For the Scientific American.

The Mineralogist.---The description and locality of every important Mineral in the United States.

(*Continued.*)

DOLOMITE.

This mineral is a granular magnesian carbonate of lime. It occurs amorphous, often of a slaty structure. Color, white, with a tinge of gray or yellow. Translucent on the edges; lustre, glimmering. Phosphoresces when thrown on a hot iron. Under the blow pipe it phosphoresces strongly, turns opaque, and falls into grains. Feebly effervesces with acids. Found in Williamstown, Great Barrington, Sheffield, Pittsfield, Stockbridge and Adams, Mass.; Smithfield, R I.; Washington, Litchfield and Milford Hills, Ct.; near New York City.

EPIDOTE.

Occurs in grains, masses and crystals of a yellowish, bluish or blackish green color, vitreous lustre and partial transparency. Scratches glass. Specific gravity 3.45 Turns black when heated: with borax, slowly fusible.—Found in Franconia, N. H.; Chester and Middlebury, Vt.; near Brighton, Boston, Dedham, and Newbury, Mass.; Westchester, Highlands and near Lake George and New York city, N. Y.; in Milford, Saybrook, Litchfield, Haddam and Tolland, Ct.; Cumberland, R. I.; near Baltimore, Md.; and Blue Ridge, Va.

FELDSPATH, COMPACT.

Occurs amorphous, crystallized, and disseminated, of white, bluish white, greenish, reddish, brown and flesh red colors, which are often in spots or stripes. It has a glimmering lustre, and is translucent on the edges. Fuses into a white porous enamel. Specific gravity from 2.60 to 2.74. Found in Malden, Milton, and Dorchester, Mass; and in the Fishkill Mountains, N. Y. Boston also furnishes it.

FELDSPATH, GREEN (AMAZON STONE.)

Occurs massive and crystallized, of an apple green color, and shining lustre. Scratches glass Found in Topsham, Me.; Cow Bay, N. Y.; Baltimore, Md.

FELDSPATH, LABRADOR.

Occurs massive, of a smoke-gray color, and spotted with opalescentor iridescent, variable tints, consisting of blue, fiery red, brown. green, yellow, or orange, according to the direction in which the light falls upon it.—Found at Amity, and near Lake Champlain, N. Y.; also, near Pompton Hills, N. J.

FERRO-MAGNESIAN CARBONATE OF LIME. (PEARL SPAR.)

Occurs crystallized, and in laminated masses, of a white, greyish, yellowish, or reddish white color, and pearly lustre Translucent. Specific gravity 2.5. Violently decripitates when heated and turns brown or dark gray; with borax, fuses. Soluble slowly in aquafortis. Found in metallic mines, at Charlestown and Leverett, Mass.; Leicester, Bethlehem, and Clinton, N Y.; near Lancaster, Pa.

FIBROLITE.

Occurs in minute fibres, closely united, and crossing each other. Color, white, or whitish gray. Harder than quartz; becomes electric by friction. Infusible. When two pieces are rubbed together, it phosphoresces. Specific gravity 3 2. It is found in Saybrook, Ct.; and Cummington, Mass.

FLUATE OF LIME (FLUOR SPAR.)

The crystallized variety is the most beautiful and important. It has a shining vitreous lustre, and a purple, blue, red, green, yellow, white, or gray color, and limpid and transparent. Specific gravity 3.10. With oil of vitriol it emits fluoric acid gas which corrodes glass. Fuses into an opaque mass; with borax into a transparent glass. Localities:—White Mountains. N. H.; Thetford, Vt.; Southampton lead mine, Mass.; Amity, and near Saratoga Spa, N. Y.; near Hamburg and Franklin furnace, N. J.; west side of Blue Ridge, Md.; Shenandoah Co. and Shepardstown, Va.; Smith Co. Tenn.; Peter's Cr., 17 miles from Shawnetown, Forkof Grand Pierre Cr., 27 miles from same place, Illinois. It is usually found in metallic veins.

FULLER'S EARTH.

A variety of clay, compact, but friable, unctuous to the touch, and of various colors, usually with a shade of green. Becomes translucent when thrown into water. Specific gravity 1.7 to 2. Fusible into a porous slag; turns white when heated. Found in Newfield, Me., and Kent, Ct.

GARNET.

Occurs in masses and 12 sided crystals, of a reddish color and glistening lustre. Brittle; fuses into a black or green glass. Specific gravity 3.59 to 3.76. Found at Topsham, and Brunswick, Me.; Hanover, N. H.; N. Fane, Newbury, Plainfield, Bedford, and Cummington, Vt.; Chatham, Haddam, Bolton, Washington, Munroe, and Lyme, Ct.; Franklin Furnace, N. J.; Carlisle, Mass; Barren Hills Pa.; and in the interior of North Carolina, in abundance.

GADOLINITE.

Usually found massive of a greenish or a brownish black color, splendent lustre, and conchoidal fracture. Scratches glass; slightly translucent. In aquafortis it loses its color and is converted into a jelly. Swells or expands by heat. Occurs in Bolton, Mass.

GIBBSITE.

Occurs in regular icicle form masses, from 1 to 3 inches in length and one in diameter, having a fibrous structure, and a dirty white, greenish white, or grayish color. Easily powdered; translucent on the edges. Infusible, but turns white. Does not effervesce with acids. Found at Pittsfield, and Richmond in an iron mine, Mass.

Indian Method of Twisting Gun Barrels.

The gun-barrels made at Bombay in imitation of those of Damascus, so much valued by the Orientals for the beauty of their twist, are manufactured from iron hoops obtained from European casks, mostly British. The more these are corroded by rust, the better they are preferred by the workmen; should there be any deficiency of this necessary oxidation, they are regularly exposed to moisture until they are sufficiently prepared for welding. Being cut into lengths of about twelve inches, they are formed into a pile an inch and a half high, laying the edges straight so as not to overlap each other: a larger piece is then so fitted as to return over each end, and hold the whole together in the fire. This pile is then heated, and drawn out into a bar of about one inch wide and one-third of an inch thick; it is doubled up in three or more lengths, and again drawn out as before; and this operation is repeated generally to the third or fourth time, according to the degree of fineness required. The bar is then to be heated about one-third of its length at a time, and, being strurk on the edge, is flattened out the contrary way to that of the stratification. This part of the operation brings the wire or vein outwards upon the strap. The barrel is then forged in the usual way, but much more jumping is used than in the English method, in order to render the twist finer. The most careful workmen always make a practice of covering the part exposed to the fire with a lute composed of mud, clay, and the dung of cows or horses, in order to guard against any unnecessary oxidation of the metal. When the barrel is complete, the twist is raised by laying the barrel from one to five days either in vinegar or a solution of the sulphate of iron, until the twist is raised: this process is called the wire-twist. To produce the curl, the bars or straps are drawn out into bars about three-quarters of an inch square, and twisted some to the right and others to the left, one of each sort is then welded together, doubled up, and drawn out as before; and upon the experience of the workman, any intricacy of twist is produced by this drawing out, doubling, and twisting. Sometimes, to save trouble and economize iron thus prepared, the artist will rough-file an Engliah barrel, weld a strap of Damascus iron spirally round it, or several are laid longitudinally, and welded on. A native artist never works with coal under any consideration. Charcoal from light wood forms his only fuel. In making the sword-blades, there are several used; some make a pile of alternate layers of soft hardened steel, with powdered cast iron mixed with borax sprinkled between each layer. These are drawn out to one-third more than the length of the intended blade, doubled up, heated, twisted, and re-forged several times; the twist is brought up in the same way as that in the gun-barrels. Some swords are forged out of two broad plates of steel thus prepared, with a narrow plate of good iron welded between them, leaving a solid steel for the edge of considerable depth. Others prefer making them of one plate of steel, with a lamina of iron on each side of it to give strength and toughness. Swords of this description were tempered by the following compound with considerable effect: the blade was covered with a paste formed of equal parts of barilla, powdered egg-shells, borax, salt and crude soda, heated to a moderate red heat; and just as the red is changing to a black heat, quench it in spring water. From the information of a workman it appears, Damascus obtains all its steel from the upper part or Decan, where it is called the fonlode hind, or Indian's steel, of which there are great quantities, but little or no demand for it. The damasque, or joar, is natural to this steel, and is raised by immersing it in an acid solution.

Patent Railway Axles---Interesting Case in extending a Patent.

Last month before the Judicial Committee of the British Privy Council, there being on bench Lord Langdale, Lord Brougham, Dr. Lushington and Mr. Pemberton Leigh, Mr. Harden and others presented a petition for the extension of letters patent for the improved Railway axles.

The patent was obtained in April, 1835, and Mr. Hardy, with limited means, attempted to carry it out, but after losing all his property in the attempt, assigned it, a few years ago, to Messrs. Geach & Walker. The invention consisted in fashioning pieces of iron in a rolling mill, so that, when combined, a perfectly cylindrical form was effected. In the old porcess the iron was repeatedly cooled and heated during the welding; and the result was that the iron became very much deteriorated in character, and was rendered brittle, while, by the patented method the iron preserved its fibrous character and consequently its tenacity. In illustration of the great superiority of the patent axles, two of them were exhibited; one has sustained the shock of an express train, weighing upwards of one hundred tons, and moving at the speed of 60 miles an hour; the other had been struck by a train, in a similar manner, on the Eastern Counties. Although both these axles were considerably bent by the immense force of the blows to which they had been subjected, the skin of the iron, as it was termed, was not touched, and they did not exhibit the slightest crack.

Mr. R. Stephenson, M. P., was examined in support of the petition. He said he was consulting engineer to nearly all the narrow-guage lines—that a good many hundred miles of railway were under his superintendence, including the London and North Western and the North Midland. His attention was first called to the patent axles shortly after the opening of the North Midland in 1841. He had subjected a great many axles, of various manufactures, to some very severe trials—the patent axles among others—by twisting them and letting heavy weights fall upon them, the aim of the experiments being to subject them to the same shocks and strains that they would be liable in case of accident. He made these experiments in consequence of a serious accident that took place on the North Midland, and was satisfied by them of a great superiority of the patent axles. Witness then described the old and the patent process of manufacture, the former rendering the iron crystaline in its structure and exceeding brittle, while by the latter the fibrous character of the iron was preserved, by which it was rendered extremely tenacious. A section of a patent axle was put into the witness' hand, which, he said, clearly indicated the fibrous structure of the mass of the very centre of the axle. By the old method the outside, and to some depth, was fibrous, and the interior crystalline. It was hardly possible to appreciate the value of the invention, in the safety it conferred upon life and property—in the prevention of accidents upon railways. He knew of no other axle at all equal to it. After the occurrence of the accident to which he had referred, he broke upwards of fifty of the axles of the old manufacture, and was astonished to find that they were uniformly crystalline in their texture, with one or two exceptions. They were of course all exceeding brittle, so much so that he ordered them to be taken off the line as quickly as possible. The patent axles are now extensively, but he could not say exclusively used on the North Midland. The cost of manufacture might be somewhat more than the old method, and as the patent axles were sold at a lower price than the old manufactures, the proprietors must have obtained much less profit. The price, however, was comparatively no object. He had recommended that the patent axles should be adopted in all the contracts he had had for the last three years. If his advice was followed there ought to be no other axles used. With the exception of two or three, all the axles of the old manufacture that he tested, amounting to fifty or sixty, were unsafe to use. An accident to a luggage train might entail one to a passenger train, by blocking up the line. The Low Moor and Bowling Company's axles always had a high standing in the market, from the character of the iron, and they still stand high, putting out of question the principle of manufacture.

Lord Brougham and Lord Langdale expressed themselves perfectly satistied with the evidence they had heard. It was quite conclusive.

Mr. Hardy the patentee, in reply to a question by Lord Brougham, stated that he hadgiven the matter as much publicity as possible, but his means were limited. He found it extremely dificult to induce the railway companies even to test his axles. It was owing to the energy and enterprise of the present proprietors that they had been tested, and then so generally adopted.

Mr. Welsby, on behalf of the Attorney-General, having stated that he had no objection to urge to the prayer of the petition, the room was cleared, and on re-admission,

Lord Brougham said the judges had unanimously agreed to recommend to Her Majesty to grant an extension of the patent for five years, subject to certain conditions, viz: that Mr. Hardy, the patentee, should secure one half of the profits and that the proprietors should give an undertaking that the price of the axles should not be increased to the public, but that it should be entirely regulated by the rise and fall of the price of iron in the market.

Thrift of the Yankee.

In perfectly good humor, the Tuscaloosa Monitor, of 11th inst., has given the following pungent and inimitable sketch:

A mountain of granite appears rather a tough subject to deal with, yet a Yankee will burrow in its bowels, and lo! the granite becomes gold in the vaults of the Commonwealth Bank in Boston. A pond of ice presents a cheerless and chilly prospect to the eye, but the Yankee, nothing daunted, will heave up its crystal masses, and straightway the ice glitters in diamonds upon the bosom of his rosy-cheeked spouse. Wherever the Yankee layeth down his hand, gold springeth. Into what soil soever be thrusteth his spade, gold sprouteth therefrom. In the dim twilight, by his chimney corner, he sitteth meditating, and thoughts chase one another through the brain, which thoughts are gold. Various they are, it may be, in form and seeming. One is but a grid-iron, another a baby-jumper, and a third a steam-engine, but he writeth them all down in the patent office at Washington, and then putteth them in his pocket in good golden eagles from the mint at Philadelphia.

But your genuine Yankee coineth not merely his own sagacious conceits; the follies, the fears and the errors of others, are moreover gold to him. He fabricateth mermaids and sea-serpents, and locketh up in his iron chest heaps of golden credulity. He manufactureth a pill of chalk and wheaten bread, which he warranteth to cure asthma, hydrocephalus, epilepsy and yellow fever, and presently buildeth him a great house on the banks of the Hudson. When a sudden delirium seizeth all the world, prompting them to emigrate in floods to nowhere, he quietly mustereth his fleets of transports for that destination, or buildeth a railroad in that direction regardless of what is at the other end, and putteth the passage money in his pocket. He erecteth to himself no castles in the air, but he diligently aideth his neighbor to build the same, and out of the proceeds grow up to him presently castles upon the earth. Such is the modern Midas—the Midas without the long ears—the cool acute, sagacious, calculating Yankee.