

Geophone Aid in Mine Disasters

Instrument Developed During World War Has Been Perfected by Engineers.

EXPERIMENTS PROVE VALUE

Detects Subterranean Sounds at Great Distance—Has Many Uses, but Its Advantage in Mine Rescue Work Most Important.

Washington.—As the result of experiments made by the bureau of mines, the geophone, a novel instrument used amid the reek and slaughter of the World war for the detection of earth and rock sounds, made in the construction of military mines and tunnels, promises to become an active factor in the saving of the lives of miners entombed as the result of fires and explosions.

In the course of tests conducted in the bureau's experimental coal mine near Pittsburgh, blows with a sledge on the coal face were heard, by means of the geophone, at a distance of 650 feet, with various rooms and entries intervening. On a suspended pipe line, light hammering with the knuckles was detected at a distance of 1,500 feet. Ordinary talking and singing could be detected through 150 feet of solid coal. By the use of two geophones, one instrument to each ear, it is possible to determine the direction from which a sound is coming, and thus to locate the approximate position of the entombed miner.

Another promising use of the geophone is in the location of leaks in water pipes. By means of the instrument, it is possible to hear water circulating in the pipes of ordinary city mains situated ten to fifteen feet below the surface. Tests conducted at a busy corner in the downtown district of Pittsburgh located a leak in a water main which the water company had sought to detect for two weeks vainly.

Sensitive, but Simple.

The mine geophone is sensitive, yet extremely simple and easily portable. The instrument was invented by the French during the war to detect sapling and underground mining operations. It was developed by the United States engineers, and the instruments now used by the bureau of mines were made according to plans drawn by them, except for the introduction of different diaphragms. The geophone is essentially a small seismograph, as it embodies the same principles as the seismograph apparatus that records earthquake tremors. It really consists of a lead weight suspended between two elastic diaphragms cutting across a small airtight box. If the instrument is placed on the ground and any one is pounding or digging in the vicinity, energy is transmitted as wave motion to the earth, and the earth waves shake the geophone case. The geophone, therefore, transforms the earth wave into an air wave, which is heard by the ear as sound, and at the same time magnifies the wave so that the sound is louder than if the ears were placed in direct contact with the earth.

The observations of the bureau of mines indicate that the geophone should be quite useful in the location of mine fires. Usually a mine fire makes enough noise, either by drawing air or by breaking off slate and coal, to be heard for a considerable distance through the coal, and even through the strata above. The distance that these sounds can be heard depends a great deal on the nature of the strata above the mine, yet the sounds originating at a mine fire should be detected through 100 to 300 feet of cover and through 500 to 800 feet of coal.

Aids Mine Engineering.

Geophones supply a quick and fairly accurate method of mine surveying. If two tunnels are being brought together from any direction, the progress of the tunnels could be ob-

served by means of the geophones, and their relative positions determined.

Another application of the possibilities of the instrument in mine surveying is in the prevention of accidents in blasting through. If two tunnels are approaching each other, or are passing a short distance apart, it is necessary to determine the relative location in order that men may be warned to keep away from the point of danger. As the sounds transmitted through the geophone are so characteristic, frequent observation would enable a trained observer to follow the progress of the work in the opposite tunnel. He would thus be able to tell when blasts were to be fired.

No attempt has been made to adapt the geophone to determine the earth movements that sometimes occur in deep mines and are termed "bumps" by the miners. It is probable, however, that this instrument may be of use in certain parts of the anthracite coal fields, where cave-ins have destroyed mine working, causing loss of life, surface subsidence and injury and destruction of buildings.

The manifest advantage of the geophone for use in mine rescue work has led the bureau of mines to place the instrument on its mine-rescue cars, which are constantly being called to assist in the succor of entombed men at mine fires and explosions.

Sage's Influence Strong in China

Teachings of Confucius Still Remain the Moral Guide for People of Vast Domain.

ANCIENT TOMB IS NEGLECTED

Interest Directed to the Great Chinese Sage by Dispute Among Descendants Who Inherit Duty of Caring for Shrine.

Washington.—The tomb of Confucius, the mecca to which millions of Chinese pilgrims have journeyed, is said by dispatches to be covered with weeds due to a dispute between descendants of the great sage, who have inherited the duty of caring for this shrine of the nation.

The burial place of the man who has dominated Chinese thought for 25 centuries is described, as it appeared a few years ago, in the following communication from Charles K. Edmunds to the National Geographic society:

"This Confucian temple, an enormous and magnificent place, occupying with its grounds the whole of one side of the town of Kufu, is the model of the Confucian temples found in all the cities of China. It is almost certainly the growth of ages.

"Within the main building, called 'The Hall of Perfection,' sits the enshrined image of the great sage, of which there are not more than two or three duplicates throughout the empire. Ordinarily, Confucian temples do not contain an image of the sage, but a simple tablet before which veneration and devotions are expressed.

"The statue is of wood, larger than life size, and represents the sage seated, holding in his hands the imperial tablet, or scepter, as a symbol of his sovereignty in the realm of thought.

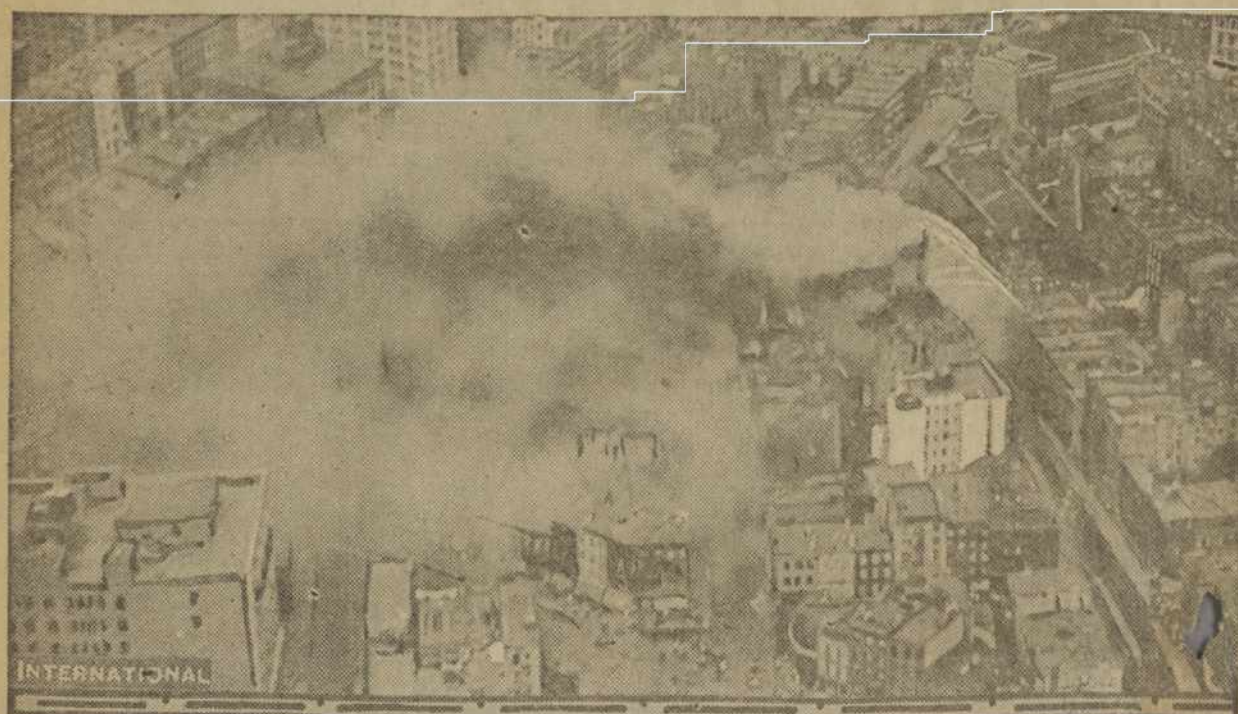
"He is clothed in nine different silk garments, on which the 12 imperial emblems are embroidered, namely, sun, moon, stars, mountains, dragons, pheasants, altar vessels, water lilies, flames of fire, rice, axes and classic

JACKASS IS HIS MASCOT



Major Claude Davenport, an American army officer stationed in Rumania, has adopted as a mascot a young jackass. He is here seen holding his pet, then five weeks old.

Airplane View of Great Warehouse Fire in New York



Remarkable airplane photograph of the recent warehouse fire in the heart of the Greenwich village section of New York. Two firemen were killed and many others injured, and scores of families were driven from their homes by the conflagration.

Newsboy at Ten, Now Is Rich Man

Interesting Story of a Young American's Rapid Transit Up the Ladder of Fortune.

WINS BY BUSINESS BRAINS

Stevenson Dispels Gloomy Convictions Entertained by Many That Opportunities for Success Are Not What They Used to Be.

New York.—Here is the story of a young American's transit up the ladder of fortune which should prove engaging reading generally, but especially to American boys and youths. And again especially to such of these, who in humble jobs nurse the gloomy conviction that opportunities for success and wealth are not what they once were in their native land, who give credence to the commonplace expression of opinion that Rockefeller, Carnegie and their like long ago "grabbed it all."

The story is that of Harry Stevenson, an Ohio youngster—for he is still a youngster. He began his business career when he was ten years old. His establishment was at the corner of Fifth and Sycamore streets, Cincinnati, and consisted of a pair of sturdy legs (bare in summer) an armful of newspapers, a clear voice, durable lungs and dynamic energy.

He is now thirty. He is president of a New York corporation with an official credit rating of \$125,000, the controlling director of two additional thriving companies that with other subsidiaries are soon to be merged into a super organization, of which the one-time "newsie" will be the directing mind.

When he was ten years old his lodgings were frequently found on a pile of old newspapers in the comfortable warmth of a Cincinnati newspaper's pressroom. His home is now a handsome villa at Douglass, L. I.

Story of Poor Boy's Success.

But the best of the story of the little "newsie's" advance to riches is that it is along an open road of American opportunity, to be easily, clearly traced, step by step, with no mystery or magic about it. Just as there is no mystery or magic in it, it is no "luck story" either. It is simply an interesting, admirable story of a little ten-year-old toiling the scratch in the battle of life valiantly, energetically and thoughtfully and winning handsomely.

His parents were both living but were very poor and Harry took a job after school assisting an older boy selling newspapers. There was in Cincinnati an organization of the newsboys who held by right of might the most desirable street corners for the vending of newspapers—big boys in their late teens. But Harry discovered that a very little boy just entering his teens could, for the payment of \$10 down and a monthly rental of \$5, hire from these bigger boys a desirable corner. He got \$2 a week and commission on increased sales of his papers from his big boy employer.

Forged to Buy Bible, Now Reads It in Jail

Harry Steinholt, twenty-six years old, a member of the Washington State National Guard, lost his grip on his conscience when he entered a curio dealer's shop in Tacoma, Wash., and tendered a check for a Bible, a rosary, and some change. Because of the unusual request, the dealer thought the check was good and the transfer was made. The check came back marked "no funds." Steinholt was arrested, and now reads his Bible and his beads in jail.

Told to Kill Pet Chicken, Girl Takes Poison Dose

Rather than kill a pet chicken which had broken its leg, Edna Fanshel of Flint, Mich., drank poison in an attempt to kill herself.

The girl's mother told her the chicken would have to be killed because of its injury, whereupon the girl ran into the house and grabbed a bottle of poison. Her sister knocked the bottle from her lips before she had taken much of the poison. Physicians said she would recover.

when Stevenson stopped he had, besides having supported himself in comfort and sending money to his family, a bank balance of exactly \$10,000.

Next he evolved a scheme all his own. It was called the American Circulators' corporation. Its business was to buy from dealers the unsold copies of magazines of the month. He sent out agents securing subscriptions for month-old magazines at about half the rate that would have to be paid for the magazines when fresh from the press. The scheme paid, but only moderately, but by this time he was sufficiently matured to tackle the real estate game with some success, and between these two interests managed to put another \$10,000 in his bank account in the next five years.

Out of the study of house building that came about in his real estate operations he grew particularly interested in roofing in all its different methods, processes and materials used. This sent him to a Cleveland roofing concern whose product he had decided was the best of the middle Western concerns. He had, moreover, in securing information regarding the company, found that they had done little or nothing to push their product in the East.

He picked up a telephone classified directory, consulted the list of roofing companies and picked out the company of which Morris H. Elvidge is president. Half an hour later he was in conversation with President Elvidge in the latter's office. He knew the concern to be first class and highly prosperous and went there with the design of offering his \$20,000 to be invested in the company and with it a place for himself on the selling staff.

President of Company.

After ten minutes, Elvidge turned the tide of questions as to his company and instead began some sharp questioning himself as to young Mr. Stevenson and soon had all the facts regarding the "newsie" and his subsequent career. The end of twenty minutes' talk was astonishing to Stevenson—agreeably astonishing.

"Keep your \$20,000 in the bank," said Elvidge, "but you are in business—this business—right now."

"What territory will you give me?"

"Territory?"

"As salesman?"

"The whole country."

"What?"

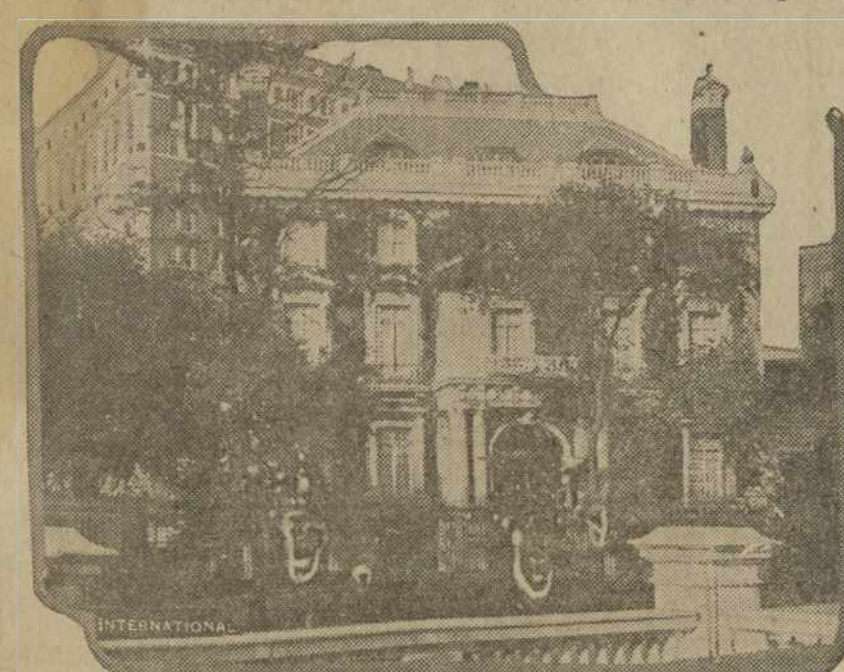
"I am starting you," said Elvidge, "from this minute as president of a subsidiary company of ours. You shall have complete charge. I particularly want you to organize the selling staff. Hire your men and try to tell them how you do it yourself."

This conversation took place on May 18, 1918. On March 1, 1922, Harry Stevenson bought the controlling interest of the company from President Elvidge for \$75,000. This money represented bonuses which had come to him as president for increased showing in the business of the concern. Meanwhile Stevenson organized two other companies, taking in the outlying interests to which the asbestos products could be swung.

And that's this particular "newsie's" story; not a romantic tale of a treasure hunt, to be sure, but a strikingly practical one.—Charles Somerville in the New York World.

Miss Doris Fitt, who has been elected to the city council of Norwich, England, is a theatrical manager by profession. She is twenty-six years old and has the distinction of being the youngest woman town councillor in England.

May Be Official Home of Gotham's Mayor



Residence of the late Bishop Potter, at Eighty-ninth street and Riverside drive, New York, recently purchased for an unknown client, is believed to be the site chosen as the official residence for New York city's mayor. The building is of colonial design, and will, according to rumor, be presented to the city for use as the mayor's home.