

rates to Kimberley on all goods and also the high duty on dynamite of 12s. 6d. per case as a set off against any tax on diamonds, and also supports Colonial coal mines for the same reason, and therefore is not comparison quite upon different conditions?

Rates to Mochudi—normal goods, distance from Port Elizabeth, 832 miles, rate 9s. 4d. per 100 lbs.; Port Elizabeth to Johannesburg, 714 miles, rate 8s. 1d. per 100 lbs.; timber 5s. 8d. against 5s. 3d. per 100 lbs.; reasonable difference for extra distance and the fact that all coal has to be carried such long distances, and again the tonnage carried is infinitesimal as compared with that to Johannesburg.

The rate to Mochudi has nothing to do with the argument that I have advanced in reference thereto.

Nether- Is not the comparison of N.Z.A.S.M. rates with those on the Beira Railway  
and always altogether on different local conditions?

Thom- MR. W. C. THOMSON, merchant, then made the following statement :  
evidence.

My object in offering evidence before this honourable Commission is to show that the economic conditions of mining would be materially enhanced were the Govern-  
mater- ment to realise and legislatively recognise the fact that forms of blasting material  
ransvaal other than composed of nitro-glycerine, are in successful use in other mining centres  
ite mon- throughout the world. The Transvaal dynamite monopoly, which has practically  
been in existence for eight years, is responsible for retarding the introduction of a  
class of explosives that would have performed a large proportion of the work done on the  
Rand and elsewhere within the State, in an economical and satisfactory manner with-  
out the faintest shadow of risk from accidental explosions. It may be said that this  
enquiry is only concerned with the pounds, shillings and pence aspect of the question.  
It must, however, without doubt, be acknowledged that economical conditions of  
working are influenced by considerations quite apart from mere cost price. The loss  
to the country from the dynamite monopoly is far beyond any figures that have been  
and losses laid before your honourable body. When we take into account the thousands of lives  
ugh dyna- that have been sacrificed, and the enormous value of property destroyed; when we  
reckon the loss of time caused by these constantly recurring accidents from dynamite  
or gelatine cartridges left unexploded in drill holes, and the daily delays from noxious  
fumes—and all in spite of the most stringent regulations that the mining authorities  
can devise—it will be found that the loss resulting from the employment of nitro-  
glycerine compounds has to be reckoned, not by hundreds of thousands, but by  
millions of pounds sterling. I do not for one moment mean to say that the quality of  
y of Trans- the dynamite and gelatine supplied by the Government contractors is not as good  
dynamite. as can be bought in any other part of the world; but I do urge the honest recognition  
of our industrial legislation of the unquestionable fact that all nitro-glycerine explosives  
vantages of are intrinsically dangerous. My contention is, briefly, that had there been no  
dynamite mon- monopoly, the Rand, and other mining centres within the State, might have been  
y. supplied with the best and cheapest and safest blasting material procurable. New  
inventions, if worthy of encouragement, would have had a chance of being adopted.  
Inventors in the region of chemistry would have been stimulated to fresh discoveries  
for the benefit of the industry, and consequently of the State; and with the  
healthy competition that would have ensued, there might have been a reasonable  
chance of preventing the growth, to its present dangerous dimensions, of the  
greater monopoly or ring, known by the name of "Nobel's Dynamite Trust,"  
in whose hands the Transvaal monopoly practically now is. The object of the  
ring is well known to be the strangling of all competition in whatever part of  
the world it can exercise its influence; not so much the competition arising from  
the makers of dynamite outside the ring (who are easily reduced to submission

but the suppression, by every means possible, of such improved modes of blasting as threaten to interfere with their interests. In spite, however, of this powerful antagonism, there is an explosive, or rather a blasting compound (for it is not by itself explosible, like powder, dynamite or gelatine), that has made very considerable headway in many parts of the world, notably in Germany, Spain, England, Canada, British Columbia, Australia, India, and the Cape Colony. The material is called roburite, and since its first introduction, before the granting of the Lippert Concession, not one life has been lost by its accidental explosion, for the reason that such a thing is impossible. The proved safety of this class of blasting material has been wisely recognised in South Africa by the Government of the Cape Colony, by the municipal authorities of Port Elizabeth, and by the Harbour Boards of the more important seaports. It is manufactured without restriction in Port Elizabeth, carried on the Cape Railways as ordinary merchandise, and shipped from one port to another as ordinary freight. These privileges were not obtained until the most searching test had been made, and reported upon by the Government chemist and analyst, and convincing proofs afforded by demonstrations in presence of practical experts as to absolute safety. Patent rights for roburite were granted at Pretoria in 1890, but up till now the terms of the dynamite monopoly have prevented either the manufacture or the sale within the Transvaal of any blasting materials of this class. Besides assuring the incalculable advantages of safety and the innocuousness of its fumes, roburite could be sold at from one-half to two-thirds of the present prices of the explosives now in use. The employment of blasting materials of this class, by doing away with accidents, would naturally have the effect of inspiring native boys, as well as white miners, with more confidence in their work; and the withdrawal of labour by reason of loss of life and limb of hundreds of workers being put an end to, labour would necessarily become the more plentiful, and by so much the cheaper. One of the most serious obstacles to the increase in the number of native labourers for the mines, is the invincible repugnance of all the Zulu speaking races and of many of the most intelligent and industrious Basuto races to work underground. Those familiar with the native character and modes of thought will agree that this repugnance has its origin primarily in the deleterious fumes and in the terrible accidents inseparable from the use of nitro-glycerine explosives; and the majority of them unite in thinking that the elimination of these two serious drawbacks to underground work would unquestionably, within a short time, tempt thousands of natives (who are now so firmly prejudiced against this most important department of labour) to abandon their not unnatural attitude. It must, therefore, be clear to minds of the meanest capacity that the cancellation of the present dynamite monopoly—or at least the removal of all legal obstacles to the importation and use of other classes of blasting materials—would benefit the mining industry, not only by the certain prevention of accidents in those mines which decided to abandon the use of nitro-glycerine explosives, and by the great saving of time assured by the absence of noxious fumes after blasting, but also by the certain large increase in the number of natives willing to work underground, and by the reduction of wages naturally following such competition. There is no doubt that, for some purposes, many miners would still prefer gelatine, and there is no question whatever as to its efficacy; but wherever any blasting material less, highly concentrated is considered suitable, such as dynamite or black powder the class represented by roburite would undoubtedly be at once preferred. Possibly one-half of the work performed in gold and coal mining, and certainly all the work of prospecting and quarrying, could be better performed in safety than by dangerous explosives, and at infinitely less cost; and no doubt when prejudice has been overcome, and experience has been gained by continual practice, it will be found that all blasting

Roberi

Safety  
ite.Manuf  
tran:  
robu

Roberi

Price of

Advant  
empl:  
robuFree tr  
blastin  
erials.Low-powe  
plosiveaSafe and d  
ous expic

operations may be carried out without the employment of dangerous explosives. It will hardly be necessary to dwell long upon the havoc that has been wrought to life limb, and property by explosives of the nitro-glycerine class. Every gentleman on this Commission is familiar with the terrible calamity that occurred here 15 months ago, which cost the country hundreds of lives and hundreds of thousands of pounds; with the destruction of the town of Santander in Spain a year or two ago, when over a thousand lives were sacrificed; with the many disastrous explosions in Kimberley in years past; with the recent Langlaagte Deep calamity (which proved the deadly nature of nitro-glycerine fumes, by causing the death of 32 human beings in a few minutes), and with the tale of victims furnished us by the newspapers with sickening regularity. Rules and regulations cannot possibly be framed to prevent such occurrences. Only a few weeks ago in one of the most rigidly regulated dynamite factories in the world (Nobel's, at Ardeer, in Scotland), five men, including the resident chemist, were blown to atoms, the only trace of remains recovered being a shirt-cuff adhering to a piece of human flesh. I have endeavoured to obtain statistics from the books of the mining inspectors, but have been informed that because of official instructions received from Pretoria, they were debarred from affording any information that had not already been published. The report for last year not being as yet in print, I had therefore to fall back on the report for 1895, by which it appears that 78 men were killed and 113 more or less injured. Judging by the casualties recorded in the Boksburg district inspector's book for 1896 (the only one to which access was obtainable), viz, 44 killed and 59 wounded last year, it may safely be assumed that the deaths and injuries on the Rand mines from this preventable cause, will be quite double what they were in 1895. Nearly three-fourths of the recorded accidents were caused by natives drilling into or close to holes in which unexploded cartridges still lay. The casualties of the present year bid fair to exceed those of any previous one, for, during the week of the Langlaagte Deep accident, according to newspaper reports, about 40 deaths, to say nothing of mutilations, were recorded. With whatever fault strangers may tax our legislators, I do not think that the charge of inhumanity can be laid at their door; and I feel certain that it is only necessary to bring the facts I have stated prominently before their notice, in order that they may take steps to thoroughly investigate this matter, with the aid and advice of others than those interested in the maintenance of the dynamite monopoly. By permission to allow fair trade in blasting materials which do not contain nitro-glycerine, the lot of those who form the mainstay of the country's prosperity may be ameliorated at an actual financial gain to the State. At the same time the additional safety of the lives and property of the inhabitants will be assured by abolishing the monopoly in dynamite, or, at least, by providing for the introduction of the class of safety blasting materials to which I have referred. If I can afford this honourable Commission any further information on the subject I shall be glad to answer such questions as may be put.

*Chairman.*

tion of ro-  
te.

roburite is  
more used.

When did roburite become known?—It was invented in 1886.

If it is so very good, why should it not be used instead of dynamite?—I cannot answer for the mines. As I have mentioned in my declaration, Nobel's Dynamite Trust is a very widespread organisation. I believe their capital is something like ten millions, and this dynamite trust has prevented anything of a new nature coming into the market that would injure the interests of this monopoly. Another reason that it is not generally used is that miners are very conservative in regard to explosives. It took about 12 or 13 years from the introduction of dynamite before miners would take to it. They used to employ black powder, and then there was no ring or monopoly.

prevent the introduction of dynamite as there is now to hinder the adoption of newer methods of blasting. In various parts of the world where mining is carried on I can produce documentary evidence to prove that, in spite of this opposition, roburite has been preferred. Of course in many places where there is a large consumption of explosives, the tactics of Nobel's Trust is sufficient to wreck anything but a strong company. The principal reason why miners in the Transvaal know very little about roburite is simply because they have been forbidden to import it, even in small quantities. Five years ago I had a small quantity, and I was trying experiments at some of the mines. A complaint was sent by the concessionaires to Pretoria that I was importing this against the law, and I was ordered to appear before the Chief of the Customs to give an explanation. If the Government would permit trials to take place, I am perfectly certain that I would convince not only the Government, but also those who were more directly interested, of the many advantages of roburite. I have met scores of miners here who have used roburite in England, Australia, and other parts of the world. If the Commission wished, I could give the names of managers and miners who might be called as witnesses.

Gove  
trial  
ite an

Is it better and more harmless than dynamite?—It is absolutely harmless. Until a detonator is added, which is different in composition to a dynamite detonator, it will not explode at all. Neither fire, concussion, lighting, or other agency which would explode powder or dynamite could explode roburite. It is a well-known fact among miners and mine managers that roburite would be a very good substitute for dynamite.

Safety  
ite.

Why have you not made it better known here?—What is the use of advertising or making known an article which I am not allowed to sell or import?

Is it forbidden to make roburite in Europe and use it?—No, there is no monopoly there.

Is it well known in Europe?—Yes. It is known in Germany, Australia, Spain, and it is largely used in England, Wales, and Scotland.

Use of  
in Eur

Do the mine managers here, and contractors and merchants, know of the existence of roburite?—Many of them do.

Many gentlemen connected with the mines, including the Chairman of the Chamber of Mines, have given evidence before the Commission regarding explosives, and they have only referred to the dynamite monopoly, and asked for free trade in dynamite, but not a single one has mentioned roburite.—Of course, they don't mention any explosives; they want free trade. If there is free trade and free importation, then miners and mine managers will have an opportunity of using whatever explosive they please. Of course, I may mention, it has never been to the interest of the concessionaires to say anything in favour of any other explosive.

The d  
monop  
robur

You see the dynamite monopoly is for the importation of all explosives; so, consequently, when it is proved that for the mines roburite is better, that can be arranged, through the Government, to import roburite instead of dynamite.—About two and a half years ago, the Chamber of Mines sent a memorial to the Volksraad asking for amelioration with regard to the dynamite monopoly. It was brought before the Raad, and it was stated by Mr. Vorstman that as soon as an explosive could be manufactured at a price lower than the present price of dynamite, the Explosives Company was wholly prepared to treat with the holders of such patents with regard to the manufacture and sale of such explosive, so that the mines should have the benefits accruing from such invention. Acting on this, I interviewed Mr. Vorstman, and asked in what way he would allow us to import roburite. The manager promised to bring the matter before his directors, and on Sept. 5, 1895, replied that his directors had decided that my offer could not be taken into consideration. I replied, expressing surprise at this decision in view of the assurance given

to the Volksraad, pointing out that roburite was quite as effective for most mining purposes as dynamite, and much more suitable for coal mining and quarrying, to say nothing of its valuable properties of safety, and stating that as under similar conditions as those which the Explosives Company enjoyed from Government, roburite could be manufactured and sold in the Transvaal at much less than the present price of dynamite—even after providing the Explosives Company with an adequate consideration for the privilege of working under their rights—I should be glad to know in what manner the Company was “wholly prepared” to treat with the holders of the roburite patent. To that communication a formal acknowledgment was received, stating that the directors saw no reason to depart from the resolution already come to. My firm had been trying for seven years, without success, to get a fair trial for roburite in the Transvaal.

and No. I understand that the Nobel's people are trying to suppress roburite?—Yes, they are trying to suppress the manufacture of all articles that interfere with nitro-glycerine explosives, not only here, but all over the world.

Suppose the dynamite monopoly is taken away and free trade is given?—That would allow the mines to select their own explosive. I mentioned in my statement that the Cape Government, in 1890, in view of the many accidents which had taken place in the Colony, submitted a sample of roburite to a chemical expert, who, after many trials, has given a certificate to the Government guaranteeing its perfect safety. The Cape Government has allowed us to manufacture roburite in Port Elizabeth, and it is sold and conveyed through the country without any restriction as to the observance of the Act that applies to dynamite. I need hardly point out that this is a great boon to prospectors and quarrymen, as they can keep the roburite about their work or in their houses without the slightest danger.

I am very pleased with the evidence and your declaration, because it is the first duty to protect life and property, and this evidence will give great assistance in considering the dynamite question. People ought to look after the lives and property on the mines, and this is one of the reasons for considering the doing away with the dynamite monopoly.

*Mr. Smit.*

imental- Can you give us names of people here who have had practical experience of a robur- roburite?—Yes. Mr. Howard Harris, of the Tyne Valley Colliery; Mr. J. M. Donald of the Bantjes Consolidated.

*Mr. Hugo.*

of robur- Is it as powerful as dynamite?—It is a better explosive than most classes of dynamite, but it is not as powerful as blasting gelatine. For coal mines it is invaluable, not only because it brings out the coal in a more marketable condition, but because there is no risk should unexploded cartridges happen to be shovelled into a furnace with the coal, as sometimes occurs, with disastrous results, in the case of dynamite cartridges. If an opportunity were given in the Transvaal to use roburite there is little doubt that with the assistance of chemical science, means would be found to make roburite as strong as blasting gelatine, so that it could be used for the very hard rocks in deep level mines.

*Mr. Joubert.*

ation re- You say you cannot get information about the mining disasters last year. If you wanted information you should have gone to the head of the department and not to subordinates?—I would have done so if I had had time. I cast no reflections on

officials, but merely state the fact in explanation of my inability to furnish fuller details as to accidents.

Roburite has been receiving my attention for some months, and from the information I have on the subject, and which it is my intention to lay before the Commission, I believe it is far safer and less costly than dynamite.

Price  
of r

Mr. Brochon.

I was induced some years ago to use roburite, and it was fairly satisfactory. You speak of the noxiousness of the gas of dynamite; what is the gas of roburite?—I am not a chemical expert, but I know that the gas roburite emits does not contain carbon-monoxide, which is the poisonous gas in dynamite. There are, of course, fumes from every explosive, but gases emitted from roburite are not harmful like those emitted from nitro-glycerine explosives. I may mention that, in the first inception of roburite, Nobel tried every means to damage its reputation, and it so happened that a miner had died from the effects of an accident, and it was said that he had been poisoned with the fumes of roburite. Nobel industriously circulated this to his agents all over the world. The directors of roburite instituted a searching medical investigation, with the result that it was stated on the best authority that the man did not die from the fumes of roburite.

Robur

Roburi  
Nobs

How do you use it?—By the aid of a special detonator. The detonator for exploding gelatine and dynamite is not of the same character. It is very small. It has been proved that dynamite cartridges left in a hole may be exploded with a strike of a drill, but, with roburite, you may strike it with a sledge hammer and it will not explode.

Manner  
plodir  
ite.

Can you tell us anything about its composition?—It is composed of the same ingredients as the Sprengel class of explosives. Dr. Roth was the inventor of this particular explosive. It is composed of nitrate of ammonia, with the addition of an extract of coal-tar, commonly called tar salts. The chemical name is chloro-di-nitro-benzole.

Compos  
roburi

How if you put fire to it?—If you place it in a fire it simply burns away.

If you take a dynamite cartridge it will burn too, though part of it when hot enough will explode. Now, does roburite burn right through, or will part of it explode?—You cannot ignite it, hence another reason of its being a very good explosive for mines. It does not sustain combustion. Supposing you take a bucket full of roburite and plunge into it a red hot iron rod, it would simply blaze up, but, immediately the iron is withdrawn, the flame disappears; hence it is not liable, like dynamite, to ignition when, as sometimes happens, the detonator in the priming cartridge is pushed in too far, and the dynamite becomes ignited and sends off poisonous fumes.

Compa  
safety  
nite  
burite.

Can you tell us something about the price of roburite, as many witnesses here have stated that the actual cost of dynamite is 37s? What would be the price of roburite without duty? What is the price at home?—It is sold at home at £2 1s. 6d. per case.

Price of r

That is very expensive. We can get dynamite at 21s. 6d. a case, that is, £43 per ton.—I may mention that the power of roburite is greater than dynamite. A smaller quantity does the same amount of work in proportion of three cases of roburite to four of dynamite.

Proport  
power of  
mite ar  
burite.

Do you mean that the roburite is as strong as dynamite? It is stronger.

What is the density of roburite?—It is a little more bulky than dynamite. Where you would use 4 ozs. of dynamite in a hole, 3 ozs. of roburite would occupy the same space, and do equal work.