cooking, etc. To-day he has more rooms, perhaps a whole house, with carpets, furniture, reading matter, good clothes for himself and wife, and good light for his dwelling. This is the effect of machinery, which has cheapened luxuries and brought them within the reach of those who a century ago could not aspire to them. There are people to-day in the United States whose fathers were displaced in the old country by machinery. Their fathers suffered poverty and were forced to emigrate. They came here and prospered, and their children must look upon the distress which drove them to this country as a family blessing. The temporary distress due to progress is unavoidable. What we call civilization has come to us through the struggles of generations of men. Machinery is only the modern form of its development.

Our own war and the consequent public debt; the Franco-German war, and the extravagance and speculation engendered in Germany by the receipt of the French indemnity, were mentioned as among the general causes of the recent commercial and industrial depression.

As for a remedy, the Professor had none to suggest, certainly none that legislation could furnish. We must each work through the period and do the best he can. A part of the cure would come through the redistribution of labor; but that could not be undertaken by Congress without doing a great deal of mischief. To attempt a redistribution of wealth by legislation would be infinitely worse. Each man gets just what comes to him by industry, ability, education, energy, and self-denial. Society owes no man a living. The fact that he is here does not prove that society must support him. Every man must fight his own battle with nature. Were government to interfere to see that every man gets a living, except by his own industry and thrift, it would end by making us a nation of paupers.

In this hasty summary we have barely touched upon the salient points of Professor Sumner's testimony. Possibly we may have failed to do him full justice. If so it must be charged to lack of space, not to any lack of sympathy with his views, broadly considered.

### American Diamond Cutting.

In an article on the diamonds of South Africa in *Scribner's Magazine*, Dr. Morton says that the cleaning, cutting, and polishing of the rough stone can now be done as well here as abroad, or (as I believe, judging by results and from the testimony of experts) better. Stones cut in Europe are frequently remodeled and repolished in this country, thereby

gaining much in value, and others abandoned in the rough as not worth cutting are here converted into excellent brilliants. The credit for introducing this industry is due to Mr. Henry Morse, of Boston, and Mr. Hermann, of New York, who yet remain the only competitors.

### THE MICRO-TELEPHONE.

BY GEO. M. HOPKINS.

The Edison carbon telephone and the instrument known as Hughes' microphone, which according to general belief

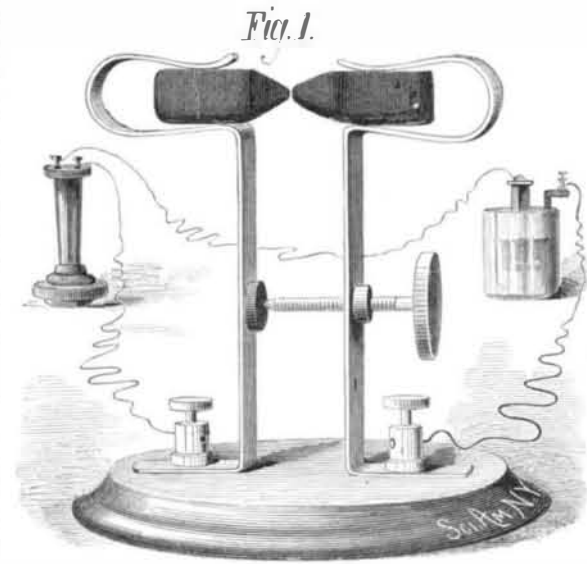


Fig. 1.—A NEW MICRO-TELEPHONE.

are identical as to principle, depend, according to the inventor's theory, upon the changing conductivity of carbon under a varying pressure. It has been generally admitted that no instrument that would make and break the electric current could transmit articulate sounds. Nor has such an instrument to my knowledge been produced prior to the one shown in the accompanying engravings. My instrument, so far as I know, differs materially from the multitude of other forms of telephone or microphone, which are all based upon the principle discovered by Edison.

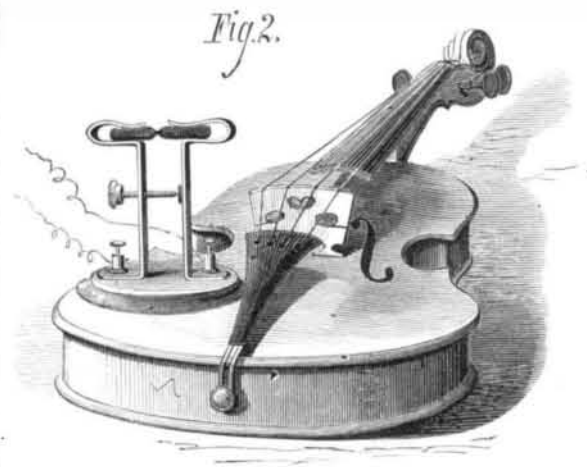


Fig. 2.—MICRO-TELEPHONE ON A VIOLIN.

The instrument which is the subject of this article consists essentially of two springs secured to a small base piece, and each supporting at their upper end a piece of ordinary battery carbon. These two pieces of carbon are placed in light contact, and the two springs are put in an electrical circuit in which there is also a receiving telephone of the Bell form.

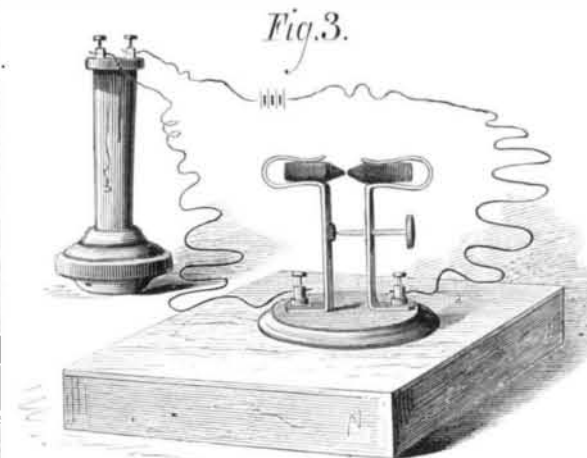


Fig. 3.—MICRO-TELEPHONE ON A PLAIN SOUNDING BOARD.

This instrument is represented full size, in detail, in Fig. 1. In Fig. 2 the micro-telephone is placed upon a violin. In Figs. 3 and 4 it is secured to a small sounding board. The two carbon supporting springs are fastened to a single base by the binding posts which receive the battery wires.

An adjusting screw passes through one of the springs at or near its center, and bears against a rubber button projecting from the other spring. This simple device when placed on a table indicates in the receiving telephone the slightest touch of the finger on the table or on the instrument. Blowing on it makes in the receiving instrument a deafening roar; drawing a hair or a bit of cotton across the carbon is distinctly audible in the receiving instrument.

When the device is placed on a small sounding board every sound in the room is received and transmitted. An ant running across the sounding board can be plainly heard. And a touch upon the instrument or the table which supports it, which without the micro-telephone would be entirely inaudible, can be distinctly heard in the receiving telephone by aid of the instrument, even though miles intervene.

When it is placed on a violin, as in Fig. 2, blowing lightly upon the strings produces Æolian harp tones in the receiver, and a song sung to the violin is rendered in the receiving instrument with an Æolian harp accompaniment. When mounted on a violin or sounding board it will transmit articulate speech uttered in any portion of a room of ordinary size; it will receive and transmit the music of a piano, and even the turning of the music may be heard. Whistling, flute music, and other sounds are transmitted with their characteristics of volume, pitch, and timbre.

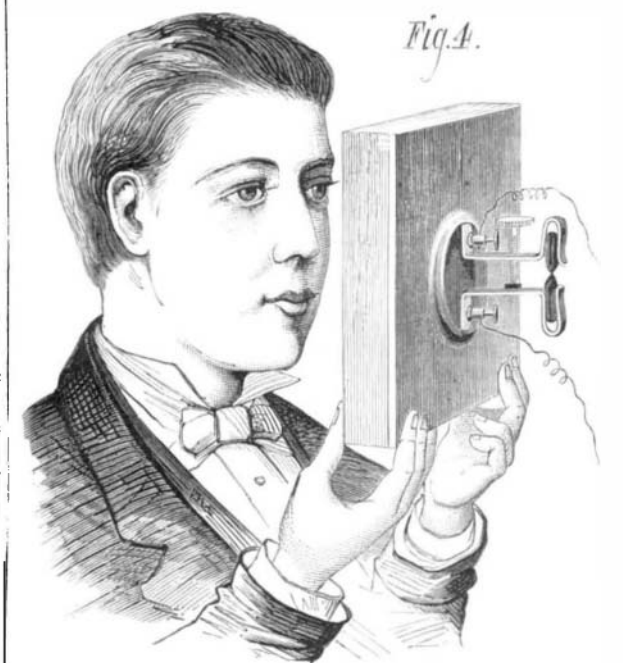


Fig. 4.—MICRO-TELEPHONE USED AS A TELEPHONE.

This instrument, although so very simple, is capable of doing all that has been done by other instruments of an analogous character, and it will be determined by further experiment whether it will do more.

Although carbon contact points are preferable, they are not absolutely essential to the operation of the instrument, as metallic points will do the same things, but not so satisfactorily.

### ASTRONOMICAL NOTES

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, September 14, 1878.

The following calculations are adapted to the latitude of New York city, and are expressed in true or clock time, being for the date given in the caption when not otherwise stated.

#### PLANETS

	H.M.		H.M.
Venus rises.....	3 37 mo.	Uranus rises.....	3 59 mo.
Jupiter in meridian.....	8 23 eve.	Neptune rises.....	8 08 eve.
Saturn in meridian.....	0 32 mo.	Neptune in meridian.....	2 58 mo.

#### FIRST MAGNITUDE STARS, ETC.

	H.M.		H.M.
Alpheratz in meridian.....	0 30 mo.	Procyon rises.....	1 41 mo.
Mira (var.) rises.....	8 50 eve.	Regulus rises.....	3 45 mo.
Algol (var.) in meridian.....	3 27 mo.	Spica.....	invisible
7 stars (Pleiades) rise.....	8 36 eve.	Arcturus sets.....	9 47 eve.
Aldebaran rises.....	9 55 eve.	Antares sets.....	9 06 eve.
Capella rises.....	7 23 eve.	Vega in meridian.....	6 58 eve.
Rigel rises.....	0 05 mo.	Altair in meridian.....	8 09 eve.
Betelgeuse rises.....	11 47 eve.	Deneb in meridian.....	9 02 eve.
Sirius rises.....	2 07 mo.	Fomalhaut in meridian.....	11 15 eve.

#### REMARKS.

Venus arrives at perihelion September 19. Mars will be in conjunction with the sun September 18, and after that date will be a morning star, rising before the sun. Algol will be at minimum brilliancy September 20, 4h. 42m.

The zodiacal constellations now visible in the early evening are Libra, the scales, Scorpio, the scorpion, Sagittarius, the archer, Capricornus, the goat, and Aquarius, the water-bearer, mentioned in their order of succession from west to east. The moon is nearest Aldebaran September 17, being about 10° north.

### The Speed of Rarus.

At Charter Oak Park, Hartford, Conn., Aug. 23, the fast trotter Rarus made the three best consecutive mile heats on record. Time: First mile, 2:15; second, 2:13½; third, 2:13¼. His fastest gait for a single quarter was at the rate of 2:10. The best time made by the same horse at Buffalo was 2:13¼.