that the line of lode passes through the property in question for so many feet, and that it averages so much in width. Now it is very important to know the position a lode holds on a certain area. If close to a boundsry line, it may, at a shallow depth, run into you neighbour's property, even if dipping in the contrary direction on the surface; for it is well known that the underlie of a lode is not always regular, and that at times it turns around, even at right angles to what it was higher up, or again a vein may be faulted and thrown considerably out of the course it was expected to take. This shows the necessity, when about to purchase an undeveloped property, of obtaining all possible information from surrounding mines working similar deposits, or in default of this, where circumstances permit, a thorough geological survey. Anyhow, when investing in an undeveloped property, the vendor, though frequently asking, cannot reasonably expect the same price that a mine with preliminary works and the nature of the lode proved would fetch. The underlie of a vein affects its market value, as does the depth at which a bed of valuable minerals occurs from the surface. In the former case, if flat, it cannot be worked so economically with a perpendicular shaft as if it were more vertical, for either the cross-cuts will be of excessive length, which is not only expensive in their first construc. tion, but also in the subsequent items for truckings and upkeep, or else shafts will have to be sunk at more frequent intervals than usual; besides, if there is not plenty of land taken up on the underlie, the lode will run out of the claim.

(To be continued.)

Mining in Kootenay, B.C.

(From the Nelson Tribune.)

The 10-stamp mill on the Poorman mine on Eagle creek, six miles southwest of Nelson, has been started up, and will be run as long as the water supply lasts. Ore is being stoped from both the north and south drifts. Twelve men are employed.

J. G. McGuigan, of the Noble Five mines, in Slocan district, has returned from Omaha, where he took 51 tons of high grade ore. The returns received go to show that the ore was the richest yet shipped in large quantity from the Slocan country. It ran 549 ounces silver and 51 per cent. lead.

Phil Aspinwall is up from Trail Creek district. He reports that the force on the Le Roi is now larger than ever before, and that while the men are not working by the day, they are making $3.50 a day on contract work. Trail Creek is to be a $3.50 camp.

The owners of the Last Chance claim on McCulloch creek, in the Big Bend country, although they have spent $22,000 in running two tunnels that did not strike bed rock, have still faith in the ground. One tunnel is in 1000 feet and the other in 1500. The lease expires in July, but it will be renewed. The owners are Josiah Fletcher, T. J. Lendrum, G. C. Tunstall, Jr., W. M. Brown, William McKenzie, John Bell, Thomas Ardeil, Alex. Bilsland and John Sanderson.

Twenty tons of ore valued at about $3,000, from the Northern Belle mine passed up on Thursday, bound for Omaha. It had been shipped from Kaslo. This marks the opening of the seasou's ore traffic by the Revelstoke route.

Parties from the Big Bend country report it useless for prospectors to go into that section earlier than July 1st, as the snow is yet very deep in the mountains.

The Consolation claim on French Creek is paying well. The pay gravel is not more than 6 inches, but the bed rock is worked to a depth of 2½ feet, it being coarse slate. The face is about 30 feet in width, and the dirt is run some 600 feet and hoisted 50 feet to the surface. It will, however, soon be hoisted through another shaft nearer the surface, and a considerable saving will be made in labor. The dirt pays about $30 to the yard, and the dust is worth $18.75 an ounce in San Franscisco.

A party is at work on ground four miles from the mouth of Carnes Creek and reported taking out good pay.

The quartz ledges in the Big Bend are from 15 to 20 inches wide, and it is claimed the ore runs from $30 to $50 in gold to the ton.

John Boyd has bonded a claim located about ten miles up Carnes Creek, and is now cutting a trail to it. The vein is said to be 9 feet wide, and in slate, granite and phorphyry. The ore runs from $10 to $40 in gold.

The "Polyphloisballsanskittlograph;" or, A Machine that Nobody could Understand.

A Souvenir of the Royal Society Soiree.

(From the *Pall Mall Gazette.*)

"Yez, dat vos ein clefer machine. Da vos nossin at all to com near him," said the Professor with a benignant smile of self-complacency.

"I spent half the evening trying to make out how it worked," said I.

"Aud you vos not the only von who did so. I tell you, da vos clefererer men als you trying to see how dat machine she work."

The apparatus in questi on stood silently by on a ledge in the Professors laboratory, bearing with equanimity its blushing honours and the card of identification, which had not yet been removed. On the card I read once more, and puzzled over, the following inscription:—

No. 47. *Exhibited by Professor G. von Sniggersdorf.* The "Polyphloisballsanskittlograph."—For tracing and analysing hypermetropic or isoperimetrical vibrations of more than one phase. By adjusting the disintegrator in harmonic relation to the vascular function of the spherulitic index a vector equation is obtained which gives the torsional flux in terms of the differential logarithm.

Strong men and men of learning had pored over that card the night before, and had mopped their brows in sad despair. Mathematicians, physicists, engineers and biologists had all had a try at it by turns, and had been beaten back like waves against a jagged rock. To all questions and comers the Professor had replied with patient and lucid volubility.

"You ask me vich ze disiutegrator it is. It is he. I pull her so, and the lever she work dat train of wheels, mit ze cam dat engage in ze second train. (How you say —'engage?' No, 'book.') Ze one train go fast, ze ozer slow. I call zem se 'eggspress' and ze 'petite vitesse.' Vell, zare, you as a gompound harmonic motion of two dialyzers, vich ven it com into gontact mit ze index makes ein duplicate rotation of ze primordial spring. Do you not now gomprehend.? I pull ze lever so, and then . . "

But visitors could seldom stand the explanation twice They preferred to try and think it out whilst watching the operation, which, it must be confessed, was complicated. The interior of the machine appeared to be a mass of cog wheels, cranks, levers, springs, dials, cams, eccentrics and pins crammed as tight as it would hold. The pull of a handle set these in motion at once, and had some effect finally upon a pointer moving across a scale. But what this effect was bothered all the scientists to explain. The "Polyphloisballsanskittlograph" was the hit of the Royal Society *soiree*. It was a nut that took more cracking than all the other scientific curiosities put together.

"You say," plaintively moaned a well-known biologist, that the disintegrator is adjusted in harmony to the *vascular* functions; now what, if I may ask, is the vascular functions?"

"Ach I thought I explain dat. Ze storing up of ze energy in ze resultant gompound motion of two semi-harmonic vibrations is aggomplished by the interaction of two perimetrical lever cranks, A and B, vich in ze manner of a vascular organism of ze human being between zemselves ze necessary operations subdivide."

Then the biologist retired from the fray and sought solace in a microscope full of wonderful "eosinophile or non-phagocytic leucocytes," on the neighboring table.

The next who tackled the Professor was a venerable mathematicion, who himself was exhibiting three highly complex counting machines and a harmonic integrator that was all strings and pulleys. He was jealous of the success of his rival, round whose exhibit a crowd was persistently gathered. I heard the Professor explaining to him, with great rapidity and wealth of gesture, something about "ze multiplication of diatonic coeffitients in terms of Fourier's expansion," and then I saw a cloud come over the great man's face as he withdrew once more to his own comparatively simple inventions. I thought he gazed at them with a disappointed and dissatisfied air.

As I was leaving *soiree*, one of the last, and sunrise was glinting the gorgeous uniforms of the departing guests who had come from the *levee*, I perceived Lord Kelvin stealing shyly towards the Professor's machine, now disengaged, which he stood for some time time admiring, with a rapt expression on his face.

"It reminds you, nicht wahr, of zom of your own models you exhibit last year," the Professor said, "vo. instance, dat 'homogeneous equilateral azzemblage of 512 boints red und green, mid stretched springs and struts between each point, to show ze appligation of Boscovitch's theorem?'"

The President of the Royal Society looked round to see if anyone was watching. Then he winked slowly, as much as to say: "That was not bad, as mere ingenuity goes; but *this* lays over everything."

I heard him still chuckling as he left the building ten minutes afterwards.

Grading of Pig Iron.

The grading of pig iron was the subject of a paper by E. A. Barton, superintendent of Ensley furnaces, read at the fall meeting of the Alabama Industrial and Scientific Society. Mr. Barton began by stating that many consumers of pig iron are now looking more to the chemical constitution of the pig iron than to the fracture of the same as the latter is often misleading. About 6 years ago there were 15 recognised grades of southern irons as follows: Open and close silvery, open bright, medium bright, close bright, No. 1 foundry, No. 2 foundry, 2½ foundry, 3 foundry, extra 1 mill, 2 mill, silvery mill, mottled and white. At a meeting of the southern iron-masters 5 years ago, the grades were revised and the following were adopted: Silvery grey, No. 1 soft, No. 2 soft, Nos. 1, 2, and 3 foundry, gray forge, mottled and white. This grading gave, sometimes, cause of complaint, as some of the silvery iron appeared mixed. To meet the wishes of a certain class of customers the two grades of silvery iron were re-established, called No. 1 and No. 2 silvery iron, corresponding to the old open and close silvery. In soft irons the openest pigs were graded No. 1 soft and the remainder called No. 2 soft. The latter cannot be graded so uniformly as desired, and is, therefore considered, by many buyers as an off grade. Soft iron should contain from 3 to 4 per cent. silica, ½ per cent. combined carbon, 2 to 2¼ per cent. graphite in No. 1 soft, and 1 to 1¼ per cent. graphite in No. 2 soft. The graders make often the mistake to class as No. 2 soft some chilled pigs from a foundry cast having a light colored appearance with a close edge. These pigs contain about 2 per cent. silicon and should be graded either No. 2 or 3 foundry. The grading of the 3 straight foundry grades does not require much comment. The standard amount of silicon in each grade should be about as follows: 1 foundry, 2.75 per cent.; 2 foundry, 2.5 per cent., and 1 foundry, 2 per cent. It was in forge iron that the change in the grading caused the greatest trouble. Sufficient forge iron was made in the endeavor to make foundry iron to meet all demands and the forge iron thus made was apt to be high in silicon and very wasteful for rolling mills, though suitable as a mixture in pipe works. Complaints from both kinds of consumers came and graders saw soon the impracticability of having only 1 grade of pig forge, and made inquiries before shipping if the the iron was to go to rolling mills or foundries, shipping accordingly No. 2 mill or No. 1 mill. These two grades are now called grey forge and foundry forge. The furnace practice in the South is improving and a more even grade of iron is now made than ever before.

A Lady Engineer—When Miss Philippa Fawcett, the daughter of the late British Postmaster-General, came out above the Senior Wrangler in the Mathematical Tripos at Cambridge, there was considerable speculation as to the profession which the clever lady would select. The problem has now been solved by the announcement that Miss Fawcett will henceforth practise as a civil engineer. It is very seldom that two families, almost equally notable for intellectual capacity, become so closely identified as the Fawcetts and the Andersons. Miss Philippa, like many of her relations, is very fond of outdoor sports, and is in other respects far removed from the typical "blue stocking." She is an adept fencer, as well as tennis and hockey player.

The Macbeth "Pull Up" Blasting Machine Wins—A patent infringement suit which has been pending for three years past in the United States Circuit Court, brought against Messrs. James Macbeth & Company, manufacturers of the "Pull Up" Blasting Machine, by H. Julius Smith, for alleged infringement of his patent for Magneto-Electro Machine for Firing Fuses in Blasting, has just been decided by Judge Wheeler in favor of Messrs. James Macbeth & Co. Regarding the outcome of the suit, Mr. James Macbeth says: "The decision is a very just one and what I expected. Further, I do not believe that any person ever thought my machine infringed any other. It is built on an entirely different principle, and our increasing sales show that the people like it." The popularity of the Macbeth "Pull Up" Blasting Machine is unquestioned, as is shown by the steady extension of business in foreign countries as well as at home. Messrs. James Macbeth & Company are the sole manufacturers, with headquarters at 128 Maiden Lane, New York City. Their works are at Jamaica, Long Island, N.Y.