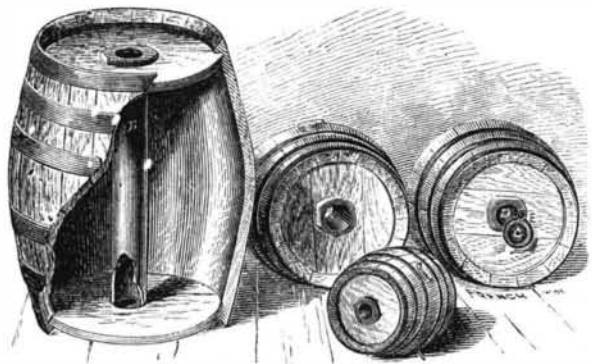


HOFFMAN'S IMPROVED BEER CASK.

The object of this device, which is intended for the use of brewers' uses, is to provide a simple and effective mode of rapidly cooling beer. A metal tube extends from end to end of the cask, and is fastened to the heads. The ends of the tube are secured and closed by means of adjustable taps or are pivoted to rings or a box which incloses the ends of the tube. The device is readily and cheaply applied to casks and barrels now in use.

Among the advantages claimed are that the tube gives great resisting force to the barrel, and that the tube may be



charged with ice, thus causing the beer to keep in good condition.

Patented July 10, 1877, by Mr. John Hoffman, Toledo, Ohio, who may be addressed for further particulars.

ELECTRICAL APPARATUS TO INDICATE OVERSTRAIN OR WEAKNESS IN BRIDGES OR OTHER STRUCTURES.

This invention relates to certain means of obtaining a prompt indication of the unsafe condition of such structures as bridges, roofs, etc., when such unsafe condition is caused by overloading or undue or excessive strain of any member or of the whole structure, or by derangement of parts at joints or connections, or by any change of condition, either sudden or gradual, from that under which the structure was designed to serve.

In the case of a bridge, for instance, the various members of which are subjected to either tensile or compressive strain the several proportions of such members are so adjusted as to afford a determined margin between the ultimate breaking load or strain and the greatest load or strain to which such member is intended to be exposed under traffic or use. This margin may be reduced by various causes, as the passage of an excessive load, a sudden jar produced by slight obstructions to, or perhaps partial derailment of, wheels, breaking of flanges, etc., or within the structure itself, loosening of rivets, gradual weakening of the member under frequent repetitions of the load, imperfect workmanship, flaws in the material or errors of calculation not apparent at the time of erection. Such lessening of the margin of safety need not be fatal to the structure, provided it can be detected and suitable remedial measures promptly adopted and the originally designed margin of safety obtained.

In the case of members exposed to tensile or compressive strain no permanent injury will result until the limit of elasticity of material is exceeded. Indication of overloading will be recorded before this limit has been reached.

In the case of dislocation or derangement of parts, as the slipping out of position or shutting by of butted joints—as in upper chords, or vertical posts, or oblique struts—in all such and in all similar or analogous cases, it is the object of this invention to furnish a ready means of obtain-

ing a direct indication that such overstrain or derangement has taken place, although no permanent set or immediately apparent evidence may have been left upon the member or structure itself.

The invention consists in attaching upon each member of the structure an insulated wire or conductor, as shown in the cut, so arranged that an electric circuit may be made or broken, by any convenient mechanical means, by the abnormal condition resulting from the excessive strain or dislocation of parts, from whatever cause it may arise, through which a motion either in the substance of the member itself or between contiguous and adjoining members has taken place, the closing or rupture of the circuit to be indicated by an annunciator, operated by the electric current from a battery through electro-magnets suitably arranged, the armature of the magnets being so adjusted that, as in the case of hotel call-bells, a number or indicator shall be exposed, said

number to indicate a particular part or member of the structure.

Patented through the Scientific American Patent Agency, July 10, 1877, by John Forbes, of Dartmouth, Nova Scotia.

Amber and Antiquities under Berlin.

The streets have been torn up recently in Berlin, Prussia, for the purpose of putting down a much-needed system of drainage pipes. These excavations, although not nearly so deep as the New York sewers, are unearthing various curiosities, and may contribute something to the geology of that ancient city. According to the *Berliner Fremdenblatt*, a considerable quantity of amber has been found in one of these excavations, in Alexandrinen Strasse. One piece, which was shown to the editor of that paper, was as large as a hen's egg.

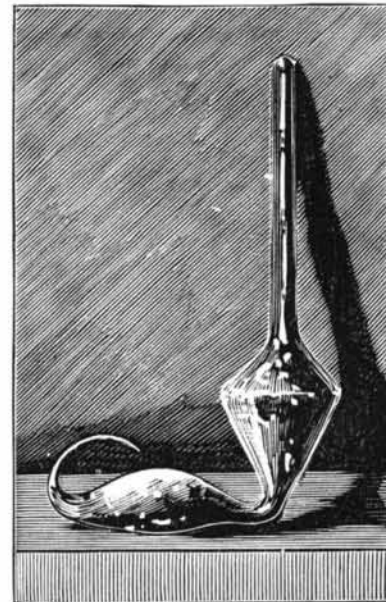
The result of this discovery has been the issue of a circular by the city magistrate Duncker, addressed to the officials and overseers of the work, in which he states that the work of sewerage the inner portion of the oldest part of Berlin offers an excellent and most desirable opportunity to become acquainted, to a certain extent, with the soil and ground on which the ancient towns of Berlin and Kœlln were built, such as has never before been offered, and may never occur again. In very ancient times two fishing towns named Berlin and Kœlln occupied the spot where the modern Berlin stands; the latter of these has been mentioned as long ago as 1237, the former in 1244. The magistrate, therefore, instructs the officers in charge of the work to observe, first, the layers of earth, and second, to note any articles found which seem calculated to throw light on the state of civilization of early times, and to collect such articles and send them to the museum, in Kloster Strasse, 68. In regard to the artificial soil they are to note whether it is clay, sand, loam, peat, stone, refuse, or the like, and to note what utensils of metal or pottery are found therein. Bones and other remains of animals and men, indications of old walls, pile works, wells, etc., are to be observed. The character of the natural earth beneath the loam and accumulated artificial soil is also to be stated. A table accompanies the circular showing to what articles the attention of the workmen is to be called. The laborers also receive suitable instructions in the circular. Finders of coin and other articles of value will be paid a suitable reward.

Another of the curiosities already brought to light in these excavations is a dozen wooden coffins found in the Spittel Markt (Hospital Market), near Niederwall Strasse. They were piled one on the other, three deep. These coffins do not date from prehistoric times, but possess a respectable antiquity of at least 260 years. The spot was once used as a potter's field, but has not been used since 1620. Notwithstanding their age, the coffins and the bones in them are per-

If these coffins originally contained the bodies of paupers, it may be asked why they were so carefully prepared with tar and lime. If, however, they held the corpses of persons that had died of contagious diseases, may not this have been done as a precaution to prevent a spread of the disease?

Wine 1,600 Years Old.

We do not often drink wine that is 50 years old, less frequently that which has celebrated its centennial, and wine of

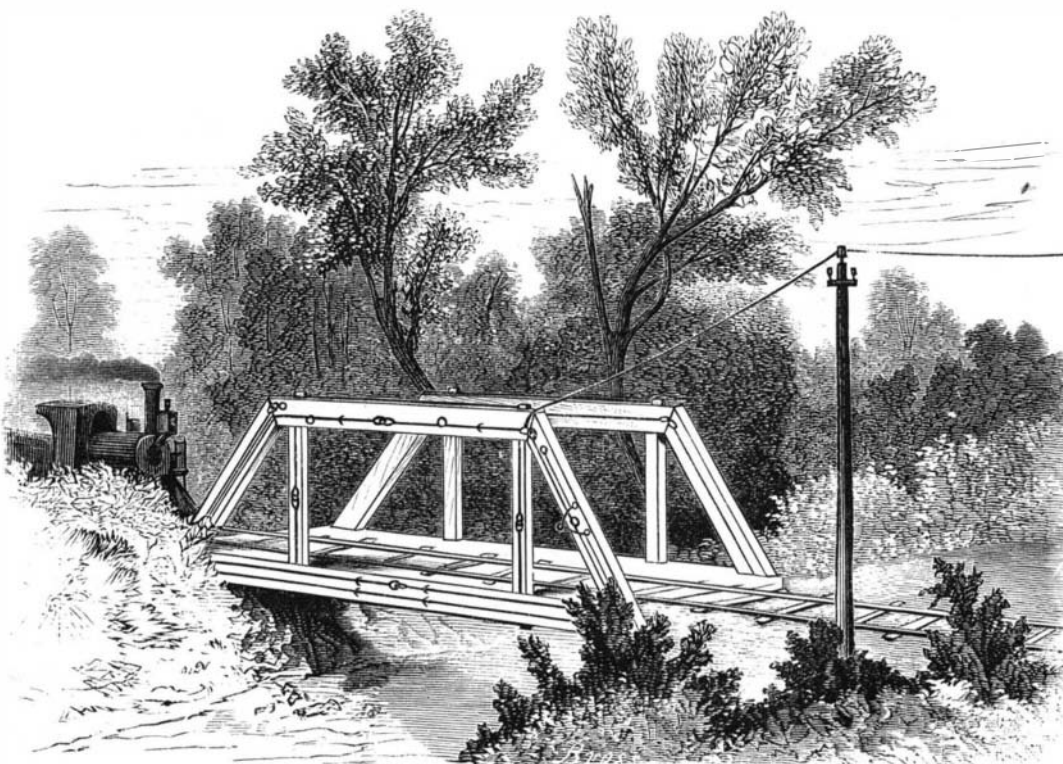


200 years age is an absolute rarity. In the famous Kathkeller at Bremen the visitor is shown casks of wine of wonderful age, and looks with admiration on the cask labelled 1624. The celebrated French chemist Berthelot recently had the pleasure of exhibiting to his colleagues in the French Academy of Sciences some wine about 1,600 years old. He had even succeeded in separating the alcohol from this wine, so that the assembly could see alcohol of 1,500 or 1,600 years age. The color of this ancient wine is not very tempting; in taste and smell it is not remarkable, and it is doubtful if a connoisseur would be pleased to find it on his table.

Berthelot spent the month of May in Marseilles, and while there visited the Borely Museum. His curiosity was excited by a glass vessel which was sealed up and contained some liquid. What kind of a fluid could it be? The Professor obtained permission from the Mayor of Marseilles to open the vessel and take the liquid with him to Paris. The total quantity was only 35 cubic centimeters (about 1 fluid ounce or wine-glassfull). The liquid is genuine wine, is of a brownish color, and contains, in suspension, a solid substance, which does not form a sediment; the odor is decidedly vinous, with a very perceptible aroma, and reminds one of the taste of wine which has been boiled in contact with fatty substances, or, if you please, of sweet apple wine. The taste is strong and hot on account of the large amount of alcohol, together with acid and a trace of some aromatic substance. The coloring matter had almost entirely disappeared already; and only a trace of sugar was found in the wine. The percentage of alcohol corresponds to that of a weak wine; the proportion of acid is almost normal. This is probably the first time any one has handled alcohol of such age. The liquid had kept thus long because it was hermetically sealed up in a glass vessel—a very uncommon occurrence. The tube which held the wine was blown out like a hanging lamp, and after being filled with wine was very neatly melted together,

just as it would be done to-day in our blowpipe flame. The composition of the glass itself indicated a great age, and like all antique glass was rich in potash and poor in lime. This tube was found at Aliscamp, near Arles, on a broad plain which had been used in the time of the Romans as a burial or funeral place; a farmer who was plowing unusually deep brought it to light. The antiquarians are inclined to the belief that there was once a glasshouse at Arles which produced very fine workmanship. The glass tube was made on French soil, and probably reaches back to the first occupation of Gaul by the Romans.

In regard to the motives which led to the wine being so carefully sealed up in a glass tube, Berthelot thinks that it may be attributed to some religious ceremony or offering to the spirit of the departed. The place where it was found, "Campi Elysei," a burial place that was examined long ago, adds another argument in favor of this view.



ELECTRICAL APPARATUS TO INDICATE WEAKNESS IN BRIDGES, ETC.

fectly preserved, and in some of the coffins pieces of the clothing still remain.

Professor Virchow is making a thorough investigation of this curious circumstance. He expects to find out the substance with which the wood is saturated and which has protected it from action of the soil. The wood appears to be young oak. The separate planks are 3 centimeters (1 1/2 inch) thick, and covered outside and in with a thick coat of tar; besides, the coffins seem to have been a layer of lime on the inside. At present the wood is so hard that the workmen have already broken several axes and saws upon it. The planks are held together by large wrought iron nails, which differ essentially in form from those in use at the present day. They are 8 cm. (3 1/4 in.) long, 4 cm. (1 1/2 in.) wide, and 2 cm. (3/4 in.) thick. On the broad side of the nail is a peculiar furrow running its whole length, which may probably have served to impart to the nail greater power of holding on.