

# HARNESSING THE ZAMBESI

HOW VICTORIA FALLS WILL WORK  
THE GOLD MINES OF THE RAND

**VICTORIA FALLS.**—The financial arrangements for harnessing the Niagara of the Zambesi have been completed. Within the past few months a London syndicate has been formed, with a paid-up capital of \$15,000,000, and surveys are now making for the installation of some of the greatest electrical plants of the world. The various power companies of the Rand have been purchased, and the new syndicate practically controls the power possibilities of South Africa. The works which it has in operation about Johannesburg and in the gold mines will pay something like \$400,000 a year above their operating expenses, and it is planned to transmit the enormous force of Victoria Falls by wire, not only to the Transvaal, but everywhere within a radius of 600 miles from this point.

FIVE TIMES AS GREAT AS NIAGARA.

I have already written of the beauty and grandeur of Victoria falls. They surpass Niagara in their scenic effects, and the engineers claim that they surpass it also in the mighty force with

which these millions of tons of water drop down upon the rocks. They fall with a thunder like that of artillery. The noise can be heard ten miles away, and the spray on a bright day goes up to a height of 1,500 feet in clouds of pillars of mist which are visible for 50 miles around.

As to the exact force of the falls, this is a matter of scientific calculation. The engineers claim that they have a possibility of \$5,000,000 horsepower. The possibilities at Niagara are put at 7,000; and if these figures are correct the Victoria falls as a working force are five times as great as our own. Not only the falls themselves, but the descent of the river through 40 miles of gorges may possibly be utilized. At any rate, there is no doubt that they have here a force greater than all the demands that can be created for many years to come, and that it may be used for the building up of an industrial empire which will affect the whole of this part of the continent.

THIRTY-FIVE MILLION HORSE-POWER.

Have you any conception as to what 35,000,000 horsepower means? If the total fall of Niagara could be used, it would equal the latent power of 200,000

**Their Force is Five Times That of Niagara and Equal to All Our Coal Mines—What Thirty-Five Million Horsepower Means—Electricity To Be Carried 600 Miles Over Aluminum Cables on Steel Towers—How the Power Will Be Used—Business on the Zambesi—Electricity In Nyasaland.**

tons of coal every day. This power here, at the same rate, would daily equal the force of 1,000,000 tons of coal. So that, figuratively speaking, a million tons of black diamonds are dropped down into this gorge every 24 hours. In other words, the Victoria falls every two weeks supply an energy equal to that of the yearly coal output of the state of Alabama, and in one year, if their volume were the same from season to season, they would almost equal the force contained in all the coal mined in the United States in that year. Our total output of coal is now 375,000,000 tons per annum.

Whether these enormous figures are correct or not is a little matter. The possibilities are beyond any demand. The horsepower now in use in the Transvaal is less than 500,000, and all that we have developed at Niagara is not quite two-thirds as large. This present syndicate plans to start with 50,000 horsepower, and it will have a quarter of a million horsepower within not many years.

HOW THE FALLS WILL BE USED.

During my stay here I have gone with the officials of the British South Africa company to the proposed power station and the northern bank of the river above the falls, where the canal will be dug which will take the water and drop it into the turbines. At some distance above the falls the Zambesi is two miles wide. It narrows to a mile before it reaches the great gorge into which it goes in one mighty drop of 400 feet. The falls are as wide as from the treasury to the Capitol in Washington, and the water drops straight down for a distance of 400 feet. By means of the canal now projected the drop will be only 350 feet; and the water will pour into 16 great turbines, each of which will generate 5,000 horsepower, making 50,000 horsepower at the first installation. The machinery used is to be just the same as is now employed at Niagara, and one of the chief engineers connected with the construction is a man who has put up works at Niagara. This is Mr. Ralph D. Mereson of New York, a well known authority on the transmission of electricity at high tension. Mr. Mereson said that there is no doubt that this power can be carried for a distance of 600 miles, and he speaks of the scheme as practical and profitable.

CARRYING ELECTRICITY SIX HUNDRED MILES.

The scheme involves the carrying of the juice, or electrical current, for a distance of 600 miles, and it is proposed to construct a line that long from here to the gold mines of the Transvaal for the first installation. This is much further than power has yet been carried in our or any other country. We are working plants more than half that far in California. There are tramways in Oakland which get their electricity from water powers 140 miles away, and there are certain stations

served by the California Gas and Electric company at a distance of 350 miles. If this plan succeeds it will result in the power of Niagara Falls being carried to far beyond Chicago, and to its utilization in New York, Boston, Washington, Cincinnati, Indianapolis and throughout the mighty industrial heartland, that enclosed within a 600 mile radius of Buffalo.

ALUMINUM WIRES AND STEEL TOWERS.

As is now planned, the power will be carried through aluminum cables as big around as a man's wrist, and these will be supported by great steel towers 60 feet high. Each tower will weigh in the neighborhood of 100 tons. It will be bedded in a cement foundation and will be made about six times as strong as the weight of the cables and insulators seems to demand. An expert in the construction of towers in Scotland and tested. This tower is much like some which are now used in the United States. It looks like those used for windmills, and is 60 feet high. Each tower will probably carry several cables. The insulators will be of porcelain and will weigh from 50 to 75 pounds each. The cables will be of aluminum wire with a large number of strands to each cable. The towers will be erected a thousand feet apart, and it will take in the neighborhood of 3,000 of them to reach from here to the Transvaal.

It is probable that there will be a much less loss of power on account of the wires being so high in the air, and the scientists claim that the percentage of waste in the transmission will be exceedingly small. They say that they can probably send the electricity at a pressure of 150,000 volts, which is much greater, as I understand it, than has yet been attained by any working plant in the United States. The current of some of the Niagara companies is sent at a voltage of 60,000, and this is two and one-half times that.

IN THE ZAMBESI GORGE.

One of the remarkable features of the falls here is the mighty gorge into which the falls pour. This gorge is over 40 miles long, and the water in it falls so rapidly that an enormous power can be developed outside the falls themselves. Within 15 miles there is a fall of 200 feet, and the water in it falls so rapidly that an enormous power can be developed outside the falls themselves. Within 15 miles there is a fall of 200 feet, and the water in it falls so rapidly that an enormous power can be developed outside the falls themselves.

WHERE THE POWER WILL GO.

As to the utilization of the power to be developed by Victoria falls, it will comprise the greater part of South-central Africa, and it is estimated that about 600 miles from here to the Indian ocean. It is a little more than six hundred miles from Johannesburg, and a like distance away from the great orange mountain range of the Free State. Within that radius would come more than a thousand miles of the Cape to Cairo railroad, all of the two thousand miles of the railroad of Rhodesia and a large portion of the mines of the Transvaal. It would com-

prise hundreds of small gold mines in Rhodesia and the great deposits of iron which lie between the Zambesi and the Kongo Free State. If the experiments for smelting by electricity which are now under way in this country and Europe are successful the ore from these mines may be turned into pig iron by the power from the falls. They will also be especially valuable to the great copper syndicate which has been recently organized to develop the vast deposits just over the boundary of the Kongo Free State.

As it is now, the Transvaal is said to be paying something like \$15,000,000 annually for power, and a large revenue should come to the company from the gold mines alone. The initial plant, which is to produce 50,000 horsepower, will be all used by the land, and other plants will speedily follow. The success of the whole undertaking will depend on whether the power can be successfully and profitably carried to a distance of 600 miles, or about as far as from New York to Cleveland.

One very serious matter in connection with the project is the possible breakage of the wires, but this will be avoided by a reserve turbine station, which will furnish power to supply a temporary breaking down of the main plant, and there are other projects under way which will furnish additional power in such cases.

As to the aggregate possibilities of the falls, I quote the figures that are given here. There is no doubt but that the force is greater than South Africa has in use for a century to come. As for myself, I doubt the statement that it so far surpasses Niagara, for the reason that there are times of the year when the Zambesi is low, and a water-fall of this kind can only be gauged by its minimum flow. The Zambesi can certainly furnish several million horsepower year in and year out.

WILL IT INJURE THE FALLS?

One of the great questions in connection with Niagara is whether the taking away of the water for electricity will eventually destroy the falls. It is claimed that the volume of water flowing over the American falls is already much less and that the total diversion, when all the works now operating or under construction are carried out, will be equal to about 40 per cent of the minimum discharge of the Niagara riv-

er. At present the plants are said to have a capacity of about 50,000 cubic feet of water per second, whereas the normal discharge of Lake Erie over the falls is only a little more than 200,000 cubic feet per second. At this rate the falls will not be many years before the beauty of our falls as a great natural wonder will pass away.

The same fear has been expressed as to the Zambesi falls, but the British South Africa company has been careful in granting concessions which will prevent anything of this kind. The difference in the fall of the Zambesi is very great at different times of the year, and the views when the river is high cannot be impaired. The canals to be constructed are to be so arranged that neither the electrical works nor their course will be visible from the falls themselves, and every effort will be made to preserve this as one of the wonders of the world. No factories will be allowed nearby, and the enormous parks which have been laid out as a perpetuity will be kept intact.

POWER FOR THE ZAMBESI.

These falls will supply power for the navigation of the Zambesi and its tributaries. The Zambesi itself has about 400 miles of navigable waterways. It is one of the great rivers of the world and it ranks fourth on this continent. The biggest of the African rivers is the Congo, after which come the Nile and the Niger. The Zambesi rises in Portuguese West Africa in a great plateau which is about a mile above the sea. Its springs are not far from those of the Kasai, which flows into the Congo. The upper course of the river is over a grassy plain, which is annually inundated. As the stream reaches the boundary of Rhodesia the valley narrows and the course is broken here and there by falls and rapids. The river has dropped 2,500 feet before it arrives at this point, and it then falls about a thousand feet within 20 miles. It is slow and sluggish just above here, and it looks somewhat like a great pond several miles west of where it makes its great jump of 400 feet into this mighty even, waited with precipitous rocks. It falls rapidly in the gorge, but after 40 or 50 miles or so, the water again becomes quiet and it runs onward comparatively smooth, with the exception of a few places, for a distance of 800 miles to the Kebrabassa rapids in Portuguese East Africa, and thence on 400 miles further into the sea. The last 400 miles are always open to navigation, but the delta is low and sandy and some of the channels are frequently clogged.

BUSINESS ON THE ZAMBESI.

I stopped at one of the chief mouths of the Zambesi on my way down the coast. The river divides as it nears the ocean and until recently the chief entrance to it was at Quillman, a town on the Kwa-kwa river, 14 miles from the sea. This is now separated from the Indian ocean by a bar and the easiest approach is by the Chinde mouth. There is a bar there also, but

small steamers go over it and bring the goods from the ocean vessels which anchor outside. During our stay the water was so rough that passengers had to be taken on and off in a basket.

From Chinde one can go up the Zambesi and its tributaries by boat. There are three transportation companies, and the vessels start inland shortly after the arrival of every ocean steamer. Some of them go into the Shire river and on into Nyasaland. Chinde is, in fact, the gate to that British colony, and it is only one of several promising stations in the colony. Zomba, for instance, which is much farther inland, has electric lights. It gets its power from the Zomba mountain, down which a river flows with a fall of 1,500 feet. Turbines are used, and the dynamo is started at sunset to light the town, the power being used during the day for sawing lumber and other work. The development of these falls may furnish the power for the railroads of the coast. Indeed, a railway 100 miles long connecting Blantyre with the Shire was completed last April, and this is soon to be extended to Zomba, where this electric power is.

FRANK G. CARPENTER.

LADIES' DAY, SALT LAKE, Monday, August 24th.

ATTENTION INVESTOR!

If you are looking for an investment that will pay, handsomely with absolutely no risk investigate this. The money is placed in a corporation owning and controlling valuable interests and is absolutely free from debt. The money will be used to extend the business in which the profits are very large but legitimate. We solicit investigation. Address P. O. Box 412, Salt Lake City, Utah.

WASATCH SUMMER RESORT.

Hotel, family cottages for rent. Stage leaves McHenry's Livery Stable, Murray, daily 8:30 a. m. Special stage leaves Saturday evening, returns late Sunday evening. Round trip \$1.50. John Stanley, Mgr., Murray; phone, 421, black.

Expert Kodak Finishing.

Harry Shipley, Commercial Photographer, 151 South Main, second floor.

LADIES' DAY, SALT LAKE, Monday, August 24th.



THE POWER STATION WILL BE IN THE GORGE.

Photographed for the "News" by Frank G. Carpenter.

## SALT LAKE ARTISTS AT PLAY

BY A SCANDAL MONGER.

### CRUEL JOKE ON ART CRITIC.

THE irrepressible joker who is invariably in evidence at weddings broke out in an entirely new direction this week at the Lee Greene Richards reception at which were gathered a number of artists and friends to bid the popular young painter God speed in his matrimonial undertaking.

While all who were present are reticent regarding the affair it is understood that several of Mr. Richards' artist friends conceived a brilliant idea and proceeded to put it into execution.

During the past week a Main street engraver has been having a sale on engravings which have been a feature of his window display. A happy thought struck a couple of the artists who passed and without any more ado they proceeded to put it into execution. They entered the store and purchased one of the masterpieces, frame and all for the stupendous sum of \$1. Then taking their purchase tenderly home the suitable packing case was prepared and the priceless treasure duly nestled among cotton batting and suitable packing. The lid was nailed on and the package addressed to Monsieur Lee Greene Richards in unmistakable French cursive. Then followed some artistic touches in the form of French stamps, bogus custom house signs and countersigns. After spending considerable time on the composition it was duly delivered on the afternoon and the conspirators saw that it occupied a prominent place among the more expensive wedding presents that were in evidence for the delectation of the guests. It goes without saying that Mr. Richards was too busy on his wedding day to attend to such matters.

In due season the guests arrived and these cruel jesters took great pride in exhibiting the work of art painted by a famous French artist and sent to his friend in Utah. Those who were on to the joke assisted, but some who were not duly worshipped. One individual, so the story goes, promptly went into ecstasies over the morsel and proceeded to deliver an impromptu lecture on French art and technique much to the edification of some of the assembled guests who envied the connoisseur.

When the cruel joke eventually was made public at supper the expert in French masterpieces subsided and now to or a dozen people are thirsting for blood—at least that is the way the story goes.

LADIES' DAY, SALT LAKE, Monday, August 24th.

Ed. Stromness & Son, 741 State St. First class Horseshoeing, \$1.50.

SALT LAKE, MONDAY, AUG. 24.

Free transportation to all ladies.

### A NEW BATTLE OF GETTYSBURG.

THE Commercial club is becoming noted for the variety and originality of its attractions. The latest and most striking of these interesting features was presented yesterday afternoon by Manager Fisher Harris before a group of appreciative friends. The gentleman's ever ready genius is too well known for repetition here. Suffice it to say that it remained for him to bring out yesterday from his repertoire of accomplishments, its most iridescent and brilliant scintillation; and it is not drawing a long bow to state that not merely a new star, but an entire constellation has thus been added to American musical composition.

The occasion of all this remark was Mr. Fisher Harris' new music drama, "The Battle of Gettysburg," scored for piano, orchestra and band by himself.

Mr. Harris favored a select circle of friends with a private recital of his chef-d'oeuvre in the ladies' parlor of the Commercial club. With that grace and polished ease that have made him famous over two continents, he glided in, almost unconsciously, to the piano stool. Then, after adjusting himself in artistic pose, he opened with an "andante assai, non troppo con moto," as he happily characterized it. Its pathos moved the audience to tears—it would have drawn tears from a peeped onion. Mr. Harris then branched off into an allegro vivace of arpeggios, as up and down the keyboard swept the performers' arpeggios. In a Chinese maze of musical brilliance it was inspiring—the audience became hypnotized into a state of coma. When Mr. Harris had reduced the chromatic scale to the condition of shedded breakfast food and chased the diatonic scale clean into the woods, he explained that this was an portrayal of the charge of Pickett's cavalry brigade against the Union line "waiting to chaw the Johnnies up." The general joining of the battle was then delineated by the talented composer in a movement opening with an adagio at the sky-parlor end of the keyboard, followed by an ominous rattling bang in staccatoed thirds, at the sub-bell end of same. Presently the two forces came together in the middle register first floor front, with a double forte outburst that filled the parlor with metaphorical smoke, and pretty near prostrated the audience as Mr. Harris galloped from one end of the battle field to the other, cheering the Confederate forces in bass chords of convulsive fifths and presto agitato 4/4 in ad agitadum. Mr. Harris fairly hung mid air as he emphasized in tempestuous melodic elaboration, and harmonic cyclone the terrible carnage of the famous conflict. The notes flew from the piano like bullets from a Gatling battery, and thicker than fleas on a Constantinople dog. Octaves, shot off in hayscale lols, illustrated the discharge of artillery, with the rattle of musketry rolling off in symphony of seven sharps in rhythmic frenzy.

The grande finale came with a crash like a crown sheet explosion on a locomotive, in a series of G-sharp and F-sharp in the major ninth, and Mr. Harris rose proudly, with gracious bows in acknowledgment of "the plaudits of the multitude." The bell boys hauled away the fragments of the

Removal Notice.

The Monroe Studio has moved to new location, 38 1/2 West Third South. All on the ground floor. Opposite Greene-Wald Furniture company. I will give my personal attention to all sittings in my new studio. C. H. MONROE.

TARIFFS THE WORLD OVER.

Tariffs as they are used, for the benefit of the simple in the interest of the shrewd, instead of for plain revenue taxation, make trouble everywhere. Just now their most obvious troublesomeness is in the British empire, which they seem destined to break up. It may almost be said that the reckless Australians are quite willing to employ them to that end. In retaliation for the refusal of the present imperial government even to discuss the Chamberlain scheme of preferential tariffs within the empire, they have framed a tariff which seems to be freezing indifference to the commercial interests of the motherland. Pictures it as a wall six feet high, with a six-inch stool on the outside of it, offered to the British manufacturer for his help in climbing over. Pages of newspaper talk could not be as expressive of English feeling as this clever cartoon.

Besides flouting England with such a tariff, the exceedingly independent Australians have met overtures of commercial intimacy from the Canadian branch of the great British family in some way so coldly indifferent that the Canadians are resentful and are going to stop the subsidy which sustains an Australian steamship line. It is evident that the friction heat developed at the last colonial conference does not cool, but its widening cracks in the imperial structure, for the mending of which there is no practicable cement in sight.

Then, happily, patching done, if an English majority could be persuaded to use the Chamberlain plaster of preferential duties for the purpose; but that means persuasion of the English workingmen to take their food supplies from all sources in the world except the British colonies. This may be possible, if the plea for it goes with an offer of old-age pensions, for which new duties might provide funds; and it may be that England will be driven to new departures in policy along those paternal lines. The change will not be a progressive one if it comes. J. N. LaFollet in the Buffalo (N. Y.) Express.

LADIES' FREE.

Salt Lake, Monday, Aug. 24th.

FRESH EGGS.

Eat Brook Ranch eggs and poultry. Phone Forest 69 n. y.

CORRECTING HER ANSWER.

A teacher in the Garfield school was teaching a primary class the beginning of arithmetic.

"Now I have one pencil in my right hand and one in my left," she said. "How many pencils have I?" Helen, you may answer.

"Two," piped a small voice.

"Then one and one make two, do they not?"

"Sure."

The teacher frowned at the disrespectful answer.

"That's hardly what you should have said," she said. "Will you tell me what Helen what her answer should have been?"

"There was a moment of hesitation. Then one brown fist shot confidently into the air.

"Ah, James you may tell Helen what she should have said."

"Sure Mike!" shouted Jimmie, in a tone of triumph.—From the Kansas City Star.

## SICK DRUGGISTS

What they do when THEY have Kidney Disease.

Druggists know that "Kidney trouble" is "inflammation of the kidneys" and that if it doesn't yield promptly it becomes chronic, which the books declare to be incurable. Hence they don't lose much time with so-called kidney medicines.

W. H. Bell, the leading druggist of Live Oak, Fla., went to the Atlanta specialist, Dr. W. M. Durham, to treat his kidney disease. He had it in such a serious form that he wanted the best. He also went to Dr. C. Drew, the leading physician of Jacksonville, Fla. All efforts failed and the dropsical stage began.

He then sent to California for the Fulton treatment.

The seventh month thereafter he wrote as follows:

"I am doing finely, the swelling is 'all out and I am 100 per cent better."

"Mrs. R. W. Price of this city also had 'serious kidney disease, and could not turn over in bed. I told her 'about the treatment. She took it 'and is now doing her own work 'again and says she is well. Another 'lady here had kidney disease all her 'life and could not get out much. I 'put her on the treatment and she is 'well, too."

How can people doubt the curability of such a kidney disease in view of the constant stream of testimony like the above?

For inflammation of the kidneys, whether called "kidney trouble," "neuritis or Bright's" disease, get Fulton's Renal Compound.

Druggist Bell sent across the Continent for it. Isn't this a strong pointer for the untreated?

Literature mailed free. John J. Fulton Co., Oakland, Cal.

E. J. Hill Drug Co. are our sole local agents. Ask for Bi-monthly Bulletin of late recoveries.

BRIGHTON HOTEL

Head of Big Cottonwood Canyon

Open Monday, July 6.

Daily stage leaves Sugar House at 8 a. m. For terms, write or telephone.

T. C. DAVIS, Sugar House, D. H. McFARLAN, At the Hotel, Bell Forest 4-k.

# The Portneuf-Marsh Valley Irrigation Company, Ltd., Downey, Idaho,

Offers you a chance to get a home in the beautiful Marsh Valley, with a small payment down and nine years additional in which to pay out. The land is equal to the finest fruit land in the country.

## Notice of Opening of Carey Act Lands

Boise, Idaho, July 31, 1908.

By order of the State Board of Land Commissioners of the State of Idaho, the following described desert lands will be opened for entry and settlement on and after September 7th, 1908, in tracts not to exceed 80 acres, by any one qualified to enter the same under the provisions of Acts of Congress Approved August 18, 1894, June 11, 1896, and March 3, 1901, commonly known as the Carey Acts, and an Act of the Legislature of the State of Idaho approved March 2, 1899, and the rules and regulations of the State Board of Land Commissioners of Idaho in relation thereto:

All of the lands described in the contract between the United States and the State of Idaho, dated May 14th, 1905, which are situated in Bannock County, State of Idaho, and are particularly described in said contract which is on file in the office of the State Board of Land Commissioners, said lands being approximately 12,000 acres situated in Township 11 South, Range 36 East, Township 10 South, Range 37 East, Township 11 South, Range 37 East, and Township 12 South, Range 37 East, B. M.

Applications to enter said lands may be made in person or by authorized agents to any agent of the State Board of Land Commissioners at Downey, Bannock County, Idaho.

The land will be sold to the entrant at the price of 50 cents per acre, one-half of which shall be paid when application is made and one-half when final proof is submitted.

All applications must be accompanied by a copy of contract for the purchase of water shares in the Portneuf-Marsh Valley Irrigation Company's canal system at a price not to exceed \$35.00 per share.

One share will be required for each acre of land entered and will represent a proportionate interest in said canal system.

E. R. GOODING, Governor and Chairman.

M. I. Church Register.

Write For Particulars.

# Portneuf-Marsh Valley Irrigation Co., Ltd.

DOWNEY, IDAHO.

## FOLEY'S KIDNEY CURE

Will cure any case of Kidney or Bladder Disease not beyond the reach of medicine. No medicine can do more.

FOR SALE BY F. J. HILL DRUG COMPANY, SALT LAKE CITY.

Cures Backache

Corrects Irregularities

Do not risk having Bright's Disease

or Diabetes