The tower of Babel - Babylon's remarkable feat of engineering and construction - had to overcome the challenges of language, communications and co-operation.
On the eve of its 40th anniversary, SRK had matured into a global group with more than 50 permanent offices in 23 countries on 6 continents. It boasts more than 1,500 scientists, geologists, engineers, specialists, managers and support staff — experts in exploration, resource evaluation, due diligence, geotechnical services, water, environmental management, project evaluation, tailings, waste, extractive metallurgy and mineral processing. It is a multi-specialist consultancy, owned by the staff, with the long list of internal shareholders produced as an appendix in each annual report.
SRK’s work has embraced everything from the largest mining projects on the planet to a water system with hand-laid pipe for small African villages. SRK consultants have been involved in diamond mines from the Canadian Arctic to equatorial Africa, in massive copper and iron open pits high in the Andes, landmark South African railway tunnels, the historic sale of British Coal and the unprecedented environmental remediation of Eastern Bloc uranium mining.

By any measure, the firm was a remarkable achievement for the three ambitious and audacious young men who sought success not by clamping their knowledge tightly to their chests, but by sharing it professionally — and at Friday night sessions, a habit that spread around the globe, reflecting the firm’s unique, egalitarian corporate culture.

Steffen, Robertson and Kirsten did not have a formula for success — if anything they believed there were no formulas or rules. Everyone was thrown into the deep end to sink or swim. Although that was never quite true — there were always some pretty impressively credentialed lifeguards watching over and mentoring, and there still are. Nevertheless, the true legacy of SRK’s founders is about an approach, a way of doing things, a set of values that they and that first generation championed no matter where the firm opened an office. The managerial handbook *Empowerment Takes More Than a Minute*, by Ken Blanchard, Alan Randolph and John Carlos, laid it out: share information with everyone, create autonomy through boundaries and replace old hierarchies with self-managed teams.

“We were very fortunate in that each of us — Oskar, Hendrik and I — were able to conduct our practices and manage the company fairly easily because we had a small, select group of people who shared our values and had reasonable business acumen,” Robertson says. “That worked.”

SRK grew out of an overachieving, intellectual individualism, a work-hard-play-hard professional camaraderie within a loose communal framework whose shape and direction was self-determined.

Kirsten thought the relationship with academia was critical in attracting the best and staying at the forefront. “We set out to take on young people every year so that we could continually bring the latest technologies into the business,” he says. “In year three, we invited an overseas professor to do a sabbatical at our offices and this became an ongoing practice. Those two initiatives resulted in professionals in the practice being exposed to top-class academics.”

The man who became the company’s acknowledged patriarch emphasised that a number of stars came into alignment to generate the success that SRK achieved.

“Some of it was luck of the draw,” Steffen says. “My father was a good businessman and my brother expanded on what he built, so I grew up with a good business ethos. Meeting up with Andy and Hendrik — who could have predicted that? And over the years, all those who came aboard — so many people made such wonderful contributions to the company, made SRK what it is. That was really good fortune.”

The genius of SRK was in recognising the difference
between practices and businesses. It could have become only a business of businesses, stuck strictly to running things entirely by Wall Street principles in a top-down, organisational way and not encouraged charismatic leaders with world-class capability.

“The challenge over the years was really getting the best people in their field,” Steffen explains. “That’s what mattered: attracting the best and keeping the best by giving them the freedom to grow. At the end of the day, for us it was providing people with opportunities they want to take — no matter where they are on the globe. I’m proudest of the fact that the people at SRK have delivered exceptional work and earned respect on six continents. It’s the people — and everyone in the company feels like it’s their company.”

Still, for everything — and everyone — there is a season. Even the grand old man of SRK passed on the torch when his time came.

The world has changed tremendously in the last 40 years, and SRK’s clients have changed just as much. Issues around the environment and human impact on it are paramount where once they merited not even an afterthought. Regulation is ubiquitous. Where mining was once dominated by those with flair and the freedom to do pretty much what technology allowed, now the industry is dominated by technologists and driven by statutory guidelines. There were few design codes when SRK was formed; their work and that of others across the mining and consultancy worlds developed a lot of what is now laid down in codes. Building the kind of tailings storage facilities that were erected even into the 1970s would be impossible today.

SRK is no longer the start-up company of adventurers that Steffen, Robertson and Kirsten and the others founded. It has reached corporate middle age and has become much more institutional than it was in its days when every project was a new adventure. And while its core culture remains, it has also adapted to new circumstances — in China, Russia or Chile, for example, where the specific histories and the particular ethos of those nations has led to unique but authentic expressions of the firm’s values. As a result, SRK has become a polyglot, multi-racial conglomerate, a veritable United Nations of specialists.

“As somebody once said, the language of international conferences is broken English,” Brian Middleton reflects, “and that is probably the language of all our meetings — Chinese English, Indonesian English, Australian English. That is a challenge for us as an organisation: to assimilate different languages and different cultures.”

The practices were all different — some required outside support in terms of services from other practices; others were large, full-service operations. Local markets around the world are different; the professional requirements are relatively similar, but you need local knowledge to build a practice — you can’t fake that, and a storefront with international firemen arriving to do the work will not suffice.

In spite of the cultural and language differences, though, there remains an ineffable, unifying feeling and force within SRK.

“At the end of the day, there is an SRK culture,” Neal Rigby maintains. “I won’t say for one minute it overrides local cultures. But it’s infectious. When I interact with the Chinese professionals, when I interact with the Russian professionals, there is an ‘SRK-ness’ that we’ve developed. It’s not the resistance-is-futile Borg of Star Trek. It’s a British SRK, a North American SRK, a South African SRK … around the planet they all have their own expression of a shared culture.”

In spite of occasional personality challenges, SRK
found a way to empower individuals and conduct business guided by mutually shared values grounded in transparency, integrity and fair process. The unique nature and character of the company was not a product of Steffen, Robertson and Kirsten alone. The credit went to a larger group of which Middleton and Rigby were part — a rough dozen or so key professionals who joined SRK over its first decade and found a common cause.

The best and the brightest were attracted by the romance and challenge of engineering in those days — today it is the spectacular salaries of financial work that lures too many of them. One of the key drivers of consolidation within the engineering and consulting industries is the dearth of top people.

In the beginning, when the small community of big mining firms looked around for expertise, there were a handful of men who had the experience and the academic and practical skills that fit the bill. Everyone knew each other. A career was about personal relationships. It still is, but the community has expanded beyond SRK. It is still about relationships, a body of work, gaining the respect of one’s peers and making responsible contributions to professional and regulatory policy discussions.

In general, as a company grows it tends towards the average and loses its edge. SRK has always resisted this tendency. Nevertheless, the technical superstars who made SRK stand out from other consulting firms — the tall poppies who characterised it for at least two decades — are harder to find. As the firm faces its fifth decade, what would it look like if it survived to celebrate a half-century? Would it, could it, should it remain the same? When they got together for principals’ meetings, for gatherings of the global board, for SRK internal events, for those beer sessions, everyone had an opinion.

“SRK once wrote computer codes for mining applications and led the world,” notes Louis Kirsten, truly representative of the company’s second generation. “Today computer models are ubiquitous. A lot of engineering is becoming proceduralised. I see that SRK will start more actively integrating the services it provides on a larger scale, fewer fragmented specialist services, more packaged services combined into larger integrated teams — more integrated, more managed to respond to the proceduralised demands of the client. We’re certainly seeing that in South Africa.”

Others continued to worry that SRK remained in danger of being absorbed into one of the larger consultancies.

“We have all of these different practices all around the world, and we have hundreds of staff, but the danger is we’re small fry for a big engineering company,” says Mark Campodonic. “In the next decade, our biggest challenge remains making sure we can compete effectively with the large players.”

Who knows what the future holds or how SRK’s internal architecture will evolve. There were always pressures to collate practices into more regional groups or discussions about making practice leaders with large groups more responsive so that SRK could remain dynamic.

“One of the questions that came up recently is ‘Are the current practice leaders barriers to the growth or the aspirations of people within the groups?’” says James Gilbertson. “I think it’s always something for us to keep an eye on.”

Major international law firms of similar size had found operating with large leadership committees of partners hampered them and had vested decision making in a handful of individuals. As much as anything, that ongoing internal existential dialogue is a measure of how the company continues to take the question of its internal culture seriously; it remains one of its hallmarks.

Today that culture is carried forward by the younger stars.
“I wouldn’t think that the company’s direction is likely to change in the immediate term,” muses Cam Scott, at 60. “The technology may change, the tools we use may change, but philosophically, I feel we will still be in a mining context dealing largely with mining companies, be they majors or juniors, as well as with governments, banks; doing due diligence and all that sort of thing. Mining will be mining a decade from now — only it will be bigger mines. It’s clear SRK will be part of that growth. Will we be bigger numbers of people? Maybe we need to do that.”

SRK found success when it had 3 people, when it had 30 people and when it had 300 people. It found profitability at all sizes and it managed to hang on to a set of core cultural values even as it grew and changed into a major corporation. Its secret was learning from its past. And as Steffen so emphatically underscored, there was one essential lesson that should never be forgotten: It’s all about the people — lose one of two key people and you can be in trouble. The challenge is keeping them satisfied, especially when you are dealing with those you hope are the best and brightest.

“Personal relationships are still fundamental to building a business,” says Briony Liber. “To be able to see people, see their body language, see how they interrelate. As SRK has grown and globalised we’ve lost some of that. We’re in an era where we are tied up by legislation and doing staff exchanges between offices is extremely challenging. We need to find creative ways to have more of that cross-pollination and sharing. For me, we must increase our ability to communicate with each other, to exchange those ideas, to work with each other on more projects. We must continue to emphasise the people.”

John Cowan comments: “I think our approach from early, early days was something that was carried on by partners and passed through the various departments, and I think there’s a sort of philosophy, a culture within SRK, that is very widespread. For some people, it didn’t work very well and they moved on, but I don’t think we’ve had a particularly high turnover. But for others, it was liberating. We don’t have ceilings at SRK. People can aspire to become whatever they want.”

As big as SRK might get, the sense is that it should always feel like Europa House circa 1978 — small, intimate, like a family, bustling and alive with promise and prospect.

It wasn’t size that mattered, it was something ineffable — that feeling of camaraderie and sense of professional integrity that animated that band of adventurers nearly half a century ago. That is what Steffen meant when he said SRK would never be swallowed — and what Robertson and Kirsten committed to — a vision of a company that emphasised individual excellence, dedicated to supporting professionals engaged in their practice; not a giant consultancy, no matter what its size, but rather a global network of practices under one roof. That is what they hoped would make SRK different, what would make it unique and ensure its success.◆
INDEX

Page numbers in italics refer to image captions or timeline items.

A
Aboriginal Affairs and Northern Development Canada, 194. See also Giant Mine project
Accaribo project, 161
Acres International, 57
Adams, David, 173
Adastra Minerals, 238
Advantz, 224, 271
African Explosives and Chemical Industries (AECI), 81, 252, 252
African Minerals, 220
African Rainbow Minerals, 202
African Regional Conference on Soil Mechanics and Foundational Engineering, 40
Akbas, Gözde Kaya, 262
Alamos Gold, 39
Alchemy community empowerment initiative, 248
Allen, Peter, 91, 97
Allende, Salvador, 151, 155
Alpysbayeva, Dana, 272
Aluminum Corporation of China. See Chalco
Amex project, 52, 54, 56, 58
Amco Arnot Colliery, 69
AMEC Consultancy, 164
Amir, Joram, 90
Amplats. See Anglo American Platinum
Anaconda, 162
Anderson Street Sewer Tunnel project, 96
Andina Mine project, 150–51, 153, 161. See also Codelco
Anglo American, 71, 75, 97, 128–29, 180, 199–200, 202, 214, 215, 219, 222. See also Anglo American Sur Exploration Division (Chile); Anglo American Tunnel Sur; Anglo Base Metals; Anglo Coal Australia; Anglo Gold; AngloGold Ashanti
Anglo American Platinum, 202, 248
Anglo American Sur Exploration Division (Chile), 157
Anglo American Tunnel Sur, 165
Anglo Base Metals, 128, 130
Anglo Coal Australia, 184
Anglo Gold, 191, 199–200. See also AngloGold Ashanti
AngloGold Ashanti, 202, 238. See also Anglo Gold; Ashanti Goldfields
Annels, Alwyn, 209, 221
Antofagasta Minerals projects, 165, 217
Applied Research Associates NZ, 181. See also Leapfrog
Arctic Platinum project, 183
Areva (France), 172, 178
Areva Resources Canada, 206
Armitage, Mike
and Alwyn Annels, 209
background of, 129, 130, 209
and British Coal project, 133, 134
as Cardiff University lecturer, 209
and joining SRK, 129, 130
as leader of resources team, 209, 221
photos of, 130, 134, 135
and SRK Exploration, 221
and SRK Kazakhstan, 271
and SRK Russia, 212–13, 219, 223, 224, 228
and SRK South America, 155
and SRK Sweden, 229–30
and SRK UK, 209, 217, 219
Armstrong, Robert, 233
ARMZ project, 229
Arpaçaoğlu, Bora, 261–62, 262, 263, 269, 271
Arthur, John, 135, 209
Arup, 15
Asamera Minerals, 66. See also Cannon Gold Mine project
Ashanti Goldfields, 160, 247, 247. See also AngloGold Ashanti
Assarel-Medet JSC, 215
Association of Consulting Engineers of Canada, 109
Atlantis Diesel Engine Factory project, 93
Atlantis treatment ponds project, 93, 93
Atok Mine project, 246
Australian Nuclear Science and Technology Organisation, 185
B
Bafokeng tailings dam project, 28, 31, 33–38, 34, 39, 47, 48, 54, 245, 246, 247
Baker, Howard, 209
Bald Mountain gold project, 203, 204
Barbour, Tony, 253
Barclays Bank. See British Coal project
Barfoot, Roy, 125, 126, 127, 131
Barnato, Barney, 39
Barnes, Chris, 72
Barnes, Lee, 209
Barrett, Wayne, 195
Barrett, Andy
background of, 99, 99
and importance of local leadership, 164–65
and international benchmarks, 275
and international co-ordination role, 143, 145
and Jarek Jakubec, 195
and joining SRK, 99, 99
and Mark Liskowich, 206
photos of, 99, 145
and quality control, 275
and SRK Australia, 169, 170, 171, 172, 173, 174, 178
and SRK Global, 147, 189, 199, 275
and SRK India, 269
and SRK North America, 189–90
and SRK South Africa, 99, 169
and SRK South America, 160, 162, 164
and SRK structure, 147
and SRK Sweden, 229–30
and SRK Turkey, 261
and SRK-Robinson, 190, 191
and Westec, 191, 199
Barrick Gold Corp., 200, 204, 217, 238. See also Pascua Lama project; Placer Dome
Bartsch, Roland, 173
Bateman (South Africa), 234
BCL, 215
Beaufort West project, 44, 79
Beaverlodge Mine project, 58, 64
Bechtel Corporation, 151
Beit, Alfred, 39
Bentel, Dave, 71, 75, 99, 115, 115, 155, 169, 189, 203, 249
Bentel, Gary, 169, 171, 254
BHP Billiton, 125, 184, 197. See also Gencor
BHP-Utah Mines Limited, 59. See also Island Copper Mine project
and Lisheen project, 129  
and Malawi rail project, 41, 43, 43  
management of SRK, 97  
photos of, 29, 31, 41, 135  
and South African Department of  
Water Affairs project, 81  
on SRK structure, 46  
and SRK UK, 123, 124, 125, 126,  
129–30, 135, 218, 239  
and SRK Vancouver, 47  
and water services, 79, 81, 124,  
129–30, 253
Connolly, Brian, 205  
Constitutional Mining Law (Chile),  
151
Consult 4, 249, 253  
Consulting Engineers Council of  
Colorado, 59
Contreras, Luis-Fernando, 162  
Copper Flat project, 203  
Cortez Gold Mine project, 203,  
204
Corumba iron ore project, 166  
Costelloe, Declan, 128  
Council for Scientific and Industrial  
Research (CSIR), 4
Couture, Jean-François, 204, 205  
Cowan, Jun, 180–81, 181. See also  
Leapfrog
Cowan, John, 98, 130, 241, 242,  
242, 244, 282
Cowan, Jun, 180–81, 181. See also  
Leapfrog
Craig, Drew, 222  
Crandon project, 191  
Crews, Tony, 56, 104, 107  
Crook, Alexis, 135
CSIR (Council for Scientific and  
Industrial Research), 4
CSIRO Division of Petroleum  
Resources, 184
Cuajone project, 265  
Cücen, Berrin, 262
Cullinan project, 195  
CVG Minerven Columbia Mine  
project, 155
D
D&M. See Dames & Moore (D&M)
Dalai, Erdene-Otgon, 272, 273  
Dames & Moore (D&M), 109–10,  
111, 117, 160, 192
Danish Industrialisation Fund, 245
Davies, John, 30  
Davies, Lyle, 162
De Beer, Joe, 88, 250, 250  
De Beers, 19, 39, 39, 84, 123,  
124, 129, 193, 197. See also  
Debswana Diamond Company
de Bruyn, Ian, 183  
de Haan, Peter, 48, 97
Debswana Diamond Company, 39,  
233. See also Jwaneng Mine  
projects
Dehrman, Alison, 87  
Delaney, Tracey, 177
Dell, Tony, 73, 75, 93, 94, 96, 97,  
253
Delvers Street Cable Tunnel  
project, 96
Dempers, Gary, 172, 179  
Department of Environmental  
Affairs. See South African  
Department of Environmental  
Affairs
Department of Water Affairs. See  
South African Department of  
Water Affairs
Diering, Tony, 64, 70, 72, 75, 83.  
See also Gemcom
Dixon, Roger, 236  
DL Webb and Associates, 40
DMIPS. See Dynamic Mine  
Planning System (DMIPS)
Dodds, James, 129, 208, 221  
Doerksen, Gord, 195, 203  
Dominican Republic gold project,  
200
Dorey, Rob  
and Aldo Brigneti, 161  
background of, 43  
departure from SRK, 200  
and Dominican Republic gold  
project, 200  
and joining SRK, 31, 31, 43–44,  
74
and Kennecott Ridgeway Gold  
Mine project, 111
and Kowyns Pass project, 77  
and mine design for closure, 105  
and Oskar Steffen, 43, 44  
personality of, 31, 43, 189  
photo of, 31
and Quebrada Blanca Mine  
project, 155, 161
soil mechanics expertise of, 58  
and SRK Denver, 56, 58, 105,  
200
as SRK Global board member,  
147
and SRK North America, 189  
and SRK Reno, 107, 108, 115  
and SRK Turkey, 261  
and SRK Vancouver, 57  
and Thompson Creek Mine  
project, 57–58, 105
Dorman, Steve, 246, 247  
Dorowa Mine project, 29, 69, 69
Drakensburg Sun Hotel, 81, 83  
Dry Creek project. See Sukhoi Log  
(“Dry Creek”) project
Dry Gulch Riding Stable, 66. See  
also Cannon Gold Mine project
Duim, Sjoerd, 183
Duman, Gül, 262  
Duncan, John, 192
Dunn, Grenville, 244  
Durban, City of, flood risk project,  
249
Durban Corporation stormwater  
project, 249
Duthe, Diana, 241
Dynamic Mine Planning System  
(DMIPS), 71, 72, 75. See also  
Gemcom
Dynamite factory project, 93
E
East Kundana Joint Venture, 175.  
See also Raleigh underground  
gold project
Eldenvale pipeline project, 27, 27, 28
Egorova, Liubov, 224, 225, 227,  
228
EHW, 160, 171, 172–74, 177, 177,  
178, 179–80
Ekati Diamond Mine project, 195,  
197, 197–98
El Salvador Mine project, 162
El Teniente Mine project, 81, 84,  
155, 161, 162, 195
Eldorado Gold projects, 262  
Eldorado Nuclear, 206
Eldorado Resources, 64  
Elemental Minerals, 216
Elliott, Chris, 195
Engelsman, Bruce, 239, 253
Engineering Excellence Award for  
Special Projects over $10 Million,  
59
Engineering Geology of Southern  
Africa, 29
Ennsex Connonish Gold Mine  
project, 128
ENRC Management South Africa,  
238
Environmental Agency of England  
and Wales, 130
Kumtor project, 195
Kusile Power Station project, 247
Kwatabala pit design project, 233
KwaZulu-Natal waste-management plan, 249
Kyncoch fertiliser factory project, 244

L
L&S Consulting, 93
La Camorra gold mine project, 155
La Colorado project, 155
Labrum, Peter, 76, 77, 77, 239, 240, 245, 257
Laight, Tracey, 209
Langton, Chris, 170, 170, 254
Langton, Zelda, 170
Laubscher, Dennis, 84, 124, 153, 193, 195
Leapfrog, 180–81, 181, 183
Lebalelo water supply project, 240, 240, 245
Lee, Chris, 195
Lenzoloto, 234
Lesotho Highlands water project, 76, 92, 92, 95, 219, 236, 236, 249, 253
Letaba/Shingwedzi River catchment study, 87, 91
Lethhakane Mine projects, 69, 69, 218
Letseng Diamond Mine project, 69, 69
Levy, Jonathan, 76, 80, 83
Liber, Brinon, 282
Liebenberg, Charles, 93
Liebenberg & Stander, 93, 93
Lillicrap, Wassenaar and Partners, 82
Linero, Sandra, 162
Lisheen project, 128–29, 130, 131, 135

M
Ma’aden project, 128, 135
MacDonald, Andy, 72
MacGregor, Dylan, 191
Mach, Leah, 201
MacIsaac, John, 177
Mackie, Dan, 192
Maclean, Gordon, 254
MacSporran, Gary, 273
Madaouela project, 218
Magadan project, 212–13
Maguga dam project, 237
Mahangu, Dingaan, 247, 251
Makininen, Ilpo, 230
Makro Wholesale Department Store project, 44, 91
Malawi rail project, 28, 29–30, 30, 41, 43, 43
Maleba, Susa, 250
Malpass, Michelle, 135
Mandela, Nelson, 14, 14, 141, 169, 254
Mandziak, Terry, 201
Manhattan Mercury Mine, 103. See also Homestake McLaughlin Gold Mine project
Marenica project, 218
Marker, Horst, 83, 85, 93, 97, 253, 253
Marshall, Neil, 135, 135
Matsoku Diversion project, 92
Mbelenge project ESIA, 238
McCracken, Allan
and Alwyn Annels, 209
background of, 124
and Cardiff University, 209
and Iran project, 209, 212
and joining SRK, 124
and NCL Ingeniería y Construcción, 164
photos of, 129, 135
and SRK South America, 155
and SRK UK, 123, 124–25, 126, 128, 129, 129, 208, 209, 217
McCuaig, Cam, 178, 178, 180
McDonald, Sandy, 88
McEwing, Scott, 177, 183
McGinley, Joseph, 107–8, 107, 115, 189, 190, 249
McGregor, Andrew, 18
McKee, Davy, 128, 209
Mclachlan & Lazar Analytical Chemical Laboratories, 87
McLaughlin Gold Mine. See Homestake McLaughlin Gold Mine project
McLenehan, Rob, 114
McNeill, Rob, 245, 249
McPhail, Gordon, 104, 219, 234, 244, 245–46
McWhorter, Dave, 90
Medupi Power Station project, 247
Meintjes, Adriaan, 239, 241, 246, 247
Melnikov, Andrey, 224, 226, 228
MEND Program, 114
Messina platinum project, 236
Metorex, 238
Michaud, Michael, 201, 203, 205
Middleton, Brian
and Andy Robertson’s departure from SRK, 145
and Angola joint venture, 253
background of, 43, 44, 74, 96
and Binnie & Partners, 98
and Ceres dam project, 239
and Dave Bentel, 71
and environmental services, 87
and Harmony Gold Mine tailings
dam project, 245
and importance of local
leadership, 275
and Jack Caldwell, 44, 96
and joining SRK, 31, 43, 44, 74,
79, 96
leadership roles of, 97, 99, 141,
147, 179, 186, 189, 239
and Matt Braune, 251
on multicultural SRK, 280
photo of, 43
and Resource Development
Consultants, 245
and SRK Asia, 273
and SRK Australia, 174, 179, 180,
186, 257
and SRK culture, 281
as SRK Global board member,
147
and SRK in Africa, 257
and SRK structure, 97, 98, 99,
139, 141–42, 147
and SRK UK, 126, 135
and strategic planning, 98,
141–42
and water services, 76, 79–80,
81, 83, 91, 239, 251
Middleton, Jon, 257
Midgley, Des, 76, 79, 81, 239
Mikhailov, Alex, 219, 222, 225
Miles, John, 135, 135
MIMS, 72
Mincom, 72
Mine Environmental Neutral
Drainage (MEND) Program, 114
Minnr2, 72
Minera Alumbrera copper tailings
project, 247
Minera Escondida Limitada, 156,
160. See also Escondida Mine
Minerales de Sotula, 155
Minescape, 274
Minestar, 72
mine-waste disposal technology
manual, 114
MINEX Conference, 224, 225, 229,
271
Mitsubishi Materials, 161
Mitsui, 185
Miindas (Charles von Wissell's
servant), 8
Mogalakwena River catchment
study, 91
Mohale Tunnel project, 92
Monarch Resources projects, 155
Mondi Piet Retief, 244
Mondi Richards Bay, 244
Mongwalu gold project ESIA, 238
Mopani Copper Mines, 214, 238
Morrey, Dave, 88, 127, 236
Morris, James, 249
Morris, Sian, 135
Moss, Allan, 56, 58, 63, 233
Mossgas waste disposal project,
246, 247
Mount Hope molybdenum project,
204
Mount Lyell Mine project, 177
Mount Tolman. See Amax Mine
project
Mount Washington Mine project,
114, 115, 191
Ms swati Ill, King, 244, 244
Mudder, Terry, 80, 111, 113
Mufulira Mine ESIA, 238
Mulatos Mine (Mexico), 39
Muller, Gerrie, 245
Muller, Mary-Jane, 88
Müller, Robert, 244
Munroe, Stuart, 179, 185
Murphy, Bruce, 85, 195
Murray, Andrew, 18
Murray, Graham, 234, 244, 245
Mvumase River Hydroelectric
project, 96
Mwambashi copper project ESIA,
238
N
Nacala rail line project, 257
Nader, Beck, 166
Naismith, Alan, 85, 233
Nascimento, Marco Aurélio, 164,
164, 166
National Coal Board, 131, 131
National Rivers Authority project,
130, 130
National Strategy for Sustainable
Development (South Africa), 255
NBL Gold, 224
Nchanga Copper Mines, 3, 19, 69,
79, 85–86, 123, 253
NCL Ingeniería y Construcción
S.A., 151, 159–60, 161, 162,
163–64
Nel, Gert, 250
Nelson, John, 90
NEPA. See US National
Environmental Policy Act (NEPA)
Netherway, Nicki, 173, 180
Neuffer, Dan, 206
Newcrest Mining project, 172, 177
Newmont Mining Corporation,
204, 262, 263
Ninham Shand, 76, 240, 245
Nkana Mine ESIA, 238
Northparkes caving project, 195
Norwegian Geotechnical Institute,
239, 241
Nowak, Marek, 195
Nowatzki, Ed, 90
Nuclear Mendoza project, 72
Nutt, Peter, 20
Nyumba ya Akiba Cement Plant
ESIA, 238
O
Obuasi tailings project, 247, 247
Ocampo, Lionel, 161
O’Connell-Jones, Gavin, 72
O’Donovan, Gareth, 135, 221–22,
222
Ok Tedi Mining project, 183
Olauson, Rod, 146
Oldcorn, Richard, 131, 135, 135,
212
Olivier, Henry, 98, 239
Olympic Dam expansion project,
183
Onay, Emre, 262
Onverdacht project, 161
OPD. See RTZ Open Pit Design
(OPD)
Oppenheimer, Sir Ernest, 71
Orapa Mine project, 69, 69
Orellana, Sergio, 161
Ortlepp, Dave, 84, 155, 155, 161
Osvald, Petr, 272, 273
Ovacik Mine project, 262, 263
Oyu Tolgoi project, 195, 195
Özbakır, Mertcan, 262
Özkadioglu, Mehmetcan, 262
Öztürk, Ahmet Oğuz, 262, 263
P
PA&H. See Pincock, Allen & Holt
(PA&H)
Page, Chris
background of, 83
and Codelco, 151
departure from SRK, 195
and Jarek Jakubec, 193
Index
291 SRK Consulting: 40 Years in the Deep End

and Darrell Sandison, 140
and Daryl Hockley, 116
departure from SRK, 145–46, 146
and Dirk van Zyl, 28
emphasis on publication, 40
entrepreneurialism of, 3, 19, 27, 47, 109, 119
founding of SRK, 3–4, 15, 23, 26, 27, 28, 221, 256, 280
friendship with SRK co-founders, 4, 11, 15, 19–20, 21
and Gemcom, 110
and GEMS, 20, 28
and Geophysical Instrumentation, 3, 19, 20, 27, 40, 48
and Greens Creek Mine project, 61–62
on Hendrik Kirsten, 19
industry reputation of, 2, 28, 29
and Island Copper Mine project, 51, 61
and Jeremiah Jennings, 4, 9, 10, 11, 19, 20
and Key Lake project, 116
leadership of SRK, 96–97, 109–10, 111, 119, 135, 141, 146
and Malawi rail project, 29
marriage and children of, 4, 19, 19, 41, 52 (see also Robertson, Renée)
and Mary Connelly, 43
and North American expansion, 102
opening of SRK’s first office, 28
on Oskar Steffen, 19
personality of, 3, 4, 15, 18, 20, 27, 50, 52, 56, 63, 105
photos of, 1, 17, 18, 19, 25, 41
and Richard Connelly, 41
and Rob Bowell, 218
and Rob Dorey, 43
and Robertson GeoConsultants, 145, 146
and Robertson InfoData, 110
rock mechanics expertise of, 19
and SAICE, 40, 91
sale of SRK shares, 119, 141, 145
soils and foundations expertise of, 2, 19
and SRK culture, 40, 41, 75, 279, 281
and SRK Denver, 55–56, 57, 102
and SRK North America, 119
and SRK structure, 45, 145
and SRK Tucson, 51, 53–55, 56
and SRK UK, 130
and SRK Vancouver, 47, 50–52, 51, 52, 54, 55, 56, 57, 63–64, 74
and SRK-Robinson, 109–11, 111
on SRK’s first year, 31
tailings expertise of, 48, 52
and Thompson Creek Mine project, 160
vision for SRK, 4, 23, 31, 53, 282
and Wits, 2, 4, 9, 11, 15, 18–19, 53, 57
work ethic of, 4, 40, 41, 48, 52
Robertson, Jim, 51, 51, 64
Robertson, Renée, 19, 19, 40–41, 47, 47, 51, 51, 140
Robertson, William, 18, 18
Robertson Barrier Systems, 145
Robertson GeoConsultants, 145, 146
Robertson InfoData, 110, 145
Robertson Pincock, 51, 51, 53–54
Robinson, Dames and Moore (RDM), 109, 109
Robinson, Keith, 109–11, 109, 111, 116, 119, 130, 140, 141–42, 147, 189, 190, 199. See also SRK-Robinson
Robinson Mine project, 203
Rodd, Jemma, 135
Rodell, Wyndham, 91
Rodrigues, Fernando, 201
Rodriguez, Juan, 56, 57
Roman, Sergio, 157
Rosewarne, Peter, 93, 94, 253, 254
Ross-Brown, Dermot, 160–61, 162, 163
Royle, Michael, 192, 254
RTZ Open Pit Design (OPD), 70
Ruashi Mine ESIA, 238
Rushton, Mark, 11
Rust, Eben, 83, 91
Rykkaart, Maritz, 191, 192
S
Sa Dena Hes project, 191
Sabodala project, 195
Saddler, Piers, 135
Safety in Mines Research Advisory Committee, 84
Saïang, David, 230
SAICE. See South African Institution of Civil Engineering (SAICE)
Sawyer, Essop, 72
Samaniego, Antonio, 130, 131, 166
San Manuel Copper Mine project, 218
Sandison, Darrell, 140, 145
Santa Fe Pacific Gold, 204
Santoso, Budi, 273
Sappi Kraft, 244
Sappi Tugela, 244
Saskatchewan Mining Development Corp., 206
Saudi Arabia projects, 128, 135, 222
Sauvenier, Michel, 234
Savci, Gültekin, 261
Save River bed project, 83
Sawyer, Val, 201, 204
Schmidt, Paul, 140, 145, 147, 189
School of Mines (South Africa). See Wits (University of the Witwatersrand)
Schwartz, Ken
background of, 27–28, 35
departure from SRK, 97
and Dereck Warwick, 44
and Gemlab, 43, 43
and joining SRK, 27, 27, 28, 28, 31
and Jwaneng Mine project, 39
and Malawi rail project, 29–30, 41, 43, 43
management of SRK, 97
as partner of SRK, 97
photo of, 27
and SAICE, 40
and SRK Natal, 91
Scott, Cam, 58, 111, 146, 151, 160, 160, 164, 191
SELI, 157
Sexsmith, Kelly, 115, 116, 146, 191
Seymour, Clive, 170–72, 171, 179, 234
Sfriso, Alejo, 165, 165, 166
Shabanie Mine project, 83–84
Shangani projects, 44, 69, 69, 84
Shannon and Wilson, 109
Sharp, Tom, 192
Shell, 69, 183, 249, 254
Shepherd, Peter, 241
Shopley, Jonathan, 87
Short Term Evaluation and Planning System (STEPS), 71. See also Gemcom
Shotcrete Working Group, 84
Siddorn, James, 205
Silangan project, 195
Simone, Ole, 245
Simposya, Victor, 234
Sing, Bernice, 135
Sintoukola Potash project, 216
Skelton, Rick, 31, 43, 69, 70–71, 72, 97, 135, 135
Slabbert, Jan, 245
Slabbert, Mike, 98, 249
Sliwa, Renate, 173
Smith, Adrian, 56, 63, 76, 79, 80, 80, 87, 113, 114
Smith, Graeme, 41
Smith, Janet, 41
Smith, Mike and Anglo American project, 71
and Bafokeng tailings dam project, 35, 39
and Dave Bentel, 71
departure from SRK, 245
and joining SRK, 31, 31, 35, 39
personality of, 75
photos of, 31
and SRK culture, 44
and SRK UK, 126
and tailings dams team, 219, 234
Smith, Peter, 267
Snap Lake Mine project, 195
Soldi, Carlos, 130–31, 159–60, 166
Sonnekus, Gerrie, 91
Sosa Méndez Mine project, 155
South Africa Environment Outlook, 255, 255
South Africa mining industry restructuring projects, 202
South Africa National Strategy for Sustainable Development, 255
South African Association of Consulting Engineers, 20, 237, 246, 247
South African Association of Consulting Engineers Glenrand MIB Golden Jubilee Award for Technical Excellence, 237
South African Breweries water project, 241, 242
South African Department of Environmental Affairs, 255
South African Department of Water Affairs, 76, 81, 83, 87, 91, 93, 96, 237, 240, 246, 251.
See also Lebala water supply scheme; Letaba/Shingwedzi River catchment study
South African Institution of Civil Engineering (SAICE), 40, 81, 91, 237
South African Iron and Steel Corporation, 23
South African Railways, 94, 95.
See also Hex River tunnel project
South Deep Mine project, 233.
See also Gold Fields
South Africa Development Community Regional Environmental Education Programme, 255
Southern Africa Development and Geophysical Instrumentation, 48
and Johannesburg building project, 91
and joining SRK, 31, 40
leadership roles of, 40, 97, 147
and modeling programs, 83
and NCL Ingeniería y Construcción, 164
and Neal Rigby, 74, 75, 122, 123
as partner of SRK, 97
and Peter Terbrugge, 75, 76
photo of, 31
and Rand Water project, 96
rock mechanics expertise of, 31, 83–84
and SRK culture, 40, 41
as SRK Global board member, 147
and SRK Natal, 91
and SRK UK, 123
on SRK’s emphasis on publication, 40
and Tony Diering, 70
and underground mining services, 83–84
Standard Bank project, 77, 82, 82
Star Mining, 234.
See also Sukhoi Log ("Dry Creek") project
Stefanutti Stocks, 38
Steffen, Ilse, 7–8, 8
Steffen, Marge, 9, 40–41, 41
Steffen, Oskar and Alan Naismith, 233
and Allan Haines, 95
and Allan McCracken, 124
background of, 2, 3, 6–8, 47, 279
and Bafokeng tailings dam project, 33, 35–36, 39
on benefits of SRK partnership, 27
and Gary Bentel, 169
and Gary Bentel, 169
and Brian Wrench, 169
and Bruce Evans, 125–26
and Bryony Walmsley, 87
and Clive Seymour, 170
and Codelco, 151, 153–54, 162
and Dereck Warwick, 44
and Dorowa Mine project, 29
founding of SRK, 3–4, 9, 10, 15, 23, 26, 27, 28, 221, 256, 280
friendship with SRK co-founders, 4, 11, 15, 19, 20, 21
and Gary Bentel, 169
and GEMS, 97
and Geoff Bull, 171
and importance of local leadership, 164
industry reputation of, 2, 3, 4, 28, 29
and Jack Caldwell, 58, 63
and Jeremiah Jennings, 223
and Jack Caldwell, 58, 63
and Jerome Kendall, 127
and Kovwy Pass project, 77
leadership of SRK, 27, 56, 96–97, 99, 119, 135, 141, 171, 223, 257, 279, 280, 282
marriage and children of, 4, 9, 109, 253 (see also Steffen, Marge)
and mining group, 234
and Nchanga Copper Mines, 3, 10, 11, 19, 85, 123
and NCL Ingeniería y Construcción, 164
open-pit mining expertise of, 2, 3, 124
and Paul Schmidt, 140
personality of, 3, 8, 27, 35, 56, 105, 119, 127, 171, 180
photos of, 1, 7, 10, 25, 29, 180
retirement of, 228–29, 257, 280
and Rick Skelton, 69
and Rob Dorey, 43, 44
rock mechanics expertise of, 19
and SAICE, 40, 91
sale of SRK shares, 141, 257
soil mechanics expertise of, 9, 10
and Southern Peru Copper project, 265
and SRK Australia, 169, 170–71, 180
and SRK Chile, 159, 180
and SRK culture, 40, 41, 279, 281, 282
as SRK Global board member, 147
and SRK North America, 119
and SRK Russia, 228–29
and SRK structure, 45, 141
and SRK Tucson, 53
and SRK UK, 123, 125–26, 128
and SRK Vancouver, 47
and SRK-Robinson, 109
tailings dams expertise of, 39, 48
and technical papers, 160
tailings dams expansion, 54
tailings dams vision for SRK, 4, 23, 31, 53, 282
and Visiting Specialist Scheme, 90
and water services, 79
and Wits, 2, 4, 9, 11, 15, 19, 20, 21, 28, 36, 57, 73, 96
work ethic of, 4, 40, 41
and written reports, 144
and Yonglian Sun, 265

Steffen, Oskar Sr., 7–8, 8
STEPS. See Short Term Evaluation and Planning System (STEPS)
Stern, Josh, 72
Stokwe, Akhona, 248
Stokwe, Liyema, 248
Stone, Peter, 245
stope corer project, 84
Strachan, Clint, 64
Struhsacker, Debra, 107, 107, 115
Struhsacker, Eric, 107
Stuart-Smith, Peter, 173
Sturgeon, Mark, 234
Sukhoi Log ("Dry Creek") project, 234, 236, 246
Sukinda chrome project, 236
Sumitomo Metal Mining Pogo, 196
Sun, Yonglian, 265, 267, 271, 273
Suthers, John, 177
SVS Ingenieros, 130–31, 159–60, 161, 162, 166
Swanson, Bret, 201
Swart, Arie, 256
Swart, Blackie, 35
Sydney Basin project, 184, 184, 185–86
Sydney Gas, 184

T
Tambo, Oliver, 14
Tanjianshan Au project, 178
Tarkwa Mine project, 236, 246.
See also Gold Fields
Taylor, Chris, 81, 249
TBM Chilean tunneling project, 165
Telford, Martin, 195
Teller, Steve, 206
Tenke Fungurume Mine ESIA, 238
Terbrugge, Peter, 75, 76, 85, 124, 125, 193, 233, 257
Tethyan Copper, 217, 222. See also Antofagasta Minerals projects;
Barrick Gold Corp.
Thatcher, Jeff, 107, 108
Thatcher, Margaret, 131
Third International Congress on Rock Mechanics, 76
Thompson Creek Mine project, 57–58, 57, 64, 102, 105, 105, 107, 160
Thompson Mine (Manitoba) project, 64
Thornton, Tony, 271–72, 271, 272
Tluczek, Ron, 249
Toens and Partners, 254
Tonkolili iron ore mine project, 220
Toquepala project, 265
Tours Dam project, 91
Townshend, Peter, 77
Trans Caledon Tunnel Authority of South Africa, 92. See also
Lesotho Highlands water project
Transkei Government Department of Water Affairs, 249
Transkei water research project, 81, 81
Trans-Siberian Gold, 225
Trekkopie project, 218
Trenning, Wayne, 177
Triomf Fertilizer plant project, 54, 69, 69
Tromp, Brian, 97
Tshwan’e, City of, 251
Unamgen Iron Ore, 164
United Nations Environment Programme (UNEP), 255
University of the Witwatersrand. See Wits (University of the
Witwatersrand)
US Environmental Protection Agency (EPA), 113
US Forest Service, 57
US National Environmental Policy Act (NEPA), 113

V
Vale (Brazil), 257
Vale and TEAL Exploration and Mining, 238
Vale Iron Ore and Fertilizers, 164
Valle, Ernesto, 130
van der Poel, Peter, 48, 97
van Schalkwyk, Tony, 80, 91
van Zyl, Dirk, 28, 28, 29, 31, 54, 55, 56, 114
Vancouver Stock Exchange, 52, 52, 72
Vangorda project, 191
Vann, John, 178
Vedanta Resources, 214, 222, 223
Venetia project, 195
Venter, Danie, 246, 247
Venter, Isak, 96
Venter, Julian, 233
Verri, Alejandro, 166

U
Uderstadt, Kurt, 254
Udokan project, 228
Ugorets, Vladimir, 201
UK Coal plc, 134
Uluurt, Bujiara, 262
Umgeni Water Board projects, 249
Unamgen Iron Ore, 164
UNEP, 255
Union Carbide project, 69, 69
Union Corporation, 33, 35, 39, 125.
See also Bafokeng tailings dam project; Gencor; Impala Platinum
Mine
V
W

Waarst, Christian, 245
Wagener, Fritz, 20, 53. See also Jones & Wagener
Wahl, David, 205
Waldeck, Wally, 234
Walker, Diane, 183
Walker Mine project, 114, 115
Walmsley, Bryony, 87–88
Walmsley, Danny, 245
Ward, Andy, 80, 87
Warden, Adam, 135
Warren, Mike, 177, 185, 186, 265, 267, 269
Warwick, Dereck, 43, 44, 90, 93, 239, 246
Waste Resources, 244, 244
Water Research Commission (South Africa), 81, 239, 242. See also Wits (University of the Witwatersrand): water research project
Watermeyer, Legge, Piésold & Uhlman, 15
Watkins, Ed, 87–88
Watts, Dick, 135

Weaver, John, 28, 29, 40
Welkom stormwater project, 80, 261
Welsh, John, 51, 53, 54, 55–56, 57, 57, 58, 102, 103–4, 199. See also Westec
Wenatchee. See Cannon Gold Mine project
Wertz, Marcin, 236
Wesseloo, Johan, 233, 256
West Kalimantan coal project, 274, 274
Westec, 191, 199, 201, 203–4
Western Mining project, 177
White, Alan, 81, 81, 83, 91, 239
Whitehaven Coal Mining, 184
Wiid, Ben, 10, 73, 90–91, 93
Wijers, Bas, 91
Wiklund, Anna, 230
Wildlife and Environment Society of South Africa, 255
Williams, Amanda, 135
Williams, Brian, 135
Williams, Darcy, 253
Williams, Dave, 246
Williams, Paul, 201
Williams, Peter and EHW, 172, 173, 177 (see also EHW) and Leapfrog, 180
photo of, 177
and probability-based valuation techniques, 180
retirement of, 186
and SRK Australia, 179, 180, 183, 185
and SRK China, 186, 265, 269
and SRK India, 269, 271
and SRK Indonesia, 273
Willow, Mark, 192, 204
Wilson, Brian, 253
Windle, Steve, 173
Windy Craggy project, 114, 115
Winters, Harry, 54
Wismut project, 116–19, 116, 117, 191, 279
Wits (University of the Witwatersrand). See also Jennings, Jeremiah (Jere) and Andy Barrett, 99
and Andy Robertson, 2, 4, 9, 11, 15, 18–19, 53, 57
and apartheid era, 10
and Brian Middleton, 44, 96
and Bruce Evans, 125
and Dave Bentel, 71, 115
and Dereck Warwick, 44
and Dick Stacey, 256
and Doug Piteau, 47
and Geoff Blight, 90
and Hendrik Kirsten, 2, 4, 9, 11, 15, 19, 28, 73, 125
and Horst Marker, 253
and Ian Hutchison, 57
and Jack Caldwell, 35, 73
and Joe de Beer, 250
and John Brown, 253
and Ken Schwartz, 27, 35
and Mike Smith, 35
and Oskar Steffen, 2, 4, 9, 11, 15, 19, 20, 21, 28, 35, 57, 73, 96
and Peter Terbrugge, 75
photo of, 15
and Rick Call, 53
and SRK’s use of mainframes, 70, 70
and Sue Posnik, 236
and symbiotic relationship with SRK, 124
and Tony Brink, 29
and Tony Dell, 73
water research project, 76, 81, 239

WMC, 183
Wober, Helmut, 119
Wood, Andrew, 241, 244
Woodford, Alan, 254
Woodfull, Chris, 185
Woodward-Clyde Group, 59, 61
World Bank, 105, 247
World Mining Congress & Exposition, 264
WRC. See Water Research Commission (South Africa)
Wrench, Brian, 69, 69, 169

X

Xstrata Coal, 184
Xu, Anson, 267

Y

Yak Tunnel project, 114, 115
Yates, John, 43
Yenshin, Nikolai, 271, 272, 272
Yiefei Jia, 267
Yoleri, Buket Mesta, 262
Yong Huang, 267
Youzhi Wei, 265

Z

ZAI. See Zakrewski Associates Incorporated (ZAI)
Zakrewski Associates Incorporated (ZAI), 91, 93, 93
Zambia Copper Investments, 214
Zambia copper tailings deposits audit, 247
Zambian government, 200
Zaparo, 181. See also Leapfrog
ZCCM Investments Holdings, 214
Zhilyanskoye potash project, 272
Zhilyanskoye potash project, 272
Zhilyanskoje potash project, 272, 272
Zwane, Elias, 76, 76, 90