

A3424 / B1.15.2

CO-OPERATION
AMERICANS

In 1887 the total gold output of the world was about \$107,000,000, while for 1914 the output of the Rand alone was in the neighborhood of \$165,000,000, and of the world, \$455,000,000. This phenomenal advance in the local industry brought in its train an urgent need for men from abroad experienced and trained in gold mining. This statement on its face also demonstrates the necessity for cultivating and advancing local talent. The Rand attracted engineers from all over the world.

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Engineers - good - ref's -

Rickard, interviews, H. Jewett, pp. 243-244, pp. 245-246

Good relations existed between these men of diverse origins?

In the early years there was plenty of work for all who came to the Rand with good technical experience, and there was most cordial relations existing between the different technical men. The great influx of Americans was most generously received and treated by their English kinsmen. Certainly, I have reason to acknowledge the great kindness extended to me by them in both the Transvaal and London.

It was self-evident that it was wasteful, and soon impossible, to continue indefinitely the importation of expert talent from abroad and that the natural and right

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thing was to train the younger men while advancing the older ones that had demonstrated their ability. The sending of Royal School of Mines students from London and the founding of technical teaching in the Transvaal was certainly a right step for student-training schools. Many of these showed exceptional talent and it was a pleasure to advance them. At the time of my leaving I was gratified to see what able managers had been developed on the Rand. In consequence of this policy the American engineers who returned to their own country were not replaced by new importations and thus, at the present time, the number of American engineers on the

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Rand is far smaller than ten or twelve years ago. It is gratifying, however, to look back on the work done by Americans and see how they have done their full share in bringing about the great achievements of the Rand. Any impression that the American technical men did it all must be set aside. Taking all the names previously mentioned, it would be quite impossible, impolitic, and presumptuous to attempt in any way to adjudicate individual praise to the engineers, managers, and technical men cited. The results and history of the greatest goldfield in the world, more eloquently than any comment from me, speak for them.

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results speak - returning not replaced -

Jewett's in 1915

~~Job losses~~ - the Americans.
Replacements

Hammond, J.H., replaces J.H. Farrar as C.E. of
Suwei + Jack 1894

Webb (Thesis
p. 102)

Engineers - Ams. Job losses. e

~~eg. Pope~~ (Webb, p. 102)

eg. Pope on Simmer + Jack (there 6 yrs.) 1894
replaced by V. H. Clement, (J. H. Howard)

Co-operation - not Competition

Hammond, J. H. loaned to Randfontein (JBR) 1899

SAMJ, 1 April 1899, p. 471.

~~with~~ ^{Has} ~~nothing~~ "nothing to do with Corner House (ibid)
nonsense of "monopoly" claim by local morning newspaper.

Dimensions and Construction of Shafts.—In the early stages of deep-level shaft-sinking on the Rand the depths to the reef were comparatively small, and all sizes and dimensions of shafts will be found in the first row of deep-level mines. When deeper shafts had to be sunk, it became advisable to adopt a uniform size of shaft, if only for the sake of the advantage of ordering the same sizes of shaft-timbers from the timber-merchants. With this object in view, a meeting of the leading consulting engineers and general managers was held, the result of which was the adoption of the size of shaft and dimensions of timbers shown in Figs. 5, 6 and 7. The majority of the shafts started several years ago, and proportioned for depths of 2000 ft. and over, are five-compartment shafts containing four hoisting-compartments and one pump-and-ladder-way. The hoisting-compartments have varied from 4 by 6 to $4\frac{1}{2}$ by 6 ft., which came to be recognized as a bad proportion; hence in the new shafts they are made 5 by 6 ft., with a $6\frac{1}{2}$ by 6 ft. pump-and-ladder-way. The advantages of balanced hoisting and of two hoisting-engines for deep work are self-evident; and while the pump-and-ladder-way is larger than is required for the air- and water-mains (especially since electric pumping with stations 500 to 1000 feet apart has been almost univerrally adopted in these shafts), the additional space in this compartment is useful as permitting the installation of a separate cage for the handling of air- and water-mains, electric cables, pumps, and any general shaft work, without interrupting the regular hoisting-work of the mine. Aside from this, the additional area of the shaft is

useful in reducing the velocity of the air-currents, es-

largest, deep-level shafts, p. 910

Shafts - Co-operation - for Prelim. or heavy - shaft timbers 1900 same.

BRA, HE, vol. 57, Wernher, Beit & Co. to H. Eckstein & Co., 27 Nov. 1891, p. 268

Chlorination:

We quite see no objection to a bigger Co[mpany] and also to inviting other Cos. to show them what we do - it must be a private concern.

anticipating Buller's private Co.

Co-operation -

in Metallurgy

Caldecott

JCMMS, Oct 1908, p.125, Discussion, W.A Caldecott

Another result of the introduction of the cyanide process has been the development of scientific methods in gold ore treatment generally. The gold contents of material cyanided being usually invisible in the pan before treatment as well as after, necessitated constant sampling and assaying, and consequently a certain amount of gold was called for by these returns, instead of a mere acquiescence in the fact that at the end of the month a certain amount of gold was available for lodgment in the bank. An understanding of the reactions taking place in hydro-metallurgical operations required some knowledge of chemical principles, thus creating a demand for men with attainments beyond those of their hardy predecessors, the muscular metallurgists operating in Dead Dog Gulch or Wallaby Creek in past days. These tendencies have acted and re-acted in all branches of gold extraction work and to their effect, greatly aided by the free interchange of ideas in our own Society, may be very largely attributed the reduction of ore treatment costs and the high percentage recovery of values, which are marked features of the last decade.

JCMMS, July, 1897, discussion, J. R. Williams.

The conclusion that we must come to is that in this country of coal, copper, lead, silver and gold, so far the only article that we can produce in competition with the world is gold. Therefore, as chemists and metallurgists, looking at it from the Transvaal standpoint, the only subject that is worthy of our immediate attention is the chemistry and metallurgy of gold. Behind in all other things, the Transvaal stands foremost in this, and it is a matter of congratulation to us that such a profitable field is open for our work. The metallurgical problems that are being solved to-day in this country command the respect and attention of gold miners and mine owners all over the world. From the crushing of the quartz in our mills to the final extraction of gold in the slimes sands and by-products, the work being done on the Witwatersrand to-day is the most perfect and complete of any gold fields in the world. The evident reason for this is the concentration of energy and skill in a limited area. **The free exchange of ideas allows of no room for the secret process. Exchange of ideas takes place from day to day between men working in similar lines, and such interchange has led up to gratifying results.** I am glad to say that many of the men who have aided in perfecting the processes for the production of gold are members of the Chemical and Metallurgical Society, many of whom I see here to-night.

CO-OPERATION — JENNINGS & BOUCHER 1893
Village Main Reef — SHARED CONSULTING
ENGINEER

BRA, HE, vol. 58, H. E. Davies to J. Wernher, 10 Jan. 1893, p. 474.

Co-operation over Village Main Reef:

Desirous of getting Mr Jennings' co-operation with Mr Boucher as joint consulting engineer to the Village Main Reef

Local board with Mr Rudd on it

CO OPERATION

— CHLORINATION —

SHOW

RESULTS.

DEPARTURE

Ams depart
capital

beginning of
thereafter.

A/B War - de Waal
article.

De Waal, p. 85

By the end of the 1890s American mining engineers in the Transvaal had clearly made their mark. Many left the country at the beginning of the Anglo-Boer War, never to return. Yet after the war, it was the continuation of their faith in the goldmines of the Transvaal which enabled the industry to become reestablished. It was not until the early twentieth century that substantial American capital began to be invested in South Africa.

Most Am's left after A/B Bazzoli War. + 1899

Bazzoli p. 70.

The American impact on mining in the 1890s was very strong, and although most of the Americans left the country when the Anglo-Boer War broke out, it was their faith in gold mining in the Transvaal which spurred it on to become the great industry that it is today.

Departure of Amos. — Hall a few hundred 1899
→ Klondike

(Hall, p. 92)

In December 1899 the pro-Boer American consul in Pretoria was replaced by the son of Secretary of State Hay. James Stowe, the consul-general in Cape Town, was pro-British, while his counterpart in Portuguese Lorenzo-Marques expressed sympathy for the Afrikaners. Stowe predicted confidently that after the war "higher civilization will prevail, new mines will be developed, new industries inaugurated, and all men will be equal under the law."¹⁰⁰ By then the American community in the S.A.R. had dwindled to a few hundred. Many had left for the gold strikes of Alaska's Klondike. Hammond sailed for New York in December to lobby for British support. This abrupt exodus brought to a conclusion the second phase of American entrepreneurial involvement in South Africa.

Departure of Am. — Rhodes's death — de Beers + 1902
All disappearance of Am. presence
Then others —

Holl, p. 117.

Cecil Rhodes, .. had done more than anyone in the 1890s to tap American expertise and to take advantage of Am technology (Hammond + Williams)

But after Rhodes's death (1902) first de Beers then other mining firms declined to renew the contracts of Am. engineers & managers. The Am. presence in S.A.'s extractive industries receded almost as quickly as it had spread, its post taken by Br. citizens, some Germans, & other nationals.

But probably most Americans steered clear of involvement in the conflict; many left South Africa to avoid it. Many were already leaving anyway, and the day when the American engi

neer dominated the Rand, while not yet over, was on the wane. Indeed, the Americans themselves helped to speed the process. Not only did they serve on Transvaal committees to improve mine health and safety and to report on the future of South African mining,¹⁵⁰ some of them took the lead in organizing or improving technical institutions that, in effect, would train their replacements. Hennen Jennings was one of the founders and the first president of the South African Association of Engineers and Architects, a group that became the South African Association of Engineers in 1898. Jennings also helped establish the South African School of Mines and Technology, and many young engineers on the Rand after about 1904 would be trained here or at the Royal School of Mines in London, which Jennings also helped reorganize.⁵¹ With able managers developing on the home scene, American engineers returning to the states were less likely to be replaced by their own countrymen.

(Spence pp. 315-316)

Departure -
Balanced
etc -
Wants -
Edin helped
speed it.
Spence.

Departure of Amis. Campbell leaving -
Am do return after A/B Wen.

Campbell, p. 8

The American presence in South Africa did not go unnoticed by South African authorities, especially by the imperial officials sent out to 'reconstruct' the Transvaal after the South African war. Visionaries like W. T. Stead might speak of Anglo-American ententes and the inevitability of America's global rise, but for Lord Milner and his minions the United States was a rival intent on stealing a prize purchased with British blood. One of Milner's first acts was to impose a special 'permit system' on interior travel. The policy, which in essence barred non-imperial citizens from entering the Transvaal or Orange Free State, prevented American mining engineers and entrepreneurs from re-establishing themselves on the Rand. (The system had the additional benefit of curtailing the movements of African American missionaries of the Methodist Episcopal

Departures with fortunes -

1898

Spence, p. 307

Those who were left [in the USA were] wishing that "our American friends would get in the way of paying as our English cousins do."

Beyond the basic salaries, possibilities were unlimited. In 1889 [sic 1898] Eugene Hoefler, a California Mines graduate, wrote that many Americans were leaving South Africa, some for holidays, some for good. Most of the older hands have made so much money that work is too troublesome," he said. Hoefler had earlier written that Henry C.C. Perkins had left Johannesburg "with something over £250,000"; Thomas Mein had gone "with a fair nest egg of 90,000, more or less"; whereas Hennen Jennings "has not got enough money yet for he is still hanging on. Certainly, £100,000 ought to satisfy most men." Another engineer reported that Ernest Wiltsee had just cleared \$50,000 cash on a deal, and Wiltsee himself admitted a profit on investment in boom property that netted him \$187,500 on an input of \$250." But John Hays Hammond was the most successful. In an expansive mood in 1895, he wrote a friend concerning his work with Rhodes, whom he called "the greatest Englishman of the age and he has not reached his zenith yet. . . . He suits me to a T." His own work he described as "more commercial and financial than technical". "I am making money fast" he said, "and expect to have about \$750,000 well in hand by end of this year- then shall take a rest in London but go on adding to my pile until I reach the million mark-which should not take many months.

Departure

Engineers

1906 - on.

Central Mining + Rand Mines - efficiencies & economies.

Kubicek, p. 79

Both introduced a number of efficiencies & economies into gold mining. Spendthrift American engineers were replaced with more cost-conscious British experts.

MR. P. CAZALET, JOINED THE SOCIETY IN 1899.

Mr. P. Cazalet: The Council have done me the honour of including me among the select band of "grey heads" to talk to you about past days in our industry. The honour is more than appears on the surface, since I have been asked to cover, in a contribution of 1,000 words, the fateful period of 17 years, from 1903 to 1920.

A short and sketchy list alone of the factors influencing the mining practice of the period will show the hopelessness of the task set me.

(1) Rehabilitation of the mines and re-starting of milling after the South African War.

(2) The advent, work and repatriation of the Chinaman.

(3) The first big strike on the Rand—July-August, 1907.

(4) The feverish exploitation of the mines under what I might not unfairly call their "Stock Exchange" era.

(5) The passing of the American pre-eminence among Rand mining engineers and gradual return to the States.

(6) Their replacement in the main by British managers and consulting engineers, and the advent of an era of sounder mining practice in the interests of safety and stability. The coming of the South African

Passing of the
Mining Engineers
& 1907 Strike
JCHMS, March 1934, p. 312, Fortieth Anniversary, P. Cazalet.

born mine worker and engineer into their own in control of the industry.

(7) The very serious influence of the July, 1913, strike, with its repercussions on discipline and efficiency, but little countered by next—the abortive strike in January, 1914.

(8) The replacement and gradual passing of that engineering abortion, the "Compound Shaft," and later, the gradual elimination of the incline shaft with the growing exhaustion of the first row of outcrop mines and their replacement by ever deepening vertical shafts, until ultimately the second stage vertical began coming into the picture.

(9) The effect of the absence and subsequent return of only some of those members of the mines' staffs who could be spared to go overseas during the Great War.

(10) The shortage of supplies from overseas and its influence on extending local industries and its training of the mine staffs to utilise to their full possibilities the locally made spares and requisites, and the necessity to do without new parts when prices soared unduly: a very useful training in economy for the whole industry.

(11) The ceaseless war waged during the whole of this period to trace the causes, and then to counter the incidence and lastly, to mitigate the effects of our really serious Rand scourge of Miners' Phthisis.

(12) The coming together of the leading scientific and technical societies of the Rand, for their mutual benefit and for that of the industry as well.

Americans - Departure of - not preferred 1908

(BRA, H.E., 154, h. Phillips to F. Eckstein, 13 April 1908)
I'm not sure which date in 1908 - It is that year.

'As to a successor: we need a man of the first rank. If such a man is available, I would prefer an Englishman to anybody else. The American element in our mines is very strong, and it would not be a bad thing to have a chief engineer of another nationality. Unfortunately mining engineers of the first rank are rather scarce in England. The alternative is an American or a German. It is important that the man shall not only be technically qualified and of unimpeachable character, but also that he should be a gentleman and agreeable; if he has got a pleasant wife, so much the better.'

dreadful paper on honor

DISSATISFACTION
WITH


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Dissatisfaction with Americans.

18. 11. 18.

Dissatisfaction with - See Money Making

- Departure

Johannesburg: an African city in change

City of Johannesburg Council
edited by Susan de Villiers

zebra Press, 2001.

American Engineers - Corner House Dissatisfaction
Try for Germans.

1891

(BRA, H.E., vol. 57, W.B & Co to H. Eckstein & Co, 20
Nov. 1891, p. 258)

Mein [Captain Thomas]

We shall expect your final decision re German mining
engineers. We must get more independent of America

Captain Mein makes it quite a favour to come and be
the laid

Am Mining Engineers
Robeson 1905.

speculation

(Fraser and Jeeves, p. 334, HE 152, L. Phillips to F. Eckstein, 11 Dec. 1905.)

I have had a talk with Robeson about his position and explained, as I did to Sidney Jennings, that we cannot contemplate an increase of our establishment charges in these times. I, however, told him that we were entirely satisfied with his work and that I hoped that when times were better, or if we were able to do any good new business, to be able to give him a bonus. He owes the firm about £8,000 against securities, a list of which I enclose for your private information, as it will show you the speculative instincts of even the best of our people. While there are considerable losses on the better stocks he bought, the bulk are accounted for by plunges into such questionable ventures as Rhenosters, Justin's, Bushveld Tins, Klerksdorp Gold Farms, etc. He fully realises the folly and in future, I think, when he gets some spare money will probably ask me to invest it for him. He is going for a holiday in the spring and I propose to pay his travelling expenses on condition that he visits all the latest mechanical works to improve his knowledge. The object, of course, is not only that he should acquaint himself with the latest projects, but also to help him . . .

EMPLOYMENT
OPPORTUNITIES

EXPERTISE &
QUALIFICATIONS

Schools for Mining Engineers

- Royal School of Mines
- Königliche Sächsische Bergakademie at Freiberg

(Spence, p. 5) — 12

that the term "mining engineer" traditionally was used loosely and that for the purposes of this study a mining engineer was anyone—technically trained or otherwise—who did the work normally done by the profession. Modern writers particularly are prone to use the designation indiscriminately, applying it to almost anyone connected with the mineral field. Thus, Jesse R. Grant, son of President U. S. Grant, Ambrose Bierce, who for a time worked as an agent for a mining company, and even highwayman "Black Bart" have been so dignified,⁷ although their careers do not warrant the use of the title.

It seems fairly clear that the mining engineer profession was in general white, masculine, and middle class.

Main world
no women in S.A. p. 6

States higher than in Br. p. 6
[Very much so S.A.]

(Spence, p. 11)

pp. phisway English

German, Scandinavian, French, Spanish, New Zealand

Canadian, Italian

(pp - 9 - 11)

On the other hand, despite these and many other exceptions, the majority of western engineers were American by birth but were members of a highly cosmopolitan fraternity. This became even more apparent because many of the Americans were themselves trained abroad in the 1860s and 1870s and because their services would be in great demand in foreign mining fields during the 1890s and thereafter.

The typical native-born mining engineer might be almost anyone. He might be drawn from almost any walk of life but the odds favored his coming from a background of at least

some means. He might be the son of financier William C. Ralston of California,⁴⁵ or of the Chief Justice of Rhode Island.⁴⁶ Like Daniel M. Barringer, he might be the son of a minister to Spain;⁴⁷ like Wilbur E. Sanders, he might be the son of a U.S. senator from Montana.⁴⁸ Karl Krug came from an old California wine-making family;⁴⁹ Robert Bunsen, a successful Colorado and New Mexico engineer of the 1880s, was a "near relative of the great chemist of that name."⁵⁰ Sherman Day, an engineer whose reputation in the early 1860s "probably stands second to none on the Pacific Coast," was the son of a president of Yale College, and Robert G. Brown's father was president of Hamilton College.⁵¹ Others were sons of lawyers, merchants, physicians, publishers, or cotton brokers.⁵²

Noticeable, too, was the tendency for a son to follow his father's footsteps in the profession. Thomas A. Rickard was of a family that at one time had eight members in the AIME. His grandfather, one of the earliest accredited mining engineers in the West, brought one of the first stamp mills to California, and his father was one of five brothers, all following the same calling.⁵³ Joseph H. Collins was known as "the grandfather of technology in Cornwall and the father of four good ~~mining~~ engineers": Arthur, the eldest son, had a global reputation by the time he was assassinated in Colorado in 1902, Henry was the author of a standard textbook on silver-lead metallurgy, and both Edgar and George had managed

p. 12

Worked way up - 'No survey of mining engineering wd. be complete without mention of a highly important triumvirate - Hamilton Smith, Henry C. Perkins, and Thomas Mein - all disciplined in the hard school of experience'
(Spence p. 22)

'practical experience + poor backgrounds' — p. 14

cd. start in another branch of engineering p. 15
p. 3. / some Br. trad. (apprenticeship) — relate to a pair of engineers. Then did formal course work at a local school
Then completed apprenticeship

Spence, p. 23.

Some ^x privately educated ^x - learned profession under
watches eyes of father.

Filing Engineers - Who were they

(Clarke, pp. 12 ff.)

anyone -

usually some means (p. 12) - see parents)

following footsteps of father (p. 12)

Thomas Richard's family & members of AIME (p. 12)

James (p. 13)

Charles of Hofmann - 4 sons - 1 → gKB (p. 13)

It is a knotty problem to value the extension of a deposit beyond a short distance from the last opening. A short distance beyond it is "proved ore," and for a further short distance is "probable ore." Mines are very seldom priced at a sum so moderate as that represented by the profit to be won from the ore in sight, and what value should be assigned to this unknown portion of the deposit admits of no certainty. No engineer can approach the prospective value of a mine with optimism, yet the mining industry would be non-existent to-day were it approached with pessimism. Any value assessed must be a matter of judgment, and this judgment based on geological evidence. Geology is not a mathematical science, and to attach a money equivalence to forecasts based on such evidence is the most difficult task set for the mining engineer. It is here that his view of geology must differ from that of his financially more irresponsible brother in the science. The geologist, contributing to human knowledge in general, finds his most valuable field in the examination of mines largely exhausted. The engineer's most valu-

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able work arises from his ability to anticipate in the youth of the mine the symptoms of its old age. The work of our geologic friends is, however, the very foundation on which we lay our forecasts.

Hoover, pp. 21-22

Hoover -
Geology - forecasts - optimism.

Accounts - Subject suggested by Jennings for engineers -
novel but NB. suggestion. K93

S.A. Hines, C. & G. 4 July 1903, p. 365 'The making of
a Manager'

accounts, arrangement of statistics & report work.

so may managers & engineers stated as accountant
& secretaries.

The Mining Engineers - Status, Skills, constant debate 1886
Combine practical & theoretical On

Mining & Scientific Press, 17 July 1886, p. 34, "School Experts and Practical Miners"

The 'practical man' points to thousands of ruins of mills which dot the hillsides and rot on the banks of mountain streams and other thousands of worthless and abandoned mining claims, as monuments of expert folly

Same monuments of practical man.

Best - both make uses of theoretical knowledge

Combine theoretical & practical

U.S.A - History of Quarky Mining - Initiated
Grass Valley -

1850

(Hammond, Autobiog., p. 74)

Ans. Typical of men in Am - pract. & hard -
prosperous parents.

Maaning, p. 4.

The American men we find in African mining are typical of their generations. The prospectors were the same forty-niners who panned gold in California, still looking for a chance to get rich quick. The engineers, a mixture of education and the practical man, were of the age when immense fortunes were made in America, when it seemed that a keen mind, hard work and determination were a guarantee for a fortune to be made, and many engineers did indeed come to great wealth, albeit with a slight advantage at the start in the form of prosperous parents. By the time of the opening of the Rhodesian copperfields, the energetic amateur and the excitement were gone---the extraction of ore was a planned process carried out by trained technicians. Let us now go back to the beginning and trace the careers of these American miners.

Management Experts - Shortage of — 1887

(Webb, p. 215)

press editorial 'Eastern Star' 11 Nov. 1888

called for 'gold experts, chemists and engineers
& mechanics, etc, to have some veridice of their
experience.

Cos. consid sums of money acquiring modern machin
to work ores (from U.S & Europe)

no such in importing skilled mining manager ^{experts} ~~expertise~~

- (1) cheaper colonials demanded skills from outset.
fields hard to be proven as workable &
profitable first - vide Gardner Williams libask
Prognosis
- (2) Wit.

What were the relations of the American engineers to those from other countries?

In 1887 the total gold output of the world was about \$107,000,000, while for 1914 the output of the Rand alone was in the neighborhood of \$165,000,000, and of the world, \$455,000,000. This phenomenal advance in the local industry brought in its train an urgent need for men from abroad experienced and trained in gold mining. This statement on its face also demonstrates the necessity for cultivating and advancing local talent. The Rand attracted engineers from all over the world. The American engineer was favored in the start through Hamilton Smith and H. C. Perkins, who were connected with the Rothschilds and who were also in touch with H. Eckstein & Co. and the De Beers Co. Through them Gardner Williams and Louis Seymour came to Kimberley, where the leading Johannesburg capitalists had their start, and myself and others to the Rand.

The English engineers, managers, and technical men were early on the spot and were strongly represented by such men as Sydney J. Farrar, J. Harry Johns, Fernside Irvine, Theodore Reunert, O. Lentz, C. J. Alford, J. Herbert Davis, Edgar P. Rathbone, E. J. Way, George Richards, G. A. Goodwin, H. R. Skinner, J. M. MacFarlane, Laurie Hamilton, F. Spencer, C. Rowe, A. R. Sawyer, K. D. Griffiths, E. H. Melville, G. R. Andrews, and later by Hugh Marriott, R. J. Frecheville, S. J. Speak, Stanley Clay, F. H. Hatch, S. J. Truscott, S. Hancock, David Gilmour, Kenneth Austin, E. F. Laschenger, and W. H. Wood. I must not omit the name of F. Raleigh, the secretary of the Crown Reef and afterward chief assistant to Mr. Webber. J. H. Curle was mill-man at the Nigel for a time while I was consulting engineer.

The Eckstein firm was instrumental in bringing to the Transvaal a large number of American technical men, among whom in earlier years were (in this list names of those arriving after 1903 are not included): 1887, J. S. Curtis; 1889, Sidney J. Jennings; 1890, Charles Butters, Joe Richard, John Walsh; 1891-2, Thomas Mein, O. H. Hahn, R. H. Harlan, W. W. Mein; 1893-4; H. C. Perkins, George E. Webber, E. A. Blanton, G. B. Poore, Richard E. Bowen; 1895, W. H. Hall, Eugene Hoefler, Palmer Carter and Lane Carter; 1896, Louis Seymour, J. S. Price, W. Bradford, and later, H. S. Stark, R. C. Warriner, and Maurice Robeson.

John Hays Hammond came out in 1893 for the Barnatos. He soon changed to the Gold Fields group and

Rickard, interviews, H. Jennings, pp. 243-245

Engineers, managers + technical men - listed by H. Jennings

1915

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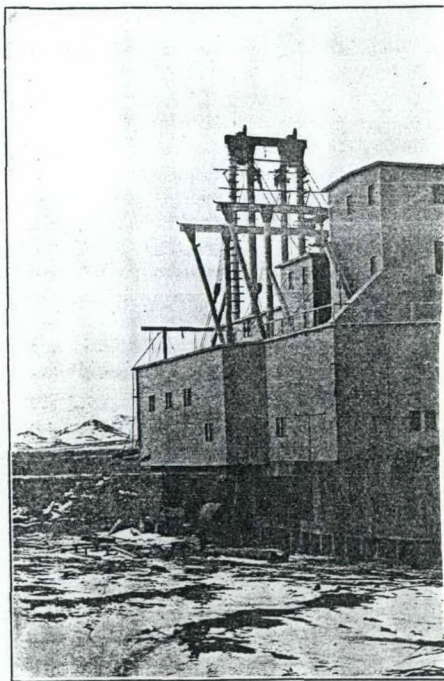
the

introduced a number of Americans, among whom were George Starr, for the Barnatos, and Victor Clement, Pope Yeatman, H. H. Webb, R. V. Catlin, H. C. Behr, and Ernest Wiltsee for the Gold Fields.

The Neumann group obtained in T. H. Leggett and F. Hellmann two other prominent American engineers, and George F. Becker, of the U. S. Geological Survey, made for them a geological report.

There were not many engineers of other nationalities: notable among these were J. Klimke, a Hollander, State Mining Engineer, R. N. Kotze, also State Engineer, a native of the Transvaal, H. Islin, Swiss, Schmitz Du-

→ P 245



ONE OF THE FOUR CONREY DREDGES. B

mont, L. De Launay, a professor of the Ecole des Mines who wrote a treatise on the mines after his visit, as did Bergrath Schmeiser, a German government engineer.

No survey of mining engineering in the West would be complete without mention of a highly important triumvirate—Hamilton Smith, Henry C. Perkins, and Thomas Mein—all disciplined in the hard school of experience. Born in Kentucky and educated in New Hampshire, Smith early went to work in his father's coal mines and cotton factory in Indiana. There and in Kentucky, he developed several collieries, but was drawn to California in 1869 and soon became manager of the North Bloomfield mine in Nevada County, where he was instrumental in the establishment of low-cost powder works and where he became the recognized authority on hydraulic mining techniques. When hydraulicking was drastically curtailed after the debris controversy, Smith turned to quartz mining in Alaska and in Venezuela and then, with Edmund DeCrano, formed the Rothschild-backed Exploration Company, Ltd., in

↑ 22

Smith, Perkins, Mein Triumvirate

London, a pioneer among exploration and finance companies in mining.¹¹ Henry Perkins had migrated to California at the age of seventeen to do office work for Frederick Law Olmsted, who in the 1850s was trying to develop the mineral resources of John C. Frémont's Mariposa Estate. When these efforts failed in 1865, Perkins moved to the New Almaden Quicksilver Company, using this as a springboard to the North Bloomfield, where he became Hamilton Smith's assistant in 1871.¹² Thomas Mein came to California in 1854, and for thirty years built a mining reputation in Nevada County where Smith persuaded him to take charge of the El Callao mine in Venezuela. Perkins likewise spent time at the El Callao, and, ultimately, he and Mein joined the exodus of American engineers to South Africa, where both their reputations and fortunes reached new heights.¹³

↑ 23

—no formal training.

Spence, pp. 22-23

EXTRAVAGA
NCE

The logo features a large, ornate, calligraphic letter 'C' that loops around itself. The word 'Croxley' is written in a similar calligraphic font, with a registered trademark symbol (®) to the upper right of the 'y'.

A - Z (203 x 127mm)

JD 1430

Extravagance - H. Smith - Phillips 1892

Fraser 9 leaves, p. 60. N. Phillips to A. Best
(10 Sept. 1892)

discounting
H. Smith's large [sic - in italics] ideas
- 250 stamps - we know 100 are
practicable.

Admin

— Too Expensive → - Road Miles
→ Mine Managers

Fraser and Jeeves, pp. 152-153, L. Phillips to J. Wernher, 5 March 1906, HE 152

~~Central Administration~~ In order to save you from giving a lot of thought to this matter and perhaps writing at length, I sent you a cable to inform you that Webber and Price agree with my views. In view of Reyersbach's fear that any change would be the means of our losing Webber, I hesitated to do anything without your knowledge and approval, but during the week Webber came to me to discuss some question of management which offered such a splendid opening to discuss the matter that I took the bull by the horns and was delighted to find that he himself is very much worried about the drift of things owing to central organisation. He is going to think the matter over very carefully before we decide upon radical changes, but, as far as I can judge, he is disposed to go a good deal further in decentralisation than I had contemplated. He and Price both agreed entirely that the present system tends to stifle the ambition of the managers upon whose energies they recognise we are entirely dependent for success, and when I pointed out to Price how unnecessary it seemed to me to appoint an acting General Manager in his absence, he said he only wished he had known my views before, as he himself had the same idea.

One fact is obvious, either our managers are good enough to *manage* properties (*id est*, to carry on the operations in the ordinary way) or we ought to have others. The duties of a General Manager, in my estimation, are perfectly clear. He is the representative of the Board of Directors who watches the younger men in their work and helps them when any difficulty arises, and who is the barrier against foolish and costly experiments. If men like Price and Webber can each supervise, say, ten managers and hold in view the larger questions connected with the management, they are doing ample service. In the event of their needing a holiday for a few months, no one should represent them, but the managers should be left to carry on their work in the ordinary way with the stipulation that no radical changes are to be made during the absence of the chief and that any unusual occurrence is to be at once reported at headquarters, so that an engineer of experience can be sent out to assist in its solution.

Webber tells me that the Head Office of the Rand Mines is three times as large as when they started and he considers it is much too costly for the results secured. He is inclined to question even whether the central buying department is an economy in the long run. Over the coal contracts, for instance, which we have given in accordance with Robeson's calculations and which have passed in many cases into new hands, I find immense dissatisfaction among the old suppliers; and serious doubts have been raised in my mind as to whether we shall obtain fuel any cheaper than we should have done by letting each manager get his own coal and keeping careful statistics for comparison in costs per ton. Each manager knows his own boilers best and sweeping conclusions by Robeson may be theoretically correct, but in some instances not so in practice. Last year, for instance, a good deal of Belfast coal was used, which is now admitted to be uneconomical for our purposes, and none of our managers probably would have thought of using it.

I could go on writing upon this subject, but it is needless, and as I find both Webber and Price entirely in sympathy with me, you need not worry your head about the matter. I may tell you that I find the system of centralisation is a great deal talked about outside and always adversely. The investigations I have been able to make so far confirm the correctness of popular opinion . . .

A.M. M. Engineers —

Demands — see Hoffman?

Too Much Coal — See Robeson

Adminⁿ Costs.

Collection Number: A3424

Collection Name: Elaine Katz Papers, 1800s-2000s

PUBLISHER:

Publisher: Historical Papers Research Archive, University of the Witwatersrand, Johannesburg, South Africa

Location: Johannesburg

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