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and awarding it to the defendant, but this contention was not sustained.

Conceding that the hills or mountains mentioned in the decree of confirmation as the northern boundary are really upon the east and form the eastern boundary, and that where a grant is described as bounded by hills and mountains the line runs along the base and not the summit of the hills, it does not appear that the land in controversy was not within the boundaries of the grant as originally made and confirmed. It was held that it might be, and that it was in fact. It follows that the defendant should have received as his preëmptive right the whole of the 160 acres claimed by him, the whole amount being within the limits of the grant finally confirmed to the grantee from whom he purchased, and the judgment in his favor should be, therefore,

Affirmed.

MATHER *v.* RILLSTON.ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE
WESTERN DISTRICT OF MICHIGAN.

No. 139. Argued January 22, 23, 1895.—Decided March 4, 1895.

Occupations which cannot be conducted without necessary danger to life, body, or limb, should not be prosecuted without taking all reasonable precautions against such danger afforded by science.

Neglect in such case to provide readily attainable appliances known to science for the prevention of accidents, is culpable negligence.

If an occupation attended with danger can be prosecuted by proper precaution without fatal results, such precaution must be taken, or liability for injuries will follow, if injuries happen; and if laborers, engaged in such occupation, are left by their employers in ignorance of the danger, and suffer in consequence, the employers are chargeable for their injuries.

THIS was an action to recover damages for injuries sustained by the plaintiff from an explosion in an iron mine at Ironwood, in Michigan, alleged to have been caused through the carelessness and negligence of the defendants. It was commenced

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in the Circuit Court for one of the counties of that State, and on motion of the defendants was removed to the Circuit Court of the United States for the Western District of Michigan. The declaration sets forth that the defendants were, in May, 1888, and had been for some time previously, operating at Bessemer, in the county mentioned, an iron mine, called the "Colby Mine." It then describes the general nature and mode of their mining, the use by them of giant powder or dynamite, of great explosive power, in blasting rock, boulders, and ore, the manner of its use, and the dangers attending it from explosion, to which it is liable from great heat or concussion with hard substances in working the mine; and alleges carelessness and negligence in handling the same, causing the explosion, destroying the eyes of the plaintiff and grievously injuring him in different parts of his body, for which injuries damages are claimed in the present action. A more detailed account of the operation of the mine is given in the declaration, and the defendants demanded a trial of the matters set forth, which, under the laws of Michigan, is equivalent to a plea of the general issue in the cause.

The plaintiff was a young man of only twenty-four years of age, and he was not a miner by occupation, nor had he any experience as a miner. He was employed by the defendants chiefly in loading tram cars in their service, and knew little of the different explosives used in the mines. In further history of the operation of the mine, and of the condition of the engine-house at the time of the explosion complained of, and its probable cause, the declaration alleges that the mining was carried on by sinking shafts, driving drifts, stoping and excavating in the manner usual in the business of iron mining; that in performing that work, rock, boulders, iron ore, gravel, sand, and earth were encountered and removed; that in removing them and other hard substances it became necessary to blast the same away by employing giant powder or dynamite of great explosive force; that the powder or dynamite thus used was put up in what were called "sticks," each stick being circular or nearly so, of a diameter of about one and one-half inches and about eight inches long, wrapped in a paper

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covering; that the sticks were packed in sawdust in wooden boxes, there being about fifty in each box; that giant powder or dynamite similar in kind or character to that thus used by the defendants, and also caps similar to those hereinafter mentioned, had been in general use in the mines of the upper peninsula of Michigan for twenty years previously; that the powder or dynamite during cold weather became frozen or hard, and in that condition would not explode readily, and it was therefore necessary or at least advisable before using it to soften or thaw it, which was usually done by means of warm water, that being the safest means for that purpose, and when thus thawed or softened it was exceedingly sensitive and liable to explosion from heat or concussion, a fact well known to the defendants; that the usual manner in which explosions were effected in blasting in the mine was by placing at the end of a stick or piece thereof a cap attached to a fuse, which was ignited, and then solid rock and ore could be blasted out by it; that the caps were shaped like ordinary percussion caps and partly filled with a fulminate, which were then exceedingly sensitive and more powerful and more explosive than the dynamite; that they were liable to explosion from heat or by concussion against each other or against any other resisting substance, and were put up in tin boxes, each containing about one hundred, lightly packed in sawdust, and were always ready for use, not requiring any thawing before affixing the fuse and powder.

And the declaration further set forth that on the day of the explosion, hereafter mentioned, there was situated on the surface of the mine a house about twenty feet long by eighteen feet wide and one story high, which was primarily intended for a dry or changing house for the captains and bosses of the mine, of which there were about thirteen; that there were in the house two drums, used mainly for lowering timber into the mine; that these drums were circular and about three and one-half and four feet in diameter, respectively, and were operated by steam power, the steam being supplied through a pipe or pipes from a boiler about fifty feet distant; that eighteen inches from one of the drums was a steam heater, consist-

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ing of about sixty coils of pipe, receiving steam from the boiler, intended to heat the house and dry the clothes of the men who changed their clothing there when they had become wet from the waters of the mine; that about a foot away from the heater and against a wall of the house was a shelf, consisting of a board fastened to the wall; that the drums and machinery in the house were in constant motion day and night, the machinery being kept running even when the drums were not in use hoisting or lowering in the mine, in order to keep the exhaust pipe from freezing; that the action of the machinery produced a constant jar in the building; that there was standing near the shelf and heater a barrel partly filled with ordinary lime; and that on the day of the explosion there was in the engine-house, placed there by the direction of the defendants, for the purpose of storing and thawing or softening the same, twelve boxes of giant powder or dynamite, a box and a half lying loose on the shelf, a box about half filled on the floor and against the heater, and, scattered loosely on the floor, about twenty sticks or parts of sticks, some lying against or upon the iron pipe of the heater, a large quantity of powder lying between the heater and the nearest drum, occupying nearly the entire space between them, and about three sticks or parts of sticks resting on the lime, and a small quantity of the lime scattered on the floor and upon some of the powder, and on the shelf was a full box of caps, and in the engine-house and near the heater was a box partly filled with caps; that during the day of the explosion, and while the powder and caps were located as stated, the machinery was in full operation, pounding and jarring, and the atmosphere of the room in the immediate vicinity of the powder and caps was heated from the heater and steam pipes to about 300° Fahrenheit, and the steam pipes were heated to the same degree, and the room being hot the plaintiff was obliged to open the door of the house when the ground was covered with snow to a depth of about a foot lying immediately in front of it and on the walks leading to the house, and several individuals who came into the house on the day of the explosion brought more or less snow on their feet and

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persons, which melted and left water therefrom on and about the floor of the house and on the lime.

And it was averred that the powder or dynamite, when thawed out or softened, was very sensitive, and liable to explosion from the jarring of the drums and machinery, and the constant jarring of the building, and that the powder was liable to explosion from the heat of the steam heater and steam pipes and by the slackening of the lime in the lime barrel or on the powder; that the caps were more sensitive than the powder or dynamite, and more apt than the powder or dynamite to be exploded by the jarring and by the heat from the steam pipes and steam heater, all of which particulars were well known to the defendants.

And the plaintiff further averred that he was hired by the defendants to run and operate the drums in the house, and that then the powder and caps were stored and kept in the powder house of the defendants, and that afterwards they were stored in the engine-house; and that he was at the time wholly ignorant that the powder or dynamite was liable to explosion from the jarring of the machinery, or by becoming overheated by the steam heater, or by the heat generated by the lime when slackening, or that the caps were also liable to explosion by such jarring of the machinery, or collision against any other resisting substance in the box, or by the heat from the steam pipes or steam heater; that he had never used the powder or the caps or any other powder or caps similar in kind or character, and was entirely ignorant of their very sensitive character, and that when they were placed in the house he was not, nor was he at any time thereafter and before the accident, informed by the defendants, or any other person, of their sensitive and dangerous character, or that they were liable to be exploded, and that he continued to work in the house entirely ignorant of the danger to which he was thereby subjected.

And the plaintiff further averred that on the day of the explosion, while he was engaged about his business in the house, and while the machinery and the steam heater and steam pipes were in operation, and while the powder and caps

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and all the other articles and things were situated in the house as stated, and while he was conducting himself in a careful and prudent manner and not touching, handling, or in any manner whatsoever meddling or interfering with the powder and caps or either thereof, and when he was about two feet distant therefrom, a part of the powder and of the caps, *caused by being jarred as mentioned by the machinery and overheated by the steam and steam pipes and by the lime, suddenly, and without any warning whatsoever, exploded with great force and violence, throwing pieces of tin and other hard substances into his eyes and into his body, and throwing him out through the open door about fifty feet distant therefrom, and that he was then and thereby grievously bruised, maimed, and injured, and his eyes were permanently injured and destroyed, and he thereby became totally and permanently blind, and his body in other respects was maimed, mutilated, and injured.*

And the plaintiff further averred that the explosion and the blinding and maiming and injury of himself were caused through the carelessness and negligence of the defendants *in storing the powder and caps in the house without informing him of the increased risk and danger of his remaining in employment therein; in thawing and softening the powder by means of steam heat, instead of hot water; in thawing and storing the powder and caps in the house where the machinery was in operation, and where the steam heater and steam pipes were situated, and the lime was kept and used, as stated, and in placing, or permitting to be placed, the powder and the caps near or around the steam heater, as stated, for all of which the plaintiff claimed damages.*

The substantial facts thus stated in the first count are set forth with more or less detail in the other counts of the complaint, of which there are several, and the allegations of negligence and carelessness on the part of the defendants are repeated, from which the explosion is alleged to have followed, and the dreadful injuries stated to have been caused to the plaintiff, and by which he was also deprived of all means of earning a livelihood. The jury found for the plaintiff and

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assessed his damages in ten thousand dollars, upon which verdict judgment was entered in his favor, and the defendants brought the case to this court by writ of error.

Mr. A. C. Dustin and *Mr. George F. Edmunds* for plaintiff in error. *Mr. James H. Hoyt* and *Mr. George Hayden* were on Mr. Dustin's brief.

Mr. F. O. Clark, with whom was *Mr. R. C. Flannigan* on the brief, for defendant in error.

MR. JUSTICE FIELD, after stating the case, delivered the opinion of the court.

The testimony produced on the trial by the plaintiff and the defendants corroborated in all essential particulars the facts set forth in the declaration. It is not, however, as definite in its statement of the extent of the heat of the room on the day of the explosion. The declaration puts it at a very high degree Fahrenheit, and the plaintiff, who was examined on the subject, while he does not designate it by any thermometrical measurement, states that the heat from the heater and boiler was more than he could stand; and that the room was hotter than anything he had ever known before. He also testified that the machinery in the engine-house was in operation all the time in order to keep the steam in the pipes and prevent them from freezing on the outside, and that the building was always shaking, so much so that a man's hat would not stay hung up when the machinery was in motion. He also added that he was not a miner and did not know the first part of mining; that he had never handled any powder in blasting, or handled or worked with the caps used; that he did not know what dynamite or giant powder was made of, and never had any knowledge or experience in the use or handling of explosives, and he never was informed by the defendants or any one else of the danger he incurred in handling the powder and caps, or the danger of explosion of either from the great heat in the engine-house, or from the concussion of the caps caused by its constant jarring.

It is clear from the whole evidence in the case, that there

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was constant danger of explosion from the great heat produced in the operation of the mine and from the concussion of the caps by collision between themselves and with other hard substances in the engine-house and the powder scattered on the floor. The heat and concussion were a continuing danger to the safety of the persons employed in the mine, and of the existence of that danger the defendants were fully aware.

Rillston, the plaintiff, who was sworn as a witness in the case, testified that at the time of the explosion there was in the engine-house a coil of pipe, five barrels of oil, fourteen boxes of powder, a box and a half on the shelf, about half a box on the floor, a barrel of lime, several sticks in the lime, two boxes of caps, nine rings of fuse, and that there was powder on the floor thrown around in all directions.

Mr. Sellwood, the general manager of the mine for the defendants, testified that the caps and powder were put in the engine-house by his orders, and admits that the usual place previously for keeping them was at the powder magazine.

Notwithstanding the continuing danger of explosion, both from the heat in the engine-house and its constant jarring, and the confused and disorderly position in which the powder and caps were placed in the engine-house, it does not appear that there was any effort made by the defendants, or others acting for them, to lessen either the heat or the jarring.

The court instructed the jury that it was a question for them whether there was negligence in the conduct of the defendants in reference to the use of the exploding caps, that is, in putting them in the engine-house and in failing to give the plaintiff due warning of their dangerous character; and the jury found against the defendants on the question thus presented to them.

All occupations producing articles or works of necessity, utility, or convenience may undoubtedly be carried on, and competent persons, familiar with the business and having sufficient skill therein, may properly be employed upon them, but in such cases where the occupation is attended with danger to life, body, or limb it is incumbent on the promoters thereof and the employers of others thereon to take all reason-

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able and needed precautions to secure safety to the persons engaged in their prosecution, and for any negligence in this respect, from which injury follows to the persons engaged, the promoters or the employers may be held responsible and mulcted to the extent of the injury inflicted. The explosive nature of the materials used in this case, and the constant danger of their explosion from heat or collision, as already explained, was well known to the employers, and was a continuing admonition to them to take every precaution to guard against explosions. Occupations, however important, which cannot be conducted without necessary danger to life, body, or limb should not be prosecuted at all without all reasonable precautions against such dangers afforded by science. The necessary danger attending them should operate as a prohibition to their pursuit without such safeguards. Indeed, we think it may be laid down as a legal principle that in all occupations which are attended with great and unusual danger there must be used all appliances readily attainable known to science for the prevention of accidents, and that the neglect to provide such readily attainable appliances will be regarded as proof of culpable negligence. If an occupation attended with danger can be prosecuted by proper precautions without fatal results, such precautions must be taken by the promoters of the pursuit or employers of laborers thereon. Liability for injuries following a disregard of such precautions will otherwise be incurred and this fact should not be lost sight of. So, too, if persons engaged in dangerous occupations are not informed of the accompanying dangers by the promoters thereof, or by the employers of laborers thereon, and such laborers remain in ignorance of the dangers and suffer in consequence, the employers will also be chargeable for the injuries sustained. Both of these positions should be borne constantly in mind by those who engage laborers or agents in dangerous occupations, and by the laborers themselves as reminders of the duty owing to them. These two conditions of liability of parties employing laborers in hazardous occupations are of the highest importance, and should be in all cases strictly enforced.

Syllabus.

Further than this, it is plain from what has already been stated that the plaintiff knew nothing of the special dangers attending his work, or that he was at all informed by the defendants on the subject. His testimony is positive on this point, and is not contradicted by any one. With that fact shown there was no ground for any charge of contributory negligence on his part; and with the defendants' negligence established, as stated, there could have been no serious objection to the damages awarded to the plaintiff for the dreadful injuries sustained. The sum recovered was a moderate compensation to be awarded to him.

Judgment affirmed.

CUNNINGHAM *v.* MACON & BRUNSWICK RAIL-ROAD COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF GEORGIA.

No. 91. Argued November 22, 23, 1894. — Decided March 4, 1895.

In 1866 the legislature of Georgia enacted a law loaning the credit of the State to a railroad company by endorsing its bonds to the amount of \$10,000 per mile, and further providing that the endorsement should operate as a mortgage on all the property of the company. These bonds were issued to the amount of \$1,950,000, endorsed and sold. In 1868 the new constitution of the State then adopted provided that the State should not loan its credit to any company without a provision that the whole property of the company should be bound to the State as security prior to any other indebtedness. In 1870 the legislature passed an act "to amend" the act of 1866, authorizing the governor to endorse the company's bonds to a further extent of \$3000 per mile "in addition to \$10,000 as recited in the act of which this is amendatory." The new bonds were issued, varying in form from the former bonds, were endorsed by the State, and were sold. In 1873 the company defaulted in the payment of the bonds of 1866, and the governor took possession of the property. The legislature then by joint resolution declared the bonds of 1866 to be valid, and those of 1870 to be unconstitutional. In 1875 the governor ordered the property sold under the provisions of the act of 1866, and the sale took place that year, the State being the purchaser at