the lines of the screws at the hinges. These doors would undoubtedly have fallen earlier had they not been open a great portion of the time during the fire.

The heat of the fires apparently exceeded that of an ordinary burning building.

Among the principal facts established at this test, the committee conducting the experiment, consisting of C. J. H. Woodbury, C. M. Goddard, and D. L. Lord, wish to call attention to the great resistance to fire afforded by the solid plank construction, the walls being in themselves adequate to prevent the spread of a fire until it has reached a quite large extent; and such construction should in many instances be used in place of ordinary joisted partition. While it is not claimed that such solid plank partitions are equal to a brick division in resistance to fire, yet there are many places where the difficulty of supporting a brick wall would render such a division out of the question, and yet a plank partition could be placed as readily as one supported on joist.

The porous terra-cotta lumber and the Eastern plaster board both presented a high resistance to heat, and were unaffected by exposure to the fires.

The secure bond of the wire lath, especially when re-enforced by band iron, proved the value of this material in securely holding plasters when exposed to fire.

The magneso-calcite proved its value for re-enforcing tinned fire doors and shutters, resisting the fire, and yielding only when the material to which it was attached fell.

The King's Windsor cement dry mortar resisted the fire in a most efficient manner when the support of the back remained, and, moreover, did not crumble as a result of heat or of streams of water played upon it when hot, as was the case with the ordinary lime mortar.

NOTES AND NEWS.

THE difficulty of keeping Irish potatoes in edible condition after March 1 is well known to Southern housekeepers, farmers, and merchants. Professor Schribaux of the National College of Agriculture of France has recently devised a very simple, cheap, and successful method by which he has been able to preserve potatoes in edible condition for over a year and a half. This process has been adopted by the French government for preserving potatoes for the army. The French Minister of Agriculture publishes the details of the process in the official *Bulletin du Ministére de l'Agriculture* for March, 1891. The following is a translation of the essential part of the scheme. The method of preservation consists in plunging the tubers, before storing them away, for ten hours into a two per cent solution of commercial sulphuric acid in water, two parts of acid to 100 parts of water. The acid penetrates the eyes to the depth of about one-fortieth of an inch, which serves to destroy their sprouting power; it does not have any appreciable effect upon the skin of the potatoes. After remaining in the liquid ten hours the tubers must be thoroughly dried before storing away. The same liquid may be used any number of times with equally good results. A barrel or tank of any kind will do for the treatment. The acid is so dilute it does not affect the wood. Chemical analysis shows that potatoes treated by this process are as nutritious and healthful after eighteen months as when freshly dug; but they are of course worthless for planting. Attention is called to this method by Gerald McCarthy, N. C. Experiment Station, Raleigh.

— Dr. B. A. Gould, president of the American Metrological Society, writes from Germany that at the quinquennial session of the Geographical International Congress held in Berne Aug. 10–17 there were about 280 delegates and representatives from all countries. At this congress was passed the following resolution on Aug. 14: "The Geographical Congress entreats Englishmen of science to desist in future from the use of their ancient units of weight and measure in scientific and technical publications, and to employ those of the metric system only." This resolution was passed with immense enthusiasm; the applause and cheering lasting for nearly five minutes, and the vote was unanimous. In connection with this the American Metrological Society has prepared a petition asking Congress to pass the following act: "That on and after July 1, 1893, the metric system of weights and measures authorized by the act of Congress approved July 28, 1866, shall be used exclusively in the customs service in the United States." This petition they desire to circulate widely among those desiring to sign it, and they ask each signer to mail it to his representative in Congress. The American Metrological Society has prepared a simple chart of the metric system which, for educational purposes, it will mail to any one asking for it for 10 cents in stamps. Address Secretary of American Metrological Society, No. 41 East 49th Street, New York City. Copies of the petition can be had at the same address.

— Dr. Wiesendenger describes a new method of producing anæsthesia by the application of cold, the characteristic feature of which is that it is not the cold-producing agent which touches the desired part, but a metallic tube or chamber which is cooled by carbonic acid. The cold may, according to the requirements of the case, be regulated from the temperature of cold water to one sufficiently low to cauterize. The first symptom of this artificial cold is anæmia of the cellular tissue, producing a slight sensation of burning, which is followed by anæsthesia, which lasts from one to two minutes and then disappears without any ill effects. As the instrument may be manufactured of almost any shape, it is evident that this new method may be used for a variety of purposes. The simple turning of a tap will regulate the stream of carbonic acid to any degree of temperature down to four degrees Fahrenheit. No moisture is produced. In using this cold for the purpose of cauterizing the surgeon has the advantage of producing anæsthesia at the same time. When applying it to any of the internal cavities, such as the mouth, it is necessary to have the parts carefully dried, as the tissues would otherwise adhere to the instrument. Dr. Kummel applied the method, according to *The Lancet*, in the case of a boy in the Maria Hospital at Hamburg with such complete success that the boy looked on without moving a muscle while a deep incision of twelve centimetres in length was made in his thigh.

— The hospice of the great St. Bernard (7,609 feet above the sea-level) is said to have been founded A.D. 962 by St. Bernard of Menthon, while, according to some authorities, it rose a century earlier, under Charlemagne. Neither saint nor emperor is likely to make good his claim, as the archives of the hospice have been completely destroyed in two successive conflagrations. But, like other Christian institutions, it had undoubtedly a pagan predecessor. The Romans on the self-same spot built a temple to the Pennine Jove, and that, in turn, occupied the site of a still earlier shrine of prehistoric antiquity. The truth is, the Alpine passes were in common use from the remotest ages — the Christian world treading the same route which had been trodden by the Romans, who also availed themselves of the track made by the aborigines. At its highest point the tutelary deity had his place of worship, and this was served by the local priesthood, who rendered assistance to the distressed or ailing traveller and received votive tributes in return for its good offices. The existence of a temple of Jupiter on the spot, with its staff of priests, is well known; and the relics that have turned up near it attest its uses to have been similar to those of the present hospice. A discovery of importance, says *The Lancet*, has just been made in its vicinity — a bronze statue in excellent preservation of Jupiter himself. Its artistic value is very great; its height, forty centimetres. At the same time other treasure-trove was brought to the surface, including a number of medals and a statuette of a lion measuring sixteen centimetres, also of fine workmanship. These are now the property of the monks, and will attract to the hospice a public more able to keep them in funds than the proper recipients of their kindness. Sad to relate, the revenues of the monastery, heavily drawn upon by the travellers (from 16,000 to 20,000 annually) who throw themselves on its bounty, are diminishing, the contributions left by these comfortably accommodated guests being

miserably below what, in the majority of cases, they can afford. The heroism of the monks should be remembered by the well-to-do holiday visitor. They begin their career at the age of eighteen or nineteen. After fifteen years' service the severe climate has made old men of them. For eight or nine months out of the twelve they see none but the poorest wayfarers, when the cold is intense, the snow lying deep, the danger from storms incessant and fearful. Their sole companions are the dogs, whose keen scent has guided them to the snow wreath under which the buried traveller has so often been rescued and brought to life — dogs like that noble fellow "Barry," who saved forty men in his time, and who now, carefully stuffed, adorns the museum at Bern.

— The Brooklyn Institute announces courses of lectures on Geology and Archæology, by Professor Franklin W. Hooper. The separate courses will be devoted to physiography, the earth's structure, the earth's history, glaciers of the age of ice, local geology, and archæology. Each of the lectures will be illustrated by sixty or more lantern photographs and by collections of geological or archæological specimens. The courses are subject to alteration to meet special requirements. The Institute will conduct these courses of lectures on the so-called "University Extension" plan, under the title of "Institute Extension Lectures." Each lecture will be preceded by a conference on the subject of the previous lecture. A syllabus of each course of lectures, together with directions for reading and study, will be provided. Those who desire may present themselves for examination at the close of a course by giving ten days' notice. Certificates will be issued by the Institute to those who pass a satisfactory examination. Arrangements for courses may be made with the Institute. The lectures may be given in the rooms occupied by the Institute, or at any convenient point in Brooklyn and the immediate vicinity. The Institute Extension Lectures are independent of the other work at the Institute, and special course tickets are necessary for admission to them.

— The report of Arthur Winslow, State geologist of Missouri, shows that, during the month of October, inspections of iron ore deposits have been made in Randolph, Monroe, Benton, Henry, Hickory, Franklin, Reynolds, Crawford, and Dent Counties. Inspections of lead and zinc deposits have been made in Pettis, Benton, Hickory, Camden, Miller, Cole, Osage, Franklin, and Reynolds Counties. Inspections of coal beds have been made in Cooper, Saline, and Lafayette Counties, and surveys have been made for the purpose of constructing a model of an important coal deposit in the first named county. Detailed mapping has been prosecuted in Henry, Benton, and St. Francois Counties, and over 230 square miles have been covered. For outlining the areas of the crystalline rocks examinations have been made of an area covering about 300 square miles in Reynolds and Iron Counties, and the areas of the geological formations in portions of six townships in Greene and Polk Counties have similarly been mapped. Examinations of important clays of the State have been continued and additional experimental tests on sixteen samples of such are now completed. In the office much has been done on the preliminary report on the coal deposits of the State, which will be placed in the printer's hands this month. Work on the preparation of the reports on the mineral waters and on the paleontology of the State has also progressed well. Further, much draughting has been done of illustrations to accompany reports of detailed maps and sections. Engraving of these maps has been started and can now be continued uninterruptedly with the supply of maps which have been prepared during the past months. Bulletin No. 5 has been distributed.

— No sooner is one antiseptic chemical rejected by some disappointed disciple of antisepticism, says the *Medical Press*, than he is greeted by a new chemical possessing all the virtues and free from all the vices of its predecessor. The list commenced with the peerless carbolic acid and its many preparations, all of which made way for the ill-smelling iodoform or the poisonous corrosive sublimate; these in turn were pushed aside for newer and more popular remedies, until "ariostol" claimed notice; still, however, the search goes on, and of course the demand begets a supply. Dr. Berlioz now presents to the Parisian Academy of Medicine a new chemical which already has proven itself worthy, if we accept the statements of its advocates, of general recognition as the best of antiseptics. He names it "microcidine," a name which it is hardly entitled to, seeing that its germicide powers are inferior to those of corrosive sublimate. According to Professor Polaillon, the new drug is not a definite chemical compound, but rather a mixture of B naphthol and hydroxylate of sodium. This new product is soluble in three times its weight of cold water, the solution being of a brown color, which disappears on dilution. The chief advantages claimed for this, the latest of antiseptics, is its slight cost, and that it is non-poisonous.

— A new use has been found for waste glass. Any fragments of broken glass of various colors are mixed together, after having been broken to a suitable size; they are then placed in moulds lined with silica, talc, or some other resisting material, and fired. A coherent mass is produced which can be dressed and cut into blocks, which are, of course, irregularly colored. Such blocks may be used as artificial marble. The blocks are usually rough on one side, owing perhaps to incomplete fusion; this gives a surface which is admirably adapted for causing them, especially if they are slab-like in form, to adhere to walls with the addition of a little mortar. Fine decorative effects can thus be produced. Designs in relief can be obtained by pressure while the block or slab is still plastic. If a suitable mould be prepared with movable partitions, then pieces of glass can be arranged in such a way that, upon firing, a very effective "stained-glass" window is produced, the necessity of using "leading," as in the ordinary way, being thus obviated.

— The other day, Mr. Flinders Petrie delivered at the Owens College, Manchester, a most interesting address on exploration in Egypt which is reported in *Nature*. It had been thought, he said, that the immense mounds of rubbish indicating the sites of towns had been made on purpose, but they resulted from the natural decay of the mud-brick buildings. These heaps of ruined walls and earth and potsherds rose even to eighty feet high in some places; but other ancient sites were much less imposing, and might even not attract notice on the open desert. The higher the mound the longer the place had been inhabited; and if the surface was of a late period, the earlier parts, which were most needed, were under such a depth of rubbish as to be practically inaccessible. Much could be known at first sight; and prospecting had now become as scientific a matter in antiquities as in geology. Knowing, by a glance at the sherds on the top, what was the latest period of occupation of the site, and knowing the usual rate of accumulation of a mud-brick town — about five feet in a century — we could guess how far back the bottom of the mound must be dated. Other remains had different indications. If in the midst of a great mound there was a wide flat crater, that was probably the temple site, surrounded by houses which had accumulated high on all sides of it. Speaking of the results of exploration, Mr. Petrie said that we now realized what the course of the arts had been in Egypt. In the earliest days yet known to us — about 4000 B.C. — we found great skill in executing accurate and massive stonework, such skill as had hardly ever been exceeded. We found elaborate tools used, jewelled saws and tubular drills. We saw the pictorial arts as fully developed as they were for thousands of years later. But what led up to this we were still feeling for.

— Dr. H. von Wlislocki, as we learn from *Nature*, has published a capital paper on the handicrafts of Hungarian gypsies, whom he has had many opportunities of observing. If we may judge from the illustrations, they have a considerable aptitude for design. In the summer they make bottles out of pumpkins, which they decorate with various drawings. On each bottle the space is divided into four zones, crosses being cut into the uppermost zone, serpents into the second one, circles into the third, and zigzag lines into the fourth. The crosses mean "May you be happy!"; the serpents, "May you have no enemies!"; the circles, "May you always have money!"; the zigzag lines, "May you be healthy!" Brandy is kept in the bottles; and when a guest is received, the first gypsy who drinks says, "May you be happy!"; the second, "May you have no enemies!"— and so on. Pretty walking-sticks are also among the things made by the Hungarian

gypsies. On the top of one of those sketched in the article two female heads are admirably carved. These represent Ana, the Queen of the Keschalyis, or forest fairies, who dwell among the mountains, where they sit — three being always together — on rocks, spreading out their long hair over the valleys, thus giving rise to mists. Queen Ana lives in a black palace, and sometimes wanders over the world in the form of a frog. Frogs, toads, and serpents are her favorite animals. When she meets any one in her natural form, she exclaims "Ana!", which means "Bring!" Should the person understand the cry and bring a frog, a toad, or a serpent, he is richly rewarded. If he fails to do so, he is either killed with a piece of a rock, or struck by some terrible malady.

— The belief is quite general among strawberry growers that imperfect flowered varieties are less liable to injury by frost than perfect, or staminate flowered sorts. Two heavy frosts occurred on May 5 and 17, 1891, which did much injury, as all varieties were then in bloom. The large number of varieties on trial at the Ohio Agricultural Station made it possible to test the accuracy of the belief above stated. The Enhance and Parker Earl, both varieties having perfect flowers, escaped with but little more injury than the imperfect flowered sorts, but aside from these exceptions, the varieties of this class suffered far more injury than those having imperfect flowers. These varieties are later in blooming than most others, and possibly they are uncommonly hardy, but it is safe to make the generalization that perfect flowered sorts are less hardy when in bloom than those having imperfect flowers.

— Some interesting facts about the tastes and manners of London board-school children were brought out at a meeting of the workers of the Children's Happy Evenings Association, held at the house of Mrs. Moberley Bell, who will in future act as honorary secretary of the Association. According to *The Educational Times*, the room where children gather to listen to fairy tales, play quiet games, and do needlework is more popular than the room given over to romping and noisy games. Painting is the favorite occupation, and with the paint boxes provided by the Association the children delight in coloring the illustrated advertisements from daily and weekly papers — one lady worker remarking that fashion advertisements were first favorites. The experience of the workers seemed to be that it was quite possible for the boys and girls to dance and play together, and that the effect was beneficial to both, provided the staff of helpers was sufficiently large.

— In the *Revue Agricole*, published in Mauritius, M. A. Daruty de Grandpré gives an account of his attempts to raise sugar-cane from seeds. The seeds, according to *Nature*, were sent from Barbados by the Governor in March, 1890. M. de Grandpré planted them with the greatest care, and after five days was fortunate enough to obtain five minute seedlings out of the hundred seeds used. The young plants he raised did not all prove equally vigorous, and he was able to save only one, which, at the time when his report was written, had formed a fine clump of twenty shoots with long ribbon leaves. "I believe," he says, "that we may with reason cherish the most sanguine hopes from from the propagation of sugar-cane from seeds — more especially if we try an intelligent system of cross-fertilization of the varieties we possess — rather than by planting cuttings, which maintain without appreciable alteration the respective characteristics of the parent plants. Thus we shall be able to supplement the weak points in our best varieties of sugar-cane by crossing them with others which are remarkable for the qualities it is intended to infuse into them, and we shall moreover obtain, by a process of selection, a cane rich in saccharine matter, which will enable us to compete successfully against the highly improved sugar-beet."

— The Association of Colleges in New England, impressed with the real unity of interest and the need of mutual sympathy and help throughout the different grades of public education, invites the attention of the public to the following changes in the programme of New England grammar schools which it recommends gradual adoption: (1) The introduction of elementary natural history into the earlier years of the programme as a substantial subject, to be taught by demonstrations and practical exercises rather than from books. (2) The introduction of elementary physics into the later years of the programme as a substantial subject, to be taught by the experimental or laboratory method, and to include exact weighing and measuring by the pupils themselves. (3) The introduction of elementary algebra at an age not later than twelve years. (4) The introduction of elementary plane geometry at an age not later than thirteen years. (5) The offering of opportunity to study French, or German, or Latin, or any two of these languages, from and after the age of ten years. In order to make room in the programme for these new subjects the Association recommends that the time allotted to arithmetic, geography, and English grammar be reduced to whatever extent may be necessary. The Association makes these recommendations in the interest of the public school system as a whole; but most of them are offered more particularly in the interest of those children whose education is not to be continued beyond the grammar school. At the thirty-fifth annual meeting of the Association, held at Brown University, Nov. 5–6, it was voted that these suggested changes be transmitted to the various faculties for their consideration and for action by the Association next year.

— A case which occurred in Sussex illustrates well the manifold sources from which arsenical poisoning may be derived. A man named Wesley, we learn from the *British Medical Journal*, died with symptoms of gastro-enteritis, while five other people in the family were taken seriously ill. It transpired that they had all partaken of some home-made gooseberry wine, and that this had been stored in a cask previously used for the reception of a certain weed-killer largely composed of arsenic, and there could be but little doubt that the poisoning was due to the arsenic. A case very similar to this occurred some years ago, when a man lost his life by drinking beer out of a pot which had been cleansed with a patent cleansing fluid containing arsenic, and there is also the well-known wholesale poisoning at an industrial school, when over 300 children were poisoned by some water being added to their morning milk which had been drawn from a tank recently cleansed of fur by a solution of arsenite of soda. Happily on that occasion no fatal result occurred; but the result was not so fortunate in the Bradford peppermint-lozenges case, when out of 200 sufferers seventeen died; here arsenic had been used to adulterate the lozenges in mistake for sulphate of lime. Another case of accidental poisoning will doubtless be fresh in the recollection of our readers, when the poison was absorbed through the skin; we refer to the two infants who lost their lives through the use of a violet powder into the composition of which arsenic had entered. The lesson to be learned from the recent and other cases is that cleansing liquids are very dangerous things.

— The Scientific Alliance of New York, recently organized, includes the New York Academy of Sciences, the Torrey Botanical Club, the New York Microscopical Society, the Linnæan Society of New York, the New York Mineralogical Club, and the New York Mathematical Society. The secretary of the council is Dr. N. L. Britton of Columbia College, to whose efforts the new system is principally credited. Instead of announcements separately issued, the members of the different societies receive in a single bulletin a comprehensive statement of the proposed meetings of each for the month, and as persons frequently are members of several of the societies the convenience of the direct comparison which is provided in dates and subjects is at once appreciated. A folding card bulletin, as easy of reference as a calendar, gives one space to the notices of each society, and one of the spaces contains a general chronological index. An additional fold is given in any issue for special announcements when required. The highly approved plan of unity of measures thus in operation is similar in principle to that of Burlington House, London, and if succeeding in the manner expected from present favorable circumstances, the New York Scientific Alliance will be established at some future day in a building of its own, containing many united collections in one great exhibition.