“The CET is one of the few centres in Australia with the critical mass to undertake exploration focused research. AMIRA International regards the CET as a major partner in developing industry relevant research that has application not just in Australia but elsewhere.”

Joe Cucuzzza, Managing Director, AMIRA International

“As a mining industry consultant and director of junior resource companies I have seen first-hand the impact CET is having on the exploration industry. I commend the CET to all exploration companies seeking an edge on the competition!”

Martin Pyle, Managing Director, Aurora Minerals Limited
Contents

From the Director 4
Research output, quality & impact 7
Financial performance & sustainability 11
Teamwork 12
Governance 14
Where we are working 16
CET Corporate Members 18
Future directions 21
Chairman’s report 23

Staff

• Prof T. Campbell McCuaig (Director)
• Ms Estelle Dawes (Business Manager) • Res/Prof John Miller •
• Res/Prof Marco Fiorentini • Prof Steffen Hagemann •
• W/Prof Mike Dentith • Assoc/Prof Eun-Jung Holden •
• Prof Allan Trench • Assoc/Prof Steven Mckethwaite •
• Goodeve Asst/Prof Alan Aitken • Asst/Prof Thomas Angerer •
• Assoc/Prof Leon Bagas • W/Prof Mark Barley •
• Assoc/Prof Geoff Batt • Ms Wendy Carter • Ms Susie Cass •
• Ms Emily Denham • Asst/Prof James Davis •
• Asst/Prof Steve Denyszyn • Ms Cindi Dunjey •
• Assoc/Prof Paul Duuring • Asst/Prof Ariane Ford •
• Asst/Prof Weronika Gorczyk • Assoc/Prof Paul Greenwood •
• Res/Prof Pietro Guj • Assoc/Prof Aurore Joly •
• ARC Future Fellow Tony Kemp • Res/Prof Peter Kovesi •
• Asst/Prof Marek Loc melis • Res/Assoc Yongjun Lu •
• Assoc/Prof Vanessa Markwitz • Assoc/Prof Bryan Maybee •
• Assoc/Prof Vaclav Metalka • Res/Assoc David Mole •
• W/Prof Alison Ord • Snr/Lect Jose Saavedra-Rosas •
• Asst/Prof Nuru Said • Asst/Prof Nicolas Thebaud •
• Asst/Prof Stanislav Ulrich • Asst/Prof Daniel Wedge •
• Asst/Prof Jason Wong •

Res/Prof Res/Assoc W/Prof Assoc/Prof Asst/Prof Res/Prof Snr/Lect
Research Professor Associate Professor Assistant Professor Research Associate Senior Lecturer
Welcome to the Centre for Exploration Targeting (CET) Annual Review for 2012.
In this document we briefly summarise the tremendous success that CET has enjoyed over the 7 years since its inception, and how we are well positioned to meet the future needs of society through fundamental research and its application to the minerals industry.

As a research centre so strongly tied to the minerals industry, it is necessary that this document is framed in the context of the current market. We are in a time where markets have been savaged, with some of our industry stakeholders forced into drastic measures to survive. In an industry where the market rules and investors have little patience for returns, possessing and implementing long term vision is extremely difficult. To many degrees, the political agenda is subject to the same restrictions, amplified by the brevity of political cycles, as witnessed by recent cuts to university and research funding.

History has shown that it is in such downturns that major innovations occur and reshape industries. At this time when other global minerals research groups are under pressure, CET is taking a markedly countercyclical approach by keeping an eye on the fundamental mineral needs of society.

Despite the volatility and precarious nature of the global financial system, there are three well-documented factors that cannot be overlooked: The lack of investment in greenfields exploration during the previous boom; the fact that the bulk of the world’s population is in underdeveloped nations developing at >5% per year, resulting in continually increasing use of mineral resources; and the continually declining quality of new mineral resources that results in metal being promised but not delivered to market. The inevitable culmination of this situation is massive pressure on minerals supply in the future. Delivery of secure future supply can only be met by innovative discovery of new high quality resources and new mineral districts.

Accordingly, the CET is continuing to undertake research with industry and governments to underpin the next generation of discoveries. Key initiatives to note in this regard are:

- the West African Exploration Initiative (WAXI), an AMIRA project (18 industry and 9 government agency sponsors) that is developing the precompetitive knowledge and products for industry and West African countries to better unlock their resource wealth;
- GSWA’s Exploration Incentive Scheme, where we are providing interpretations and targeting products over greenfields terranes in WA; and
- the ARC Centre of Excellence for Core to Crust Fluid Systems where we are undertaking fundamental research to understand the controls on the formation and clustering of large mineral systems in space and time to assist in predicting and detecting the location of high quality mineral systems at the largest possible scales.

(Right) ARC Centre for Excellence for Core to Crust Fluid Systems at Macquarie University including Associate Professor Marco Fiorentini, Professor Cam McCuaig, Professor Mark Barley, Dr Marek Locmelis, Ms Estelle Dawes, Dr Yongjun Lu and several other staff and students.
Strategic research design with stakeholders has also ensured that the CET remains diversified in both commodity and geographic footprint, with projects on every continent. The Centre has ridden a sharp growth trajectory over the past 7 years, only temporarily stalled by the GFC. This continued growth has resulted in a position where revenue for the CET reached $7.9 million, with a strong project portfolio for the next year and beyond. Staff and student numbers are also at an all-time high, with achievements across all themes of the CET.

This annual review will provide all CET stakeholders in academia, industry and government with a snapshot of the Centre at the end of 2012, its accomplishments over the last year, a glimpse of the exciting directions we are heading, and outcomes CET is set to achieve in the near future. Our Chairman, Dr. Jon Hronsky, also provides a statement to stakeholders to give an independent view on CET’s performance.

In summary, on behalf of the staff and students of CET I would like to thank all stakeholders for their continued engagement and support of CET, which has been critical to our success. I invite all of you to continue to engage with us, assisting to shape our Centre’s research directions in the future and becoming part of the excitement. I look forward to meeting you at various CET, industry and academic forums during the coming year.

Professor T. Campbell McCuaig
DIRECTOR
Our Vision is to be recognised as the global leader in research excellence, innovation, education and training in exploration targeting.

2012 Highlights

- Record $7.9M revenue, sustainable business model maintained.
- Commencement of Curtin University geoscience node of CET.
- 72 Corporate Members ensuring strong industry engagement.
- Establishment of the Training & Knowledge Transfer (TAKT) Theme.
- 69 peer reviewed publications in international journals & books.
- Continued demonstrable impact on industry behaviour & government policy.
Research output, quality & impact

The CET has continuously grown its impressive Research Portfolio globally. The CET website www.cet.edu.au includes an interactive map that elaborates on the extent of the global research portfolio. Details of each theme and major projects can be accessed through this website.

Flagship initiatives

— The ARC Centre of Excellence for Core to Crust Fluid Systems at Macquarie University, was launched in November 2011. This is a Macquarie - Curtin University - UWA collaboration, representing a >$20M investment over 7 years.

— The AMIRA P934A WAXI (18 industry and 9 government agency sponsors) and related ARC Linkage 4D lithosphere architecture control on mineral systems in Neoarchean to Paleoproterozoic continues to grow CET’s portfolio in West Africa. These projects now total >$6.5M through UWA.

— The CSIRO Cluster on the Organic Geochemistry of Mineral Systems (OGMS) is a UWA-Curtin University-ANU-Melbourne University-CSIRO collaboration that was launched in November 2011. This represents a $6M dollar investment over 3 years to develop this exciting new dimension of exploration geoscience.

— MERIWA and ARC Linkage ‘stains’ project defining a larger ‘footprint’ for targeting blind NiS deposits ($515,000 over 2 years).

— The development of the CET Exploration Simulator (ExSim) to train the next generation of geoscientists, and understanding human-data interactions in exploration decisions.

— ARC linkage: Multiscale Dynamic Modelling of Ore Body Formation ($0.6M over 3 years).

— EIS initiative: 4D geology-geophysics integration and Prospectivity analysis over greenfields terranes in Western Australia ($1.4M over 4 years).

Impact of the CET’s research in industry and academe can be measured by the quantity and destination of refereed output in academic journals, the number of competitive grants awarded, engagement by external stakeholders and tangible outcomes that have changed stakeholder behaviour or directly impacted on their business. Listed below are the highlights in these areas in 2012.

(Left) CET researchers Cam McCuaig, John Miller, Nicolas Thebaud, Nuru Said, James Davis, Jelena Markov and Luis Parra take part in the WAXI-2 Researchers Meeting held in Toulouse, France. (Right) Dr Marco Fiorentini in association with The Greenland Bureau of Minerals and Petroleum (BMP) held the 4th Annual Greenland Day at The University of Western Australia.
Academic impact

- 69 papers in internationally refereed journals were published by CET in 2012 including 2 in Nature and Nature Geoscience. CET continues to average >1 publication per year in Nature or Science (the top journals for science) since 2008, a record comparable to top fundamental research groups.

- Competitive grants awarded to CET included: MERIWA Project (M413) - The hydrothermal footprints of magmatic nickel-sulphide deposits, and Professor Marco Fiorentini’s prestigious ARC Future Fellowship.

Industry impact

- CET researchers (Guj and Schodde) release paper on mineral exploration in Australia which is widely recognised in industry as the definitive picture of the current state of exploration in the nation. This strongly influenced policy and the Association of Mineral Exploration Companies (AMEC), the peak representative body for the mineral exploration industry.

- Continuing on from the definitive modelling of the Minerals Resource Rent Taxation (MMRT) that was tabled in both houses of federal parliament, CET staff (Guj) acted as an expert witness at the Senate Economics Reference Committee’s Inquiry into the MMRT.

- Financial modelling supporting the formulation and negotiation of the new WA “Mining Rehabilitation Fund” legislation.

- Participation in initial discussions regarding the forthcoming review of WA’s Mineral Royalty policy.

Education, training and outreach

- Australian Foreign Minister Kevin Rudd (1 January 26th, 2012) released the first “best practice” guides to Australian mining development by CET professor Pietro Guj for the International Mining for Development Centre (IM4DC).

- The UNCOVER initiative launch by Federal Resources Minister Martin Ferguson: “Searching the Deep Earth: A vision for Australian exploration geosciences”, a call for Australian earth scientists to cooperate in an innovative, structured and nationally coordinated strategic venture that will bring competitive advantage to Australian mineral exploration. CET Director Cam McCuaig and Chairman Jon Hronskey played a large role in formulating the final document.

- CET is becoming a preferred destination for senior international government representatives seeking to improve mineral exploration and development in their countries, for example: 17 Australia Awards for Africa delegates accompanied by former WA Premier and Director of the Graduate School of Government, University of Sydney, Professor Geoff Gallop; 42 Senior African Officials as part of the Australia Africa Partnerships Facility, Mining Governance Tour met with the Centre for Exploration Targeting whose Deputy Director John Miller presented on CET and Mineral Resource Capacity Building in West Africa, and CET remains the partner of choice for Korean Institute of Geoscience and Mineral Resources (KIGAM) to provide up to 6 weeks of training (21 participants) in Korea to geoscientists and government officials from developing nations.

- Major presence at over 15 international industry and academic conferences on 7 continents.

- A record number of representatives from Corporate Member companies attended the annual CET Corporate Members Day on 10 December 2012 held at the UWA Club. For the first time, this event showcased staff and student research in posters, with Yathunanthan Sivananthan being awarded the inaugural Hammond-Nisbet Fellow Poster Award for best student poster. Posters were judged by industry representatives in terms of best presentation and industry application of research outcomes.

(Left) PhD students John Owen, Ellen Davies, Carissa Isaac, Margaux Le Vaillant and Researcher Marek Locmells at the annual CET Corporate Members Day. (Right) Successful PhD students Margaux Le Vaillant and Zbja Vukmanovic with Minister Norman Moore at the MERIWA Scholarship Presentation 2012.
Our Mission is to increase both the rate and quality of mineral discoveries without relying on substantial increases in exploration expenditure.
CET Objectives

Establish a new paradigm for Economic Geology & Exploration Targeting.

Sustain a research business of team-oriented individuals effectively engaging with the minerals industry & engaging with thought leaders globally.

Train the next generation of geoscientists in how to combine fundamental and applied research within the minerals industry & academia.

Produce outputs recognised & respected at high academic & industry levels (changing industry behaviours).
Financial performance & sustainability

The CET recorded a total revenue for 2012 of $7.9 million – growth of 39% (2011: $5.7 million). Of this revenue, 62% (2011: 76%) was derived from industry sources. Details of Revenue Sources are shown in Figure 1. below:

Revenue Sources (December, 2012)

- Industry 34%
- Consultancy 2%
- UWA / CU 9%
- ARC 14%
- Future Fellows 6%
- Government Grants (CSIRO / MERIWA) 6%
- Government Contracts (GSWA) 14%
- Knowledge Transfer 8%
- Other Revenue 3%
- Direct external stakeholder funding 62%

Figure 1. Revenue Sources segmented to highlight Industry Participation.

Financial Performance over Time

Figure 2. CET Income and Expenditure since inception in 2006. Effects of cessation of government seed funding and impact of the Global Financial Crisis (GFC) are indicated.
The CET team has once again grown during 2012, as shown in Figure 3. The current (and still growing) CET team includes 43 staff members and 32 PhD students. The CET appointed 3 new staff members in CET during 2012:

**Dr David Mole** Became CET’s first appointment in Curtin School of Applied Geology. After graduating from CET/UWA with his PhD in 2012, David has gone on to join the CET Curtin University Node looking at multi-scale 4D investigation of mafic-ultramafic intrusion and associated Ni-Cu mineralisation, Tanzania, and the potential for a new nickel province in East Africa.

**Dr Steve Denyszyn** Joined the CET to pursue his interest in applying high-resolution U-Pb geochronology to a wide range of geological problems, from the nature of pluton emplacement, to establishing chronological frameworks for sedimentary sequences, to the timing of ore-forming magmatism.

**Dr Vaclav Metalka** Received his PhD jointly from the University of Paul Sabatier in Toulouse and the Charles University in Prague. Vaclav comes to the CET to work closely with IM4DC on two projects involving the application of GIS in geology in West and Central African countries. He is also involved in the WAXI-2 initiative working on 3D modelling of greenstone belts of western Burkina Faso.

The growth in staff and student numbers not only reflects the growth in projects and research income, but is also evidence of the CET as an employer of choice. CET continues to attract top quality staff, which now includes two Australian Research Council Future Fellows, three Australian Research Council Postdoctoral awardees, and a West Australian Fellow. We have also experienced dramatic growth in adjunct staff (60+) and international research collaborations, which attests to the impact of our research amongst industry and academia, and the fact that CET is also a collaborator of choice, a culture we very much nurture.

---

2012 CET Staff Planning Day, Mandurah
(From left) Peter Kovesi, Arianne Ford, Alan Aitken, Weronika Gorczyk, Jose Saavedra-Rosas, Carissa Isaac, Emily Denham, Estelle Dawes, Eun-Jung Holden, Paul Duuring, Steve Denyszyn, Susie Cass, Cam McCuaig, Aurore Joly, Wendy Carter, Daniel Wedge, Steven Mickelthwaite, Cindi Dunjey, Thomas Angerer, Jason Wong, Yongjun Lu, Quentin Masurel, Leon Bagas, Geoff Bitt, Alison Ord and Stanislav Ulrich.
Students

CET continues to attract top quality students, all scholarship winners. The CET welcomed the following PhD students during 2012: Chris Gonzalez, Quentin Masurel, Aileen Robert, Denis Fougerouse, James Warren, Ellen Davies, John Owen, Nathan Lude, Abdulrhman Alghamdi, John Sykes, and Raphael Doutre.

The following students have graduated during 2012 and are congratulated for their achievement:

<table>
<thead>
<tr>
<th>Graduating PhD</th>
<th>Graduating MSc</th>
<th>Graduating Honours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yongjun Lu</td>
<td>Kombadayedu Kaunalai Mhopjeni</td>
<td>Milica Keric</td>
</tr>
<tr>
<td>David Mole</td>
<td>Catherine Nyakecho</td>
<td>Brendan Lally</td>
</tr>
<tr>
<td>Jianwei Zi</td>
<td>Jinwoo Choi</td>
<td>Julie-Anne McLean</td>
</tr>
<tr>
<td>Qingtao Zeng</td>
<td>Nosiseko Mdedie Matiwane</td>
<td>Trent Batterham</td>
</tr>
<tr>
<td></td>
<td>Annette Pocock</td>
<td>Taylor Smith</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Graeme Hardwick</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jonathon Cryer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Corey Achikian</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elisabeth Scibiorski</td>
</tr>
</tbody>
</table>

Table 1. CET affiliated PhD, MSc and Honours Graduates from 2012.
CET Governance

Central to the success of the CET is the engagement of the CET Board and its committees: the Finance, Risk and Commerce Committee (FRC) and the CET External Advisory Group (EAG). These groups collectively ensure proper governance of CET and that the science strategy and business directions are beneficial to the entire range of stakeholders. Members of these committees are nominated from industry and other collaborative partners.

Board
The 14 members of the Board provide an invaluable high-level external perspective to guide the operation of the CET. The majority of the members are independent of the CET and hail from a range of industry and academic partners.

Finance, Risk and Commerce Committee
The Board’s financial monitoring responsibilities are addressed through the Finance, Risk and Commerce Committee. This Committee considers and recommends to the Board for approval the Annual Budget, and monitors CET’s risk management practices, staffing strategy and opportunities and strategies for commercialisation of CET research outputs.

External Advisory Group
The CET External Advisory Group (EAG) provides technical advice to the CET Board and management team. This ensures that the needs of the mineral exploration industry are being appropriately met by CET research strategies. The EAG represents current industry views through its membership of senior industry representatives and individuals, selected to ensure coverage of all technical sub-disciplines relevant to mineral exploration. Membership also includes representatives from CSIRO and GSWA.

Research Themes
The CET organises its research activities under 6 broad themes as shown in Figure 4. Each of these themes strives to maintain a balanced portfolio of fundamental and applied research in exploration geoscience.

Figure 4. CET Research Theme Structure and respective theme leaders.
Corporate Membership

Critical to CET sustainability is strong engagement by the minerals industry. The engagement is shown in Figure 5. by the number of Corporate Members. Importantly, CET maintains a strong and deliberate engagement with the entire range of industry, from major producers through to junior explorers.

2012 witnessed the introduction of a new category of CET Corporate Membership - Mineral Finance. PCF Capital Group and Gresham Advisory Partners Limited joined the CET as inaugural in this category. Through this category CET seeks to engage the financial sector of the industry more closely with the science of exploration through our Progressive Risk and Value Theme.

**CET Corporate Membership**

(Number of Members)

![Pie chart showing CET Corporate Members in 2012 per membership tier.](image)

Figure 5. Number of CET Corporate Members in 2012 per membership tier.

(Left) Industry members plus CET staff and students participating in the 2012 Corporate Members Day, UWA. (Right) Healthy debate takes place at the 2012 CET Plume Debate with panel members Jean-Pierre Burg, Svetlana Tessalina, Franco Pirajno and Steve Barnes.
CET would like to thank its Corporate Members for their ongoing support in 2012
Future directions

This document has highlighted the tremendous success of the Centre for Exploration Targeting through 2012. Despite the difficult economic environment for our university and industry stakeholders, CET research remains in strong demand. Given the >30% growth rate of CET in the three years to the end of 2012, the Centre is anticipating consolidation of these gains through 2013.

Key geographic foci will remain: Western Australia through key initiatives with GSWA, CSIRO and Curtin University; the Northern Territory through ARC and CSIRO funded initiatives; West Africa through the WAXI-2 and WAXI-3 programs, ARC-funded linkage grants, the World Bank and IM4DC and AusAID initiatives (the CET is the largest Australian group undertaking applied minerals research in Africa); Scandinavia-Greenland through industry, government and CCFS related initiatives, and south-west China through CCFS and Chinese research partners.

The demand for dissemination of CET research outcomes to various stakeholder groups has risen dramatically. As a result, a new Training and Knowledge Transfer (TAKT) Theme has been formed, led by Associate Professor Steven Micklethwaite (inaugural Hammond-Nisbet Fellow), with deputy theme leader Associate Professor Geoffrey Batt and Ms Cindi Dunjey. Through this theme, CET will design and deliver courses into the UWA and National Minerals Geoscience Masters program, as well as a suite of industry short courses.

In terms of staffing, CET is making some significant strategic appointments. From a strong international field of applicants, Professor John Miller has been appointed as CET Deputy Director to work side by side with Director Professor Campbell McCuaig to lead CET. John will lead the growth of the ARRC node of CET in Bentley through joint initiatives with Curtin, GSWA and CSIRO, as well as all African initiatives. The appointment of Professor Mark Jessell as a WA Fellow developing the next generation 3D inversion and 3D geological modelling technologies will cement CET's status as the premier research group for integrated geology-geophysics interpretation applied to the minerals industry.

Scientifically, as a co-author of the UNCOVER initiative, CET will actively pursue the UNCOVER agenda, both in Australia through the EIS-2, CCFS and the National Minerals Precinct, and abroad through programs such as WAXI-3, to provide the fundamental research required to unlock new high quality mineral wealth.

The sustainability of the CET is always top of mind, which is dependent on external stakeholder engagement and maintenance of a dynamic research team with a critical mass of core competencies. Raising the CET profile to external parties through an effective web portal and continued strong presence at conferences will remain a focus for 2012, as will increasing research output volume and the joint industry and academic impact of these outputs. With an emphasis on the three pillars of sustainability, financial governance, scientific impact and team dynamics, the CET Board is confident that the CET strategic plan is sustainable and robust to the cyclical business conditions of the Minerals Industry.
As I write this report in the middle of 2013, it is unambiguously evident that the long “mining boom” of the last decade, the boom that survived the short but sudden interruption of the GFC, has finally ended and the global industry is in transition to a new phase of existence. There has been a noticeable shift in the psychological landscape – investment can no longer be justified on the promise of ever high commodity prices and there is a renewed focus on costs, profits (as opposed to growth) and efficiency. Taking stock at this point, what does all this mean for the CET?

Firstly, the mining industry has always been about cycles. Those famous last words “this time it is different” are equally wrong during both the peaks of the boom and the troughs of the bust. As someone who grew up in the mining town of Kalgoorlie and was therefore exposed to the cyclic nature of our industry from a young age, this is the fifth cycle of boom followed by bust that I have personally been affected by. I don’t know when the sixth cycle will start but I am certain that it will.

A disappointing aspect of the most recent boom was the very low ratio of reinvestment in greenfields exploration to find the next generation of major low-cost mines. In the current downturn, it is clear that greenfields funding will be further reduced. The consequence of this will likely be a whip-lash effect, with metal prices rebounding rapidly in the future when supply once again fails to keep pace with demand. Unfortunately, there are indications that these cycles are becoming ever more volatile. For an economy like Australia’s, which depends on resource exports, this is a problem as the increasing cost structure of our existing, ageing mines makes them increasingly vulnerable to these price cycles. Smoothing out these cycles is in our national interest and the only way we can do that is by finding new world-class mines that can underpin more stable production.

The key to this challenge is the need for innovation – we must aim to do no less than fundamentally change for the better the way exploration is done. CET is working very hard, together with groups such as the CSIRO’s Minerals Down Under Flagship Initiative, the Deep Exploration Technologies CRC, the Australian Academy of Sciences UNCOVER initiative and government geoscience mapping agencies such as GSWA and GA, to tackle this challenge of increasing greenfields discovery. Important strides are being made and the current downturn helps us by providing an intense discipline on what we need to do to make real wealth-creating new discoveries.

Finally, I would like to remind readers that more fundamental, wealth-creating discovery in our industry occurs during the downturns than the booms – the booms are often just when the benefits are realised. During downturns, quality opportunities are cheap, costs of exploration are lower, good people are available and everyone is focused on innovation and optimising the process. This provides a great window of opportunities for entrepreneurs of all types (from individuals to those visionary individuals in large companies) who are prepared to embrace the latest innovative thinking.

I close by emphasising how impressed I am with the research leadership demonstrated by CET senior staff and the Director, Professor T. Campbell McCuaig. In building a sustainable research group, they have positioned the CET as a ‘boundary spanner’ that truly bridges academe and industry. By aligning fundamental research with its application in industry, the CET is clearly keeping its focus on the future needs of society and is strongly placed to assist all our stakeholders in reaping the benefits of this period of opportunity.

Dr Jon Hronsky

CHAIRMAN OF THE BOARD
Cover Photo: An exploration drilling rig on Lake Lefroy, south of Kambalda.
This photograph is reproduced with the kind permission of BHP Billiton Minerals Exploration, from the Western Mining Corporation Holdings Limited 1990 Annual Report to Shareholders.