woodwork had been entirely burnt away, and a mere shell of brick walls remained, threatening to fail at any moment and bury the firemen beneath it. Fortunately when the critical moment came all were out of harm's way. The wall shivered, tottered, and fell with a thundering crash upon a neighbouring roof, under which was clustered a little group composed of firemen and the usual hangers-on. By three o'clock the fire was completely extinguished, and the men returned home.

The loss, which was very great, has been variously estimated. The Gazette places it in the neighbourhood of \$15,000. In addition to the thirty-four horses burnt, several carriages, with harness, and a quantity of fodder were destroyed. The stables were insured in the North British for \$3,500.

IMPORTANT ADVANCE IN PAPER-MAKING.

The Arbeitgeber describes, under this heading, an invention of a German chemist, Ungerer, in manufacturing paper from wood. In changing the wood into its fibres in a mechanical way, much power is demanded; and, moreover, the material must also be ground up, whereby it loses much in durability. Hence, for a number of years repeated attempts have been made to effect this in a chemical way by many persons, notably, Adamson, Keegan, Deininger, Broad, Sinclair, and Tessié du Mothay. Only the two last have met with practical success. The method of Sinclair has been introduced in several places, and produces a better and cheaper material than before ob-

tainable, a little cheaper than Mothay's. All these processes demand the use of very high pressuresup to 14 atmospheres—with the action of strong soda solution. The weak points are the high pressure and the necessity that the material must still be ground, and therefore injured more or less. But Ungerer seems to have overcome both difficulties. He uses a pressure of only 5 to 6 atmospheres, one-half the amount of soda, and only one-fifth the amount of chlorine. The following table gives a comparative view of both methods for producing 1,000 kilogrammes of dried bleached material :

UNGERER.			SINCLAIR.		
2,250	kilo.	wood.	2,250	kilo.	wood.
212	**	soda.	562	"	soda.
128	"	chemicals.	750	и	coal.
900	и	coal.	250	"	chloride of lime.
50	"	chloride of lime	».		

There seems to be some mistake in regard to the respective amounts of coal. Sinclair using only 750 kilo. for his much

greater steam pressure ; while Ungerer uses 900. The importance of these inventions is easily understood from the statement that the cost of producing the wood material is reduced nearly one-third by the methods of Sinclair and Tessié du Mothay, and fully one-half by that of Ungerer. This has such an effect, that Belgian factories are able to depress considerably the prices on the Rhine, notwithstanding the import duty of 2 florins. A large company has been formed in Vienna, to introduce the process of Tessié du Mothay: another for Ungerer's method; and a third for a third patent. The claims of superiority over other methods [especially

those of Sinclair, du Mothay, etc.], made by Ungere, are:---1. Simplicity and cheapness of method; 2. Less steam pressure; 3. Less soda and chloride of lime; 4. Nearly complete regaining of the soda [98 per cent. against 70]; 5. Economy in power, there being no grinding; 6. Greater strength of manu-factured material.

SCIENCE NOTES.

A paradise for geologists is being opened up at Arapahoe station, on the Kansas Pacific, where a well digger, now at the depth of four hundred feet, has been for several days penetrating beds of fossil shale, filled with baculites, ammonites, and a general variety of creatures with long names. Two hundred feet above he passed through a thick oyster bed, and at the depth of 389 feet took out the upper jaw of a reptile with tusks an inch in length.

Two years ago, says F. Barillet, one of my friends, who was suffering from toothache, thought he would try the effect of cutting a piece of the stem of the Araucaria imbricata, and taking some of the sap (resin), which has the appearance of a white paste, and which is compact; he made a little ball of it, which he placed in the hollow of the tooth. Some hours afterwards the pain ceased, and the substance which still remained in the tooth answered all the purposes of the best stopping. Since that time the sap (resin) has become very hard, and not only has it never moved, but my friend has not since experienced the least pain.

A WONDERFUL SEAWEED.—The Agassiz expedition, at the latest accounts, was off Sandy Point, Patagonia. Among the scientific curiosities noted by some members of the party were immense quantities of kelp, the "Microcystic pyrifera." This is the largest known alga or seaweed, and grows on these coasts in from six to twenty fathoms of water, in vast beds, warning the mariner to beware of a near approach, unless he wishes to be entangled in the inextricable network. It throws up from the oceanic depths stems of immense lengths, some of them from seven hundred to one thousand feet, the greatest vegetable race now in existence. Patches of this seaweed were passed in open sea, with large sea lions lying on its surface, who were apparently navigating in this novel manner with much satisfaction to themselves. and afforded much amusement to their scientific observers.

A flower has been recently described by an evewitness at Constantinople, which is so great a rarity that one is apt to treat it as a fable, and wait for the confirmation of his own eyesight. It belongs to the narcissus kind of bulbs, and bears the name of ophrys mouche. There were three naked flowers on the stalk hanging on one side; the underneath one was fading, while the two others were in all their beauty. They represented a perfect humming-bird. The breast of bright emerald-green is a complete copy of this bird, and the threat, hard be been an experimentation of the birds of the bi head, beak, and eyes are a most perfect imitation. The hinder part of the body and the two outstretched wings are bright rose colour, one might almost say flesh coloured. On the abdomen rests the whole propagation apparatus, of a deep dark brown tint, in the form of a two-winged gad-fly.

A NOVEL APPLICATION OF PHOTOGRAPHY -The applications of photography are certainly very various. One of its most recent uses as pointed out by the Journal of the Photographic

Society, has been to aid army tailors in cutting the new-fashioned tunics which are to be worn this year by all regiments. Formerly it was the custom to forward to each master tailor of every regiment a pattern coat, showing the alterations to be made, together with instructions as to the manner in which the lace and trimmings varied in the uniforms for the different grades. Such a proceeding was necessarily a costly one; for probably some two hundred pattern tunics were required for transmission to every batalion in the service. Instead of this, but one garment of each sort has been made; and this having been photographed in three different positions, copies have been distributed throughout the country. In this way, of course, every information is afforded to the regiment, without any great expense being incurred.

PHOTOGRAPHING THE PULSE .- The ingenious apparatus invented by Dr. Ozanam, of Paris, for rendering the variable beating of the pulse visible, is already proving itseif of practical value. It consists of a camera lucida, about ten inches wide, in which a piece of mechanism, moving at a uniform rate, pushes a glass plate prepared with collodion, in front of a very narrow aperture exposed to the light. In this aperture is a glass tube, in which a column of mercury may rise or fall, as in a thermometer. By attaching to the wrist a rubber tube filled with mercury, in connection with the tube of the apparatus, the beating of the pulse is received on this artificial artillery, and the pulsations are transmitted to the recording apparatus. As the column in the tube acts as a screen, light can penetrate the aperture only where the column is deficient; consequently the plate becomes black under the influence of light except at such places as the column intercepts it. As the column rises and falls with each pulsation of the heart, these black lines on the prepared plate, pushed regularly forward, will be longer or shorter alternately, and will be successively photographed as being lines perpendicular to a common base, the heart being thus made to register photographically its own pulsations. These photographic representations can be so magnified as to be rendered visible across a large amphitheatre; and such is the peculiarity of the apparatus, in its adaptation to different uses, that it may be modified so as to register the variations of respiration, the irregular action of coughing, and similar physiological and pathological phenomena.

MISCELLANEOUS.

Boston likes noise when it is termed music only. She offers a prize of \$10,000 to any one who shall, within two years from January 1, 1873, invent a system of signals to supplant the use of steam whistles on railroads, which shall be pronounced by judges to be free from the evils of the present system, and to be attended with no discomfort to passengers on the trains, or on the highways, or to residents along the lines of the railroads.

As an illustration of what stuff Englishmen drink under the wild idea that they are stowing away fine old crusted port, Frank Buckland related at a meeting the other day, that last summer, just before the autumn manœuvres, he was out in Berkshire, and stopping at a country inn for refresh-ment, he waited some time without seeing any one to serve him. On asking the reason, he was told that the landlady was engaged in making port wine for the Berkshire volunteers.

CHANCES WITH DICE .- Mr. Steinmetz tells us that in 1813, a Mr. Ogden wagered one thousand guineas to one that "seven" would not be thrown with a pair of dice ten successive times. The wager was accepted (though it was egregiously unfair), and strange to say his opponent threw "seven" nine times running. At this point Mr. Ogden offered 470 guineas to be off the bet. But his opponent declined (though the price offered was far beyond the real value of his chance). He cast yet once more, and threw "nine," so that Mr. Ogden won his guinea.

An interesting episode occurred at Paignton, (Devon, Eng.) on Whit-Monday, when the Good Samaritan Lodge of Odd Fellows were holding their fete. Mr. Singer, (the inventor of the Singer Sewing Machine), passing the field where the fete was keld, noticed a crowd of poor people outside looking very wistfully at the amusement going on inside the enclosure. He called some of the committee together and offered them £10 if they would throw open the gates for free admission during the remainder of the evening. The proposal was ac-cepted, the money paid on the spot, and the outsiders entered the grounds, giving hearty cheers in honour of their benefactor.

"Now, children," said a School Board luminary, who had been talking about "good" and "bad" people, and trying his London horatory on a provincial school—" now, children, when I am walking in the street I speak to some persons I meet, and I don't speak to others; and what's the reason?" He expected the reply would be, "Because some are good and some are bad," but to his discomfiture, the general shout was, "Because some are rich, and others are poor!" He was not daunted by the gigzle of the should-be oor !" He was not daunted by the giggle of the should-be admiring visitors," but continued, "Where is this school poor !" situated ?" A. "In Rum-d-." "In what county ?" "Zum-merset, in England, Europe," said the smartest boy. "And how, in the absence of globes, do you illustrate the shape of the earth, my boy ?" "I shows 'em my head," was the reply.

Archdeacon Denison, at a visitation lunch a few days since, referred to his well-known repugnance to Government school inspection. One of Her Majesty's inspectors proposed to come to his (the Archdeacon's) schools twenty-five years ago. He said to the inspector, "I love you very much; you are a very nice man; but as sure as possible, if ever you come here I'll tell the boys to put you into the pond." The gentleman did not go, and was a very wise man for not going. The next school inspector who went to his school asked particularly whether the children sang; and Mrs. Denison, who came up at the time, told the children to sing "Goosey, goosey, gander," and whether the inspector thought it was a cut at him or not, he never went again.

The Glasgow Herald announces the arrival lately at Green-ock by the Anchor Line steamer "India" of the Chief Bukkwujjene, which signifies the "Man of the Desert." The man was dressed in the full costume of the Chippewa tribe, to which he belongs, namely, skins, feathers, &c. He is described as

being tall and handsome, with a frank but thoughtful face, and appeared to be about thirty years of age. It is understood that this chief, who proceeded immediately per mail train to London, has been converted to Christianity, and has been brought over to England under the auspices of the Church of England Missionary Society, in order that he may be instructed in Christian truth fitting him to return as a native teacher and preacher among his tribe in the backwoods of America. A more appropriate lodging for a "Man of the Desert" cannot be found in the whole world than Leicester Square, London, though whether he would receive much Christian truth in that loca-lity is another question. If he would send for his tribe and encamp there permanently, a picturesque effect might be produced at a very trifling outlay.

FIREPROOF BUILDINGS .- If you will have wood floors and stairs, lay a flooring of the thickest sheet iron over the joists, and your wood upon that and sheath your stairs with the same material. A floor will not burn without a supply of air under Throw a dry board upon a flat pavement, and kindle it as it lies if you can. Prevent drafts, and, though there will be fires, no houses will be consumed.

STAINING HORN .- Horn may be stained by being immersed in a solution of nitrate of silver, and then exposing it to sunlight. Or it may be steeped in a hot dilute solution of bichromate of potash, and then in a decoction of logwood.

The Missouri Democrat being threatened with a libel suit, damages at \$50,000, for saying Mr. Collard was worth \$5 to any political party, has made a retraction. It says: "Mr. Collard is not worth \$5 to any political party: he is not worth a d-ollar."

W. W. Brown, editor of the Bellefonte Republican, gravely informs his readers that it was not he who was nominated for Vice President at the Cincinnati Convention.

CHESS.

1997 Solutions to problems sent in by Correspondents will be duly acknowledged.



(a) P. to Q. B. 4th seems to us the move here.

(b) This move is frequently a turning-point in favour of the defence. (c) Kt. to Q. Kt. 5th looks promising, as the Kt. might afterwards be strongly posted at Q. 6th.

(d) This seems to be an oversight, for Black might apparently take the K. B. P. with safety.

(e) Black's position seems slightly preferable.





White to play and mate in two moves.

SOLUTION OF PROBLEM NO. 52. White. Black. 1. R. to R. 5th. 2. R. takes P. ch. 3. B. mates. P. to R. 3rd P. takes R.



At Quebec, on the 26th of June last, Louis Edward Duncan, aged 22 years and six months, second son of P. L. Morin, Esq., Civil Engineer