

Report of Activities 2003

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ERRATA:

The publisher/department name in the bibliographic reference cited immediately below the title of the Annual Review should read

Manitoba Industry, Economic Development and Mines instead of **Manitoba Industry, Trade and Mines**.

Annual review

by E.C. Syme

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Introduction

The primary roles of the Manitoba Geological Survey (MGS) are to provide geoscience information to support and facilitate mineral exploration in the province, and to conduct a broad range of geoscience activities that address land-use and environmental issues facing Manitobans. The 2003–2004 geoscience program reflects a balance between providing support to traditional mining camps, stimulating new exploration and development opportunities in frontier areas, and supporting land-use, geohazard and development priorities in southern Manitoba. The program is reviewed annually by the Mineral Exploration Liaison Committee (MELC), composed of members of the Mining Association of Manitoba, the Manitoba Prospectors and Developers Association and the Manitoba-Saskatchewan Prospectors and Developers Association, as well as representatives from the University of Manitoba and the Geological Survey of Canada (GSC).

Targeted Geoscience Initiative

The federal government's Targeted Geoscience Initiative (TGI) was extended for an additional two years, to March 2005. This initiative will provide \$5 million per year to enhance geoscience programming across Canada. In Manitoba, two TGI projects that were proposed by MGS and approved by the Geological Survey of Canada (GSC) are:

- Trans-Hudson–Superior Margin Metallotect (with Saskatchewan, Ontario and Quebec): \$800,000 in TGI funding over two years. Project components in Manitoba include a federally funded aeromagnetic survey, federally funded remotely sensed imagery, and multi-agency bedrock mapping, geochronology and tracer isotope work, and structural geology studies. In addition to the federal funding, the Manitoba Geological Survey and partners (Manitoba Hydro, universities of Waterloo and Alberta) have committed \$1.5 million to bedrock investigations in the project area over the next three years.
- Williston Basin Architecture and Hydrocarbon Potential (with Saskatchewan): \$720,000 in TGI funding over two years. Project components include geoscience knowledge inventory, regional mapping (subsurface), geophysical investigations, regional hydrogeology, remotely sensed imagery, hydrocarbon assessment and 3-D geological modelling.

Precambrian mapping

Baseline geological mapping in the Precambrian Shield was conducted primarily in the Thompson Nickel Belt (TNB) and larger Superior Boundary Zone, the northern Superior Province, and the Flin Flon Belt.

Thompson Nickel Belt (TNB)

Fieldwork was conducted in the southern part of the exposed TNB, aimed at completing the geological compilation maps and accompanying report (GS-17). In part, this work was undertaken to address the need to widen exploration to new targets beyond those traditionally considered in the TNB. Currently, all known nickel deposits are hosted by the relatively well explored Pipe Formation (Ospwagan Group), which is typically metamorphosed to amphibolite-facies mineral assemblages. New work by MGS at Paint Lake and elsewhere in the TNB, however, shows that distinct segments of supracrustal sequences strongly resembling the Ospwagan Group are known to exist at granulite facies. These rocks were previously assumed to be part of the Archean basement and thus older than the Ospwagan Group. If they are indeed Ospwagan, they could represent new and significant exploration targets.

Similarly, one of the objectives of MGS work along the western boundary of the TNB is to define more clearly the geographic limit for effective nickel exploration by establishing there the distribution of the Ospwagan Group. Work by the MGS has shown that Archean basement rocks and/or remnants of Ospwagan-like supracrustal rocks with Archean Nd model ages extend into the margin of the Paleoproterozoic Kisseynew Domain (GS-16). These first results have now defined the lithological components at the boundary, and the analytical tools to use to uniquely identify them. The inferred presence of Archean crust along the margin of the Kisseynew Domain may expand the geographic limits for effective nickel exploration.

Identifying the Ospwagan Group and its various formations on surface outcrops and in drillcore is clearly a

first-order priority for effective exploration in the TNB. Due to deformation and metamorphism, however, the nature of the protolith is often not readily apparent. Primary rock types must be inferred qualitatively from the mineral content of the various types of paragneiss (GS-18). Modal analyses confirm and quantify the observation made, during mapping and core logging, that the presence of certain minerals is highly diagnostic of different groups of rocks that occur along the margins of the TNB and the Kisseynew Domain. Quantitative (modal) data developed by MGS may thus aid mapping and core logging during mineral exploration.

Superior Boundary Zone

A new collaborative program along the northern margin of the Superior Province was initiated this summer (GS-12). The three-year project is being conducted in collaboration with researchers from the universities of Alberta and Waterloo. It applies an integrated approach, including bedrock mapping, geochemistry, isotope geology, geochronology and structural studies, to specific areas in the region. The region has a wide range of mineral potential, including nickel, platinum group elements and shear-hosted gold. Additionally, preliminary results indicate that a piece of ancient stable crust exists along the Superior Boundary Zone (SBZ) in the Assean Lake area, and that diamond potential could therefore be considerable.

Bedrock mapping at Gull Rapids forms an integral part of the new Superior margin program (GS-13). Located at the northeastern margin of the Superior Province in Manitoba, Gull Rapids hosts a spectacularly well exposed sequence of dominantly Archean supracrustal and intrusive rocks. A planned hydroelectric project could make most of this exposure inaccessible to future investigation. This study will provide accurate bedrock maps and structural data of the Gull Rapids area for Manitoba Hydro engineering purposes, as well as for explorationists and other land-use clients. Based on 1:1000-scale mapping undertaken this summer, MGS and university researchers identified Archean supracrustal rocks that are exotic compared to the dominantly meta-igneous granulitic rocks of the Split Lake Block to the west and the Paleoproterozoic Kisseynew-type metasedimentary rocks on Stephens Lake to the east. These 'exotic' supracrustal rocks are comparable to Mesoarchean supracrustal rocks exposed at Assean Lake.

A thorough understanding of the nature of major terrane-bounding shear zones within the SBZ, together with their deformation and timing, is essential for advancing the current level of understanding and to be a useful guide for exploration companies. Work at the University of Waterloo, sponsored by MGS, will provide understanding of major bounding structures, such as the Aiken River and Assean Lake deformation zones, that will be critical in developing a more robust geological framework (GS-14).

The northwestern margin of the Superior Province consists of several terrains of unclear tectonic affinity. One of the largest of these, the Split Lake Block, is the focus of a new multiyear mapping initiative conducted by researchers at the University of Alberta (GS-15). The Thompson Nickel Belt, Fox River belt and Assean Lake crustal complex — all adjacent to the Split Lake Block — host a multitude of mineral deposit prospects, including nickel, platinum group elements and shear-hosted gold.

Northern Superior Province and Flin Flon Belt

In the northern Superior Province, geological mapping and structural analysis have significantly upgraded the geological understanding of the Sharpe Lake area (GS-20). This area contains a 35 km long exposed portion of the Stull Lake–Wunnummin Fault Zone, a major gold metallotect in the northern Superior Province. Based on limited sampling during the course of lithotectonic mapping and structural analysis of the Sharpe Lake belt, it is apparent that the gold potential of the zone is not limited to the presently explored Stull Lake to Monument Bay–Twin Lakes area.

The MGS is helping to sponsor a Ph.D. study of the Island Lake greenstone belt at Waterloo University (GS-21). Identification of a similarity in ages of volcanism with those observed in the Red Lake greenstone belt suggests that contemporaneous processes were occurring on both the north and south margins of the North Caribou Terrane. These similar ages may have potentially important economic implications for the Island Lake greenstone belt, as the Red Lake greenstone belt hosts one of the world's richest gold mining camps.

In the northern Flin Flon Belt, MGS fieldwork is defining the nature and distribution of the distinctive tectono-stratigraphic components through detailed (1:20 000-scale) geological mapping and geochemical investigations (GS-1). This work has identified both prospective arc and transitional (arc- or MORB-like) volcanic rock suites, and has identified two occurrences of prominent Cu-Zn (Au) mineralization.

At Flin Flon, MGS has helped fund, together with the Saskatchewan Geological Survey and Hudson Bay Exploration and Development Co. Limited, detailed lithological mapping in the footwall of the Flin Flon, Callinan and

777 deposits. The mapping is being conducted by researchers at Laurentian University and has proven highly successful in establishing mine stratigraphy.

Mineral deposit studies

Gold metallogeny

Multidisciplinary studies in the Lynn Lake greenstone belt have been making progress over the past five years in advancing our understanding of gold mineralization in the belt (GS-6). This work has identified a period of D_2 transposition that produced regional-scale ductile shear zones that in turn host a number of gold deposits in rheologically favourable units. New U-Pb age and Nd isotope results suggest the subdivision of the Lynn Lake belt into two terranes with distinct age and isotopic characteristics. The distribution of the two terranes indicates a more complex structural assembly of the Lynn Lake belt than previously suspected, and one that includes terrane-internal displacements.

In 2002, the MGS initiated a multidisciplinary program of targeted 1:20 000-scale bedrock mapping, structural analysis, litho-geochemistry and U-Pb geochronology in the Rice Lake belt, in order to provide the exploration community with practical constraints on the timing, distribution and structural setting of orogenic lode-gold deposits in the Rice Lake belt. Fieldwork in 2003 focused on extending detailed mapping coverage (GS-24). Mapping led to the discovery of several occurrences of distinctive veins whose mineralogy, paragenesis and setting are closely analogous to those hosting spectacular high-grade gold mineralization in the Red Lake mine in Ontario. The presence of this previously undocumented mineralization further underscores the exploration potential of the Rice Lake belt.

Volcanogenic massive sulphides

Massive sulphide deposit documentation in the Snow Lake area included the completion of a collection of reference samples for volcanogenic massive sulphide (VMS) mines (GS-2). The establishment of this reference collection of ores, rocks and data from each mine in the district will provide a valuable archive and reference for future work on the metallogenesis of the region.

Work by the MGS to determine the residual mineral potential in the Ruttan and Lynn Lake areas utilized drillcore stored in the provincial core-storage facility at Lynn Lake (GS-10). The rationale for the work is the observation that strong positive or negative Eu anomalies in conductors or favourable strata that contain only low or negligible metal values can indicate proximity to otherwise blind massive sulphide deposits. This database can be utilized by property holders to reevaluate the mineral potential of properties in the Lynn Lake area with low metal values.

The results of similar geochemical studies undertaken at the Ruttan mine in 2002 have shown that 'europium deviation' in the exhalite provides a reliable vector to volcanogenic massive sulphide mineralization at a distance of over 400 m from significant zinc assay values (GS-9). This study may assist exploration in the Ruttan area by determining the geochemical signature and lateral extent of the 'ore equivalent' strata north of the 'North Wall Shear' and in the Darrol Lake area.

A Ph.D. study, based at the University of New Brunswick, was initiated to study the systematics of rare earth elements and other trace elements in the sulphide ores and hostrocks of the Fox mine at Lynn Lake (GS-8). Comparison of data from this deposit with other massive sulphide deposits will determine if there is a correlation between deposit size and rare earth element systematics.

Platinum group elements

Recent discoveries of platinum group elements (PGE) within and in the vicinity of gabbroic bodies intruded into mafic volcanic rocks of the Bear Lake Block highlight the potential of the Flin Flon greenstone belt to contain economically significant PGE mineralization (GS-3). Work this year concentrated on the Mikanagan Lake sill and Tartan Lake gabbro complex. The Tartan Lake gabbro complex appears to be an especially good candidate to host contact-type PGE mineralization.

The Mayville intrusion, located in the northern flank of the Bird River greenstone belt in southeastern Manitoba, is a proven repository of PGE with characteristics similar to other intrusions with 'contact-type' PGE mineralization (GS-25). This type of mineralization is characterized by the presence of sulphide-bearing igneous breccias that can be associated with substantial PGE tenor. Present investigations of the Mayville intrusion are aimed at gaining a better understanding of the magma chamber configuration, emplacement history and provenance of the intrusion, and the composition and emplacement history of contained sulphides.

Iron-oxide copper-gold (IOCG) scoping study

A scoping study for hydrothermal iron-oxide copper-gold (IOCG- or Olympic Dam-type) deposits was initiated in 2002 by researchers at the University of Brandon. Initial investigations identified the Trans-Hudson Orogen as the geological province of greatest interest. In 2002, a large REE-rich carbonatite complex was discovered at Eden Lake, and follow-up work in 2003 revealed a system of high-grade but narrow REE-Y-U-Th veins. In 2003, work also focused on a unique style of mineralization that is abundant in the Kiseynew Domain, and may be related to IOCG-type deposits (GS-11). This unique style of iron-sulphide copper-graphite (ISCG) mineralization occurs in relative abundance along the northern margins of the Kiseynew. These essentially unexplored deposits are significant because the mineralization has a magmatic-hydrothermal origin, similar to some types of IOCG deposits, and is strongly enriched in copper, graphite and silver.

Geochemical and indicator-mineral surveys

Geochemical surveys

A preliminary investigation of analytical data from twigs, sphagnum, peat-bog material, lake-bottom sediment and underlying clay beneath a bog at Reed Lake in the Flin Flon Belt demonstrates significant variations in the distribution of metals within several of the media (GS-4). Although further analysis of the data is required before final conclusions can be drawn, the available data suggest that both the top and basal portions of the bog material can be used to evaluate electromagnetic conductors prior to undertaking a drill program.

Soil and spruce-bark samples were collected along transects across the surface expression of the McBride Lake zinc-rich massive sulphide deposit and the gold-bearing Rainbow Zone at the MacLellan mine, in Lynn Lake (GS-7). These studies are being undertaken to investigate the applicability of using the rare earth elements in discriminating geophysical anomalies related to barren mineralization from those associated with economic mineral deposits. If successful, the application of this technique may result in the identification of new deposits in the Lynn Lake area.

Kimberlite-related compilations

Although results from kimberlite indicator-mineral surveys in the past 20 years have been promising, no discoveries of diamondiferous kimberlite have been announced in Manitoba. In order to provide geoscience support to the diamond exploration effort in Manitoba, MGS is in the process of compiling all geological data pertinent to kimberlites in Manitoba (GS-31). Published regional-scale kimberlite indicator-mineral surveys have documented the widespread occurrence of key indicators, as well as a potential indicator-mineral train in the Knee Lake area. These studies strongly suggest that kimberlitic sources occur in Manitoba, a suggestion that is further evidenced by the single documented occurrence of kimberlite at Wekusko Lake in the Flin Flon Belt. The presence of a locally thick and complex till stratigraphy has proven to be a significant factor complicating effective diamond exploration in the province. Compilation of existing data from a number of surveys and agencies into a single database will provide explorationists with a comprehensive view of public-sector survey results. Coupled with ongoing analysis of till stratigraphy in the Hudson Bay Lowland, these data will provide important new information relating to diamond potential in Manitoba.

Phanerozoic investigations

Stratigraphy

The Manitoba Stratigraphic Database (MSD) contains all subsurface Phanerozoic stratigraphic and core-storage data for all Phanerozoic wells in Manitoba. This year, wells with licence numbers 1 to 1100 have had the formation tops completely updated with all available data (GS-33). This is in addition to the 1271 stratigraphic and mineral-exploration wells that have already been completed. It is anticipated that the database will be completely updated by mid-2004. Users can request tops on a specific well by location, or request information on specific tops or groups of tops over any size of area. The Petroleum Branch also maintains a database of subsurface well data (MOGWIS, the Manitoba Oil and Gas Well Information System). The MOGWIS database is focused on the oil- and gas-producing areas in the southwest corner of the province and contains engineering, production and core-storage data in addition to formation tops. The MSD contains only stratigraphic and core-storage data, but it does so for the entire province, including the area covered by MOGWIS.

The MGS conducted diamond drilling through the Paleozoic rocks at Churchill in collaboration with researchers from the Manitoba Museum and the University of Manitoba (GS-23). The Upper Ordovician and Lower Silurian sedimentary rocks at Churchill were deposited in a unique shallow-marine setting around a tropical archipelago, the

islands of which were formed by ridges of Proterozoic Churchill Quartzite. The results of this project will fill a major gap in the basic knowledge of Manitoba stratigraphy, and may be applied to the understanding of the Hudson Bay Basin's geological history. The comprehensive synthesis of paleoenvironments at several unique fossil sites should encourage the development of new attractions that will benefit Churchill's emerging ecotourism industry.

Karst

The proposed Manitoba Lowlands National Park lies adjacent to the highly prospective Thompson Nickel Belt (TNB), which is buried beneath Phanerozoic formations in the Grand Rapids area. Parks Canada and Manitoba Conservation hope to include representative parcels of the region's significant karst landscape into the national park. The majority of documented karst features, however, occur over the buried TNB, in areas that are accessible by road and trail. In order to more fully document the distribution of karst in the Manitoba Lowlands, MGS conducted office inventories of karst features in the Honeymoon Lake area, in and around the town of Grand Rapids, and in the Devils Lake area, all of which lie east of the TNB (GS-28). Field investigations of karst features were conducted in a remote area south of The Pas Moraine, along the Grand Rapids–Vermillion River hydro line. All these investigations confirmed the presence of near-surface bedrock and karst in areas where there is no conflict with mineral-exploration potential.

Kimberlite

Preliminary studies of stream-derived kimberlite indicator minerals (KIM) in the Porcupine Hills of west-central Manitoba, released in 2001 and 2002, confirmed that the north slope of the Porcupine Hills contains anomalous quantities of KIM relative to other localities along the Manitoba Escarpment. Examination of aeromagnetic maps north of the Porcupine Hills has revealed the presence of a cluster of magnetic anomalies near Grassy Bay on Red Deer Lake, less than 20 km north of the anomalous KIM sample sites. The anomalies in the cluster bear a striking resemblance, in relative magnitude and shape, to the documented aeromagnetic signatures of the Fort à la Corne kimberlites (GS-29).

Quaternary

Surficial and 3-D geological mapping are required for effective land-use planning, as well as for hydrocarbon, groundwater and industrial-mineral development. In 2003, progress was made on the production of a seamless, digital, 1:250 000-scale compilation of surficial geology for all of Manitoba (GS-30). The surficial-geology compilation will replace the 1981 *Surficial Geological Map of Manitoba*. All of the most current and most detailed paper maps required for the 1:250 000-scale compilation have been digitized. Edge matching and polygon conflicts are being resolved with the aid of a digital elevation model derived from the recently released data from the shuttle radar topography mission. Original mapping of several previously unmapped areas was also carried out with the aid of the digital elevation model and limited ground truthing.

Three-dimensional geological mapping of the Phanerozoic succession in southern Manitoba, south of latitude 55°N and west of longitude 95°W, is being completed as a successor activity to the Prairie component of the National Geoscience Mapping Program (NATMAP; see GS-30). The Lake Winnipeg basin is nearing completion and, in combination with the already completed southern Prairie NATMAP area of southeastern Manitoba, this will enhance understanding of the eastern edge of Phanerozoic rocks in Manitoba. The 3-D model for the Winnipeg-area NATMAP has been used to model groundwater flow across the Winnipeg region and to assess climate-change scenarios with respect to impacts on groundwater systems. The 3-D model has also attracted participation in a proposal under *Canada's Climate Change Impacts and Adaptation* entitled 'Vulnerability of the Assiniboine Delta Aquifer under Climate Change'.

A new study (Ph.D. at the University of Arizona) was begun, as a successor project to the Red River Flood Program, to document the frequency, severity and causes of extreme droughts and low flows in the Winnipeg River basin (GS-27). The Winnipeg River currently supports six hydroelectric generating stations in Manitoba, which collectively produce 585 megawatts of electricity, approximately 11% of total provincial production. The river also provides the largest single contribution to Lake Winnipeg and thereby has an important influence on the production of nearly 4000 megawatts from the Jenpeg Generating Station and other stations on the Nelson River. Given the direct correlation between precipitation, runoff and hydro generation, an improved understanding of the frequency, magnitude and causes of past droughts and periods of low streamflow across the basin will provide information critical to the management of hydroelectric facilities in Manitoba.

Industrial minerals

The use of exposed Precambrian and Paleozoic bedrock as an aggregate source in the Churchill area will likely expand in the future as the depletion of favourable sand and gravel resources continues and the need to preserve undisturbed habitat for ecotourism intensifies. During 2000 and 2003, a few weeks were spent near Churchill collecting samples of the Proterozoic Churchill Quartzite, in order to assess its potential as a source of silica and to follow up on earlier reports of metallic mineralization (GS-22). Trace-element analyses of both the Churchill Quartzite and Paleozoic dolomite indicate that they are barren of economic mineralization. An attempt is being made to recover a high-purity silica source from a crushed composite Churchill Quartzite sample through selective screening, washing and sorting.

Other projects

Investigators at the University of Manitoba are studying phytoremediation of mine tailings and ‘bio-ore’ production to determine the potential for revegetation and phytomining of gold mine tailings at the Central Manitoba (Au) minesite in southeastern Manitoba (GS-26).

Regional offices

The Flin Flon and Thompson regional offices provide regulatory and technical assistance to the mineral-exploration and mining communities in the Flin Flon–Snow Lake region.

In Flin Flon, these activities include recording new mineral claims, maintaining an up-to-date library of claim and land-status maps for the Province of Manitoba, and answering claim-status inquiries and accepting assessment-work submissions (GS-5). In addition to the staff from the previous year, including the Regional Geologist (Thomas H. Heine), Resident Geologist (David E. Prouse) and Mining Claims Inspector (Karen Costello), an Assistant Deputy Mining Recorder (Tana White) joined the office team. Technical and logistical assistance was provided for several research projects undertaken in the region.

Thompson Regional Geologist Scott Anderson responds to a range of inquiries, including regional geology, potential of mineral properties and mineral identifications. The Thompson office provides Mining Recording services to the community, including data on the status and registration of claims, access to and sales of maps and reports, and access to electronic databases.

Core-storage facilities

Diamond drilling of a mineral prospect is the most important and costly phase in the evaluation of any mining property. The preservation of diamond-drill core can help reduce costs of redrilling these prospects when new exploration techniques and geological concepts evolve. It also serves as a valuable asset to researchers, especially in areas of extensive overburden or where Paleozoic cover rocks overlie the Precambrian basement.

Manitoba’s Mineral Resources Division has been storing Precambrian drillcore, obtained primarily from exploration drilling, since the early 1970s. A substantial repository of drillcore is now stored at five locations throughout the province. In 2003, work continued on updating drillcore inventories at all the northern facilities, especially the Centennial site near Flin Flon (GS-32). The retrieval of surface exploration drillholes for the Fox mine deposit has been completed.

Compilation and partnerships

Partnerships and collaborative projects continue to expand the ability of MGS to provide multifaceted, effective geoscience programming in Manitoba. Such partnerships make the best use of combined funds and expertise, and result in programs that vastly expand the traditional geological survey mapping programs. The federal government, other provincial governments, the mineral industry and several universities are currently involved in collaborative projects in Manitoba. These projects will generate approximately \$1.5 million toward geoscience funding in Manitoba for 2003–2004. At this time, MGS is involved in 38 individual partnered programs, many of which mentor the next generation of geoscientists. The range of university studies, from dendrochronology to isotope geochemistry, is impressive; the young scientists include two Post Doctoral Fellows, four Ph.D. candidates, seven M.Sc. candidates and one B.Sc. candidate, from five Canadian and two American universities.

The newly formed Compilation and Partnership Section has taken on the task of generating a wide range of up-to-date compilation maps for MGS. The first compilation map will stitch six updated 1:250 000-scale Bedrock

Geology Compilation Map Series (BGCMS) maps to produce a 1:500 000-scale map of a portion of the northern Superior Province.

Geoscience information initiatives

Considerable time has been devoted over the last year to large compilation projects. Conversion of more than 60 archival 1:250 000 and 1:100 000 Quaternary geology maps to digital format was completed, and the process of edge matching the maps into a seamless 1:250 000 digital surficial geology map of Manitoba is underway. This base will be used to derive a new version of the 1:1 000 000 *Quaternary Geology of Manitoba* map. The Bedrock Geology Compilation Map Series (1:250 000) program focused on provincial-scale compilation. No new maps were released this year, but 14 existing maps were edge matched in preparation for production of a seamless 1:250 000 geological base for Manitoba. This base will be used as the background map for all Internet Map Server presentations and will be simplified for a new version of the 1:1 000 000 *Geology of Manitoba*. Revision of the Thompson Nickel Belt compilation maps (1:20 000) started with production of 55 infrastructure and outcrop-distribution base maps. Revision of the geology is now ready to begin, using this updated base information.

The MGS continues to develop new projects and features for the Internet Map Server (IMS). The legend interface is being redesigned to make map projects clearer and easier to use. A new IMS project portraying data from the Protected Areas Initiative is currently under development.

Substantial advances have been made under the Canadian Geoscience Knowledge Network's Metadata Initiative. Preparation of metadata for all provincial publications has been completed and entry of metadata for external publications is underway.

Major map outputs in the current year include detailed maps from the Flin Flon Targeted Geoscience Initiative (TGI) and the Western Superior NATMAP. New programs requiring extensive support by the GIS section include the new TGI II Williston Basin Architecture and Hydrocarbon Potential Project and an ongoing program of evaluating the diamond potential of Manitoba.

Client Services

Client Services provides communications, outreach and information production and distribution services, including publication of MGS reports and maps and maintenance and development of the Mineral Resources Division website.

Information production and distribution services focused on expanding and improving access to geoscientific information sources through the website. Consequently, several in-house databases are now available for on-line searches, including the Mineral Resources Library catalogue, the Bibliography of Manitoba Geology, mineral inventory records and a newsclippings database. Access to free downloads of MGS reports and maps was also improved with on-line search capabilities for digital releases.

In addition, a new On-line Publications Catalogue of MGS reports and maps available for purchase was developed to enhance search capabilities and simplify ordering. The new catalogue will tie in to secure on-line credit-card purchasing capabilities scheduled for implementation in 2003.

Client Services outreach activities included mineral-education initiatives such as the Schools Program of the Manitoba Mining and Minerals Convention and Provincial Mining Week. Hands-on activities were designed to complement the earth-sciences curriculum and increase public awareness of minerals and mining to Manitobans.

Special projects included the coordination of an introductory Prospector Training Program. The community-based program was held in June for participants from the Sagkeeng First Nation. The intensive four-week course was developed in collaboration with Sagkeeng and delivered by Mineral Resources Division staff and other government and industry experts. Ten students graduated from the course with a Manitoba Prospecting Licence and Blasting Certificate.

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