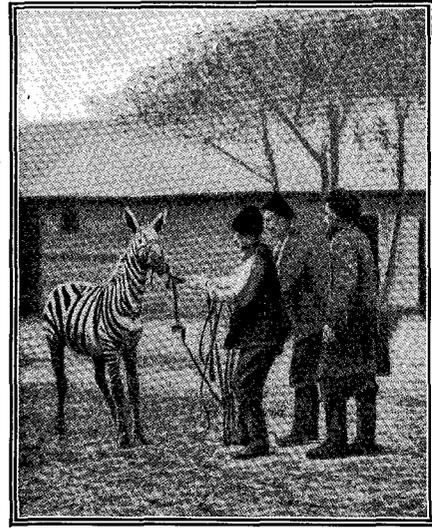


ground and their edges were hidden under the grass, but even then the dainty animals kept away, doubtless because of the odor of the natives who had handled the vessels.

"The result was that there were some deaths in the first days following the capture; certain animals persisted in refusing food and drink, . . . and some after long fasting began to eat gluttonously, dying of overfeeding.

"When the survivors had settled down, after about 15 days, the capture of individuals was undertaken, and they were shut up in stalls. This was not to the zebras' taste and they threw themselves against the walls, tearing off the skin, so that there were five additional deaths from this cause.

"Of the ninety zebras captured, only sixty were now left,



TRAINING A ZEBRA AT GAGRI, TRANSCAUCASIA.

but they were in good health and had become quite docile. They could be approached without their kicking or biting."

Apparently Lieutenant Nys's report stops at this point, the training of the zebras to harness being still in progress. As this training has now been accomplished a number of times, he will probably have little trouble with it. Mr. Regelsperger adds a few facts about the previous taming or training of zebras. In 1879 a young animal, whose mother had been killed in the chase, was tamed by Major Cambier, of the Belgian army. It followed him like a dog, but he seems to have made no attempt to train it to harness. Later, Dr. Paul Reichard of the German expedition of 1881-84 asserted in his report that the zebra was destined to render great service to Africa as a transport animal. He said that he had seen at Zanzibar a zebra that had been trained to saddle and bridle. In 1893 the German traveler Uechtriz saw a number of tame quaggas (a species of zebra) at Cape Town. He had previously seen a merchant in Namaqualand mounted on one of these animals. The writer goes on to say:

"Several persons have succeeded in training zebras and reducing them to perfect docility. Some circus managers have also had excellent results, exhibiting zebras, like horses, in various evolutions. Hagenbeck, the well-known dealer in wild animals at Hamburg, who has had many zebras in his establishment, declares that they are quickly tamed. It seems certain, then, that the numerous zebras that roam over the whole southeastern region of the African continent may be some day of practical use.

"The part of the Kongo where there are most zebras is certainly Katanga, where Lieutenant Nys is carrying on his experiments. These quadrupeds live in the grassy plains of that region, and do not appear to pass to the west of the Lualaba, while to the east they are found also in the prairies near Tanganyika and throughout the country between this lake and the east coast. They are often found living fraternally with antelopes.

"Major Cambier reports that along the east shore of Tanganyika the herds of zebras sometimes reach the number of 80 to 100 animals. In Katanga Dr. Reichard met in a single day about ten herds of 20 to 30 zebras each. Captain Lemaire, in 1899, several times saw herds of zebras in the same country. The mission of Lieutenant Nys will certainly make a great step toward the domestication of the zebra. These creatures can do great things in Africa, and, especially, their use will enable travelers to dispense with negro porters. As a material confirmation of the preceding, Mr. Martel sends us the accompanying photograph, showing the training of a zebra by him in 1903 at Gagri, Transcaucasia. At this place his Imperial Highness the Prince of Oldenburg has

attempted the domestication of several of the animals with a view to training them to the saddle."—*Translation made for THE LITERARY DIGEST.*

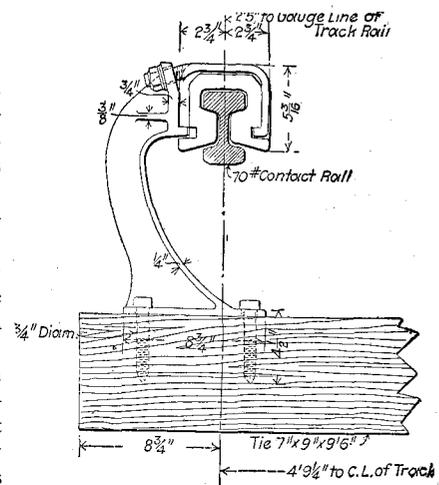
THE DEADLY THIRD RAIL MADE INNOCUOUS.

A HARMLESS third rail is promised the public by the New York Central road in its new suburban electric equipment. The deadliness is to be subtracted by the simple expedient of covering the rail, or rather of boxing it in, and making the contact from beneath. This plan has been tried successfully on an experimental section. Its manner of working is shown in the accompanying illustrations, taken from *The Street Railway Journal* (New York, September 2). Says this paper:

"The third rail, as shown, is supported every 11 feet by iron brackets, which hold the insulation blocks by a special clamp. The blocks, which are in two pieces, are 6 inches long, and are designed so as to be interchangeable. Experiments are now being conducted with insulators of reconstructed granite, vitrified clay, rubber, and indurated fiber to determine the relative advantages of these materials for the conditions. Between the supporting brackets the upper part of the rail is covered by wooden sheathing. This sheathing, as shown, is applied in three parts, which are nailed together. At the joints where the third rails are bonded, and at the feeder taps, the wooden sheathing is mortised. . .

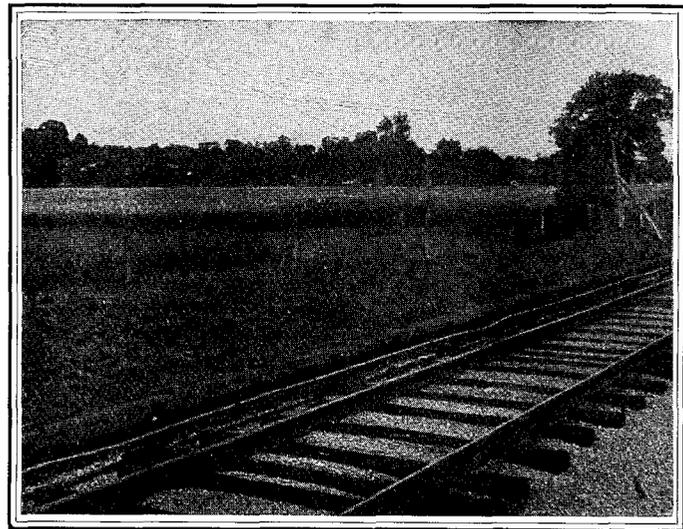
"The principal reason for adopting the under-contact rail is that it can be more thoroughly protected, and hence is safer than the ordinary type of contact rail. There are no projecting

live edges or bolts, and no slot between the third rail and its cover through which an animal or any person ignorant of danger can make contact with the live conductor. The only possibility of reaching the third rail is from below and by an upward movement, and this fact, it is thought, greatly decreases the chance of injury from shock. Other advantages which it is claimed are possessed by this arrangement over the ordinary type of third rail are: (1) There is less strain on the insulators, as the pressure from the shoe acts against instead of with gravity; (2) the board protection, having a continuous support, is less apt to crack and warp; (3) the rail is



Courtesy of "The Street Railway Journal."

SECTION OF UNDER-CONTACT THIRD RAIL.



Courtesy of "The Street Railway Journal."

EXPERIMENTAL TRACK NEAR SCHENECTADY, WITH TOP-CONTACT PROTECTED RAIL.

more protected from the weather, and hence less liable to corrode; (4) the contact surface is more thoroughly protected from sleet and snow; (5) the construction is self-cleaning, and as there is a much greater space between the lower portion of the third rail and the tie, there will be less danger of an accumulation of snow, ice, and rubbish, and consequently less leakage."

In an editorial notice the journal above quoted expresses the opinion that no little interest will be created in the railroad world by the decision of the New York Central to use this new form of third rail. It says:

"The under-contact third rail has been suggested before, but the system has never been worked out, or at any rate tried out, before. The principal objection which has been raised to this form of construction in the past has been the difficulty of designing a satisfactory system of switches and crossings, but this seems to have been more theoretical than actual. In other respects the system certainly possesses a number of advantages over the ordinary type of third rail, even with a protecting cover, and the adoption of the system by such a large corporation as the New York Central, and upon such an important scale as will be involved in this company's 'electrical zone,' promises to settle for all time the relative advantages of the two systems of third-rail contact."

VEGETABLE JUICES AND TUBERCULOSIS.

IT has recently been reported by Dr. John F. Russell, of New York, that he has successfully used the juices of fruits and vegetables in the diet of tuberculous patients. The wide announcement of this fact in the daily press as "a new consumption-cure" calls forth a word of protest from *The Medical Record* (New York, September 2). Says this paper editorially:

"Dr. Russell has not found a 'new cure' for consumption, nor even a 'new consumption-remedy,' as one of the medically sanest of the metropolitan papers labeled it, nor do we believe that he would authorize such a designation. He has simply found what may prove to be a useful adjuvant in the therapeutic management of this disease, and only harm can come from calling it a cure or even a remedy. He has for some time been treating tuberculosis along the recognized lines of hypernutrition and fresh air and has met with a fairly satisfactory measure of success in a class of patients to whom the sanatorium treatment is not available. Meeting, however, with certain cases of the apparently curable type in which ill success attended his best efforts, he was driven to the conclusion that there was an unknown something lacking in the prescribed diet of proteids, hydrocarbons, and carbohydrates, the want of which retarded or prevented the cure. This unknown something he was led to believe, by some process of reasoning which the published report does not explain, to be vegetable juice. The lack was supplied by the addition to the diet of the expressed juices of all the vegetables in the market and also of apples and pineapples."

That this addition to the dietary is theoretically sound is acknowledged by the writer, who quotes from Fernie's book, "Meals Medicinal," the statement that the constitution of vegetable foods is "altogether of a building-up character, as distinguished from animal life (which involves excretions of the broken-down products as part of its being)." It is possible, he thinks, that the raw vegetable juices may be just what is needed to insure assimilation of the proteids, carbohydrates, and fats contained so abundantly in the dietary ordinarily prescribed for the consumptive. To quote further:

"Dr. Russell claims (or is said to claim, in the newspaper reports) to have had eleven 'cures' of pulmonary tuberculosis since January 7, when he began to add vegetable juice to the dietary of his patients. We hope he did not really make such a claim, for it is only a wild optimist who would pronounce any consumptive cured in six months, and an assertion of this sort only throws discredit on the reasonableness of the one who makes it. The patient may have taken on flesh, the cough and fever may have ceased (temporarily), and the tubercle bacilli may have disappeared for a time from the sputum—but a 'cold' may bring them all back next

week. It is claims such as this, made by physicians, which justify the headlines of the lay press in announcing the discovery of infallible cures, and raising false hopes in the minds of the incurably ill. It is possible, and we hope it is true, that Dr. Russell has discovered an aid to assimilation which will be an adjuvant to the recognized methods of treatment of tuberculosis, but that is the most that can be tentatively admitted, and even that remains to be proved."

THEORIES OF THE UNIVERSAL ETHER.

THAT scientific men should spend not one, but many lifetimes in trying to work out the mechanical constitution of a substance whose existence can not be demonstrated by the direct evidence of any of the senses, is certainly a striking fact. The reasons why they feel obliged to do this, and the degree of success that has been reached, are stated in the following editorial paragraphs in *The Electrical World and Engineer* (New York):

"The universal ether has never possessed any experimental right to exist. No one has ever yet seen, felt, or tasted it. It is probably correct to say that there is not a single observation or recorded experiment which brings the ether home to our senses as ether. Nevertheless, we all believe that it exists, because our minds can not grasp action across a void, and in order to make our mental conceptions work, we are obliged to create a something out of nothing. We can not imagine, for example, that the sun's light, which we know by observation takes about 500 seconds to reach our planet, 'does time' in empty space, or spends these 8 minutes in nothing—doing nothing. Again, the space within a highly exhausted glass tube can not, in our minds, be regarded as empty of everything; for if we place the tube inside an electrically excited solenoid, we can ascertain that magnetic energy exists in the tube. 'We are unable to think that magnetic energy can exist in nothing. To meet these and numerous like difficulties, the ether has been invented."

"Once having adopted the ether, its duties develop at an astonishing rate. It has to fill all space, or stretch out to infinity in all directions, without any holes or blank cavities. It must permeate all substances to the innermost, more thoroughly even than water permeates a submerged sponge. The motion of matter must give rise to no displacement in the permeating or environing ether. The ether must be capable of absorbing electric and magnetic energy, and of transmitting gravitational stresses. Electromagnetic energy must be propagated through it at a uniform and definite speed. All of these properties must be everywhere the same—to ranges of billions of miles, so that the ether in which the earth floats next year must be, within measurable limits, identical in behavior to the ether in which the planet floats to-day, for the entire solar system is supposed to shift its position in space by half a billion miles per annum. It must be admitted that an ether which can do all this is a very remarkable entity. Speculations as to what it can be like have been ripe for many decades. Some estimated that it was jelly-like. Others preferred to suppose it made up of distinct grains like extremely small shot. The astronomer wanted one kind and the electrician wanted another. Some scientists postulated for it a rigidity much greater than that of steel, together with a tenuity much below that of the rarefied gases in a Crookes tube."

The occasion for these remarks is a paper contributed to *The Journal of the Franklin Institute* (Philadelphia, July) by Prof. W. S. Franklin, in which the writer discusses the propagation of electric waves on a theory of the ether propounded many years ago by the English physicist Clerk Maxwell. Maxwell supposed the ether to consist of contiguous spheres that rotated one upon another like cog-wheels, and from this hypothesis he deduced very ingeniously many of the properties described above. Professor Franklin finds that this theory helps to account for the behavior of electric waves over wires. Unfortunately the theory is merely a mechanical symbolism, which aids the mind in understanding, without professing to represent, actuality. Is it permissible to use such a theory? The writer in *The Electrical World and Engineer* believes that it is. He says:

"It may be permitted any honest man to doubt the existence of