carbonates. Of these the metallic sulphides are by far the most common. It is worthy of remark that all these forms are comparatively very insoluble. The same is true of the vein-stuffs.

The ribboned or banded structure, already spoken of under veins of infiltration, is very commonly found in great fissure veins. This structure is as characteristic of veins as the columnar structure is of dikes. The layers on the two sides usually correspond to each other; sometimes the successive layers are of different color, giving rise to a beautiful, striped appearance. Sometimes the successive layers on both sides are of different materials, as in Fig. 4, in which the central rib, *d*, is galena, and *a a*, *b b*, *c c*, are successive layers of quartz, fluor and baryta. Sometimes, in cases of quartz-filling, the layers are agate, except the center, which is filled up with a comb of interlocking crystals, as in Fig. 5. The same occurs often in amygdules, the last filling being crystalline. Sometimes there is evidence of successive openings and fillings, as in Fig. 6, where *a* represents quartz crystals, interlocking in the center and based on agate layers, *b b*, while *c* represents quartz with disseminated copper pyrites. In this case it seems probable that 1 and 2 were the walls when the agate and quartz filling took place, and that afterward the fissure was reopened along 2, so that the walls became 2 and 3, and the new fissure thus formed was filled with cupriferous quartz. The same is well shown in Fig. 7, where *a*, *b*, *c*, *d*, *e*, *f*, are successive quartz combs, separated by 2, 3, 4, 5, 6, which are clay selvages, and therefore old walls.

The relative age of veins in the same region is determined in the same way as that of dikes, viz., by the manner in which they intersect each other; the intersecting vein being, of course, younger than the intersected vein.

The absolute age of fissure veins, or the geological period in which the fissure was formed, can only be determined by the stratified rocks through which it breaks. The auriferous veins of California break through the Jurassic; and, as there are good reasons for believing that the Sierras were formed at the end of the Jurassic, it is probable that these fissures were formed at that time, by the foldings of the strata consequent upon the pushing up of this range. The filling, of course, was a slow, subsequent operation, but commenced then.

Mineral veins seldom or never outcrop on the surface in the condition we have described them. On the contrary, there are certain changes which they undergo through the influence of atmospheric agencies, which render their appearance along their outcrop quite different from that of the same vein at some depth below. A knowledge of these changes is, of course, of the greatest practical importance. They are, however, extremely various, differing not only according to the metallic contents, but also according to the nature of the vein-stuffs, and therefore must be learned by observation in each country.

Gold is found either in quartz veins intersecting metamorphic slates (quartz mines) or in gravel drifts in the vicinity of these (placer mines). Originally it existed in the quartz veins usually associated with metallic sulphides, particularly the sulphide of iron (pyrites). If the pyrites be dissolved in nitric acid, the gold is left as minute threads and crystals. Evidently, therefore, it exists in minute threads and crystals scattered through the pyrites. Now, when such a vein is exposed to meteoric agencies, the pyrites are oxidized, partly as soluble sulphate, and carried away, and partly as insoluble reddish peroxide, which remains. The quartz-vein stone is, therefore, left in a honey-comb condition by the removal of the pyrites, and more commonly stained of a rusty color by the peroxide. Among the cells of this rusty, cellular quartz the gold is found in minute, sharp grains, evidently left by the removal of the pyrites. Hence, in an auriferous quartz vein, along the outcrop to a depth of 30 to 60 feet (*i. e.*, as far as meteoric agencies extend), gold is found free in small grains among the cellular quartz; but below the reach of these agencies it is inclosed in the undecomposed pyrites.

If a mountain slope, along which outcrop auriferous quartz veins, be subjected to powerful erosion by water currents, then in the stream beds will be found gravel drifts, composed partly of the country rock and partly of the quartz vein stone. Among the gravel will be found particles of gold, washed out from the upper parts of the veins. By the sorting power of water the heavy gold particles are apt to accumulate mostly near the bed of the gravel deposit (bedrock). These gravel deposits are the placers. In these the gold particles, like the stone fragments, are always rounded and worn by attrition.

Writer's Cramp.—Dr. George M. Beard, in a paper on "Writer's Cramp," published in a recent number of the *Medical Record*, concludes, from a study of 125 cases, that "this disease occurs mostly in those who are of strong—frequently of very strong—constitutions, and is quite rare in the nervous and delicate; and when it does occur in those who are nervous, is easier relieved and cured than when it occurs in the strong." That it "is far less likely to occur in those who do original work, as authors, journalists, composers, than in those who do routine work, as clerks, book-keepers, copyists, agents, etc. Like all nervous diseases in this country, it diminishes in frequency as we go South." It is no longer an incurable disease, electricity and massage being the best remedies. Hygienic measures consist of ring penholders, so as to relieve the thumb and fingers; large penholders, or fastening a piece of sponge to the penholder, so that the muscles may be less restricted; changing the hold of the pen between different fingers; the use of quill or other flexible pens, or pens with broad points, which run easily, like quill pens, and taking pains to avoid too long confinement in one position.

Presence of Mind.—Prof. Wilder gives these short rules for action in cases of accident: For dust in the eyes, avoid rubbing; dash water into them. Remove cinders, etc., with the round point of a lead pencil. Remove insects from the ear by tepid water; never put a hard instrument into the ear. If an artery is cut, compress above the wound; if a vein is cut, compress below. If choked, get upon all fours and cough. For light burns, dip the parts in cold water; if the skin is destroyed, cover with varnish. Smother a fire with blankets, etc.; water will often spread burning oil and increase the danger. Before passing through smoke take a full breath, and then stoop low, but if carbon is suspected, walk erect. Suck poison wounds, unless your mouth is sore; enlarge the wound, or, better still, cut out the wound without delay, holding the wounded part as long as can be borne to a hot coal, or end of a cigar. In case of poisoning, excite vomiting by tickling the throat or by water and mustard. In case of opium poison, give strong coffee and keep moving. If in water, float on the back, with the mouth and nose projecting. For apoplexy, raise the head and body; for fainting, lay the person flat.

Glue.—Carpenters should remember that fresh glue dries much more readily than that which has been once or twice melted. Dry glue steeped in cold water absorbs different quantities of water according to the quality of the glue, while the proportion of the water so absorbed may be used as a test of the quality of the glue. From careful experiments with dry glue immersed for 24 hours in water at 60° Fah., and thereby transformed into a jelly, it was found that the finest ordinary glue, or that made from white bones, absorbs 12 times its weight of water in 24 hours; from dark bones, the glue absorbs 9 times its weight of water; while the ordinary glue, made from animal refuse, absorbs but 3 to 5 times its weight of water.—*Building News.*

DOMESTIC RECIPES.

Amber Pudding.—In preparing this use two pounds of raw apples, three ounces of sugar, a gill of cold water, several drops of lemon juice, four eggs, six ounces of flour, two ounces of butter, one-half teaspoonful of baking powder and a pinch of salt. The sugar and one-half gill of water are placed over the fire and allowed to come to a boil. At this point add the apples, which should be cut into lumps, and the lemon juice, and cook until the apples are quite soft. Weigh out six ounces of flour in a basin, and mix in well two ounces of butter; then add the baking powder, a pinch of salt and one-half gill of water, and work the whole into a firm dough, and roll out to thickness of one-third of an inch. Then dampen the sides of a pie dish with cold water and line it with narrow strips of the dough. After trimming the edge nicely, brush them lightly with cold water, and garnish the outer edge with small circular pieces of pastry laid close together. The apples, when soft, are removed and strained through a sieve into a clean dish. The yolks of four eggs are then mixed in, and in this condition it is placed into the pie plate that has been prepared. In order to cook the newly introduced eggs and the dough the dish is put in the oven for ten minutes. The whites of the eggs, to which salt has been added, are beaten stiff, and when the pudding is done this is piled high up in the center, and is well sprinkled with sugar. After smoothing the white of the egg into a cone shape, it can be neatly garnished with pieces of Angelica or dried berries. It is again placed in the oven to brown for two minutes, and is then ready for the table.

A Spiced Round of Beef.—Take a large prime round of beef; extract the bone and close the hole. Tie a tape all round it to keep it firm. Take four ounces of finely-powdered saltpeter, and rub it well into the beef. Put the meat into a very clean pickling-tub that has a close-fitting cover, and let it rest for two days. Next rub it thoroughly with salt, and return to the tub for eight days. Then take an ounce of powdered mace, a large nutmeg powdered, a half ounce of pepper, not more. Mix these spices well together, and then mix them with a pound of fine brown sugar. Rub the spices and sugar thoroughly all over the beef, which will be ready to cook next day. Then fill the opening with minced sweet herbs, sweet basil and sweet marjoram, laid in loosely and lightly. Take half a pound of nice beef suet. Divide it in two, and flatten each half of the suet by beating it with a rolling-pin. Lay it in a broad earthen pan, with one sheet of suet under the meat, and the other pressed over it. Above this place a sheet of clean white paper, and above all a large plate. Set it in a hot oven, bake it five hours or more, till, by probing it to the bottom with a sharp knife, you find it thoroughly cooked. It is excellent as a cold standing dish for a large family.

Magnets in the Mills.—The introduction of magnets into all the great mills of Minneapolis and a great many elsewhere, says the correspondent of a Chicago paper, has been a revelation to the millers who complained of wire in wheat. Not only have the magnets captured all the stray pieces of iron bands, and thus removed the last and only objection urged against wire binding harvesters, but they have revealed the startling fact that of the scraps of iron and steel that find their way to the mills mixed with wheat, fully one-half are something beside pieces of wire, and a larger proportion of which are of such a nature as to be even more dangerous to mill machinery. The magnets gather everything of this kind with the certainty of fate, and millers are free to acknowledge that their introduction is a blessing the value of which cannot be overestimated. The device is so simple and cheap, and the remedy for the evils complained of is so complete, that farmers and manufacturers will never again hear any complaints from millers, growing out of self-binding harvesters and wire bands.