you meet him on going from home you may look for trouble before you return; if going toward home there will be trouble in your family.

Ashes must not be taken from a fireplace in a sick room. The death of the patient would follow. Nor must the bed of a sick person be turned over. It is actually true that this last provision is believed and actually followed in numberless homes where wealth and culture abound.

No one ever saw a negro meet a corpse. The most courageous darky will go out of his way or turn back upon his path rather than encounter such a calamity. It is said that if you meet a corpse your time will come next. If the corpse is stopped on the way to the grave another member of the family will soon follow.

Kraut must be made in the dark of the moon if it is to be sour.

It is the height of folly to cut a child's finger nails before it is a year old, for then it will pilfer and steal. The nails must be broken and bitten off.

Potatoes and all roots must be planted in the dark of the moon, when it is decreasing or going down in size; likewise crops that grow above ground must be planted in the light, or increase of the moon.

Hogs must be butchered when the moon is increasing, otherwise the meat will shrivel up and fry away in cooking.

A family must never move except in the light, or increase, of the moon. This will secure prosperity and increase of possessions. They will grow as the moon grows. This is another superstition that is in almost general practice in all classes of society.

If a child is allowed to look in a mirror before it is a year old teething will be difficult.

If a coffin containing a corpse be placed so that it is reflected in a mirror, there will be another death in that family inside a year.

The tying of a small sack containing the fore feet of a ground mole assures a full set of pretty teeth. If in teething the child's gums are sore it may be cured by rubbing the gums with rabbit brains hot from the head. Both of these remedies are too commonly practised to excite comment among the people who observe such things.

To remove a wart from the body steal a piece of bacon, rub the wart with it and then bury it under the eaves. Say nothing about this and the wart will soon disappear. The writer removed a number of warts from his own hands when a boy by doing this.

A stray black cat in the back yard foretells good luck.

If a woman is making soap and a man stirs it, all will be well and the soap will be fine, but if a woman comes the soap will spoil in the making.

If you sing in bed you will cry next day. If you sing before breakfast you will cry before night.

If you want a cat to stay at your home, rub its paw on the stove.

To keep a new dog, measure his tail with a cornstalk and bury the latter under the front step.

If you sleep with your feet toward the door you will soon be carried out a corpse.

If an infant is puny and does not grow satisfactorily it must be measured for the "undergrowth." A pow-wow doctor, usually a woman, will strip the child, measure it with a string the same color as its hair, say some "words," bury the string in a secret place and repeat the performance three times. The child will get well. There are dozens of children in a certain Dutch community that were measured in this way and are now pointed to as examples and proof of the efficacy of the method.

In setting out fruit trees a woman must hold the tree while a man sets it and tamps the dirt about the roots. This makes it a sure bearer. This also is practised in numberless communities.

To kill a toad will cause the cow to give bloody milk.

THE FIRST OBSERVATIONS WITH "BALLONS-SONDES" IN AMERICA.

There have been dispatched in Europe frequently during the past ten years *ballons-sondes*, or small balloons carrying only instruments that record automatically the temperature and pressure of the air, thus enabling the temperatures to be determined at the successive heights reached, the place and time at which the balloons fall indicating approximately the direction and velocity of the upper currents. The "aeronautical concourse" of the St. Louis Exposition, says Science, afforded an opportunity to undertake these investigations in this country. Accordingly, the work was taken up by Mr. A. Lawrence Rotch, director of the Blue Hill Observatory, in co-operation with Col. J. A. Ockerson, chief of the Department of Liberal Arts at the Exposition, and a series of very satisfactory experiments has just been completed.

The balloons used in the experiments are the closed rubber balloons devised by Dr. Assmann, director of the Prussian Aeronautical Observatory. These balloons are inflated with about 100 cubic feet of hydrogen gas; they expand in rising until they burst, and then the attached parachute moderates the fall. In some cases two balloons, coupled tandem, were employed, and, as only one balloon bursts, the other is borne slowly to the ground and serves to attract attention. The instruments, which were furnished by M. Teisserenc de Bort, of Paris, record the temperature and barometric pressure upon a smoked cylinder, turned by clockwork; and the lightest of them in its basket weighs about one and one half pounds. A notice attached to each requests the finder to pack the instrument carefully in a box and return either to St. Louis or to Blue Hill, with promise of a reward for the service.

Owing to delays in obtaining the gas and apparatus, the experiments were not begun until the middle of September, during which month four ascensions took place. All of the balloons fell within a radius of fifteen miles, about fifty miles east of St. Louis. Twice the height of nine or ten miles was attained where a temperature of 68 deg. F. below zero was recorded. These experiments were conducted by Mr. S. P. Fergusson, of the Blue Hill Observatory staff. Another series of ten ascensions was executed by Mr. H. H. Clayton, meteorologist at the Blue Hill Observatory, during the last part of November and the first days of December, mostly after sunset, in order to avoid the possible effect of insolation. Fortunately, all these balloons were also recovered, though the stronger upper air currents carried them further from St. Louis, three of them traveling more than two hundred miles, and two, at least, with a speed exceeding one hundred miles an hour, the direction of every balloon being toward the easterly semi-circle. Ten of the fourteen ascensions furnished good records, and the reduction of the later ones reveals lower temperatures than in September, for example, 72 deg. below zero at the height of seven and three quarters miles on November 25, and 76 deg. below at six and one quarter miles on the following day.

The fact that all the balloons were recovered indicates the excellent topographical situation of St. Louis for dispatching them.

A METHOD FOR PUTTING PRINTED MATTER ON FINISHED LANTERN SLIDES.

BY J. A. HONEKING.

Those who make lantern slides know that the best slides, those having the most detail, are those made from negatives first hand, either by contact or by direct reduction in the camera. When a slide is to be made from a photograph or picture of any kind, titles or printed matter of any nature can be copied at the same time the negative is made from which to make the slide; but if a slide be made from a negative first hand, that is without making a print and again copying, as is often done, it is not so easy to put printed matter on the negative so that it will appear on the finished slide.

The following is a method devised by the writer whereby printed matter of any kind may be made to appear on the finished slide, no matter how the slide be made, by contact or by direct reduction from any sized negative. Have the title, phrase, or sentence, or whatever printed matter is desired on the slide, printed in good clear type on smooth white paper, just as you would have it appear on the slide. The printing may be of any convenient size, two or three times as large as you wish it to appear on the slide, or even larger. Place this printed matter on the copying board, and make a negative of it, any size, but not larger than 4 x 5 inches. Develop this negative until the background is quite black or until the printed matter shows slightly on the back side of the plate when viewed by reflected light in the dark room. Printed matter for a dozen or more slides may be copied at the same time on one plate if so desired. When this negative is fixed, washed, and dried, mat out everything, except what is wanted, with black paper. Now place this negative in good light, with the clear sky for a background, or a good white screen of any kind about two feet back of the negative makes a good background. Turn the negative so the printing will be wrong side up and the glass side of the negative toward the camera. By measuring, determine just where you would have the printing occur on the finished slide. Now adjust the camera until the printing shows plainly just where, and just as large as, you wish it to appear on the slide when finished. Next put a lantern-slide plate in the plate holder, and expose twenty to thirty seconds, and develop just as you would a lantern slide.

When this plate is fixed, washed, and dried, it is to be used as a cover glass by placing the film side in contact with the film of the lantern slide.

The printing will now read as it should, and will be in good focus when the picture on the slide is in focus in the lantern.

If the slide is too dense for the printing to show through, the cover may be fitted on the slide and marked, and then by means of a ruler and a sharp knife a space large enough for the printing can be cleared away.

This process may appear to be somewhat long, but in practice is much shorter and easier than it appears, especially when several slides are to be prepared in this way.

It is necessary to first copy the printing, and then copy the positive side of the negative as directed above, in order to make the printing read correctly and at the same time have the film of the cover and the film of the slide bound together, so both may be protected and both in focus at the same time.

SCIENCE NOTES.

The British Museum has approved of a suggestion for the preservation of phonograph records of the voices of prominent singers, orators, actors, and the works of instrumentalists. When the idea was first submitted to the trustees, the objection was raised that the records would not be of a sufficiently permanent character. This objection has, however, now been removed; and the records for the national collection will be master records of nickel, from which records for service may be molded as desired. A similar collection is already being formed in Italy. The collection for the British Museum is to be started immediately. All the most prominent public men, singers, and musicians of the day will be requested to make records. As years go by, the collection will increase in value and size, and it is certain to become one of the most valued of the nation's treasures. The records, however, will not be available for immediate use, but will be reserved for reproduction in the next generation.

If the open country is to be made attractive to the best minds, it must have an attractive literature. There must be a technical literature of the farm, and also a general artistic literature portraying the life and the ideals of the persons in the country. The farm literature of a generation ago was largely wooden and spiritless, or else untrue to actual rural conditions. The new literature is vital and alive. The new, however, is yet mostly special and technical, with the exception of the growing nature-literature. Artistic literature of the farm and rural affairs is yet scarcely known. Where is the high-class fiction that portrays the farmer as he is, without caricaturing him? Where is the collection of really good farm poems? Who has developed the story interest in the farm? Who has adequately pictured rural institutions? Who has carefully studied the history of the special farm literature that we already have? Who has written the biological evolution progress that attaches to every domestic animal and every cultivated plant? We need short and sharp pictures of the man at his work and the woman in her home—such quick and vivid pictures in words as an artist would throw on his canvas. There is nobility, genuineness, and majesty in a man at useful work—much more than there is in a prince or a general or a society leader, whose rôle it is to pose for the multitude. The man holding the plow, digging ditch, picking fruit, the woman sweeping or making bread—what stronger pictures of human interest can there be than these?

It is said that Dr. D. Dakin has discovered how to prepare adrenalin from coal tar. Adrenalin is the active principle of the suprarenal glands whose isolation has made bloodless surgery possible. Dr. Jokichi Takamine, the Japanese chemist, originally showed the world how to make adrenalin. Over the kidneys of men and animals are two little glands shaped like a cocked hat and, in man, about as big as marbles. Their function was long a mystery to physiologists. Even now, it is not thoroughly understood. It has long been known, however, that they had some effect on the circulation of the blood, and that their secretion is a powerful astringent. Physiologists and chemists began experimenting with this secretion. In 1893 two European investigators discovered that it had a strong effect in driving away blood from living surfaces to which it was applied. In its fresh state it was not of practical use; what science wanted was its active principle. Chemists worked at it for years, and finally, in 1901, Dr. Takamine succeeded. It turned out to be one of the important discoveries in surgical chemistry. In the first place adrenalin drives away the blood from any living tissue to which it is applied. This makes it especially useful in delicate surgery, especially of the nose and throat. Formerly, an operation in the nasal passages, for example, was followed by a rush of blood which hid his work from the operator. Now the surface is treated with adrenalin, and it can be cut like fresh meat. Adrenalin is used by oculists in relieving congestion of the eye. Moreover, it is the most powerful heart stimulant known. Surgeons inject it into patients dying from the shock of operations. It drives the blood ahead of it, giving the heart a quick squeeze, which will sometimes start the engine going after it has practically stopped. Adrenalin is used to relieve violent inflammations and to stop hemorrhages of all kinds—persistent nose-bleed for example. It is rather a costly drug, however, since the process of manufacture from the glands of sheep is long and delicate. A cheap mechanical process of manufacture would greatly extend its use.