Wonderful Things That are Near.

The Philadelphia Press says: "Flying is solved. The principle is known. A mechanical expedient is all that is now needed to make it successful. Practical flight is to-day not more than five or ten years off.

"A glowworm makes light with about one three-hundredth part of the force used in ordinary artificial light. When men know how to make light as cheap, streets and homes will be as light as day for a mere fraction of what light now costs. This is near. Vacuum illumination without incandescence is already in full operation, and in a year or two should cut down the price of light to a sixth of its current cost, and in five or ten years light in a city may be, like water, turned on in every house at will.

"Compressed air has long been known to be the best way, theoretically, to store force for use in transportation. There is no waste and no deterioration. The need is a cheap and efficient motor to apply compressed air to city transportation. If this can be done, first the trolley poles and wires will come down, next the horseless, air-compressed motor carriage will do all the work of city delivery.

"When these changes come the only use for gas will be for cooking—if this is not done by electricity. Factories, also, before many years, will be run by transmitted electric power. This has begun to be done and in five or ten years will be completed, and the factory fire and boiler will be a thing of the past.

"The city of the future, and no very distant future, will have no trolley poles or wires and no horses. All movements will be on rails by silent air motors or by horseless carriages equally silent. All pavements will be asphalt. Unlimited light will be as cheap as unlimited water is to-day. No coal will be delivered at private houses and no ashes taken from them. With no horses, no coal and no ashes, street dust and dirt will be reduced to a minimum. With no factory fires and no kitchen or furnace fires, the air will be as pure in the city as in the country. Trees will have a chance. Houses will be warmed and lighted as easily and cheaply as they are now supplied with water.

"A city will be a pretty nice place to live in when the first twenty years of the twentieth century are passed."

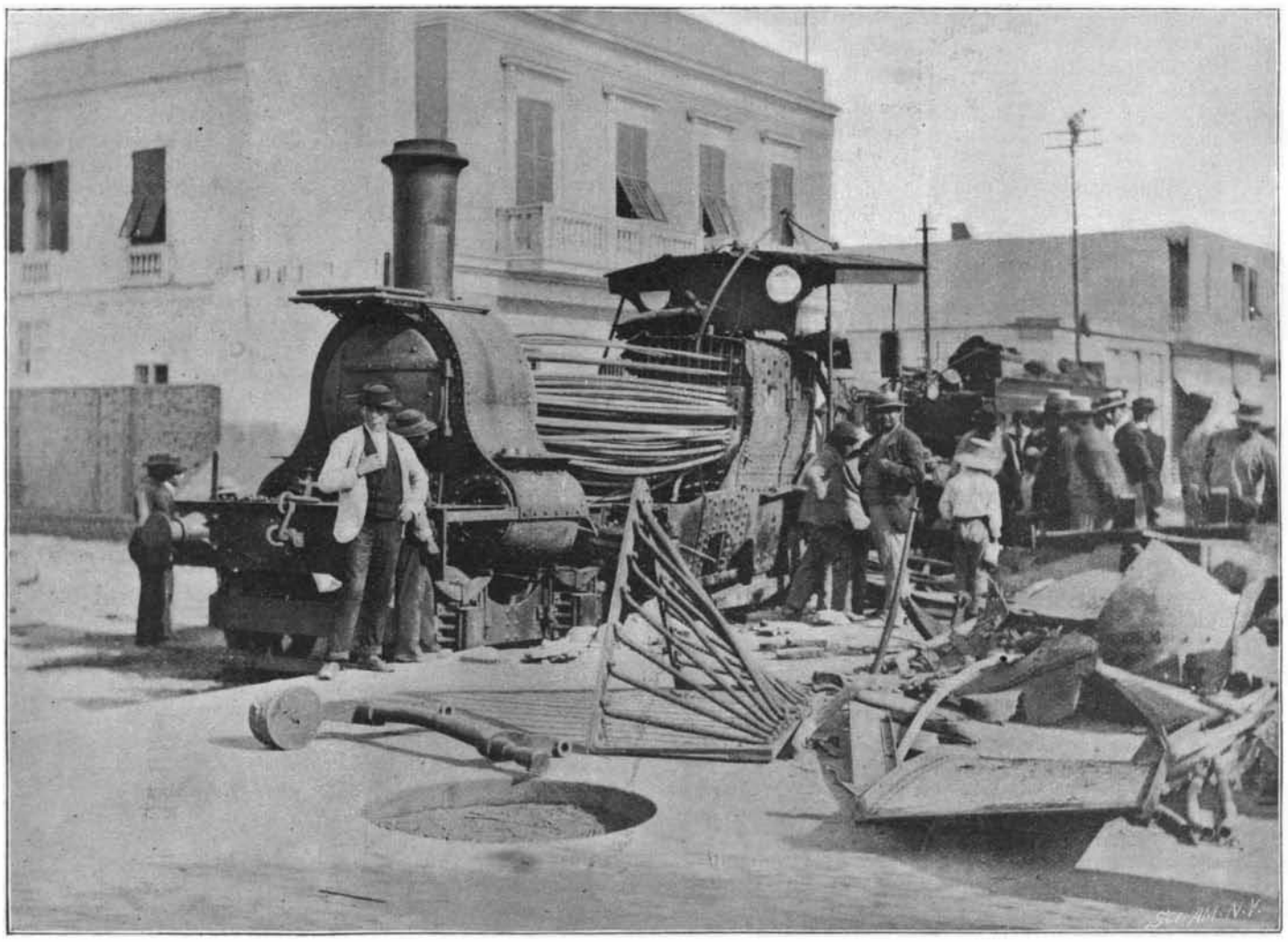
CURIOUS LOCOMOTIVE EXPLOSION IN PERU.

To the Editor of the SCIENTIFIC AMERICAN:

Thinking it may interest some of the readers of your paper, I inclose you a photograph of a locomotive after the explosion of her boiler; an accident which recently took place on the Lima and Chorrillos Railway on April 8. The engine, No. 13, of an up train, with some seven or eight well filled coaches, left Chorrillos at the usual time, apparently in good order, arriving at the station of Barranco ten minutes later, where a crowd of passengers awaited the train. On starting, the boiler burst, with result as shown in photograph. Some pieces of the wreck were thrown to a great distance, and the shock was felt at a distance of three miles. Although this occurred in one of the streets of the town, there were but two or three persons severely injured. Considerable damage was done, however, to the walls and windows of houses in the vicinity of the railway station. The engineer and fireman escaped with a few scalds. The boiler seemed to blow out from underneath, and it is very remarkable that so little damage was done.

The accident was undoubtedly due to low water, high pressure and sudden opening of the throttle on starting the heavy train. J. HOWARD JOHNSTON.

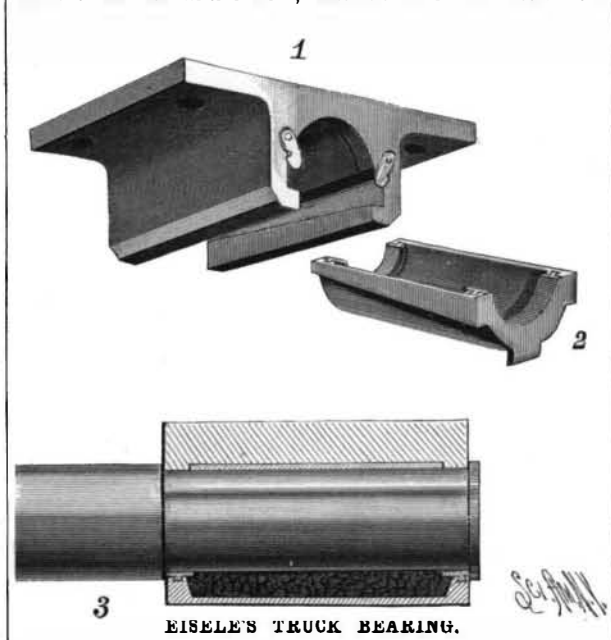
Lima, Peru.



CURIOUS LOCOMOTIVE EXPLOSION IN PERU.

TRUCK BEARING.

The improved truck bearing shown in the accompanying illustration has been patented by Mr. Stephen A. Eisele, of San Antonio, Florida. The bearing is formed in two sections, the upper half of which is bolted to the lower side of the truck, and provided with a semicircular recess, which is filled in with babbitt metal. On each inner side of the upper section near its lower edges are two tapered grooves, which receive suitable tapered ribs formed on the top outer edges of the lower section of the bearing. The lower section is semicylindrical in section and forms an oil cup. The taper of the grooves and ribs is formed on their lower edges, so that, when the lower section is slid inwardly into engagement with the upper section, the upper faces of said ribs will fit snugly against the upper walls of the grooves, thus forming a tight dustproof joint. The cup is held in position by lugs formed on the inner ends of the grooves in the upper section, and by the latches pivoted on the outer face of the same. Semicircular strips of babbitt metal are formed at the ends of the oil cup, and extend inwardly about half an inch, to prevent the oil from spilling over. It is evident that by swinging up the latches the oil cup may be drawn out and refilled without disturbing the upper bearing. It will be filled with some suitable absorbent material. The tight fit which is secured by the wedge action of the tapered ribs in the grooves, coupled with the strips of babbitt metal at the ends of the bearing and cup, provide an effective dustproof bearing.



EISELE'S TRUCK BEARING.

A grand-nephew of Jacquard, the inventor of the loom and the last of the family, has just died at Lyons, where he was a concierge.

How Best to Punish Little Folks.

In a recent number of Science, Professor J. F. Morse, of the Wisconsin University, in Madison, outlined a series of tests which he wants to have parents make with very young children, with a view to finding out the best way to secure respect for authority, and then a report of the result is solicited for comparison with similar statements. The collection of such information may at first seem a little absurd, for every intelligent observer of children knows that the latter differ so greatly in health, brightness, temperament and other qualities that no uniform plan of procedure would give the best results. One child must be managed in one way, and another in another, in order to secure the highest success. Nevertheless, if enough facts could be gathered, it might be possible to classify the little folks who had been examined, so that the best policy for each set could be pointed out. Parents and teachers might find a good summary of these experiments very instructive. A variety of expedients would be suggested, and one could try that which seems to have worked best in cases like those immediately at hand, provided that all others had failed.

Professor Morse suggests that most of these experiments be tried on children whose ages are between two and six. Various offenses are specified, like naughtiness at table, sauciness, taking a playmate's toy, misbehavior while the father has been away from home, and lack of cleanliness; and such punishments are suggested as sending away from the table, shutting up in a room, whipping or spanking, sending to bed without a goodnight kiss. The effect of each is to be carefully recorded. The attempt is to be made, too, to find out whether praise for good behavior goes further than censure for wrongdoing or neglect. And the possible influence of pretending to cry is to be watched. Professor Morse will send instructions to those who are willing to co-operate in this investigation, and asks people to send him their names and addresses for that purpose. He says: "The information secured in response to this request will be used in a general and statistical way without publication of names." Those who participate would be assisting in a cause of great value, and would be doing philanthropic service.

Improvements in the New Photography.

Some sensitized metal plates were submitted to the London Lancet by Mr. Strauss Collin, of Bush Lane House, Cannon Street, E. C. They have since obtained excellent results with these in the Lancet laboratory. They are developed in the ordinary way, using "rodinal" preferably as a developer, and fixed in the hyposulphite bath. Very thorough washing is the next step. The image which first appears on developing vanishes in the hyposulphite solution.

When the plate, after washing, is, however, placed in a solution of perchloride of mercury, the image reappears with great distinctness and with excellent detail. For medical work the employment of these plates offers undoubted advantages. Thus the thin sheeting upon which the sensitized film is spread may be adapted to any shape, and, unlike glass plates, is not easily fractured, so that it may be placed under the body of a patient without risk of breaking. Moreover, as will be gathered from the foregoing description of the process of development, a positive not unlike a ferrotype is at once obtained. The "tones" are good and the plates fairly rapid, the exposure we adopted in the case of the ankle being three minutes.