

Annual Report 2011



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ROYAL MUSEUM
FOR CENTRAL
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FOREWORD

The Royal Museum for Central Africa (RMCA) publishes a beautiful and richly illustrated annual report in book form every two years. In intervening years – such as 2011 – we publish a digital edition that is available on our website, and for which a hard copy can be produced on demand. Despite its size, the report is not exhaustive. Rather, it seeks to provide the most varied overview possible of our many museum-related, educational, scientific, and other activities on the national and international scene. The long governmental crisis of 2011 notwithstanding, RMCA was highly productive and remains one of the most important Africa-focused research institutions, particularly for Central Africa.

As with the previous year, the renovation was one of the museum's priorities in 2011. Preparatory works were carried out so that the other buildings can remain operational during the renovation proper. The new permanent exhibition and its scenography are coming close to their final form, and the relocation of the cellar and museum building contents has begun.

RMCA organized two major themed exhibitions for the year. On 8 April, the exhibit *Fetish Modernity* opened its doors to the public. This exhibition was the fruit of an international collaboration among several ethnography museums as part of the 'Ethnography Museum and World Cultures' (RIME) project. The second major exhibit, *UNCENSORED*, invited visitors to (re)discover the museum's better and lesser-known corners before renovation works started. For the first time, some of the museum's cellars were opened to public view. There were also four photo exhibitions and an exhibit to cap an artist residency programme. The *Congo River. 4,700 Km bursting with nature*

and culture exhibition was extended, while RMCA collection pieces were admired in more than 20 major exhibitions held in different parts of the globe. Nearly 30,000 children attended our educational workshops or school activities, while our collaboration with African communities became more streamlined. We felt a pang of regret at the departure of 'our' elephants in 2011. After gracing our museum's entrance for three years, the 9 pachyderms that formed the work created by South African artist Andries Botha, *You can buy my heart and my soul*, left Tervuren Park for good.

2011 was also a fruitful year in terms of scientific research. To highlight the multidisciplinary nature that is the strength of our institution, we organized 'Science Days' for the first time. This initiative sought to bring together museum researchers in the natural and human sciences and have them explore and compare activities and scientific skills, so that they gain a better picture of their colleagues' work and are encouraged to pursue multidisciplinary collaboration.

The ambitious project on the new provinces of the Democratic Republic of the Congo produced its first publications in 2011. The monograph on Maniema province was released in April, while the Haut-Uele monograph followed in December. These two monographs, kicking off a 26-volume collection, quickly earned a very positive reception.

'*Boyekoli Ebale Congo 2010*', the international multidisciplinary expedition on biodiversity which was organized with several partner institutions, continued to yield results the following year. The Congo 2010 Consortium (RMCA, National Botanic Garden of Belgium, Royal Belgian Institute of Natural Sciences and the University of Kisangani)

began construction of the Centre de Surveillance de la Biodiversité (CSB) in Kisangani and initiated a long-term collaboration between Congolese and Belgian institutions and universities for biodiversity research capacity-building. The CSB intends to become an international knowledge centre for research on Congo Basin biodiversity.

Extensive fieldwork in various disciplines was carried out in 2011. The press paid special attention to the work of our geologists, who went on an expedition with their colleagues from Luxembourg to Mount Nyiragongo, in the Democratic Republic of the Congo's east. One of Africa's most active volcanoes, Nyiragongo is also located barely 15 km north of the city of Goma. The geologists installed the first monitoring system of the volcano's lava lake, making it possible to track volcanic activity and develop early warning systems to protect the area's residents.

As with previous years, our collaboration programmes with African institutions in 2011 dealt mainly with capacity-building. More than 100 African scientists followed training courses or were supervised by RMCA researchers while completing their doctoral thesis.

RMCA is a dynamic federal scientific institute. Our expertise, high-level scientific research, renowned collections, training programmes, and cultural and educational activities all combine to give us our international reputation as an institution. Many of our projects, in the natural and human sciences, are pursued in collaboration with prestigious universities and research institutes. RMCA is also involved in fruitful partnerships with other federal scientific institutes in several areas. In terms of

research, 2011 was a productive year, with more than 300 publications from our scientists.

For this reason I wish to express my heartfelt gratitude to the RMCA staff for their constant dedication. Yet without the support of our structural partners, we would have been unable to pursue all our activities. Many thanks go to the Belgian Federal Science Policy Office, Belgian Development Cooperation, Federal Public Service Foreign Affairs, the National Lottery, and the Public Buildings Administration.

Guido GRYSEELS,
Director General





Ein bewährtes Stück Kunstwerke aus der
des Jahr 1910 für die Skulpturen des
Platzes der's durch die Skulpturen.

THE MUSEUM AT A GLANCE

JANUARY

- 03/01 In keeping with tradition, the year begins with a speech from the director followed by a walking dinner for museum staff.
- 25/01 On 25 January, the Congo 2010 Consortium held a press conference at the Botanic Garden in Meise to present the initial results of the Congo River expedition and announce the launch of the Congo Biodiversity Initiative. The Consortium includes the RMCA, the National Botanic Garden of Belgium, the Royal Belgian Institute of Natural Sciences, and the Université de Kisangani. The press conference also inaugurated an exhibition of extraordinary images taken during the expedition by photographer Kris Pannecoucke.
- 26-28/01 First edition of 'Sciences Days', to give museum researchers the opportunity to discuss their scientific skills and activities and give colleagues a chance to discover the work of their fellow scientists in the natural and human sciences.



25/01 © RMCA



26/01 © RMCA

FEBRUARY

- 01/02 Room 19, opening of the photo exhibit *Madagascar. Meet the people.*
- 11/02 US Ambassador to Belgium Howard Gutman pays a visit to RMCA and Tervuren.
- 25/02 Felix Costales Artieda, Spain's ambassador to the DRC, visits the RMCA.

MARCH

- 12/02 Defence Minister Gomul of Turkey visits the museum.
- 15/3 Presentation of satisfaction survey results to RMCA staff. Over 87% declared they were satisfied or very satisfied to work at the museum. A number of crucial points were also raised, paving the way for concrete action.
- 22/3 RMCA joins the History Night organized by Davidsfonds.

- 27/3 Turkish writer and Nobel laureate Orhan Pamuk visits the museum and the Stanley archives.
- 31/3 After three years of restoration work, the sculpture *Après le combat* stands anew in front of the Colonial Palace.

APRIL

- 08/04 Opening of the traveling exhibition *Fetish Modernity* at the RMCA.
- 18/04 The coelacanth aquarium has been restored, with a new airtight cover that prevents formaldehyde from evaporating. The fish is also mounted on a specially designed stand.
- 29-30/04 23rd edition of EXPOsciences, at Tour & Taxis, where the RMCA conducted a workshop on butterflies.
- 29/04 The director awards certificates to attendees of the Summer School organized by the Colonial History section.

MAY

- 4/5 The 9 elephants that formed South African artist Andries Botha's work, *You can buy my heart and my soul*, left Tervuren park to join their new permanent home at Planckendael animal park near Malines.
- 11/05 Room 19, opening of the exhibition *Artists in residence: Sammy Baloji and Patrick Mudekereza*.
- 15/05 The 7th edition of Africa<>Tervuren takes modernity as its theme, inspired by the *Fetish Modernity* exhibit.
- 15/05 On the occasion of the Year of Forests, our Science Corner displays new panels featuring the work of the Wood Biology unit.
- 25/05 The Colonial Palace welcomes Africa Day organized by African ambassadors in Brussels.



04/05 © RMCA



15/05 J. Van de Voorde © RMCA

JUNE

- 6 /6 A delegation led by DRC Chief of Staff Lt. Gen. Didier Etumba Longila pays a visit to the RMCA.
- 9/6 The RMCA website launches a new section, 'Meet our Scientists', where museum researchers present their work and collections in short video interviews. Three such interviews were put online in 2011.
- 11/06 A special installation for the visually handicapped was created in the agricultural economy room. Specimens can be handled freely, and all descriptive texts have a transcription in Braille.
- 24/06 FishBase participants receive their certificates.

JULY

- 5-8/7 Holiday workshops for children aged 10 to 12 were held at the museum from 5 to 8 July. For four days, they could enter the world of the Congo River.
- 7 /7 A Chinese delegation led by NPC vice-chairman Zhou Tienong visits the museum.
- 12 /7 Rebecca Martin Nagy, Susan Cooksey and Robin Poynor, all of the University of Florida's Harn Museum of Art, came on a work visit to the RMCA. They studied the possibility of a joint exhibition in 2013 on the influence of Kongo cultures on the United States when the first Africans arrived there in 1513.
- 29/7 The Mémoires du Congo association, which has been gathering and recording testimonials from former colonials, turned over a large number of documents and DVDs of their work to the RMCA. These are now held for study at the Colonial History section.



29/07 © RMCA



28/08 © RMCA

AUGUST

- 09/08 Rwanda ambassador Robert Masozera visits the RMCA.
- 28/08 RMCA hosts a stand at the Antwerp Cultuurmarkt. Mega Mindy dropped by for a short visit.

SEPTEMBER

- 8/09 Élise Thompson Mc Cabe, director of New York's Museum for African Art, and her associate Marietta Ulacia are welcomed by the RMCA. They discuss the possibility of collaborating on the creation of a true African Art museum in New York.
- 12/09 The horns of the rhinoceros in the permanent exhibition were removed for safekeeping following the wave of robberies targeting natural history museums around Europe.
- 13/09 The dean of the Université de Kisangani and directors of the National Botanic Garden of Belgium, Royal Belgian Institute of Natural Sciences, and the RMCA meet to discuss the Congo Biodiversity Initiative Consortium.
- 22/09 A grand public late night opening inaugurates the *UNCENSORED* exhibition along with the smaller *Museum Dwellers* exhibit of photos by Jo Van de Vijver, one of the museum's photographers, in the café and Okapi room.
- 23/09 RMCA joins Researchers' Night, an initiative of the European Commission to bring the youth in contact with scientists and awaken their interest in the field. The Prehistory and Archaeology section had a stand on ceramics.
- 29/09 Launch of a 'management path' for RMCA senior staff in collaboration with IFA.

12/09 J. Van de Voorde © RMCA



22/09 J. Van de Voorde © RMCA



23/09 J. Van de Voorde © RMCA



OCTOBER

- 01/10 Room 19, opening of *Africa XL*, an exhibition of photos by Eddy Van Gestel.
- 13-14/10 RMCA hosts the international meeting between European ethnography museums and the African diaspora as part of the Read-Me 2 European project, to discuss the explicit museum discourse on the way the 'Other' is depicted in Europe.
- 21/10 New York's Museum for African Art and the RMCA sign collaboration agreements at the residence of the Belgian Consul-General in New York City.



21/10 © RMCA

NOVEMBER

- 21/11 The Colonial Palace hosts the First Brussels High-Level Lecture on Food Security and Development, a joint initiative of the RMCA and KULeuven's LICOS centre.
- 24/11 2nd Brussels Museums late night opening at the RMCA.

DECEMBER

- 3/12 The African Associations Day meets with great success for the fourth consecutive time. 120 guests participated in various activities for all ages.
- 15/12 Presentation of the new book *Birds of Katanga – Oiseaux du Katanga* by Michel Louette and Michel Hasson.



15/12 © RMCA

MUSEUM LIFE

EXHIBITIONS

In 2011, the RMCA presented two major themed exhibitions, four photo exhibitions, and one exhibit to cap an artist residency programme. *The Congo River. 4,700 km bursting with nature and culture* exhibition continues to run, and museum collection pieces were displayed in other museums.

***Fetish Modernity* (8/4-4/9)**

Fetish Modernity opened its doors to the public on 8 April. This exhibition was a result of the collaboration among several ethnographic museums that are conducting workshops on social issues as part of the Ethnography Museums and World Cultures (RIME) European project. It explored all aspects of modernity. The West has a tendency to separate the world between 'us' and 'them', and believe that it has a monopoly on modernity. *Fetish Modernity* proved the contrary; the quest for modernity fuels a cross-pollinating creativity. Objects from different periods and diverse places show how everywhere, modernity is an ever-present dynamic process. The pieces on exhibit came from museums participating in the RIME project, and count contemporary works and audiovisual installations in addition

Fetish Modernity exhibit © RMCA



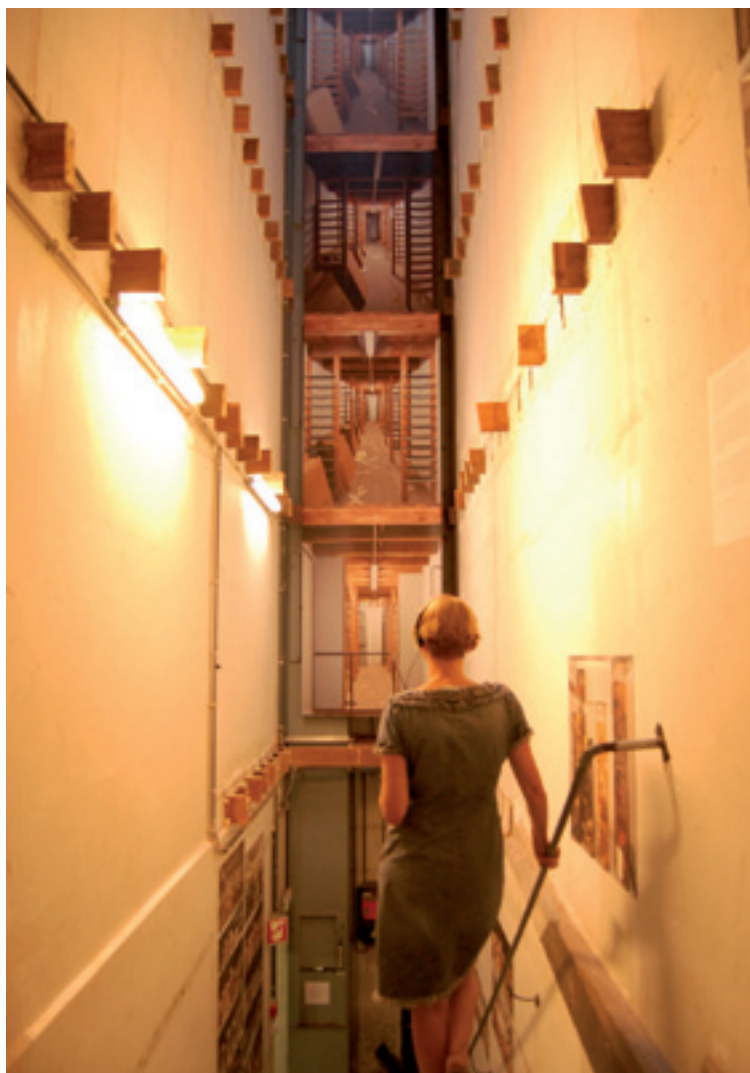
to traditional ethnographic museum pieces. The bold, Kascen-designed graphics and scenography were in themselves a highlight of the exhibition. Blocks of various sizes were arranged to create open spaces here, more intimate spaces there. Over the next three years, the exhibition will travel to Madrid, Prague, Vienna, Leiden, and Stockholm, along with an English-language catalogue.

***UNCENSORED Vivid tales from behind the scenes* (22/9-8/7/12)**

Before the museum closes for renovation, *UNCENSORED* invited the public to (re)discover the popular and lesser-known facets of the museum. An audioguide brought visitors through the permanent collection and into the museum's cellars which were opened to the public for the first time. The exhibit connected a series of improbable tales, unusual stories, and strange anecdotes that together form the history of this most remarkable museum. But it also showcased scientific research, collection-building, the growing role of information dissemination, and collaborations with African partners. All in all, *UNCENSORED* presented 30 captivating accounts. The museum and communications

UNCENSORED exhibit. L. Boukhalfa © RMCA





Top and bottom:
UNCENSORED exhibit. L. Boukhalfa © RMCA

Opposite, top left:
Fetish Modernity exhibit © RMCA

Opposite, bottom left:
Africa XL exhibit. M. De Meersman © RMCA

Opposite, right:
Artists in Residence exhibit.
R. Dakoua © RMCA



agency Famous also designed an audacious Facebook campaign. Over the first ten days of the exhibition, several artists painted a 70-metre-long canvas stretched over the construction fence surrounding the museum, drawing inspiration from the featured accounts and the updates posted by Facebook users. The festive exhibit launch, attended by 1,500 enthusiastic visitors, also opened the 11th edition of the Late Night Openings of the Brussels Museums Council.

Photo exhibitions

From 25 January to 13 March, the *Expédition sur le fleuve Congo en images* exhibition featured photographs taken by Kris Pannecoucke in 2010 while on the *Boyekoli Ebale* expedition. These not only depicted the life of the river and its surroundings, but also illustrated the riches of the local flora and fauna and the work of the 67 researchers who were part of that great adventure.

On 1 February, the museum unveiled **Madagascar: Meet the people** (1/2-27/3). Visitors discovered twelve panoramic photographs of Wim

De Schamphelaere showing the country's landscapes.

From 1 October onward, *Africa XL* (1/10-31/12) exhibited the photos of Eddy van Gestel. For over 10 years, the photographer crisscrossed the continent from north to south and from east to west. Portraits, landscapes, and images of animals showed the fragile beauty of a rapidly-changing Africa. Meanwhile, in conjunction with *UNCENSORED*, the Okapi room and the museum cafeteria hosted *Museum Dwellers* from 23/9/2011-31/8/2012), an exhibition by photographer Jo Van de Vijver, who works with the museum. The subjects of the portraits are not people, but the mounted animals hidden away in the museum's cellars.

Congo Far West. Artists in Residence (11/5-4/9)

In 2008 and autumn 2010, artists Sammy Baloji and Patrick Mudekerezza were the museum's guests for the pilot project 'Artists in Residence', which culminated in a remarkable exhibition.

With the artist residency project, the museum hoped to create bridges between scientific



research, the collections, and dissemination of information on contemporary society and the collections. For the first workshop in 2008, the artists had a free hand to explore the museum's collections. The second residency allowed them to deepen, with the guidance of museum scientists, their acquaintance of several museum pieces: a hybrid sculpture by Belgian artist Auguste de Wever and an anonymous African artist; a series of treaties signed by chiefs from the Boma region at the behest of Leopold II's agents; François Michel's photographs, and watercolours by Léon Dardenne. Baloji and Mudekerezza focused on works from the earliest days of Belgium's colonisation of the Congo, which carry a whiff of Western territorial conquest. The exhibition's name, 'Congo Far West', refers to this, as well as to contemporary Congolese artists who are artistically and intellectually winning back objects kept in the West.

The exhibition was accompanied by a book, *Sammy Baloji et Patrick Mudekerza en résidence au Musée royal de l'Afrique centrale. Congo Far West. Art, sciences et collections*. After the exhibition run, an interactive DVD presenting its different components was released.

RMCA extra muros

Pieces from the RMCA's collections are regularly shown outside the museum's walls in different temporary exhibitions. This year, a total of 150 pieces were loaned to 18 temporary exhibitions in the following institutions:

- Brussels Airport (Zaventem);
- Sainsbury Centre for Visual Arts (Sainsbury, United Kingdom);
- Musée d'Aquitaine (Bordeaux, France);

- MAS (Antwerp);
- Musée de Louvain-la-Neuve;
- Lokschuppen Exhibition Centre (Rosenheim, Germany);
- Tour & Taxis (Brussels);
- Metropolitan Museum of Art (New York, USA);
- Royal Museums of Art and History (Brussels);
- National Bank of Belgium (Brussels);
- Stedelijk Museum Bureau Amsterdam (Amsterdam, The Netherlands);
- Consulate General of Belgium (New York, USA);
- Musée Dapper (Paris, France);
- Tropenmuseum (Amsterdam, The Netherlands);
- Royal Museums of Art and History – Europalia (Brussels);
- BOZAR – Europalia (Brussels);
- Musée du quai Branly (Paris, France);
- Musée des Timbres et des Monnaies (Monaco).

ACTIVITIES

The museum organizes many activities around the temporary exhibition. In April, the RMCA held guided tours to *Fetish Modernity*. Sami Baloji, one of the artists in residence, also guided a tour for *Congo Far West*.

As part of *UNCENSORED*, 10 classes of 5th and 6th year primary school students were treated to an unforgettable '**Night at the museum**'. They lived through a thrilling adventure in the silent rooms of the museum where animals, masks and statues suddenly came to life, and mysterious night visitors wandered through the halls. They prepared a delicious African meal under the supervision of a Congolese mother, then headed for the village of Nianga after listening a folk tale. The

Congo Far West exhibit. R. Dakoua © RMCA



Luminous exhibit. J.-M. Vandyck © RMCA



next morning began with an energetic introduction to gumboot, a South African dance, followed by a heart-pounding percussion workshop.

Several activities were organized around the theme of the upcoming renovation. For instance, the **'Discover the museum from cellar to attic'** tour was redesigned to include the renovation along with the usual architectural and historical elements. The tour follows the future layout, from the new pavilion into the museum via the underground cellars.

Once again, **Africa <> Tervuren** was one of the highlights of the year. The seventh edition of the twice-yearly event, organized in close collaboration with the African diaspora, was held on 15 May. The slogan 'Mix U Up' neatly summed up the theme of cultural crossings and encounters.

As is customary, concerts, workshops, and demonstrations were on the programme. Youth-oriented activities included workshops on body art, graffiti, and how to turn an ordinary T-shirt into an original piece of clothing. This year, a special place was kept for hybrid and contemporary art from the mix of cultures. Urban arts such as hip-hop, capoeira, and salsa draw inspiration from African cultural heritage. The highlight of the day was the appearance of Peggy Tabu, Olivier Tshimanga and Dju Bébé, who injected new life into a swinging rumba with their fevered performance. More than 2,000 spectators joined this – perhaps the last – edition of Africa<>Tervuren.

Africa<>Tervuren also had a special guest this year: **Matchbox on Tour**.

Matchbox is a KunstWerkt travelling exhibition project which toured Flanders from April to

November 2011. It made a special appearance at Africa<>Tervuren, with two artists. Carlos Ramirez and Hannelore van Dijck collaborated on a joint creation that demonstrated their vision of art and diversity, in direct connection with a site that has adopted both: the museum.

Africa<>Tervuren also marked the festive opening of the exhibit that capped the **creative project Luminous**. For the fourth time, artists and crafters had the chance to exhibit their works at the museum. Their task? To 'make a lamp "in the light" of the *Fetish Modernity* exhibition, by combining shapes, materials, patterns, and ideas borrowed from different cultures and periods.' The public picked their favourite from the excellent submissions, which were immortalized in a digital catalogue that showed off their ingenuity in terms of technical and material design.

Permanent exhibition

In 2011, the RMCA maintained its proposed educational and cultural activities for adults, schools and teachers, youths in extracurricular activities, families, and the general public. Statistics reveal that the number of participants in these activities remains practically unchanged compared with previous years. 13,778 adults, 21,306 schoolchildren and 5,688 youths in an extracurricular activity joined a guided tour, workshop, training course, or project. 3,064 visitors came for an activity for the family or general public. 22,346 adults and children used an audioguide or a tour booklet.

"Night at the museum" © RMCA



Africa <>Tervuren. R. Dakoua © RMCA



Guided tours and workshops

A number of guided tours and workshops were redesigned and adapted. In addition to **'Discover the museum from cellar to attic'** (see above), the storytelling tour **'Flow of words'** was also modified: new tales, inspired by the one created for the 'Congo River' exhibition, were integrated into a tour that goes through the rooms of the permanent exhibition.

The 'Making music with wooden instruments' workshop was modified and became **'Rhythm Session'**, which touches on all the instruments displayed in the rooms. It is now accompanied by a professional musician, and new didactic tools such as video clips are now included. The activity tour on the **African elephant** was entirely redone in 2011. Content was revised to place emphasis on general environmental principles and on the position of the bush elephant in the food chain. Outdated and damaged teaching materials were replaced by new modules and didactic tools.

The **workshop for the blind and visually-impaired** was also redesigned entirely and now has its own space in the agricultural economy hall, where objects can be touched and handled. The inscriptions there are also available in Braille.

'Like a fish in the river' summer workshop

Four summer workshops for children were organized in 2011 as part of the 'Congo River' temporary exhibition.

For a week, young participants travelled on the Congo and dived into the fantastic world of myths and tales peopled with fisherfolk, crocodiles, African mermaids, and other water beings. They dug into the ground in search of archaeological treasures, and built their own mini-boats. A scientific visit was of course included in the programme, in the museum's zoology labs and fish collections.

COLLABORATIONS

Numerous projects and activities for adults and children were developed and organized together with cultural, social, and educational organizations and institutions, as well as organizations involved in development education.

The RMCA works in close collaboration with the African diaspora in Belgium, and plays an important role in awareness-building activities focused on development cooperation and multicultural society.

COMRAF

COMRAF (the RMCA-African Associations Advisory Committee) drafted a new charter in 2011. It officially presented its structure, mission, and objectives during an international encounter day at Tervuren on 14 October on the occasion of READ-ME 2.

Musée national de Lubumbashi (MNL)

With the support of Belgian Development Cooperation, the RMCA was once again able to pursue an intensive collaboration with the Musée national de Lubumbashi (MNL).

In 2011, the MNL expanded its range of workshops to 6, with 8,250 schoolchildren participating in them. Preparations are also ongoing for a new workshop, 'The evolution of species', which will be offered to students in the 5th and 6th year of secondary school starting April 2012. The programme also included various training courses for teachers and future educators.

Institut des musées nationaux du Congo (IMNC)

Thanks to the support of Belgian Development Cooperation, the RMCA and the IMNC in Kinshasa have been working closely together for the past

Training the trainers. C. Kohen © RMCA



several years. In January 2011, the *Congo. Nature & Culture* exhibition opened its doors there. Using updated maps, quantitative data, and photographic documents, it presented information on the status of natural and cultural riches of the DR Congo.

Given the paucity of updated information on this topic, the exhibit was particularly interesting to Congolese students. The accompanying workshop enabled secondary school students to acquire an idea of the exceptional biodiversity, natural wealth, and cultural heritage of the country, and become aware of the urgent need to protect this world heritage.

TRAINING COURSES

• **For (future) teachers**

Teachers of the 2nd and 3rd years of pre-school and the 1st year of primary school can take the 'Africa within the reach of the youngest' training course. 'Congo: Colonisation and decolonisation' was organized for 5th and 6th year secondary school teachers. (Future) educators also have the possibility of asking for a bespoke programme.

• **For associations and organizations**

Tailor-made training programmes addressing the needs of cultural and social organizations, tertiary schools, and universities explore themes such as the dissemination of information on

Africa, how to approach the public, representing the 'other', intercultural encounters, etc.

KEY FIGURES

Total number of participants in educational and cultural activities: 66,182

1. Guided tours: 17,319
2. Activity tours: 1,794
3. Workshops: 17,871
4. Courses for adults and teachers: 1,022
5. Projects, events, partnerships: 5,830
6. Audioguides and tour booklets: 22,346

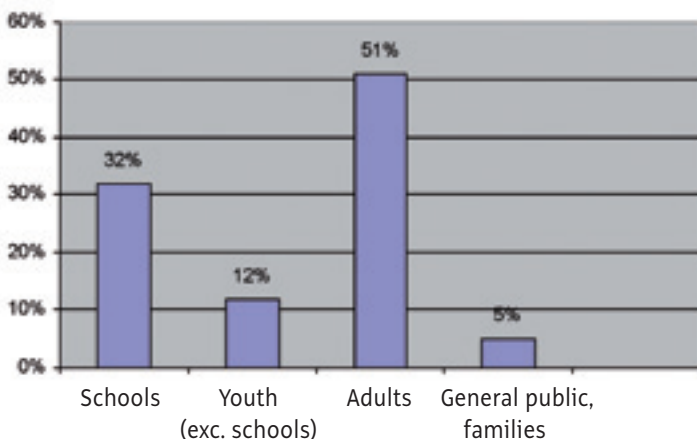
Workshops and guided tours topped the list of educational and cultural activities, representing 40% and 41% respectively. Activities are also regularly organized in parallel as part of projects and partnerships with other organizations.

Guided tours are most often requested by organizations, primarily for groups of adults.

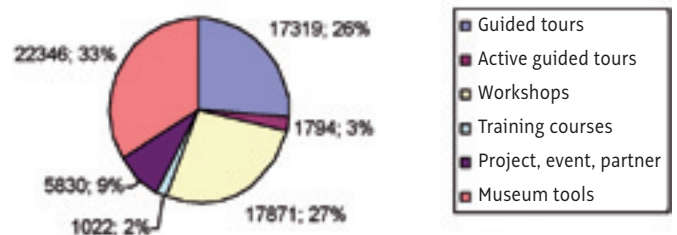
The total number of workshops in 2011 is about the same as in 2010. There is a slight increase for schools, and a slight decrease for children and youths in non-school-related activities.

The slight decrease in the number of workshops taken by certain target groups is largely compensated for by increased participation from primary schoolchildren.

2011 - Participation in educational and cultural activities per target group



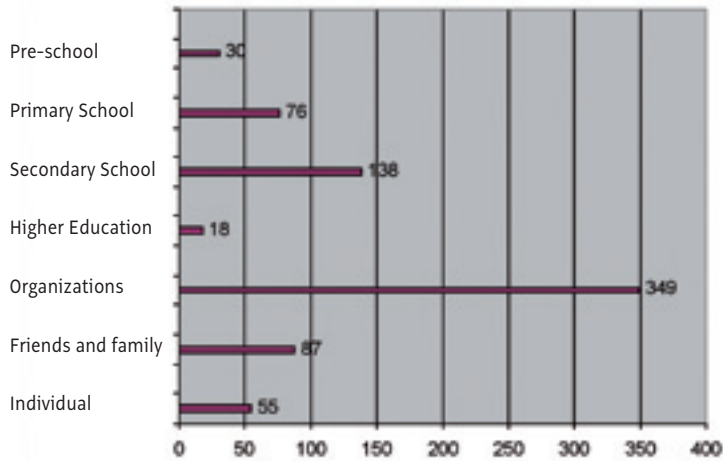
2011 - Number of participants per activity and museum tools



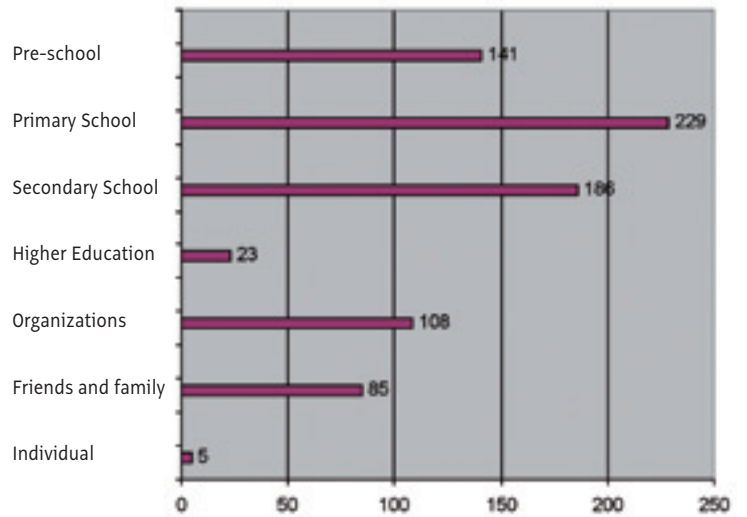
Guided tours for the permanent exhibition are more popular among the Dutch-speaking public than among French speakers.

The 'Gloop!' workshop was more popular with French-speaking children, while the 'Green earth' workshop was followed by more Dutch-speaking students.

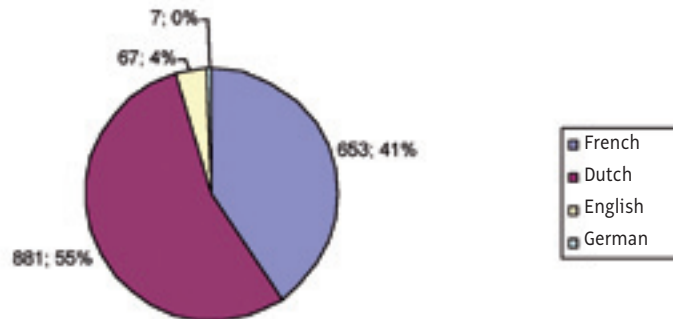
2011 - Number of guided tours per type of group or school



2011 - Number of workshops per type of group or school



2011 - Workshops and guided tours by language



RENOVATION

The RMCA's renovation is urgent and remains our top priority for the coming years. The main building dates from 1910. While it still exudes its unique charm, its infrastructure is no longer suited to the needs of a modern museum. The last time the museum saw major refurbishments was for Expo 58, over half a century ago. The permanent exhibition has also become quite outdated, placing it in sharp contrast with the temporary exhibitions that are more in touch with current scientific research and collections. The museum will be restored and equipped with modern facilities and new exhibition design. It is slated to reopen in autumn 2016. Scientific research will continue to function normally while the museum itself is closed. The main building's renovation and a new welcome pavilion will be the first visible manifestations. Execution of the masterplan for the entire site will then be pursued for the buildings that currently house the scientific sections. The projected completion date for the project is 2020 at the earliest.

PHASE 1 : 2012-2016

The first phase of renovation involves thoroughly revamping the museum building and making the changes necessary for the operations of a modern museum.

The most striking element is undoubtedly the **new welcome pavilion** that will be built between the administrative building and the Colonial Palace.

Certain amenities such as ticket sales counters, the museum shop, the restaurant, a picnic space for children, cloakrooms, and other reception facilities will be moved here from the old building. Reception will be optimised and the main building will house the new permanent exhibition in a larger and more suitable space.

The new pavilion will be connected to the main building by an **underground gallery** that will host **temporary exhibitions**. Visitors will enter the old building through the cellars, where the permanent exhibition will begin. The rest of the exhibition will be found on the ground floor.

The **inner courtyard** will be redesigned with a contemporary eye. A hollowed-out section will act as a skylight to the underground level and can also be used as an open-air theatre.

The **old building** will be renovated and restored in the spirit of the original architectural design. Clarity and light will take centre stage, the way Girault intended, and the original perspectives will be brought back.

IN CONCRETE TERMS IN 2011

Launch of Phase 1: reorganization, restoration, and extension of the museum building. After budget approval, RMCA and the Public Buildings Administration finalize the specifications. Start of preparatory work on certain facilities (security, electricity, data cables, heating) to ensure the continued functioning of other site buildings while the main building is closed for renovation.

Evacuation of the main museum building

The evacuation of the main museum building is a colossal enterprise. It will begin with the cellars and attics so that museum visits remain unhampered. For the collections and archives, a transfer plan was drafted and tested, with actual transfer scheduled for 2012 and 2013. Part of the collections will be stored outside the museum site. For instance, an agreement was made to this effect with the Royal Archives in Leuven. Another part will be moved to other buildings onsite; preparatory work to this effect is being made at the CAPA.

Retrofitting of CAPA

According to the master plan, RMCA scientific activities will be centralised in the CAPA building. Its facilities are, however, completely unsuitable for this. Moreover, museum laboratories require significant investments to remain compliant with stricter environmental regulations. Preparations are being made for the transfer in 2012 of CAPA laboratories to CODA. The freed space will then be converted to offices and reserve rooms for the collections and archives.

Exhibit scenario

As the architectural component progresses, an internal team continues to refine plans for the new permanent exhibition in collaboration

with outside experts and representatives of the African diaspora.

A new project head was named in April. Under the head, five teams – each comprising an exhibit coordinator and a documentalist, and assisted by a scientific committee – have been working since October on the four main themes that will be covered in the exhibit. Each team is tasked with drafting a visual dossier for the scenographer. Specifically, they need to identify collection pieces that will be used to illustrate the theme and draw up a list of missing objects and other requirements from a museological perspective, in keeping with the scenario and instructions that were elaborated by the different scientific coordinators in 2009.

Their challenge is to offer visitors of all ages and from all walks of life an informative and engaging narrative that is rooted in the museum's collections and expertise and reflects its identity.

The new permanent exhibition focuses on Central Africa but leaves enough room to include other parts of the continent when relevant. The four main themes covered by the exhibition are: 'landscapes and biodiversity', 'riches', 'man and society', and 'art, expressions and representations'. The past and the collections will be presented from a contemporary perspective, and the human experience will take centre stage. The goal is to put things in context without neglecting the beauty of the museum pieces or of the building itself.

In the underground gallery, an introductory module will present the museum, past and present. The ground floor will be divided into four major interdisciplinary themed areas.

Scenography

At the Building Heritage Agency's request, as many as possible of Girault's original display cases will be restored and reused. In over a century of existence, these display cases have undergone numerous transformations. Engineering bureau Origin, tasked with restoring the museum building and its interiors, have picked out those that can be reused. A system was designed to preserve the display case while retrofitting it with the equipment required by a modern museum (temperature control, multimedia applications, etc.) A model display case stands in Room 21 (formerly known as the 'Pirogue Room'): its glazing was

replaced, and the original decorative patterns of the lower wooden panels are visible once more. Its technical base frame allows ventilation and provides for the installation of a video screen, and lighting comes from the top light-hood. It is being observed for its response to variations in the weather, to determine if measures must be taken to stabilise temperature and humidity inside the case. In addition to these original display cases, a new contemporary modular display case system was designed to permit great flexibility in future exhibit layouts.

CHRONOLOGY OF THE RENOVATION

On 20 July 2006, the federal council of ministers approved the renovation of the Royal Museum for Central Africa. Between then and the start of renovation works, different groups worked intensively on the architectural design and the creation of a new exhibit scenario. The final concept is the fruit of a continuous, constructive discussion with the different authorisation-granting bodies.

Notable dates:

September 2011

Under a newly-designated project head, a team works steadily to flesh out an exhibition around the scenario. It is now selecting the most suitable collection pieces for illustrating the narrative as well as the best museum techniques in order to offer an interactive, engaging visit to the public.

31 May 2011

The temporary association Stéphane Beel Architecten submits plans for the restoration of the museum building and the construction of the new welcome pavilion to the Public Buildings Administration. The latter, along with the museum, analyse the plans thoroughly. Their comments are used to come up with a revised final plan that is submitted for publication in the *Bulletin des adjudications* so that potential contractors can bid for the contract. The winning contractor will be announced in 2012.

4 November 2010

Green light for the museum renovation! The Public Buildings Administration receives the building permit for the renovation and extension of the museum building. The next major step:

creating bid packages with detailed plans. Each room must be described down to the last detail.

11 August 2010

The Planning Department did not note any major inconvenience. There are now 60 days left for following up the opinions of the permit-granting authorities and the preparation of the building permit itself.

8 July 2010

The public survey on the dossier is launched. Anyone who wishes to do so can consult the dossier and send an opinion in writing within 30 calendar days.

24 June 2010

The dossier is complete and admissible. The local government has 10 days to organize a public survey.

14 June 2010

The preliminary project phase is complete. The dimensions and the location of the new welcome pavilion have been approved by all parties. TV SBA can submit its building permit application to the Flemish Brabant land planning agency.

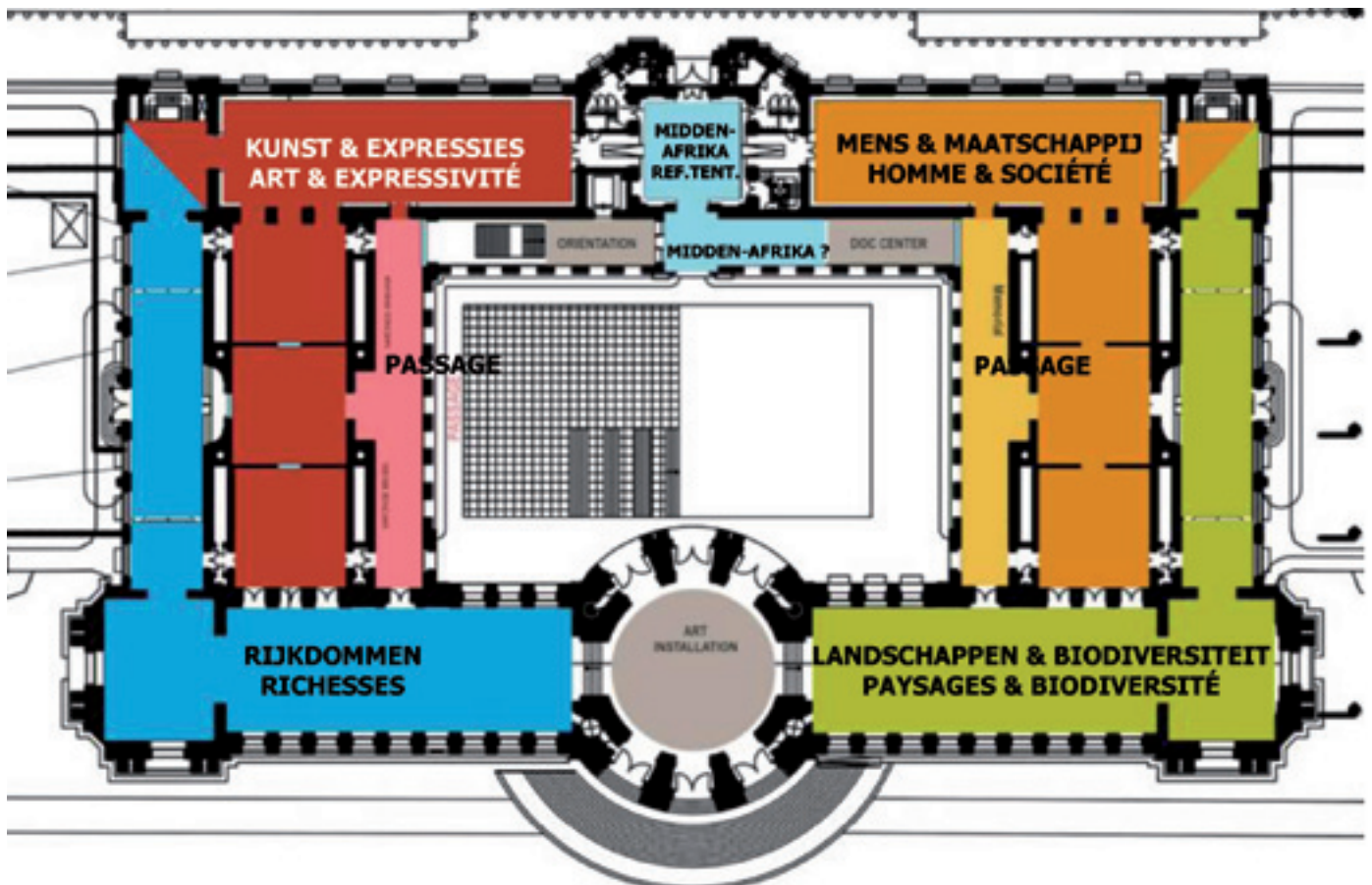
Autumn 2009

The preliminary project draft for the museum complex renovation is approved in August. The welcome pavilion is now smaller and lower, which required some changes to its interior layout, but in this way the park's trees are spared from being cut down. On 1 October, the team of architects begins the preliminary project phase.

Spring 2009

Compared with the initial sketch, the new welcome pavilion has been modified in terms of height and volume.

Layout of the museum's future permanent exhibition © RMCA



Autumn 2008

On 18 July, the draft masterplan for the entire site is submitted. On 11 November, TV SBA tackles the second part of its study: make a blueprint for the museum building itself. Numerous discussions are held in this respect with local authorities as well as, for instance, Bos & Groen and the Building Heritage Agency.

Spring 2008

The winning proposal, by the temporary association Stéphane Beel Architecten + Origin Architecture and Engineering + Niek Kortekaas + Michel Devisgne + Arup (TV SBA) is developed further together with the RMCA, the Public Buildings Administration, and all involved parties. First, a master plan needs to be developed. The preliminary project is drawn up with constant input from TV SBA, the RMCA, and the Public Buildings Administration. Within the RMCA, a 'Renovation' committee closely monitors the architectural plans and ensures that the museum's needs are being addressed in architectural terms. An internal 'exhibit scenario' expert group sketches out the main lines of the permanent exhibition, which must be incorporated in the architectural plans. On 14 May, the preliminary master plan for the RMCA site is approved. TV SBA begins working on the preliminary project.

23 October 2007

On the occasion of the awarding, a press conference held at the museum reveals the main features of the renovation and announces the following timetable:

2007-2009: Analysis and masterplan are drawn up

2010: the museum centenary signals the start of modernisation work.

2013: Renovation is completed.

11 September 2007

Didier Reynders, deputy prime minister and minister of finance in charge of the Public Buildings Administration, signs the document awarding the task to the temporary association Stéphane Beel Architecten + Origin Architecture and Engineering + Niek Kortekaas + Michel Devisgne + Arup NL. They will now conduct a study for the general restoration, renovation, and remodelling of the museum building of the Royal Museum for Central Africa, and draft a general master plan for the entire site.

11 January 2007

The Public Buildings Administration has opened the bid packages submitted for the renovation of the Royal Museum for Central Africa. Eleven packages were submitted. Over the next few months, a team of officers from the Public Buildings Administration and the RMCA will go through the packages in detail and select the consulting firm that will be placed in charge.

24 October 2006

Publication in the Belgian and European *Bulletin des adjudications* of the public contract for the designation of a multidisciplinary design consulting firm.

20 July 2006

The renovation of the Royal Museum for Central Africa is approved by the federal council of ministers. The museum and the Public Buildings Administration can now draw up specifications for a bid package and publish it in the Belgian and European *Bulletins des adjudications*.

PARTNERS

Those involved in the RMCA renovation are:

- Public Buildings Administration (contracting authority)
- Royal Museum for Central Africa (user)
- The temporary association:
 - Stéphane Beel Architecten (architecture)
 - Origin Architecture and Engineering (restoration)
 - Niek Kortekaas (scenographer)
 - Michel Desvigne Paysagiste (landscape architect)
 - ARUP (stability engineer)
- In collaboration with:
 - RCR (technical aspects)
 - Daodalos Peutz (construction physics and acoustics)
 - Bureau Bouwtechniek (project support)

The renovation is taking place in formal coordination with various authorities.

The following are helping to shape the project with their input and constructive contributions.

- Administratie Ruimtelijke Ordening, Huisvesting en Monumenten (Land use planning, housing, and monuments)

- Agentschap R-O Vlaanderen – Ruimtelijke Ordening (land use planning)
- Agentschap Onroerend Erfgoed (buildings heritage)
- Agentschap Natuur en Bos (nature and forests)
- the municipality of Tervuren
- Overijse fire department
- Administratie Wegen Vlaanderen - TV3V (roads and bridges)
- Vlaamse Bouwmeester (contracting authorities)
- DE LIJN Vlaams-Brabant
- STIB
- SNCB
- Municipality of Wezembeek-Oppem
- SPF Finances
- British School of Brussels
- Royal Trust
- African communities

Scale model of the new site, with the new welcome pavilion on the left. © RMCA







SCIENTIFIC RESEARCH

CULTURAL
ANTHROPOLOGY
& HISTORY



BIOLOGY



EARTH
SCIENCES



SCIENTIFIC RESEARCH

The Royal Museum for Central Africa is more than a mere depository for one of the world's largest collections devoted to Africa. The museum is also a world-renowned scientific research institute in its own right. Some 85 scientists and 150 students and trainees pursue projects in the fields of natural and social sciences.

Museum research hinges on three complementary areas: conservation and management of African natural and cultural heritage; scientific services and expertise; and basic research. Investigations conducted on the museum's collections and archives are completed by many field projects involving African partners and researchers.

Every year, museum scientists supervise trainees and students working on their doctoral programmes or theses. In addition to fieldwork, researchers also participate in conferences and seminars abroad as members of scientific networks.



CULTURAL ANTHROPOLOGY & HISTORY

There is no monolithic African society, but a multitude of societies with specific characteristics. Understanding them requires the study of groups and the people they comprise, as well as the study of cultural productions, languages, rituals, music, and political systems.

Fieldwork is essential, as is the study of objects and documents. Collection building and management are also important. RMCA linguists, musicologists, ethnographers, anthropologists, historians, archaeologists, and political scientists all contribute to a better understanding of past and present African societies. This multidisciplinary approach simplifies the study of the colonisations and decolonisations that unite Europe and Africa.

Knowledge of the past promotes a better grasp of current-day Africa among scientists and the general public.

■ ETHNOSOCIOLOGY AND ETHNOHISTORY

This social anthropology section focuses on the study of contemporary African societies while reconstructing their historical depth. Socio-cultural practices, reflecting dynamics of change, are the subject of a study from the perspective of local actors. Knowledge dissemination is the main public service task.

Research on Rwanda is a tradition within the section. The update of the national bibliography of Rwanda (d'Hertefeldt & de Lame, 1987), was back on a steady pace in 2011, putting it on track for publication in 2012, the 50th anniversary of the country's independence. The section also participated in the preparation of a book by S. Bizimana (IRST, Rwanda) on the Ryangombe culture. It aided in revising a manuscript by J.-B. Nkulikiyinka on Rwandan hunting songs to be published by the RMCA. It also made several oral and written contributions on Rwanda. Two texts of some 20 pages each were submitted last year for peer review in view of publication in collections. One was published this year, while the second was accepted for an anthology to be published by Palgrave-MacMillan.

Urban life has been a focus of research for Danielle de Lame since 1999. In 2001, a research programme on popular cultures in Nairobi,

Lubumbashi, Cape Town, and Johannesburg was launched. The first phase of the project, in collaboration with the National Museums of Kenya (Nairobi), the Museum and the University of Lubumbashi, the University of Witwatersrand, and the University of Western Cape, was crowned by the publication of a book on Lubumbashi in 2005. A second volume of texts on the regions studied was published in 2010 by the RMCA. The introduction (25 pages) discussed the theoretical aspects of the theme of urban popular culture. A number of missions in Nairobi, including a joint project with the French National Research Agency (ANR), are pursuing this theme in the specific area of Nairobi-based painters. A text on the relations between artistic production and urbanisation is currently in preparation.

The sections was asked to provide scientific input on a project funded by the French National Research Agency (ANR, France) on children in situations of violence in the Great Lakes region. The project, involving several French and African universities, was well-received. Its main partners are the Université de Pau and, in Kenya, the IFRA (Institut français de Recherche en Afrique). A mission in Nairobi, in November, concretised this participation and also provided the occasion for a conference that was part of an international symposium on social diversity, jointly organized by

IRFA and the Université de Paris-Diderot. The theoretical text on social integration and concepts useful to its study is in publication.

The preparation of a book in 2010 to be co-published with the Institut de recherches pour le développement (IRD, France), with Jacinthe Mazzochetti (ULC) as co-editor, required much editing as well as the writing of a hefty introduction and conclusion. Some articles were, however, rejected by independent reviewers. This required a rethinking of the book's approach so that a substantial work could be produced. Other texts were included and other authors were invited to contribute, to complete a substantial, bilingual book. The theoretical introduction and conclusion were rewritten. In late 2011, the book was in the finishing stages after submission for peer review. Its publication is scheduled for early 2012.

The section is currently working on the theorisation of heritage-creation policies based on a social approach of the concept of 'cultural heritage'. A book is currently being written on trading spheres for African art and the inequalities and social marginalisation generated by the elites who dictate the course of international debate on cultural heritage. It is a reflection on the political construction of 'illegalities', using an approach that straddles multiple areas of the social arena of the illicit (traffic of artwork and natural resources, illegal

migration). Field research that began in 2011 will be pursued in 2012. It focuses on outflow channels for African art and handicrafts within sub-Saharan communities in Rome. Preliminary results were presented during the conference of the American Anthropological Association (Montreal, November 2011). In 2011, two missions were conducted in Rome as part of research on informal and illegal trade of art objects and handicrafts in particular, among sub-Saharan migrants.

The themes of cultural heritage and the circulation of objects are also included in international research efforts. The section launched, and is the main organizer, of an international conference on illegalities (2012), in collaboration with Harvard University, ULB, and KULeuven. The section is handling the coordination of the conference's organizing committee, as well as the bulk of written exchanges with some fifty speakers for the organization of the panel discussions.

The section manages a social science bibliographic documentation service on sub-Saharan Africa, giving researchers access to various fields in social science. This database, in its two incarnations, played a large part in the RMCA's international reputation in the social sciences. A half-century old tradition (150,000 references on file) was continued in its more modern form, a computerised database

Eunice and Sane Wadu, prominent Kenyan artists behind the 'Ngecha group', an artists' village near Nairobi. Danielle de Lame © RMCA



GoDown Art Centre, found on a former industrial site in Nairobi, promotes the emergence of artistic talent. Danielle de Lame © RMCA



(<http://societies.africamuseum.be>). Updated to the latest issues, it contains over 50,000 references that can be accessed in several ways, including detailed keywords that are constantly updated as disciplines evolve. The maintenance of the database is a team effort. The section's two scientists go through the 200 or so journals usually considered for inclusion, and assign keywords based on the actual content of the selected articles, rather than simply the titles. Reasoned indexing is a true scientific effort that adds an original dimension to knowledge dissemination.

Finally, the section contributed to numerous publications and participated in several conferences. It regularly hosts Belgian and foreign students and provides guidance in their work. It is also involved in preparing the museum's new permanent exhibition.

■ ETHNOGRAPHY

The section studies both material and immaterial evidence and testimony related to past and present cultural expressions and social groups of Sub-Saharan Africa and the African Diaspora. The goal is to advance knowledge and understanding of the African cultural sphere of yesterday and of today.

Largely subsidised by the Ford Foundation, GoDown Arts Centre seeks to integrate young talents into society and recruits artists from the slums. Danielle de Lame © RMCA

The section is devoted to long-term research, which forms the basis of its work, of which the following are examples:

Ethnography Museums and World Cultures (RIME)

More than ten European ethnography museums, among the most important in the world (including the RMCA in Tervuren, the Rijksmuseum voor Volkenkunde in Leiden, the Musée du quai Branly in Paris, the Pitt Rivers Museum in Oxford, and the Museum für Völkerkunde in Vienna), are pooling their experiences to redefine the place and role of such museums. Created during the colonial era, most ethnography museums had to abandon their original role as keepers of exotic objects and showcases of political propaganda once the former colonies won their independence, and instead shift to a more science- and society-oriented approach. The professionals and scientists of the museums involved are, moreover, focusing on the creation of an International Network of Ethnography Museums (RIME). By the end of the project, the network should be fully operational and allow many other European and world museums to participate, with special attention paid to museums from economically-disadvantaged countries.

Partner museums conduct scientific workshops, exhibitions, conferences, performances, and publications on social issues linked to the perception of peoples from other continents.

Acrobatic dance has always been a way for slum youths to make some money. At GoDown, they receive more extensive training and guidance. Danielle de Lame © RMCA



On top of discussions about the role of ethnography museums, the scientific workshops of 2011 also tackled the organization of the *Fetish Modernity* travelling exhibition, presented at the RMCA from 8 April to 4 September 2011, and its accompanying scientific publication (see also p. 11).

Fetish Modernity is the result of a collaboration between several RIME partner museums. It challenges the West's feeling of superiority to the rest of the world, as though it had an exclusive privilege to modernity. This position results from how Western society identifies with modern discourse from which it observes, classifies, and judges the world. Such discourse is characterised by a binary view that opposes faith and science, 'civilised' and 'primitive' societies, or the industrial and technological versus the rural or 'traditional'. The title, *Fetish Modernity*, criticises a reading of the world that does not take its complexity and dynamism into account, and offers another vision of modernity that would designate the creative process as well as the practices in which all societies have been engaged since they began existing. After the RMCA, the exhibit will travel to ethnography museums in Madrid, Prague, Leiden, Vienna, and Stockholm.

Indios no Brasil

In 2011, a major exhibition on the indigenous peoples of Brazil was prepared as part of the

Europalia-Brasil festival. The exhibition presented objects used in everyday life, objects that are linked to the realism of ghosts and other creatures, and objects used in the processes of creating a person's identity. It was held at the Royal Museums of Art and History (MRAH) and relied greatly upon the expertise on Amazon Indians in the ethnography section of the RMCA. This Belgian curator worked in close collaboration with a Brazilian colleague to define the exhibit concept and select the objects. In addition, the Belgian curator (an RMCA anthropologist) supervised and monitored all the practical tasks (audioguide scripts, exhibit texts, etc.) while a Brazilian colleague handled the publication of the exhibit catalogue. Thanks to the collaboration between the RMCA, the MRAH, and Europalia International, the MRAH were able to acquire a unique ensemble of 24 masks used in May-June 2011 during a rare mask festival organized by the Mehinako Indians.

Anthropology of dance

A fundamentally exploratory workshop was designed in collaboration with the 'Systèmes de pensée en Afrique noire' laboratory (École pratique des hautes études, CNRS, Paris) and the Laboratoire d'anthropologie des pratiques corporelles (Université Blaise Pascal Clermont 2). Instead of focusing on a specific theme, it draws on the analysis of specific cases to discuss dance 'in general'. To be as open as possible to the con-

The section curated the *Fetish Modernity* exhibition, a result of a collaboration between several European ethnography museums. J. Van de Vijver © RMCA



tributions of an anthropological approach (without excluding those of history, aesthetics, etc.), the practice of dance is viewed from seemingly contradictory standpoints: as a hermeneutic instrument that raises a number of general issues (corporal practices, construction of identity, ritual or artistic performance, etc.) and as a specific phenomenon whose distinctive properties – however these will be defined – are incentive enough to study the phenomenon in and for itself.

In 2011, the section helped in the preparation of a collective work published by the CNRS as well as a book on African dance based on archive holdings.

Comparative research on thought systems in Kasai and Bandundu

The Leele and the Kuba shared a common history in the distant past, have very close mythologies, and similar artistic complexes. Despite this, the two societies are very disparate. Whereas the Leele king has no real power other than a symbolic and ritual one, the Kuba kingdom's political reach goes far. The comparison of their respective institutions, art, and mythologies will go a long

way towards understanding how the two societies evolved so distinctly.

This research also focuses on the past and current role of healers among the Leele. In the past, *Bukanga* initiates dispensed their care and protection to the entire village, usually through the use of plants. Between 1976 and 1980, they were struck by a fatal blow: the most senior and prominent initiates were targeted by a violent religious movement that accused them of sorcery. This inquisition led to the death by torture of some 4,000 people, most of them *Bukanga* members.

Today, the disillusioned younger generation has noted that the purge has done nothing to eradicate poverty, illness and misfortune. On the contrary, the situation has worsened, because most of the healers are no longer there to protect and cure them. According to Henry Bundjoko (IMNC), himself a second-level *Bukanga* initiate, some of the ritual specialists managed to escape death, and have transmitted their knowledge to a few younger men. Within what new social structure have they partially rebuilt themselves, and according to which processes of transmission? The

A museum anthropologist attends a rare mask festival – the fourth in 60 years – celebrated by Upper Xingu Indians (Brazil). After the festival, the masks were featured in the *Indios no Brasil* exhibition (Europalia-Brasil). © G. Verswijver



planned survey will attempt to investigate this, by seeking out its botanical and ritual knowledge.

This research project is part of a collaboration between the RMCA and the Institut des musées nationaux du Congo (IMNC), based on comparative analyses carried out at the RMCA on new Leele material provided by a Congolese researcher. In 2010, this research was devoted to continuing the scrutiny of publications on this cultural field, as well as the archives and collections in Tervuren. It will be the focus of an RMCA/IMNC joint field mission in 2013.

Other activities

The section is also deeply involved in the future renovation of the RMCA.

In 2011, the section was also involved in the following research projects:

- Read-Me 2 [*S]oggetti migrant;*
- Targeted study of RMCA ethnography collections
- The place of the 'Other', subject-object, in European political and cultural institutions;
- The concept of transmission at work in 'postcolonial' museums in Benin;
- Masks and dance performances of the Guro (Côte d'Ivoire);
- Enhancement of the Jesuit collection;
- Pastoral peoples in Africa;
- 'Monographies des Provinces de la RD Congo' project;
- 'Independence' project;
- Research on our ivory collection.

■ ETHNOMUSICOLOGY

The section's task is to study and preserve the traditional music of sub-Saharan Africa. Its collection counts 36,000 music recordings and 8,800 musical instruments. These collections, now fully digitised, are used in research on urban and traditional African musical cultures.

Musical Instruments Museums Online (MIMO)

The MIMO project sought to create a single online access point to the documentation and information on the musical instrument collections of eleven major European museums, so that they could be included in the Europeana portal. Some 45,000 instruments with their associated meta-data are now publicly available, along with 1,800

digital audio files and 300 video clips. The RMCA digitised 8,600 musical instruments, meeting the set target. The project also improved multilingual access to information, providing controlled vocabularies for musical instrument databases to ensure consistency. The terminology will be used to classify musical instruments in Dutch, English, French, German, Italian, and Swedish.

Study of musical traditions in Côte d'Ivoire

A descriptive study of traditional music in Côte d'Ivoire was initiated in 2000 to identify, collect, and popularise them through publications, in particular. This research project is carried out in close collaboration with the Direction du Patrimoine culturel in Abidjan, through which local researchers are tapped to document still poorly-known intangible culture such as music (vocal, instrumental, and dance). This project focuses primarily on the study of Cote d'Ivoire's unknown cultures.

One of the 8,600 musical instruments that was digitised for the MIMO project. J. Van de Vijver © RMCA



International symposium

From 29 August to 3 September 2011, the Annual Meetings of the International Committee of Musical Instrument Museums and Collections (CIMCIM) were held in Paris, Brussels, Antwerp, and Tervuren. The 'African' component was held at the RMCA on 2 September.

The evolution of musical instrument collections in museums, the role given to the music aspect in these museums, and the role of musical instrument museums in relation to more general museums (such as history or fine arts) were among the themes discussed during the meeting. Three members of the section were in attendance.

■ LINGUISTICS

Linguistics section research essentially concerns the comparison and description of African languages (which comprise one-quarter of the world's languages), particularly Bantu languages (current research concerns languages in the DRC, Congo-Brazzaville, Angola, Mozambique, Gabon, Rwanda, and Burundi). The African contribution to world grammatical studies and applying the tool of linguistics historically are the main thrusts of research. There is also much inter-

est in the insertion of African languages in the educational systems of the countries concerned [e.g. the framework agreement on Kituba (vehicular Kikongo)] and the linguistic impact of the African diaspora (United States, Brazil).

Grammaticalisation et (inter)subjectivation

The project sought to make a substantial contribution to current research efforts on (the interactions between) grammaticalisation (at the structural level) and (inter)subjectivation (at semantic level) processes at work in linguistic changes.

Three major points were studied: (1) the precise nature of semantic changes in force during subjectivation and intersubjectivation, and their relations with the structural developments of grammaticalisation; (2) the teleology of processes: are grammaticalisation and (inter)subjectivation one-way processes or not?; and finally, (3) the 'range' of such processes: what relationships do grammaticalisation and (inter)subjectivation have with other mechanisms of linguistic change, particularly analogy?

Research was carried out, particularly on modality and negation in Bantu. The project was concluded in 2011.

Measurement of the pitch of Pende ivory whistles for museum ethnographer Viviane Baeke's article 'Quand l'ivoire chante avec les masques et chasse avec les chiens' (When ivory sings with masks and hunts with dogs). V. Baeke © RMCA

The RMCA was one of the venues for the Annual Meetings of the International Committee of Musical Instrument Museums and Collections (CIMCIM). S. de Ville © RMCA



History of languages and population dynamics in Kwilu

Launched in 2011, this project sets out to (1) reconstruct the linguistic history of Kwilu region (DRC); (2) study its precolonial history and population dynamics using comparative linguistic studies, historical oral traditions, and genetic data; (3) improve our understanding of the spread of Bantu languages in this part of central Africa; (4) contribute to the conservation of Kwilu intangible cultural heritage by documenting and describing little-investigated minority languages; (5) reinforce cooperation ties between Belgian/European and Congolese/Central African researchers and institutions, and reinforce research capabilities on both sides.

Promotion of local knowhow and integration of national languages in the educational system: the case of vehicular Kikongo

This cooperation project was launched in 2009 to carry out basic research in the universities of Kinshasa and Brazzaville on Kituba (a vehicular variety of Kikongo) and its source languages, and develop the material means and human skills required to use this language as a language of instruction. In 2011, the three PhD candidates involved in the project went on their second field

mission. At present, a single PhD candidate continues to pursue the project, now in its didactic and terminological phase, in collaboration with the Centre de linguistique théorique et appliquée (CELTA, Kinshasa) and the Institut national de recherches et d'actions pédagogiques (INRAP, Brazzaville).

Other research projects pursued by the section involve languages in DRC (Equateur, Province orientale, Bandundu, Bas-Congo, Katanga); Congo-Brazzaville (south), Mozambique (north), Angola, Gabon, Rwanda, and Burundi. These projects are both descriptive and comparative in nature.

The section also supervises several doctoral candidates. In 2011, some fifteen dissertations were (co-)supervised by RMCA linguists in Belgium, DRC, Angola, Congo-Brazzaville, and Brazil.

Drawing up a unified alphabet for languages in Equatorial Guinea (Malabo, Equatorial Guinea). J. Maniacky © RMCA



■ PREHISTORY AND ARCHAEOLOGY

The Prehistory and Archaeology section focuses on the study of the past of sub-Saharan African humanity, particularly the last 40,000 years in central Africa. As is the case for all societies whose ancient history has no written record, research is based in part on the study of material culture, such as pottery, stone, and metal objects. To better understand how a region's cultural history developed, the section's archaeologists also study contemporary material production and collaborate with researchers in other disciplines such as linguistics, biology, or geology.

'Crossroads of empires'

The 'Crossroads of empires' project is concerned with the great medieval polities of the Sahel. For instance, while the existence of major political entities is referred to in Arabic texts, the nature and extent of the Songhay Empire, the Kingdom of Borgou, or the Haousa city states remain largely a mystery.

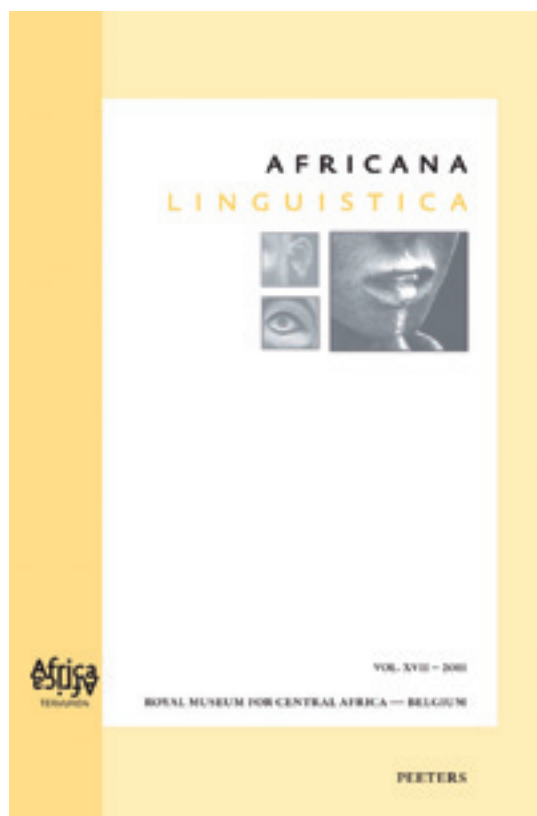
In 2011, scientists set out on a reconnaissance mission in Benin to determine the archaeologi-

cal potential of the Beninese bank of the Niger river upstream and downstream from Malanville, as well as from Malanville to the region of Kandi. The team was composed of researchers from RMCA, University of East Anglia (United Kingdom), Université libre de Bruxelles, and the universities of Abomey-Calavi and Parakou (Benin).

The chosen method combined standard interviews of the region's inhabitants with large-scale archaeological prospection, making it possible to obtain a near-systematic view of a very large area in northern Benin.

The scale of prospection should make it possible to observe the effects of boundaries on ceramic styles (an initial stylistic boundary has already been identified some twenty kilometres from Malanville). More specifically, a series of major sites has been located. It includes a particularly rich village site (grindstone, intricately decorated pottery, semi-precious beads, etc.) with ceramic pavements. A rapid excavation revealed three successive pavements, a completely unique occurrence. One of the pavements even had what appears to be clay furniture. Another exceptional

Africana Linguistica is a peer-reviewed journal of African linguistics published by the RMCA. Volume 17 was released in late 2011.



Collecting traditional tales in Maputo, Mozambique.
J. Maniacky © RMCA



site was found on the road to Kandi, this time a metallurgical site so large that researchers could not measure its extent!

Surveys conducted with the region's inhabitants also made it possible to detect migration events and, quite notably, the areas of political influence of some historical chiefdoms. These informal surveys on the history of the region were supplemented by detailed interviews on the operating

chain of craft trades found in the region (dyeing, pottery, weaving, and smithing).

Processing of field data from Katanga (DRC) and the 'Crossing Borders' project

The last phase of the 'Crossing Borders' project, which sought to develop an integrated archaeological and historical linguistic approach, was completed successfully. Analysis of linguistic evidence was supplemented by data from a last field



The 'Crossroads of empires' archaeological team at Birni Lafia (northern Benin) at the end of the survey I dig. A. Livingstone Smith © RMCA

Backfilling of the excavations. Test pits are backfilled to preserve the unexplored parts of the site. A. Livingstone Smith © RMCA



mission on methods of pottery manufacture west of the Upemba depression, then mapped. The spatial distribution of cultural traits related to the ceramic craft (roughing and decorative techniques, terminology, etc.) was compared with the geographical distribution of other cultural aspects (language, kinship, etc.), making it possible to distinguish certain aspects of precolonial economic and political dynamics.

History of human occupation in central African tropical forests

One of the first components of this research endeavour was to produce maps of the distribution of archaeological sites in north-east DRC. Using the section's collections and data from its archives, researchers were able to locate 284 archaeological sites. Most of the finds from these sites were lithic materials from the different phases of the Stone Age.

Further investigation of the history of central African tropical rainforest occupation by humans focused on pottery collected during the 'Boyekoli Ebale Congo 2010' expedition. Pottery shards were refitted and inventoried.

Scientific services

In addition to these scientific research activities, the section also provides its services as part of Cultural Heritage Management consultancy in the DRC, a role in line with the section's intent to launch and maintain fieldwork activities in the Congo. In 2011, the section produced maps of the distribution of archaeological sites in the Tenge Fungurumé Mining concession (Katanga, DRC).

An important component of the section's work consists of providing scientific guidance to PhD candidates, trainees, and visitors. Three doctoral candidates from the Université libre de Bruxelles were supervised by the section; two of them defended their thesis in 2011.

Finally, the section is actively involved in the RMCA's upcoming renovation.

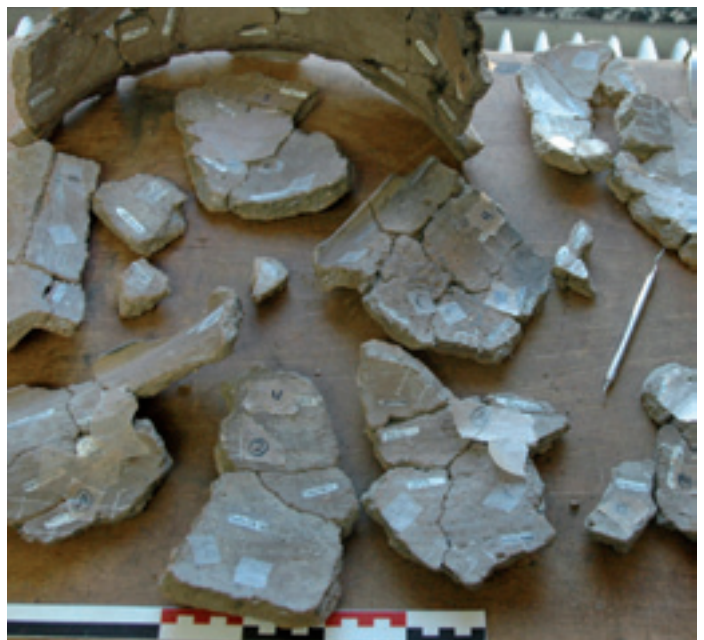
Digitisation of the collections, archives, and library

The section adopted a digitisation policy for its knowledge sources a few years ago. They continued this activity in 2011 with the production of archaeological maps for the DRC, and the digitisation of its collections, archives, and library in order to promote and provide access to its knowledge sources.

Luba potter working in Kabondo Dianda (Katanga, DRC).
F. Ngeleka © RMCA



Refits of pottery collected during the 'Boyekoli Ebale Congo 2010' expedition. A. Vral © RMCA



Archaeological capacity building in DRC

In collaboration with the University of Cologne, the section organized a two-week group workshop funded by the Framework Agreement that introduced techniques for archaeological digging at the Institut des Musées nationaux du Congo (IMNC) in Kinshasa. Eleven trainees, including anthropology and history students from the Université de Kinshasa and IMNC staff members participated in the workshop. After a theoretical introduction, a simulated dig allowed trainees to put into practice the techniques they had learned.

■ COLONIAL HISTORY

The section's activity is centred on both social issues and the museum's collections and frequently involves enhancing the value of historical heritage, especially colonial history. It is progressively shifting to ancient and contemporary Central African history, seeking to establish links with other RMCA projects. The section's scientific team takes a multidisciplinary approach (history, anthropology, art history) with multicultural expertise, promoting interdepartmental collaborations within the museum as well as with Belgian and international universities and institutions, especially in Central Africa.

In terms of research and development, a section member joined the teaching staff of the Université Catholique de Louvain in 2011, where she teaches the 'History of sub-Saharan Africa' class (FIAL/History department) and is affiliated with the Center for the Study of Contemporary European History (CEHEC), in the Europe-Overseas Group (GEOP), as well as the 'Belgium and contemporary worlds' group (UCL-FUNDP-ULg).

The section also works in collaboration with the Royal Academy for Overseas Sciences, the European cultural centre under the patronage of UNESCO, and participated in a study day as well as the 4th congress of the 'Asia' network founded by the CNRS and the Maison des Sciences de l'Homme, to discuss a perspective comparing Asia and Africa. It also took part in the conferences 'World History/Role & Function of the Global City' at the University of Innsbruck, '50 years of African Liberation' organized by the American Studies

Association (ASA, Washington DC), and the international conference on Simon Kimbangu held in Kinshasa (DRC).

The section has pursued its research activities in four distinct directions: heritage and colonial heritage; the history of the museum and scientific knowledge; migrations and diasporas; and enhancement of the scientific value of the collections. With the project 'Congo in Tervuren. A history of human sciences and their representations in the Royal Museum for Central Africa (1897-2010)', researchers analysed 8,500 archive documents and 1,000 scientific publications, and entered 3,500 titles in a scientific database, not to mention the published scientific results. Another project, **'The Social Integration of Congolese Transmigrants in Belgium: social identity, social capital and collective memory about the colonial period'** was also fundamental in terms of the input it provides for the development of the new permanent exhibition for the RMCA and the proliferation of responses from societal demands. Finally, the 300 or so pages of the **archives guide** were turned over to the RMCA Collections Management service so they could be finalised and reconciled with the Belgian State Archives.

2011 was also the year of an original and experimental project, **'Sammy Baloji and Patrick Mudekereza in residence at the Royal Museum for Central Africa. Arts, Sciences, and Collections'**. This interaction between two young artists from Lubumbashi, a multidisciplinary scientific team (historians, art historians, zoologists, anthropologists, and linguists), a professor/researcher from Ghent University, and museologists gave rise to original results – both published and forthcoming –, an RMCA exhibition called *Congo Far West*, and the latter's catalogue (see also p. 13). The initiative was well-received by the French- and Dutch-language press and, less visibly, by the English-language media. The exhibit's multimedia works may be published online and one of its spin-offs may lead to the creation of a scientific website on the Katanga research expedition led by Charles Lemaire in 1898 and 1900, in partnership with the Natural History department (see p. 62, Cybertaxonomy). On top of its expertise in its field, the section is also making interdisciplinarity one of its centres of interest.

The follow-up to the conference organized jointly by the RMCA and the National Archives of Belgium in 2010 on the topic 'Africa Europe Archives. Requirements? Collaborations? Plans? DRC, Rwanda, Burundi and Belgium' required the organization of a **collaborative mission involving archivists from Burundi, the National Archives of Belgium, and the RMCA** to appraise needs and begin preparations for a new project.

Scientific services were particularly involved in pedagogical activities, acting as the scientific editor for a teaching manual produced by the RMCA and intended for teachers handling the 3rd cycle of secondary school, and giving university lectures to master's students (UCL). Scientific supervision for trainees also increased in 2011 with the continued follow-up of the 3rd 'Immersion Archives' programme (which allowed supervision of three PhD candidates from the DRC, and which will be

Patrick Mudekerezwa (right) and Sammy Baloji (bottom) in the Congo Far West exhibition. Raymond Dakoua © RMCA



evaluated in 2012), and the hosting of an Erasmus researcher and 10 trainees from Belgian universities (UCL, ULB, and Vesalius).

The section also shared its **scientific expertise** with the *UNCENSORED* exhibit at the RMCA, *Monacophil* in Monaco, the forthcoming *Kongo across the waters* exhibit in collaboration with the University of Florida and Harn Museum, Florida (2013), many researchers and private individuals, and the new permanent exhibition for the renovated RMCA.

Several projects for **collection value enhancement** were also monitored by the section's scientists. These included film heritage projects, contributions to inventories on stamps; firearms, drawings, paintings and watercolours of Léon Dardenne; François Michel's photographs for the Lemaire expedition in Katanga; and other archives.

■ CONTEMPORARY HISTORY

The section carries out sociopolitical research on the post-Colonial period (from 1960 onwards) in Central Africa, mainly in the DRC. Studies cover state-society relations, state rehabilitation, public administration, elections, environmental governance, and Belgium's role in Central Africa.

Elections in the Democratic Republic of the Congo

Presidential and legislative elections were held in DRC on 28 November 2011. According to the independent national election commission and the Supreme Court, Joseph Kabila won over Étienne Tshisekedi, with 49% and 32% of votes respectively. Voter turnout was at 60% of eligible voters, with 17 million Congolese showing up at the polls. But election results were vigorously, at times violently, contested. Forceful demonstrations took place in Congo and Europe. The EU Election Observation Mission, the Carter Center, and the Catholic church – represented by Archbishop Laurent Monsengwo – all criticised the electoral process, and the terms 'fraud', 'manipulation' and 'lack of transparency' were often mentioned.

Work meeting between Belgian and Burundian colleagues. © RMCA



In this post-electoral confusion, Contemporary History section members were contacted by several Belgian and international media outlets for their analyses and commentaries, making the section an essential player in the political analysis of the DRC.

New provinces in the Democratic Republic of the Congo

Members of the Contemporary History section, in collaboration with numerous RMCA colleagues, are currently working on an ambitious research project on the new administrative zoning in the DRC. The twofold objective of the project is to present monographs of the new provinces and think strategically about the viability of the decentralisation process. The five-year project, initiated in early 2008 and supported by Belgian Development Cooperation (DGD), gives researchers from the different RMCA departments a chance to put their expertise to use in a multidisciplinary undertaking.

In April 2011, the first monograph of the series, *Maniema. Espace et vies* was released jointly with

Brussels-based publishers Le Cri (Brussels) and Buku, their partner in Kinshasa. 320 copies were sent to the province of Maniema (DRC). The monograph is also available in Belgian bookstores as well as through the networks of the RMCA and the partner publishers. A reference group of readers were then asked to evaluate the work, which received a positive rating of 8.5 that confirmed the relevance of the research efforts and the usefulness of the results.

The monograph on Haut-Uele was published and distributed in Belgium in December 2011. 280 copies were shipped in early 2012 to the 6 territories of the future province of Haut-Uele as well as to Isiro.

Moreover, the coordination of work on the provinces of Tanganyika and Kwango continued, in collaboration with the other participating RMCA sections.

In 2011, 9 officers were sent on mission to the museum to complete the data on their respective provinces. The timetable of publications for 2012 was also established: *Sud-Ubangi, Haut-Katanga, Ituri* and *Kongo-Central*.

Th. Trefon © RMCA



Other research

The section also continued its research on state-society relationships in the DRC and on the field of environmental governance.

Field research was carried out on the issue of decentralisation. In 2011, the research revolved around the theme 'Rethinking the State structure in DR Congo'.

'Political developments in DR Congo since the end of transition' were also studied in 2011.

Documentation and archives

The section's documentation centre has one of the world's largest documentary holdings on the socio-political evolution of the Congo from 1960 to the present. It contains books and documents of all types as well as a large collection of Africa-centred periodicals. The holdings are especially valuable for the collections of thesis and dissertations from Belgian and Congolese universities, as well as its unique collection of Congolese newspapers from 1958-1965 and from the 1990s to the present.

The section also holds the archives of several individuals who devoted a good part of their lives to studying the Congo. These include the holdings of Benoît Verhaegen, Jules Gérard-Libois, Renée Fox, Jacques Brassinne, and the Cordy holdings.

The detailed inventory and catalogue of the section's periodicals and journals can be consulted on the RMCA website (over 30,400 references). All of the library's acquisitions are indexed in an electronic catalogue. The section added 780 items to this catalogue in 2011.

To promote its collections as well as improve conservation, the section has begun digitising some of its pieces. These include photographs of key players in Congolese independence (of which a selection is available on the museum website), audio tapes from the Jules Gérard-Libois archives, and microfilms of Congolese dailies and periodicals from the 1960s.

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BIOLOGY

Few systems are as complex as the planet's biodiversity. Research at the RMCA contributes to a better understanding of biodiversity and sustainable biodiversity management in Africa. For our future benefit, this biodiversity must be studied in its natural environment, including the environmental, genetic, and morphological aspects, among others. Research activities primarily centre on taxonomy and systematics, disciplines that describe and classify living organisms. They constitute a crucial scientific approach to comprehending the diversity of life. New digitisation and computerisation techniques are also used alongside genetic identification methods.

The acquisition and dissemination of biodiversity knowledge to scientists, the public, and African and international partners is one of our core activities.

The department is divided in four sections:

- Vertebrates;
- Entomology;
- Non-insect Invertebrates;
- Wood Biology.

Molecular biology (Joint Experimental Molecular Unit, JEMU), biodiversity, and cybertaxonomy activities are organised jointly across the department's sections.

Social Sciences and Humanities

Lotto grant

The Royal Belgian Institute of Natural Sciences (RBINS) and the RMCA received funding from the Belgian National Lottery to come up with a joint system of collecting material for genetic analysis and for DNA sample storage. Given the increasing importance of genetic analysis, such systems are becoming indispensable for research institutes. Moreover, traditional collection conservation techniques cannot be used for such studies.

In 2011, a Europe-wide public tender was launched for the purchase of DNA and tissue storage equipment. By the end of the tender in late 2011, a supplier was chosen, and an order was placed for the equipment. Delivery is scheduled for early 2012.

AGORA

A project proposal was drafted for the purpose of developing a digital management system tailored to the specific needs of DNA and tissue samples from organisms. A decision on project funding is expected in 2012. Implementation of the AGORA project would also serve to introduce

DaRWIn, an application developed by the RBINS to manage scientific collections. DaRWIn will be modified in the AGORA project to meet the above-mentioned needs. This adaptation and the pilot study to transfer the databases of the Non-insect Invertebrates section will provide an opportunity for assessing the use of DaRWIn throughout the zoology sections of the RMCA.

■ VERTEBRATES

The Vertebrates section conducts research in systematics, taxonomy, zoogeography, and ecology of African groups in:

- Ornithology (birds);
- Ichthyology (fishes);
- Herpetology (reptiles and amphibians);
- Mammalogy (mammals).

Part of the research is carried out in collaboration with JEMU and Cybertaxonomy.

ORNITHOLOGY**Birds of Katanga by Michel Louette and Michel Hasson**

Published by the museum in the 'Studies in Afrotropical Zoology' collection, this is the first illustrated book on the birds of the Congo's Katanga province. It provides the status of all the bird species in Katanga (693 species), determined after careful investigation, including in the RMCA's collections.

Katanga has five endemic birds: Lippen's Ground Thrush from the Upemba National Park, the Greater Double-collared Sunbird from the Marungu mountains, the Upemba Masked Weaver and Black-lored Waxbill, both along the Lualaba river, and the Lufira Masked Weaver along the Lufira river.

General distribution, presence and status in Katanga, ecology, breeding and migration, special characteristics and conservation status are discussed for a selection of 248 species that are illustrated in colour. Habitat diversity is illustrated by 25 photos.

Knowing that the photographs for the book were assembled in three years by a small team, we can conclude that Katanga's ornithological biodiversity is still relatively well preserved.

'Barcode of Life (Birds)' and molecular taxonomy

In collaboration with JEMU, the Ornithology unit participates in the 'birds' component of the

Barcode of Life project. This project consists of identifying zoological specimens using barcodes that contain their genetic code. This DNA-based code is unique for each biological species. In 2011, the section also carried out molecular phylogeny studies on representatives of the Accipitridae, Ploceidae, and Caprimulgidae families.

'Encyclopedia of Life (EOL): the 'Afrotropical birds in the RMCA' project

The Encyclopedia of Life (EOL, <http://eol.org>) aims to describe and illustrate all known species on a single online portal. Thanks to an EOL programme called 'Rubenstein Fellows', a new virtual research environment was launched in 2011:

<http://afrotropicalbirds.lifedesks.org>.

This LifeDesk combines ornithological content, distribution maps, and images from various sources. 350 bird taxa were selected for the project on the basis of their endemism, conservation status in the Congo basin and its surroundings, ongoing ornithological research, and presence in the collections of the RMCA (with priority given to type specimens).

This open access to knowledge on the remarkable avifauna of the sub-Saharan region is a useful tool for scientists and bird lovers alike. It may also promote collaboration between African experts and aid in the management and conservation of biodiversity hotspots.

Findings from collection-based research can be completed through field missions. Here, a blood sample is taken from a Frances' sparrowhawk (*Accipiter francesiae brutus*) for genetic analysis.
Michel Louette © RMCA

Field training of a student from the Université de Lubumbashi. © RMCA



Birds endemic to Upemba National Park:
Zoothera lippensi - *Estrilda nigriloris*



Drawings for *Birds of Katanga* drawn by the section's scientific illustrator, Alain Reygel © RMCA

Screenshot of the taxon page for *Ploceus ruweti* (endemic to the Lufira river valley, DRC) in the Afrotropical Birds LifeDesk: <http://afrotropicalbirds.lifedesks.org/pages/315>
Note: The photo shows an adult male *Ploceus ruweti* building its nest on Lake Tshangalele (DRC). Photo : Michel Hasson.

Other research:

- Adaptation of the list of type specimens and the bird collection;
- Advice for sustainable development to BirdLife/ IUCN;
- Advice for third-party research in Madagascar, Algeria, the Comoros, and DR Congo.

The Ornithology unit is also involved in numerous scientific projects and networks. It offers its services to national and international organizations (such as the Belgian scientific committee for CITES), as well as teaching institutions (the universities of Ghent and of Lubumbashi).

ICHTHYOLOGY

Collection enlargement

In 2011, 18 ichthyological collections – over 10,000 specimens – joined the museum's fish collection. Many of them were accompanied by samples for genetic analysis. Type specimens of 6 new species were also acquired.

Ichthyofauna of the Kisangani region

This project has a systematics and ecological component for the region's fishes, upstream and downstream from the Wagenia falls. In 2011, an expedition was made to the river basins of the Maiko and Lomami, in collaboration with the Université de Kisangani.

The genus *Tropheus* in Lake Tanganyika

The genus *Tropheus* occupies a key position in the study of vertebrate evolution, but their taxonomy poses a number of problems. This multidisciplinary project includes morphometric analysis, colour pattern analysis, molecular studies, and an investigation of aspects of parasitology. This doctoral thesis is being completed in collaboration with KU Leuven and is paired with the project 'The role of parasitism and immunogenetic adaptation in the speciation of cichlids in Lake Tanganyika (Africa)'.

Ichthyofauna of rivers in the northeastern part of the central Congo basin: diversity, distribution and evolution.

Launched in late 2011, this new project will attempt to map the little-known ichthyofauna of the Lindi-Tshopo, Ariwimi-Ituri, and Itimbiri rivers using morphological, molecular, and biogeographical techniques. Special attention will be focused on evolving aspects and any relationships with Nile river fauna. A large collection was gathered around the Ituri in 2011.

Ichthyofauna of Burundi rivers

The rivers of Burundi are part of two large basins: the Nile basin (via the Akagera system) and the Congo basin (Malagarazi, Rusizi, and the small tributaries of Lake Tanganyika). In collaboration with the University of Burundi, the RMCA's ichthyology unit prepared an inventory of fishes found in the country's rivers. Data were also collected in the field in preparation for a study on fish diversity, ecology, and distribution, as well as the impact of human activity on their diversity.

Small barbel species in Côte d'Ivoire

This study produced an inventory of a complex taxonomic group, the species of the genus *Barbus* in Côte d'Ivoire. Several new species were discovered in this country and other regions of West Africa. The study was the topic of a doctoral thesis that has been nearly completed in 2011.

Ichthyofauna of Mono (Benin-Togo)

This study hopes to establish the structure of the ichthyofauna upstream and downstream of the Adjarala falls, the site selected for a dam project,

Nets are stretched out in the Muyovozi river, Burundi. © RMCA



by comparing the fish species captured at different points of the Mono river. A comparison of recent sample collections with collections taken prior to the construction of the Nangbéto dam (1987) makes it possible to assess the impact of the construction on the ichthyofauna. The study is the subject of a doctoral thesis written in collaboration with the Université de Liège.

Endangered African species

The Ichthyology unit is involved in a number of major initiatives spearheaded by the Species Survival Commission of the IUCN (International Union for Conservation of Nature) and Wetlands International, aimed at establishing an index of endangered African freshwater fish. One of the RMCA's ichthyologists is a member of the IUCN/WI *Freshwater Fish Specialist Group*, and is responsible for Central and Southern Africa. In 2011, the museum drafted a final report with the IUCN on the status and dispersion of biodiversity in African freshwater bodies. In addition, a database was created to assess the influence of climate change on the flora and fauna of the Albertine Rift.

Barcoding of central African fishes

This project continued into 2011 in collaboration with JEMU. Species identification has been completed. The manuscript is being prepared, and the study will now focus on the central and upper Congo basin.

Congo Basin: from carbon to fishes (Cobafish)

Launched in 2011, this project is a collaboration between the RMCA, Royal Belgian Institute of Natural Sciences, National Botanic Garden of Belgium, KU Leuven, and the Université de Liège.

It seeks to study the biodiversity, biogeochemical function, and ecosystem dynamics of the Congo Basin through a multidisciplinary approach making use of new and existing biological, ecological and biogeochemical data.

FishBase - Africa

FishBase is the largest fish encyclopaedia and scientific resource online, containing all available information on the fishes of the world. Within the project, run by an international consortium of scientific institutions, the museum is responsible for data on African freshwater and brackish water fishes, a task it performs with the financial support of Belgian Development Cooperation (DGD). In 2011, researchers mainly checked and updated data on fishes in the Congo basin and cichlids of the Lower Guinea 'ichthyological province'. A new initiative in collaboration with the FishBase Philippines team to create distribution maps for African species was also pursued. As part of this project, the Congo basin was subdivided into several sub-basins and the detailed distribution of catfish species was highlighted.

Finally, 5 English-speaking African researchers undertook the 3-month annual course on the use of FishBase as well as the theory and practice of African fish taxonomy. This course is taught alternately in French or English.

Haplochromis burtoni © RMCA



Synodontis victoriae © RMCA



HERPETOLOGY

Systematics and faunistic inventory of African serpents

The 'Systematics and faunistic inventory of African serpents' fundamental research project seeks to establish practical African serpent determination criteria. It enhances the value of the scientific collections while sharing knowledge with African users. The different stages of the project consist of identifying museum specimens, determining species distribution data, measuring and describing serpent characteristics, reviewing the literature, and completing the information with data from other museums. In 2011, the determination of a number of museum specimens, particularly in the genera *Dasypeltis* and *Naja*, was rechecked, and data from literature were entered and verified. Characteristics for identifying cobras (*Naja* and closely-related genera) were selected thusly.

List of reptile type specimens

The unit's members also draw up lists of reptile type specimens in the museum's collections. Such lists are needed for every scientific collection. To create these lists, scientists must identify type specimens, find and verify bibliographic data, and incorporate this information into databases.

Database maintenance and development

The section's database contains plenty of information on collection specimens (labels, maps with distribution areas, literature, identification keys, types, systematics, etc.). In 2011, the database was maintained and completed, with hundreds of files converted to the appropriate format. Tools were also added to improve ease of use.

Acquisition of a new X-ray machine

In 2011, the section completed all the administrative procedures to acquire a new X-ray scanner, funded by the National Lottery. Selected for criteria including precision, safety, and maintenance, the machine will offer researchers a range of possibilities. It was delivered in early 2012.

Scientific services

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) also consults the unit for its expertise on reptiles and amphibians. In this area, the unit has provided input relating to the conservation sta-



The new X-ray scanner makes it easy to check gastric contents. On this image, we can see a frog inside the stomach of a serpent from the genus *Crotaphopeltis*.

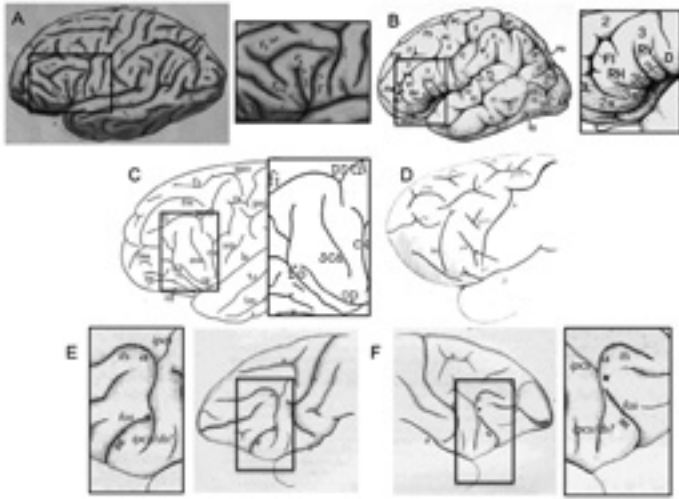
© RMCA

tus and export quotas for endangered reptile and amphibian species.

MAMMALOLOGY

In collaboration with KULeuven-Gasthuisberg, the Mammalogy unit scanned the primate and carnivore skull and brain collections of the RMCA using CT and MRI. In 2011, the data was processed, in collaboration with the Muséum national d'Histoire naturelle of Paris.

Anatomical characteristics specific to the brain shape of the great apes were studied on brain samples in storage as well as data acquired from magnetic resonance imaging (MRI). More specifically, neuroanatomical asymmetries are often studied to see if such asymmetries in human brains may have a link with cognitive abilities



Diagrams comparing the frontal brain fissures in humans (A, B) and chimpanzees (C, D, E, F).
© *Journal of Comparative Neurology*

such as language. Broca's area is one of two major areas that process language in the human brain. The counterpart of this zone was studied in chimpanzees (*Pan troglodytes*). No macroscopic asymmetry was observed, although there was plenty of interindividual variation.

Some characteristics of skull anatomy were also investigated. The occipital bone is often studied because its characteristics can be used to differentiate between hominine fossils. The separation between the inion and endinion (two specific points on the skull) were hypothesised as being specific to *Homo erectus* (of Asia). The methodology developed by the unit made it possible to quantify for the first time the position of these anatomical points. On the basis of these investigations, it was demonstrated that the characteristics 'separation between inion and endinion' and 'endinion under inion' could not be considered specific to *H. erectus*.

Comparative analysis of modern humans, the African great apes, and specimens of human fossils was also carried out. The study showed for the first time the presence of brain asymmetries shared by all hominids. This implies that the last common ancestor of the African great apes and of modern humans also had an asymmetric brain, a result that alters our understanding of the

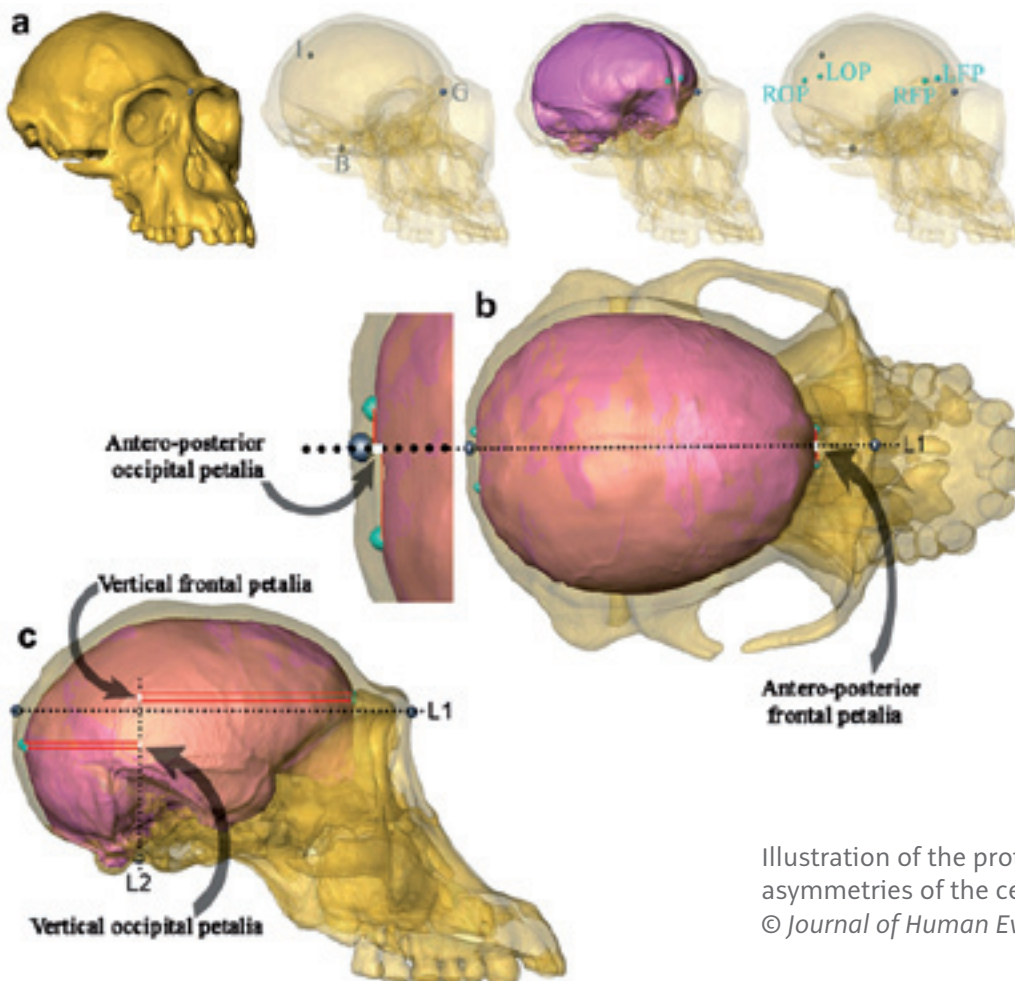


Illustration of the protocol used to quantify surface asymmetries of the cerebral cortex.
© *Journal of Human Evolution*

cognitive abilities of prehistoric man. In effect, it illustrates the dissociation between certain behaviours (language, handedness, etc.) which are undoubtedly specific to the human race, and structural brain asymmetries, which are not.

The unit also contributes to research on the taxonomy and evolutionary biology of rodents. Several scientific articles in this area were published in 2011.

■ ENTOMOLOGY

Section scientists conduct taxonomic studies on dipterans and lepidopterans (butterflies), as well as their specific nature in relation to host plants and biogeography. They also carry out research on insect pests and prepared integrated pest control programme models to limit their spread. The section also studies microstructures and morphology, and works very closely with the JEMU laboratory.

Databases and digitisation of collections

An important part of the section's work involves the digitisation of the collections and the creation of databases.

The Tephritidae (Diptera) database was expanded following a mission to the International Institute of Tropical Agriculture in Benin. Approximately 3,000 specimens were identified and entered. The publicly-accessible site was updated in collaboration with the Belgian Biodiversity Platform:

<http://projects.bebif.be/fruitfly/index.html>

The Global Taxonomic Database of Gracillariidae website (www.gracillariidae.net) was updated. It contains data on the taxonomy, biology, host plants, distribution, and parasitoid ecology of 17 families, 101 genera, and 1873 species from around the world.

AfroMoths (www.afromoths.net) is an online database of all known Afrotropical moths (nearly 25,000 species). It contains information on their original description, type locality, type specimens and their depository, and plants on which they feed. Data were modified to match the new classification of Lepidoptera, published on 23 December 2011.

During an update of the Asilidae (Diptera) database, digital images of type specimens were made

and added. At least three views – dorsal, lateral, and ventral – were taken for each specimen.

The Syrphidae (Diptera) database was completed in the same manner.

At the request of colleagues from foreign museums and research institutes, some 600 detailed photographs were taken of very old specimens and slide preparations that could not be loaned owing to their fragile state. Some of these images were used in scientific publications.

The section continues to be involved in around ten multi-year projects such as the following:

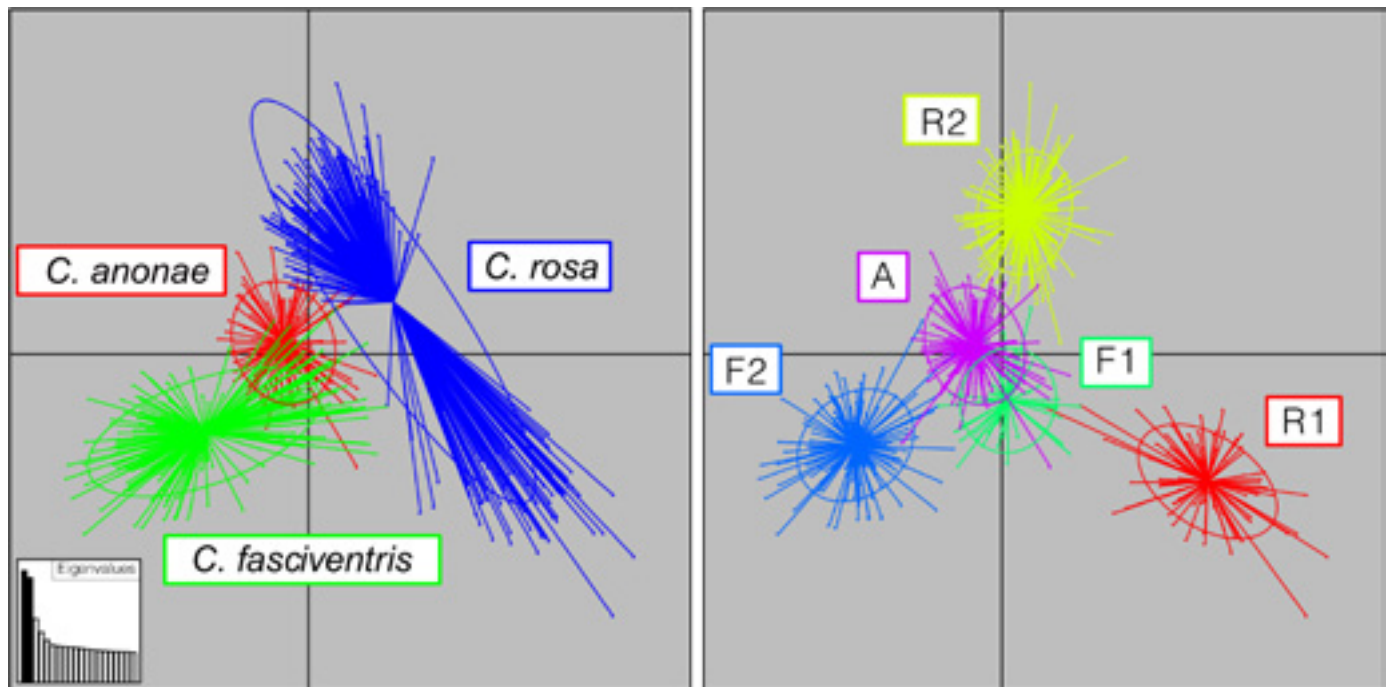
Integrated Pest Management for Tanzanian fruit flies

After an initial four-year project, a new project was launched in 2008 to study ways of combating Tanzanian fruit flies. The project seeks to assess the effectiveness of different methods of pest control for these insects in order to establish a pest control programme suited to local fruit producers. It is conducted in collaboration with the Sokoine University of Agriculture (Morogoro, Tanzania). In 2011, different pest control methods were tested and an integrated programme was introduced. The economic impact and the expansion of major fruit fly species to different altitudes were also studied. Scientists made a synthesis of the long-term monitoring of pest species according to fruit phenology and climate parameters. Data will continue to be analysed in 2012.

Population genetics of the *Ceratitis FAR* complex

In 2011, samples of *Ceratitis fasciventris*, *C. anonae*, and *C. rosa* were collected in 12 African countries. These three fruit fly pest species make up the FAR cryptic species complex, a set of distinct species that are morphologically identical. The project sought to confirm the existence of this cryptic speciation. Genetic analyses revealed the existence of at least 5 population groups. *C. rosa* is represented by two groups of genetically heterogeneous individuals that cohabit in more or less the same region. *C. fasciventris* is also composed of two distinct groups that appear to be geographically separate. Finally, unlike the other two species, *C. anonae* is more genetically homogeneous and does not show any intraspecific structuring.

This project is part of the 'Resolution of Cryptic Species Complexes of Tephritid Pests to Overcome Constraints to SIT Application and International



Principal component analysis (PCA, a statistics technique) showing the different population groups of the *Ceratitis* FAR complex. © RMCA

Trade' Coordinated Research Programme, undertaken in collaboration with CIRAD–La Réunion and supported by the International Atomic Energy Agency (IAEA, Vienna).

Biodiversity and molecular evolutionary studies of Lepidoptera in the Afrotropical region

Lepidoptera play a crucial role in biodiversity monitoring as indicators of habitat and biodiversity hotspot disruption. This insect order is very diverse, with 157,424 known species and an estimated 230,000 other species that have yet to be discovered. The fourth year of the project was dedicated to knowledge dissemination. Microlepidoptera are the least-known group and include the largest number of still-undescribed species, since it is ignored by many lepidopterologists. In 2011, taxonomic and genetic studies were pursued further in the field of evolutionary biology, clarifying a number of complicated taxonomic cases. A field mission in Ghana also allowed scientists to study the relationships between African and South American fauna. Ten new species from Cameroon and the DRC were described along with their main paths of geographic expansion. Finally, a Ditrysiina sub-family of primitive butterflies was extensively revised.

Revisions of Lepidoptera genera

Revision of the genus *Urodeta* (Lepidoptera: Gelechioidea: Elachistidae) has been completed. The morphology component of the revision

of the genera *Phyllonorycter*, *Cameraria*, *Hyloconis*, *Neolithocolletis*, *Cremastobombicia* and *Porphyrosela* (Lepidoptera: Gracillariidae) is also finished. Molecular analyses are ongoing.

Literature for the genus *Prothesaroa* was reviewed. Material collected from Ghana led to the discovery of two new species. As the specimens were tiny, it was difficult to dissect their genital organs (criteria used for species identification). Nonetheless, there was enough material to allow scientists to begin revising the group.

Researchers continued to review the literature on the genus *Stracena*. Genetic analysis brought to light the existence of synonyms. Long species lists are now available, but the great variability within this genus makes investigation difficult.

Course on fruit flies

In September 2011, a training course on fruit flies was organized by the section. It was a group training course on the taxonomy and ecology of African fruit flies intended for African researchers, as part of the framework agreement with Belgian Development Cooperation (DGD).

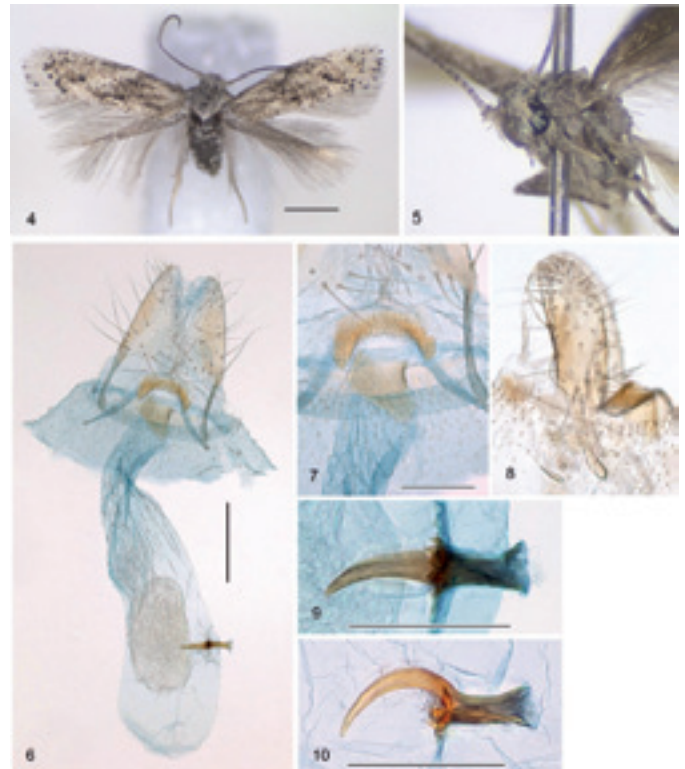
■ NON-INSECT INVERTEBRATES

The section's essential field of research includes spiders, millipedes, and some marine organisms such as holothurians. It specialises in African species taxonomy, systematics, and biogeography. Studies also focus on biodiversity, guidepost species, and earth and marine fauna protection.

Collections

More than 3,338 Arachnomorpha (spiders), 300 Diplopoda (millipedes) and 200 specimens from other groups joined the museum's collection. In 2011, the section began transferring its data to a new management data management system,

Urodeta acinacella, a new butterfly species described by the section. The image also shows the genital organs, which are often used as a determination criterion in lepidoptera. © RMCA



Participants in the fruit fly training course. © RMCA



DarWIN, a tool developed by the Royal Belgian Institute of Natural Sciences for managing scientific collections. The system will be tested for suitability using the section's collections to see if it can be adopted in the future by the entire African Zoology department.

Research on spiders

For research on Araneae (spiders), scientists focused on revising several Oonopidae genera as part of the PBI-Oonopidae project in collaboration with the American Museum of Natural History (New York). Afrotropical representatives of the genus *Mallinella* (Zodariidae) and several Corinnidae genera were investigated.

Spiders from the Zodariidae family are plentiful and live exclusively in tropical rainforests. They are known to have a poor capacity to spread, making them a perfect model for testing hypotheses on the origins behind the isolation of African tropical forests. Scientists use morphological and molecular analysis techniques to study the history of different Zodariidae groups, which also allows them to test theories on the biogeographical history of these forests.

Holothurians (sea cucumbers) harvested by the vessel Miriky in northern Madagascar. © RMCA

Research on millipedes

The focus of research on millipedes was on the revision of a group of Cambalopsidae in collaboration with the Moscow Academy of Science and the Museum national d'Histoire naturelle in Paris. The mating mechanisms of *Sphaerotherium*, a group of millipedes that can roll themselves into a ball, were also investigated in collaboration with the Museum Alexander Loenig in Bonn.

Research on sea cucumbers

Research on holothurians (sea cucumbers) centred on the revision of some genera of the Caudinidae family, in collaboration with the Victoria Museum. At the request of the Museum national d'histoire naturelle of Paris, the section is working with the Royal Belgian Institute of Natural Sciences to identify the sea cucumbers collected during three marine exploration campaigns (Mainbaza, Miriky, and Atimo Vatae) that took place between April 2009 and June 2010 in the north and south of Madagascar.

Preliminary results of these studies show that sea cucumbers harvested for human consumption, thought to be coastal species, have a larger

Ctenus Sp. nov., a new spider species endemic to Mount Nimba (Guinea), lives in abandoned mining galleries. The photo shows a female and her eggs. © RMCA



depth distribution than previously believed. Some of the species live in depths of up to 800 metres. Investigation of these species is crucial for influencing potential future conservation processes when these resources will be used.

OKAPI project

The Société des Mines de Fer de Guinée (SMFG) is considering the possibility of mining iron ore in Mount Nimba. This requires a preliminary study on the social and environmental impact of such a project.

The section's expertise was solicited by OKAPI environnement conseil sprl in designing methodology for data collection and analysis that will be later used to characterise the fauna in the region targeted by the mining project.

In 2011, several mining galleries of the concession were studied. These mines have very distinctive fauna, and are home to a new spider species. The species, endemic to Mount Nimba, is the focus of special attention as it could contribute to the conservation of this singular ecosystem.

Mount Nimba's old mining galleries are home to very distinctive fauna. © RMCA

■ CYBERTAXONOMY AND BIODIVERSITY INFORMATION

The Cybertaxonomy and Biodiversity Information service has a scientific support role. It develops and implements standards for biodiversity information, IT tools such as collections management systems, digital libraries, or geographic information systems. The service also provides assistance and guidance on good practices in these areas by maintaining helpdesks and organizing courses, workshops, and project management and capacity building activities.

In 2011, the service was closely involved in the RMCA's Knowledge management committee, managing the 'Intellectual Property Rights' and 'Open Access' subgroups, as well as the subgroup created to simplify project management at all levels. The service monitors funding possibilities, informs museum staff, and provides support for project submission. In this way it allows colleagues to benefit from its long experience in project management, especially in EU-funded projects.

Zoosphaerium solitarium Wesener, 2009, a new millipede species discovered in 2009 in Madagascar. This species was only found in one hill in the country's north. Its vegetation is threatened by deforestation. © Jörn Köhler



Cybertaxonomy and Biodiversity Information Helpdesk

Over the years, the service acquired equipment and plenty of experience in setting up numerous projects as well as assistance and consulting activities, and organizing several workshops. Knowledge on biodiversity information and geographic information systems, taxonomy, collections management, digitisation, etc. has now been gathered into a single platform, making it easier to access and exchange information. The platform can also encourage synergies between related projects and avoid needless redundancy. <http://cybertaxonomy.africamuseum.be/>

Biodiversity Heritage Library for Europe (BHL-Europe)

Limited access to biodiversity-related publications hampers research, awareness-building efforts, biodiversity conservation, management of protected areas, etc. The BHL-Europe project intends to gather all taxonomy and biodiversity-related publications under a single access point. 26 European institutions have therefore agreed to put their past and current documents online via Europeana. Europeana (www.europeana.eu) is a platform that allows users to explore European cultural and scientific heritage. Digitised resources from museums, libraries, archives, and audio-visual collections from all over Europe are found there.

2011 was the third and last year of the project. The service continued selecting and scanning publications, in coordination with the Royal Belgian Institute of Natural Sciences (RBINS) and the National Botanic Garden of Belgium (NBGB). The three institutions also wrote an article for 'BHL-Europe Best Practice Guide', currently in press. The service also translated the texts of the BHL-Europe portal and the document 'BHL in a nutshell' into Russian.

In 2011, the RMCA digitised about 50,000 pages of literature on biodiversity. A large part of it came from the museum's annals; the pages were processed to be compatible with the BHL-Europe system. The first 52 publications, representing some 24,000 pages, are in the public domain and have now been recorded in Europeana. They are accessible through the RMCA website.

<http://www.africamuseum.be/collections/browsecollections/europeana>

The RMCA, RBINS, and NBGB organized a second European Commission Annual Review Meeting for the project, held at the JBNB in Meise and the RMCA in Tervuren from 7 to 10 June 2011. The project received a positive evaluation.

Opening up Natural History Heritage for Europeana (OpenUp!)

Launched in March 2011 for a 3-year period, the project OpenUp! seeks to provide access to natural history images, artwork, and audio and video files through Europeana and the GBIF (Global Biodiversity Information Facility). RMCA provides content and coordinates 'work package 7': helpdesk and network extension. One of the tasks accomplished in 2011 was the set-up of an online assistance facility, giving users access to an FAQ, document download possibilities, and the possibility of sending questions for a team of experts from the participating institutions. Created in collaboration with the NBGB, the helpdesk can be easily reused for other projects. It can be consulted on: <http://helpdesk.open-up.eu/>

Synthesis of Systematic Resources (SYNTHESYS II)

SYNTHESYS NA2 and 3 (Network Activity 2: Collections Management) seeks to improve the management of European natural history collections, facilitate access to them, and preserve their unique value. This component of the project is also aimed at establishing standards, such as per-



RMCA website banner for the Europeana API integration at <http://www.africamuseum.be/collections/browsecollections/europeana>.
Benoît Hardy © RMCA

formance indicators and collection management policies, to allow facilities to make optimal use of existing resources and avoid unnecessary redundancy in European efforts.

In early 2011, a meeting was held to identify needs in terms of collections management workshops. Six different modules were scheduled for 2011-2012: 'Train-the-trainer', 'Effective collections emergency planning and salvage', 'Information Networks', 'Access to collections', 'Molecular collections' and 'Ethnobiology'. The content and shape of the workshops, training locations, facilitators, application procedures and selection of participants, etc. were also determined.

Two workshops were given in 2011: 'Train-the-Trainer: Methods in Collections Management' on 24 and 25 October at the Natural History Museum in London, and 'Effective collections emergency planning and salvage' on 22 and 23 November at the RMCA. Three other workshops – to be held in 2012 – were also prepared.

Prototype virtual exhibit on the Charles Lemaire expedition

In 2011, in collaboration with the Colonial History section and the Museology service, the African Zoology department created a prototype virtual exhibition on the theme of Charles Lemaire's expedition in Katanga (1898-1900). The project reflects how RMCA research takes a multidisciplinary approach and shows the link between the BHL-Europe and OpenUp! European projects. The prototype was presented during the BHL-Europe Annual Review Meeting and can be consulted online:

<http://cybertaxonomy.africamuseum.be/drupal7/>.

Central African Biodiversity Information Network (CABIN)

This 5-year project is aimed at reinforcing the IT skills of African researchers working in the natural sciences. Four activities were conducted in 2011:

- A technical mission was organized at CEDESURK (Centre de documentation de l'enseignement

Participants of the OpenUp! Kick-off meeting at the Botanical Garden and Botanical Museum in Berlin-Dahlem.
© Anja Friedrich



SYNTHESYS
Synthesis of Systematic Resources

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User login

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Request new password

SYNTHESYS Advanced Training in Collections Management

Thank you for your interest in the SYNTHESYS Advanced Training in Collections Management. For more information about the training modules, please click on the links below.

Module 0: "Train-the-Trainer": Methods in collections management training

Module 1: Effective collections emergency planning and salvage

Module NA3: Information Networks (digitization, IT and related activities for database and collections management)

Module 2: Access to collections

Module 3: Molecular collections

Photos by Caroline Van Poucke and Patricia Mergen, copyright RMCA

Screenshot of the SYNTHESYS Helpdesk. Photos by Caroline Van Poucke and Patricia Mergen ©RMCA

supérieur et de la recherche de Kinshasa) to update a web portal on biodiversity in central Africa (<http://cabin.ebale.cd>), in collaboration with the CEDESURK IT staff.

- A call was launched among central African natural history researchers to harness data in 2011-2012. This call covers several activities:
 - Personalised online training for quality control, data 'cleaning' and standardisation.
 - Introduction to programmes used for online publication.
 - Publication of data on web servers hosted by the RMCA and/or CEDESURK.
 - Publication of data on the GBIF network.
- The LINCAOCNET (Edible insects of Western and Central Africa online) project was created to gather and disseminate as much information as possible on edible insects in French-speaking

Western and Central Africa. Initiated by the Beninese NGO Centre de recherche pour la gestion de la biodiversité (CRGB) and co-funded by the Fonds francophone des inforoutes, the project led to the August 2011 launch of a website containing information on edible insects and their plant hosts from 10 African countries. The site database contains information on the taxonomy of insects and plant hosts, insect harvesting (spatiotemporal data and harvesting techniques), culinary preparations, the socioeconomic profile of consumers, etc. High-resolution images of insects and plants as well as sound files for the pronunciation of insect names in the local language are also found on the site.

<http://gbif.africamuseum.be/lincaocnet/>



Lemaire, Charles. 'Etat Indépendant du Congo. Mission scientifique du Katanga. Itinéraire parcouru du 5 août 1898 au 2 mars 1900'. Map from KULeuven



Group photo of the IT staff of CEDESURK (Centre de Documentation de l'Enseignement supérieur universitaire et de la Recherche de Kinshasa), CRGM (Centre de Recherches géologiques et minières) and RMCA taken on 14/10/2011 during a joint mission of the Geology department and the CABIN project at CEDESURK and CRGM. From left to right: Muliri Mirindi (CEDESURK), Frumence Boroto (CEDESURK), Franck Theeten (RMCA), Ibia T. Malofu (CRGM), Bentch Buatshia (CRGM), André de Mûelenaere (RMCA).
 Franck Theeten © RMCA



A group of children attending the insect-tasting session during the RMCA late night opening (22/09/2011).
Jonas Van de Voorde © RMCA

- A day-long workshop on open-source Geographic Information Systems (GIS) was also organized under CABIN. The workshop was held in Arusha, Tanzania on 17 June 2011 by Costech (Tanzanian Commission for Science and Technology) and GBIF's Tanzanian node.

■ JEMU

The Joint Experimental Molecular Unit (JEMU) is the fruit of a collaborative project between the RMCA and the Belgian Royal Institute of Natural Sciences. Funded by the Belgian Federal Science Policy Office, the JEMU laboratory contributes to DNA barcoding and develops new DNA extraction techniques for existing collections.

2011 was an important year for JEMU. Despite a financially challenging year, the unit managed to pursue its research projects using the funding it had saved in previous years. Funding for an additional year (2012) was obtained at yearend.

Barcodes for Two Winged Insects: a Support Project for Barcoding of Diptera of Medical, Veterinary, Agricultural and Biodiversity Concern
Launched in 2010, this project is a joint effort of the RMCA, the Belgian Royal Institute of Natural Sciences, the Institute of Tropical Medicine, the National Institution for Criminalistics and Criminology, and the Walloon Agricultural Research Centre in Gembloux. The RMCA works in sub-projects involving diptera of agricultural and economic, medical, and forensic concern. For the 'diptera of agricultural and economic concern' component, of which the RMCA is the regional coordinator, a database of the COI gene – used to identify species – from 602 individuals of the Tephritidae fruit flies was created. The usefulness of this database was tested using 188 individuals, and data from the research was published. DNA barcodes of Cicidomyiidae, another diptera family, are being determined, as are those of their parasitoids (Platygasteridae, a hymenoptera family) that could be used in biological pest control.

A series of pilot projects were also pursued and completed:

- MAMFAGE: DNA barcoding of lymantriid moths. A collaboration was created with two other researchers in order to publish an article on DNA barcoding of African representatives of Lymantriidae, a moth family;
- LITHOCOLLETINAE: *Phylogenetic relationships within the subfamily Lithocolletinae* (Lepidoptera, Gracillariidae). The results of this project were published in a scientific paper;
- GYBAR: DNA-barcoding in the Gyratrix hermaphroditus species-complex: a case study on European populations. Individuals of this free-living flatworm species were collected in collaboration with Hasselt University. DNA sequences for 4 genes were determined for more than 200 specimens, providing a complete dataset. Results are now being published in several scientific papers.

Molecular laboratories

The RMCA JEMU members were closely involved in preparing the move of the CAPA molecular laboratories to the CODA wing, on the other side of the building. Available spaces were assessed and divided into different areas depending on use: prePCR, postPCR, storage area and collection area (refrigerator at -80°C). The move is scheduled for 2012.

Belgian network for DNA barcoding

In 2010, JEMU and several Belgian partners were tasked by the Fonds Wetenschappelijk Onderzoek (FWO) to set up a Belgian network for DNA barcoding. JEMU will be the coordinator of this new network, designed to improve coordination of different barcoding activities in Belgium. In this light, the Royal Belgian Institute of Natural Sciences and the RMCA will organize the Third European Conference for the Barcode of Life. Practical organization of the conference will be handled by JEMU. A website has been created and preparatory activities are ongoing. The conference will be held from 17 to 21 September 2012.

Finally, student supervision remains a significant part of the laboratory's activities. Some ten students thus enjoyed scientific and logistic support in completing their final student project or doctoral thesis.

WOOD BIOLOGY

The section focuses on the study of wood species from African tropical forest, particularly the investigation of tree growth and environmental data that can be gleaned from microscopic characteristics, mainly through dendochronology (the analysis of growth rings). In doing so, it hopes to improve forest management by placing emphasis on conservation and sustainable production.

The laboratory's research material comes from the museum's xylarium, a reference collection of more than 63,000 wood samples from some 13,000 different species from around the world. 2011 saw many changes within the section. First, owing to a combination of factors, several staff members were replaced. Several new projects were launched, principally in the dynamics of wood charcoal and an anthracologic study in two logging concessions in Cameroon. Collections management and the library also made signifi-

At work in the laboratory. Étienne Brouillard © RMCA



cant progress in 2011. Finally, a 'Wood biology and tropical botany' group workshop was organized in collaboration with the National Botanic Garden of Belgium.

Forests and water

Forests regulate regional and global water cycles. They help water penetrate the soil to become part of groundwater, an important water reserve. Forest conservation and tree planting are the best weapons against desertification.

Some very special forests even protect tropical coastlines. In zones that are regularly inundated by the tides, certain trees – mangroves – resist salty waters. The aerial roots of mangroves captures oxygen when the soil is flooded with salt-water. Mangrove forests also offer shelter and mating sites for a whole range of animals such as crabs, birds, fishes, and even larger animals such as snakes, crocodiles, monkeys, and tigers.

While mangroves are found on the edge of or close to the sea, they often suffer from water stress. The high saline concentration of seawater makes it hard for the mangroves to absorb freshwater. When trees are unable to absorb enough water to keep their trunk and leaves hydrated, their water vessels may contain air. If too many of the plant's vessels contain air and are not hydrated in time, its branches – or even the entire tree – could die.

Mangroves can adjust the structure of their water transport system so that they are less vulnerable to cavitation, the process by which air bubbles form.

The section carries out research on different characteristics of the mangrove's water transport vessels and the tissues supporting it, known collectively as the secondary 'xylem' or simply 'wood'. In 2011, the section focused investigations on the dynamics of mangrove trunk expansion and shrinking under the influence of precipitation.

Wood and carbon

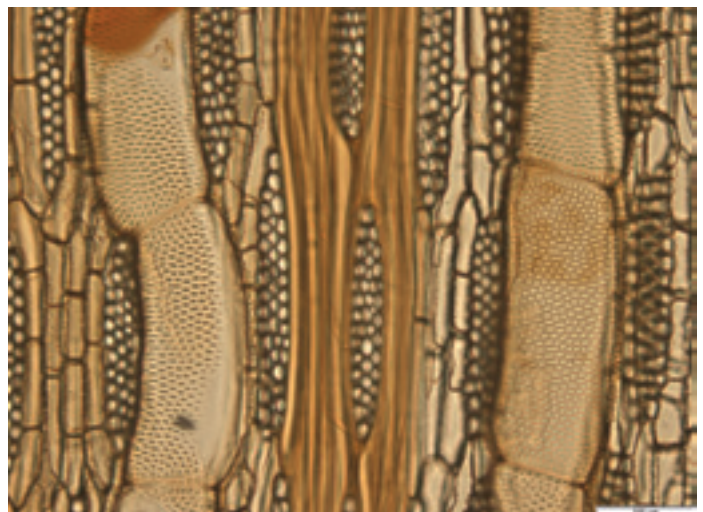
A thousand tree species exist in central Africa (with up to 300 species per hectare). A hundred of these are of potential economic interest, but only 40-50 are available on the global market. Wood accounts for the largest share of a forest's mass, and carbon represents 50% of wood. A tropical rainforest has such enormous amounts of wood that nearly half the wood and organic carbon of the African continent is found in the Democratic Republic of the Congo. Forest degradation and deforestation leads to a rise in CO₂, a greenhouse gas. It also reduces the usefulness of the forest at the same time.

Fortunately, it is possible to manage forests – even in the tropics – in such a way that they produce at least as much wood as is being cut. This is only

Among several methods used to check if growth rings are annual for a given type of wood, one involves driving needles into the trunk of a live tree. After several years, researchers check if the number of rings formed matches the number of years gone by. Hans Beeckman © RMCA



A thin section of *Pericopsis elata* wood, commonly known as Afrormosia or Assamela. Museum researchers study the population dynamics of this tree, in great demand for its wood, to ensure its conservation and sustainable use. Peter Kitin © RMCA



possible if the growth rate of trees is known. Many studies still need to be undertaken in this area.

The section develops research projects in the UNESCO MAB biosphere reserves in Luki and Yangambi. These projects are pursued in collaboration with Belgian and Congolese partners, and concern tree growth, carbon flows, and biodiversity. In 2011, the section discovered the annual growth rate of *Pericopsis elata* (afromosia), the leading species in dense forest.

Forests and climate

These past 30 years, we have seen the planet's temperature rise. Scientists expect an increase in the number of brushfires around the world and drought in some tropical habitats. The relationships between forests and the climate must be understood.

This is of particular importance for the Miombo, the large forests found to the east and south of tropical rainforests. Locally, these forests provide timber, firewood, and other forest products. Their

biodiversity, carbon stocks, and productivity are under dire threat.

The section has been studying the growth rings of Miombo species in order to analyse climate fluctuations and their influence on tree growth. In 2011, the Wood Biology laboratory analysed new collections of tree trunk samples from woodland forests in Tanzania and Katanga.

Ongoing projects for 2011 involved:

- climate as a variable for tree growth in tropical Africa;
- The hydraulic architecture of mangrove trees and its functional relevance;
- the dynamics of the Luki semi-deciduous forest (DR Congo);
- the carrying capacity of *Pericopsis elata* Harms (Van Meeuwen) populations for the utilization of forest resources: growth and structures of forest communities;
- wood production and carbon storage through forest planting in tropical Africa (case study)

Miombo, large forests found to the east and south of the DRC's tropical rainforests, provide timber, firewood, and other products to local inhabitants. © Ezekiel Edward Mwakalukwa



- with *Terminalia superba* Eng. & Diels and *Tectona grandis* L. f.)
- Anatomic structure and physiological implications of cellular and extracellular water transport in tree trunks;
 - archeobotany and the history of vegetation in Central Africa through the analysis of wood charcoal;
 - the description of vegetation for 'Monographies des provinces de la RD Congo' project;
 - an image-based identification key for Congolese species.

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EARTH SCIENCES

The African continent's geological history is ancient, and studying it from the perspective of the entire planet allows scientists to trace the major stages of the Earth's evolution.

Museum geologists attempt to reconstruct these stages using state-of-the-art techniques such as remote sensing, geochemistry, and isotope geology. They also study minerals, as these resources have always played an important role in central Africa's industrialisation. The geologists determine their distribution, make reference maps, and examine the processes that form these minerals in order to detect host rocks for mineral deposits with even greater precision.

They also work with geomorphologists in particular to study natural events of environmental and geological origin, as well as their impact. In this way, they help limit the effects of such disasters, predict these events, and prevent the appearance of new risks.

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■ GENERAL GEOLOGY

The section is dedicated to two types of research: the dynamics of geological processes, specifically the processes and mechanisms of formation and deformation of the Earth's crust, and the relationships between these geological processes and the genesis and distribution of mineral resources. Investigations focus on Central Africa (DRC, Rwanda, Burundi, and neighbouring regions), given the unique documentary heritage held by the Earth Sciences department on this part of the continent. It curates an impressive collection of rocks and fossils in addition to its archives on mining and geology.

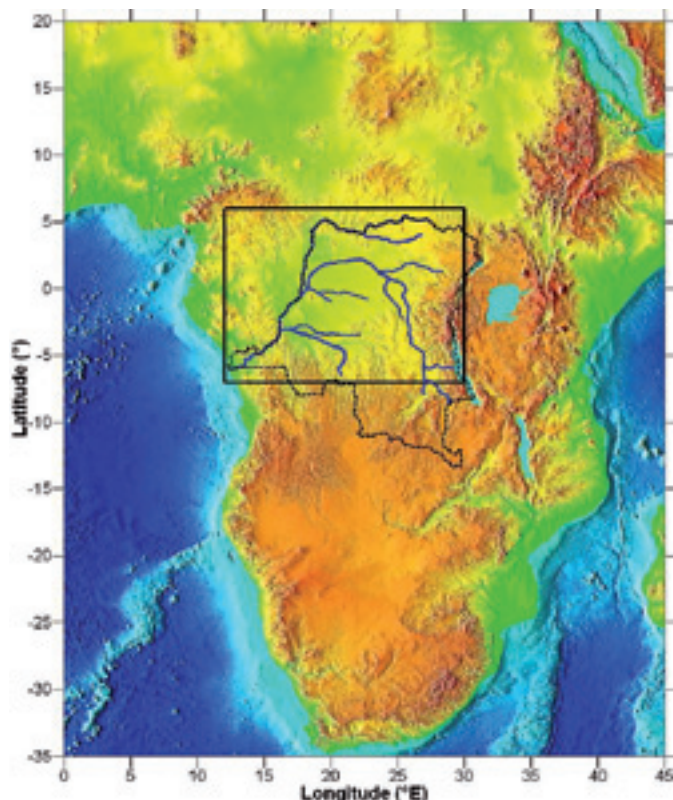
National and international collaboration networks are behind many of the research activities, be it in the form of teams from academic and research institutes, or projects with representatives of the mining and oil industries.

The section also follows a scientific services policy, sharing the expertise it has acquired over the years. It supervises African and Belgian students, organizes workshops for African researchers, and spearheads collaboration programmes with African institutions.

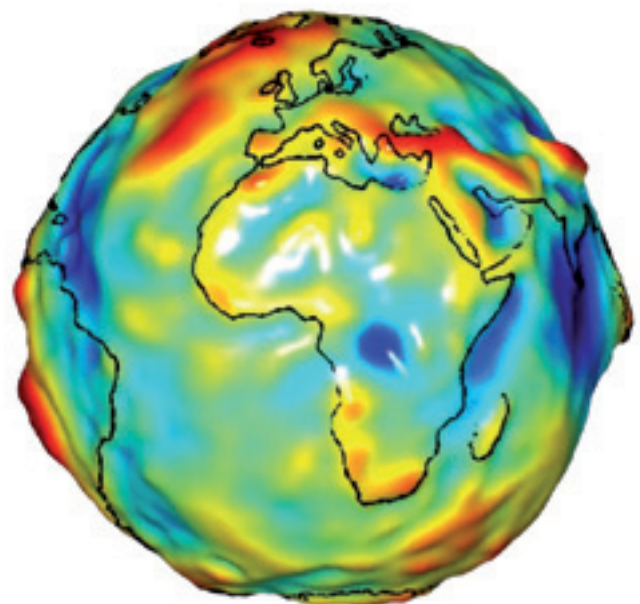
The section is involved in several multi-year projects, including the following two examples:

EVOLUTION OF THE CONGO RIVER BASIN AND OIL POTENTIAL

The Congo River Basin or CRB (also known as the 'Congo Basin') refers to the large, roughly circular depression found in Central Africa with a diameter of some 1,200 km and an altitude of 300-500 m, and surrounded by a higher rim. Most of the CRB is found on the territory of the Democratic Republic of the Congo (DRC), with the rest in the neighbouring Republic of the Congo. The CRB and its rim are limited by the passive continental margin of the Atlantic ocean to the west, and by the western branch of the East African Rift to the east. The Congo river and its many tributaries occupy most of the CRB. Their courses are controlled by tectonic movements that affect the bottom of the basin. This extends to both sides of the equator, leading to a river network that receives equatorial precipitation throughout the year (natural rainforest). The lowest regions of the CRB correspond to marshes and/or small lakes.



The Congo river (in its current course) and its many tributaries occupy most of the Congo River Basin (CRB). Their courses are controlled by tectonic movements that affect the bottom of the basin. © RMCA



The rim of the CRB is known for its mineral resources, and the basin's own potential as a hydrocarbon source has not yet been studied in detail. Bituminous schists can be found on the surface near Kisangani, and hydrocarbons have oozed out in several locations in the basin.

The recent GRACE (Gravity Recovery and Climate Experiment) mission, which uses satellites to observe the planet, found a spectacular negative anomaly corresponding to the CRB. This suggests the presence of an abnormally high quantity of light materials composing the underlying lithosphere.

Congo Basin bedrock

The Proterozoic bedrock of the CRB (the bedrock, in geological terms, that is older than 542 million years – Ma), is found throughout practically the entire rim, but can only be studied indirectly in the basin using geophysical means and deep drilling. These techniques show that the CRB is composed of several layers of poorly-to-non-consolidated sedimentary rock that does not exceed 2,000 m in thickness, lying atop the bedrock. Their age varies from +/- 320 Ma (Karoo) for the oldest layers to

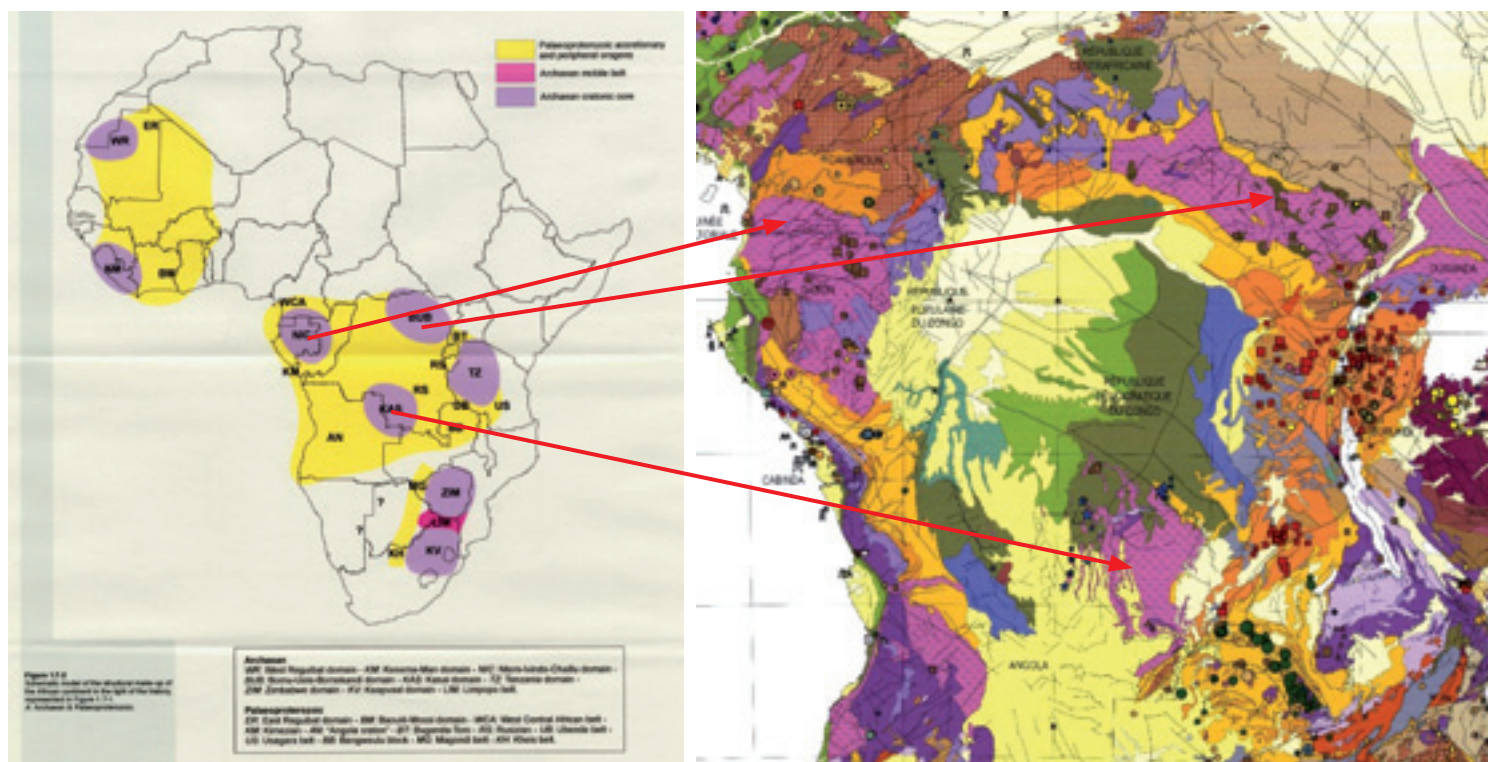
less than 100,000 years (Holocene) for the most recent ones.

Comparison of geophysical data collected between the 1950s and 1980s with modern theories of plate tectonics and geodynamics provides a much more complex image than the one proposed earlier, of a large sedimentary basin (geosynclitorium). Results from the reinterpretation of this older data show that both the proterozoic bedrock and the phanerozoic sedimentary deposits went through a long period of deformation and reactivation (successive rises and dips), and that the whole is composed of a series of 'topographic' peaks and troughs corresponding to several rifts oriented along the NW-SE line. It was found that these structures are still seismically active today.

Oil potential of the Congo Basin

A collaboration agreement was signed with the Congolese company COMICO to involve the RMCA in a series of actions designed to improve knowledge of the Congo Basin's petroleum system. COMICO SPRL is the Congolese subsidiary of Central Oil and Gas Ltd. As part of this collaboration, a geological

The CRB's Precambrian ledge is known for its metallogenic provinces and kimberlite fields (which contain diamonds) but has only limited potential as a hydrocarbon source (two known coal basins from the Karoo age) © RMCA



mission was conducted with Congolese colleagues in the basin to review petroleum indicators and primary petroleum source rocks, as well as study the basin's tectonic structure. These works complete the research already carried out in the region, providing access to less-accessible areas. They will also have a scientific impact.

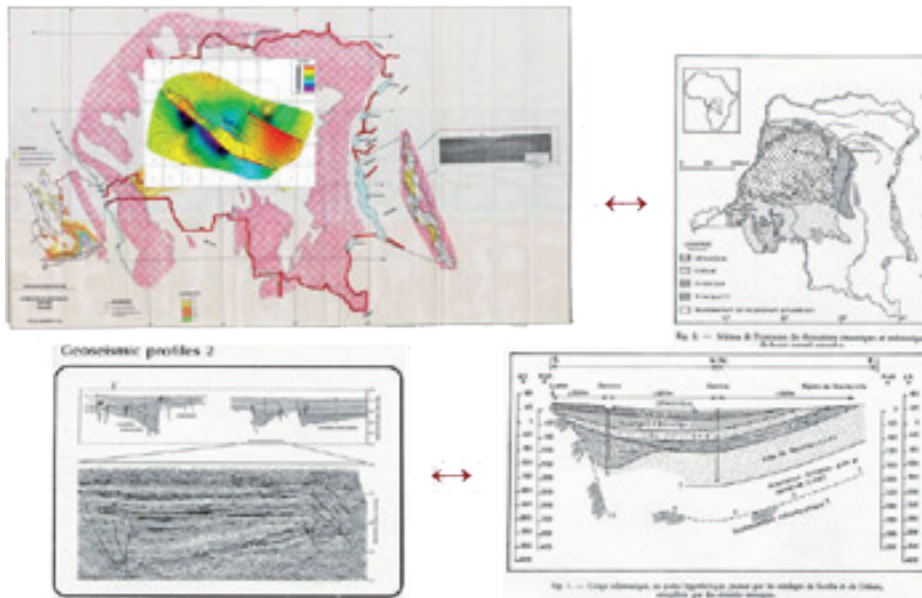
Petroleum systems in the context of Neoproterozoic glaciations in central Africa

In response to the scientific interest in the geological study of the Congo basin (DRC and neighbouring countries), a new collaboration with the Royal Holloway University (London) and Sonangol Gas Natural (Angola) was established. Funding from private sources was found for three new doctoral

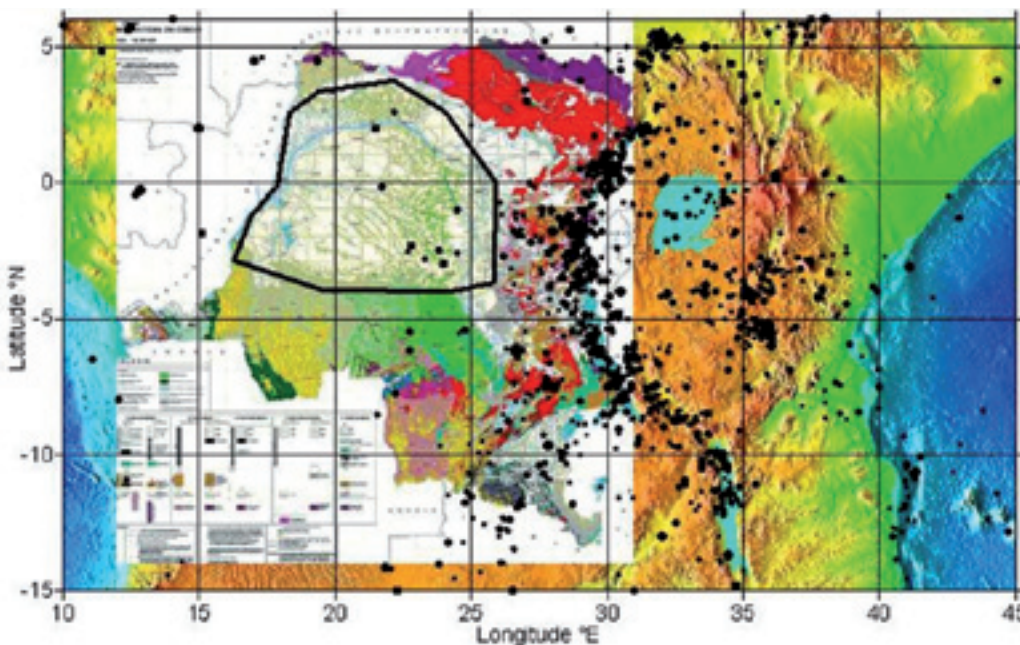
projects that will be based in the former. The projects will study the geochemical, chronostratigraphic, tectonic, and sedimentological aspects of three Neoproterozoic 'basins', in Namibia/Angola, Brazil, and DRC/Angola. One of the PhD students is supervised by an RMCA geologist.

AFRICAN-EUROPEAN GEORESOURCES OBSERVATION SYSTEM (AEGOS)

The sustainable use of resources of geological origin (georesources) such as groundwater, fossil energies and mineral resources requires knowledge based on data, information and expertise. In Africa, it is a key issue, not only for development of the African countries, but also for the world's future in order to face the rising demand for raw



Comparison of the concepts in 2010 (dynamic vision) <> 1950 (static vision). © RMCA



The Congo River basin is also (locally) seismically active. © RMCA

materials, better infrastructures and services. However, initiatives by both African and European organisations are rarely coordinated and provide heterogeneous information systems. Moreover, data collected during colonial times constitute a unique archive of Africa related geoscientific information which primarily needs to be shared with African partners.

In February 2009, a consortium of 23 African and European partners launched AEGOS, a large-scale programme to safeguard the data archived in African and European geological surveys, promote their exchange, and support further knowledge development on Africa's geology and georesources. This observation system will provide support to many end-users: policy-makers at

all geographic levels, development agencies, private sector actors, geoscientific communities and civil society.

The main objectives of Phase 1 of the project were to define: i) operational procedures for data management, ii) user-oriented products and services, iii) the African-European partnership network, and iv) a geoscience contribution to the Global Earth Observation System of Systems (GEOSS).

The section represents the RMCA in "Work Package 6": Definition of common strategies for capacity building and training. 2011 was the last year of Phase 1. It actively contributed to the various documents written by WP6 and also joined the final conference from 13 to 21 April in Dakar (Senegal).

Relevance of the project
Safeguard, share, valorise the knowledge and data archived in African and European geological surveys

Main targets
Institutional decision-makers and geoscientific communities

Focus

- Observation system on natural resources: geology, raw materials, minerals, groundwater, energy,...
- User-oriented products and services
- Innovative spin-off projects
- Spatial data infrastructure
- Operational procedures and open standards
- Distributed architecture - web access
- Intellectual property rights management
- Common strategy of capacity building

Expected impacts
Preparatory phase for setting-up a multi-national georesources observation system

Partnership with national institutions and regional organisations: UEMOA, SEAMIC, EuroGeoSurveys

AEGOS is a geoscience contribution to GEOSS in the context of INSPIRE European Directive

AEGOS is a Support Action of the European Union 7th Framework Programme

AEGOS Partners

Belgium (RBINS/MRAC)
Czech Rep. (CzechOS)
Finland (GTK)
France (BRGM, CREG, IRD)
Germany (BGR, BGR)
Int'l.org. (IURIC)
Netherlands (TNO)
Poland (IGP)
Portugal (INETI)
United Kingdom (BGS)

Ethiopia (GSE)
Ghana (GSD)
Ghana (GSD)
Ghana (GSD)
Int'l.org. (SEAMIC)
Int'l.org. (UEMOA)
Senegal (MMI)
South Africa (GSI)
Tanzania (IRA)
Uganda (GSM)
Zambia (CO-SOM/UNTA)

AEGOS
African-European
Georesources
Observation System

DESIGN A PAN-AFRICAN INFRASTRUCTURE OF INTEROPERABLE DATA AND USER-ORIENTED SERVICES TO SUPPORT THE SUSTAINABLE USE OF GEORESOURCES IN AFRICA

Launching conference
February, 2009
SOUTH AFRICA

- Steering Committee
- Expert groups
- Associated partners

Contacts – Project co-ordination
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www.brgm.fr/brgm/aegos

Logos: European Union, BRGM, INSPIRE, 7th Framework Programme, European Union

MINERALOGY AND PETROGRAPHY

Section activities are driven by geochemistry applied to petrography and by questions regarding global changes in the distribution of chemical elements in different spheres of the environment. The section includes three units: Geochemistry of Endogenous Processes, Petrology and Mineralogy; Biogeochemistry and Aquatic Geochemistry, Environmental Sciences; Laboratories and Analytical Methodology.

In 2011, the section's research led to the production of 24 scientific articles for peer-reviewed international journals or books. Most of the research tackled sustainable development issues and were within the scope of multidisciplinary collaborations with other Belgian research insti-

tutes and universities. The section also collaborates with a large number of foreign institutions in Europe, the United States, Africa, and Australia. The section is involved in about a dozen projects, including the following three examples:

CHOLTIC

CHOLTIC (Cholera Outbreaks at Lake Tanganyika induced by Climate change?) was initiated in 2011 to investigate the environmental conditions promoting the emergence of cholera epidemics and their persistence in the region of Lake Tanganyika. RMCA coordinates this multidisciplinary project. Two missions (DRC and Zambia) launched the environmental monitoring component, which includes aspects relating to meteorology and physical chemistry of water, using *in situ* measu-

Mpulungu shoreline (southern part of Lake Tanganyika) in Zambia where cholera outbreaks are observed regularly.
© RMCA



Data processing methods are taught at the Centre de Recherche hydrobiologique d'Uvira (DR Congo).
B. Kakogozo © RMCA

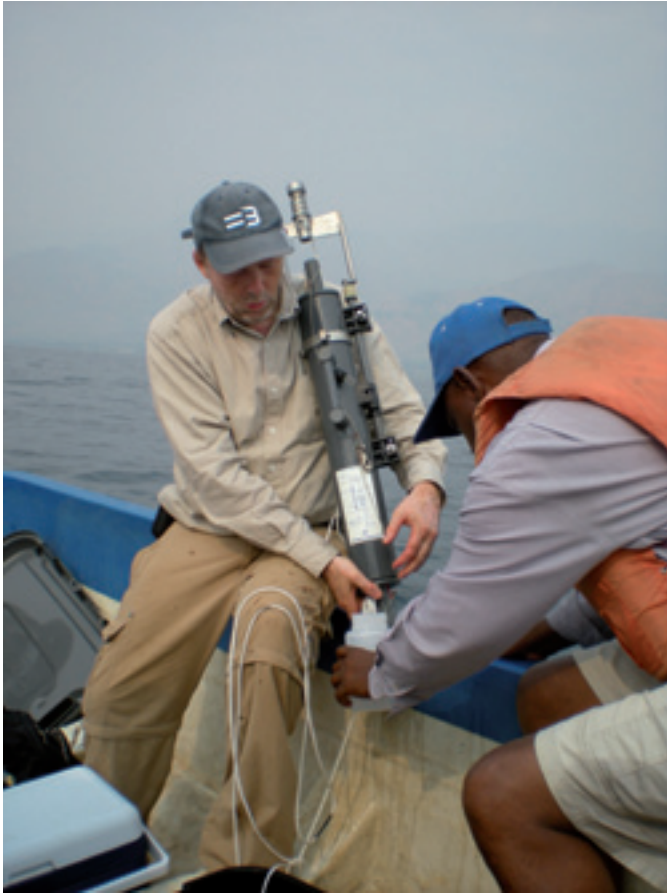


Sampling the lake at Uvira. Trainees are taught how to use multiparameter sensors (Centre de Recherche hydrobiologique d'Uvira team and Pierre-Denis Plisnier).
© RMCA



Scientist Lawrence Makasa organizes the phytoplankton and zooplankton samples collected over several months. Part of the collection will be analysed onsite; the rest in Belgium. © RMCA





A Niskin bottle is used to collect water as part of lake sampling in Uvira (Centre de Recherche hydrobiologique team and Pierre-Denis Plisnier). Chlorophyll concentrations in the water will be used to calibrate satellite measurements to study phytoplankton blooms. © RMCA

rements and remote sensing methods. Research essentially investigates hydrodynamics, phytoplankton, zooplankton, epidemiology, bacteriology, and genetics. Processing of limnological, meteorological, and halieutic data began at the museum in 2011. Project results may be useful in predicting future cholera outbreaks based on environmental data and allow preventive measures to be taken to protect local communities.

TIMOTHY

TIMOTHY (Tracing and Integrated Modeling of Natural and Anthropogenic Effects on Hydrosystems: The Scheldt River basin and adjacent coastal North Sea, P6/13) is an Interuniversity Attraction Pole network in collaboration with ULB, VUB, UCL and ULg. Its purpose is to develop, validate, and apply tools to assess past (since 1950), present, and future changes in the water quality

of the Scheldt river basin as a result of anthropogenic activity and climate change. TIMOTHY is a multidisciplinary network that includes microbiologists, hydrogeologists, environmental modellers, and physicists, biogeochemists, bioengineers, and economists. In this context, the RMCA team, in partnership with the Université Pierre et Marie Curie and the University of Antwerp, has set up a strategy for collecting samples from streams and rivers found in areas of typical soil use. Samples collected from the Scheldt's major affluents (Dender, Zenne, Kleine Nete and Grote Nete, and Dijle) by the partner universities ULB and VUB during previous projects were also available, as were samples from the portion of the Scheldt between Ghent and Antwerp. New measurements of the isotopic compositions of silicon according to soil use have made it possible to trace anthropogenic pressures for the first time. Findings show that agriculture increases the isotopic makeup of streams while diminishing silicon concentrations, whereas the opposite takes place in streams under forest cover. Given previous results, research in 2011 focused on investigating the impact of soil use and human activity on the silicon cycle throughout the continent-river-ocean continuum, more specifically, the study of soil-plant interaction on cropland, prairies, and forests. In the middle of farmland, heavy isotope signatures ($\delta^{30}\text{Si}$) measured at depths of 30 and 60 cm demonstrate that at the root level, crops take up light silicon isotopes, leaving behind water with a higher concentration of heavy silicon isotopes. Beyond 90 cm, the isotope signature is lighter, showing that plants are no longer taking up light isotopes at this depth, and that it is quite likely that clay minerals are being dissolved to make up for the losses from the removal of plant matter: leaves and fruits that are cut at each harvest. In prairieland, results obtained to date at 30, 60, and 90 cm do not allow us to propose a simple genetic model. In forest or prairie, the isotope signature of river water, which has no direct relationship with signatures obtained at 30, 60, and 90 cm, may likely indicate that this signature is influenced by other factors, in particular the input from groundwater. The *Journal of Marine Systems* accepted an article submitted in December 2011 discussing the research.

East African Great Lake Ecosystem Sensitivity to changes (EAGLES)

The East African Great Lakes have undergone rapid changes over the past few decades. Compared with the temperate great lakes, their productivity is relatively high. Commercial fishing on the Great Lakes provides local communities with an affordable source of protein. However, anthropogenic changes, including climate change, may have a negative impact on the lakes' primary productivity, as was already demonstrated for Lake Tanganyika. It is probable that the reduction affects the higher trophic levels and fishing but, before being able to predict the extent of changes to primary productivity and their effects on ecosystem production, a better grasp of the trophic network's ecosystem is necessary. The efficiency of the trophic network may depend to a large extent on the organic carbon flows going through the lakes' dense microbe network. EAGLES is a joint project with 5 partners: RMCA, FUNDP, KUL, ULg, and UGent.

Lake Kivu, north of Lake Tanganyika, has recently undergone changes due to the introduction of an exotic species and probably owing to climate change as well. These anthropogenic changes

have affected the biodiversity, productivity, and resources of the ecosystem. Plans for industrial methane gas exploitation is another threat to the ecosystem's resources. Lake Kivu may be an adequate model for studying the effects of anthropogenic changes on a large tropical lake. Despite its physical and geochemical specificities, the ecological and limnological processes in its pelagic zone (water column) are subject to the same forcing mechanisms (set of physical and chemical parameters controlling a biological activity or culture) as the region's other great lakes, as demonstrated by studies conducted in recent years. In addition, the simplicity of its pelagic trophic chain makes it easier to understand ecosystemic processes and their modification through anthropogenic changes. Recent changes in the lake have been revealed by sediment analyses, which can be refined with the use of other techniques and a better knowledge of ecological processes currently taking place in the mixolimnion (zone where lakewater is mixed by the wind).

In situ studies will be carried out to expand the database and enhance our understanding of the ecosystem's biodiversity and function. This pro-



Left:
Purification of samples in a 600°C oven.
C. Delvaux © RMCA

Below left:
Sampling site on farmland in Ganspoel. © F. Vandevenne

Below:
Sampling site in the woods of Ronquière.
D. Cardinal © RMCA



ject component includes mixolimnion monitoring through regular sampling and measurements, continuous temperature measurements (vertical profiles), chlorophyll a and phycoerythrin concentrations, field experiments aimed at determining transport pathways for carbon and nutrients in the plankton trophic network, studies in the water column and sediments (including the isotopic fractionation of silicon as a proxy for diatom production), and inventories of fish stock and fishing yields. Laboratory studies of dominant diatoms in Lake Kivu and isolated in culture will be undertaken to determine their ecophysiological characteristics and study the isotopic fractionation of silicon in conditions similar to the lake's (light, temperature, nutrient concentrations). The RMCA's specific role will be to measure diatom productivity in surface waters and older sediments using measurements of the silicon isotope profile of diatoms.

■ CARTOGRAPHY AND REMOTE SENSING

On one hand, the section's research activities are centred on the use of geomatic tools. This includes the processing of space- or aircraft-based images (RADAR or VIS/NIR) and the acquisition and analysis of GPS data, combined with the use of Geographic Information Systems (GIS) in geology-specific areas (geodynamics, georisks, etc.).

In addition, the section offers a scientific cartography service to assist the Earth Sciences department and, occasionally, other RMCA departments in their activities. It makes use of its expertise in geomatics combined with field experience. The section also handles a graphic workshop (traditional and digital techniques), a cartographic library (focusing primarily on geology) and a photo library (aerial photos of central Africa). It has a large collection of satellite images.

GECO project

The section participates in the GECO project spearheaded by the General Geology section through the compilation and GIS integration of various geological data for the purpose of producing a standardized regional map of the southeastern DRC.

'Monographs of the DR Congo Provinces project'

For the Provinces project (see page 42 for more details), the section provides cartographic support – creation, update – for the maps of the 26 new DRC provinces. Thanks to its systematic approach and the comparison of data with that provided by local teams, the endeavour is a big step forward for DRC cartography. To meet the needs of the monographs, four map types are created: administrative, soil use, geological, and orographic. Documents undergo an intermediate step by which provisional maps are produced. These are then validated using data provided by local teams before final printing. Maps for all 26 provinces have been made..

Maps of the administrative boundaries of the 26 provinces were also produced.

Study and modelling of deformations from the eruption of Nyiragongo volcano (2002)

This doctoral research led to major advances in understanding the mechanisms that led to the eruption of Nyiragongo in January 2002. In addition to the scientific relevance of these results, they are also an engine for future investigations. The possibility of a magmatic intrusion under Lake Kivu, which contains large quantities of gas, raises the question of a major hazard for the region's inhabitants. The risk of a major limnic eruption similar to the 1986 eruption in Cameroon's much smaller Lake Nyos continues to be considered. Recent studies tend to suggest that Lake Kivu may have had several such eruptions in the past. Models that help explain regional deformations in 2002 hypothesise that two dykes (bodies of magmatic rock that infiltrate a fissure) may have interacted. A superficial dyke extending from the volcano to the city of Goma led to the creation of the eruptive fissure. It may have then been reinforced by a deeper dyke extending southward over a distance of 15 km. It is worth noting that its path corresponds, at lake floor level, to an alignment of structures that may be interpreted to be old eruptive cones.

Study and monitoring of volcanic activity in the Virunga

The study of volcanic activity in the Virunga (Nord Kivu, DRC) and its related hazards continued into 2011 through various projects.

The geodynamic context of the Virunga volcanic province was studied. The structure of this part of

the rift is extremely complex and poorly understood. In 2011, investigations combined with a review of the literature led to a few preliminary results. Certain hazy areas regarding Virunga's geodynamic context were clarified and new hypotheses were formulated.

The study of Nyamulagira's January 2010 eruption was pursued in 2011. This project highlighted a probable variation in the composition of lava from Nyamulagira over the past 110 years. The results will be used as a basis for further sampling and analyses of lava from the volcano. A publication on the January 2010 Nyamulagira eruption is also in the works.

Nyamulagira began erupting again on 6 November 2011. Eruptive activity continued into 2012. This eruption, much larger than 2010's, is surprising from various perspectives (location of eruptive site, orientation of eruptive fractures, eruption duration and volume of lava expelled). The new eruption was tracked daily using optic remote sensing and radar, as well as data from local scientific partners, to better interpret the event's eruptive mechanisms.

The section also carried out a study on the 'lava flow' variable based on existing knowledge. The study's ultimate goal is to come up with lava invasion probability maps for Nyiragongo and Nyamulagira. Tests were carried out for the 2010 and 2011 Nyamulagira eruptions as well as the 2002 Nyiragongo eruption. Simulations obtained

were close to actual findings for the lava flows of the three eruptions.

The principal eruptive activity of Nyiragongo volcano consists of the permanent presence of a lava lake in its main crater. The lake's level can fluctuate by several tens of metres a year, corresponding to a change in volume of several million cubic metres of lava. Paradoxically, there was no existing monitoring mechanism for the lava lake. In 2011, a system was designed and created for semi-continuous lake monitoring: the Stereographic Time-Lapse Camera System (STLC). An eleven-day expedition to Nyiragongo summit took place in September 2011. One of its goals was to install STLCs in the crater, on one of the intermediate platforms. Details seen in the initial 3D models raise hopes of using such models for numerous applications in addition to the study of the lava lake's variations. For instance, the tools could be used to model the gas plume escaping from the lava lake; estimate any volume changes (collapses, lava flow deposits); estimate lava flow speeds on the lower platform and, consequently, deduction of the lava's viscosity; estimate convection speeds in the lava lake, etc.

Mazuku gas dynamics

The mazuku (Swahili for 'evil wind that kills and travels in the night') are pockets of carbon dioxide (CO_2) found near the ground at concentrations lethal to humans and animals. They are common in the region of Goma, near the volcanic fields of

In September 2011, the team installed the first ever monitoring system for Nyiragongo's lava lake.

© Nicolas d'Oreye

Nyiragongo has a permanent lava lake that emits a cloud with high levels of sulphur dioxide and carbon dioxide (SO_2 and CO_2). These emissions may be the cause of a number of diseases. © RMCA



Mount Nyiragongo and Mount Nyamulagira, and cause several deaths here every year. The RMCA has been studying them since 2007.

In 2010, it was shown that CO₂ and radon concentrations in the mazuku were strongly influenced by certain meteorological factors. In 2011, some data from the CO₂-radon measuring station were analysed.

Relations between population health and volcanic degassing

GORISK was a multidisciplinary project to create and refine remote sensing and soil measurement tools in order to analyse and manage the volcanic risk in the region of Goma (Nord Kivu, DRC). The project included a 'health' component whose first results suggested a health impact on the semi-permanent gas release of Nyiragongo and Nyamulagira. In July 2011, this GORISK component was relaunched.

In collaboration with the CEMUBAC (an NGO of the Université libre de Bruxelles) and Michigan Technological University (USA), researchers found that the prevalence of respiratory diseases seen in health centres was not systematically higher in years during which an eruptive event took place, and that this was the case the further the centre was away from the volcano. Nonetheless, several factors – such as regional insecurity triggering massive population movements or provision of healthcare services by international NGOs – may have influenced the number of cases recorded in local health centres.

Using these data and preliminary results, a more detailed statistical analysis plan was drawn up. The plan combines:

- an analysis of longitudinal data using the time series method in order to account for seasonal variations of certain diseases (e.g. respiratory diseases) and determine the role of atmosphe-

During the September 2011 expedition, nearly 500 kg of scientific equipment was brought over from Belgium. 115 porters carried 1.6 tons of equipment and supplies from the volcano's base to its peak.

© Saint Thomas Production



ric concentrations of volcanic SO₂ on the prevalence of these diseases;

- following the eruption of Nyamulagira that began in November 2011, an epidemiological field survey of heads of health centres and local residents, to support results obtained from the analysis of longitudinal data.

■ ISOTOPE GEOLOGY

Isotope geology consists of a multidisciplinary approach of geological process from the field to the laboratory, that uses the isotope ratios of certain elements as its main data. The section specialises in measuring isotope ratios of radiogenic elements. Some isotope ratios allow dating of different geological process on one hand, and identify the nature of the rock source during rock formation.

The section currently focuses on the central and western Sahara as well as the Kasai craton (primarily in the DR Congo) in the heart of central Africa.

The section uses two multicollector mass spectrometers, one solid source (Sr and Nd isotopes) and one plasma source (Pb isotopes), co-managed with the Université libre de Bruxelles. It receives chemical analyses from the Mineralogy and Petrography Section and U-Pb (uranium-lead) zircon dating from external parties.

In 2011, one of the main subjects of study was the metacratonic evolution of West Africa during Pan-African orogeny, in particular in the Tuareg Shield (Algeria, Niger), Anti-Atlas (Morocco), and Gourma (Mali), with current consequences such as recent volcanism (Hoggar, Algeria; Saghro, Morocco) and mineralisations (Hoggar, Anti-Atlas). The section also focused on the Kasai craton, a region neglected by researchers for the past 30 years and, from a geodynamic standpoint, probably in an intermediate state of stability.

These research programmes proceed in close collaboration (field, laboratory, publications, theses, etc.) with African scientists in the countries concerned.

Saharan geology

An orogeny – the process by which mountain ranges are formed – is characterised by an early phase consisting of island arc accretion, a main phase consisting of an intercontinental collision, and a post-collision phase rich in magmas and potentially rich in mineralisation. This evolution can be metacratonic in the lower (subducted) plate. The resulting structure can be subsequently reactivated within the plate (volcanism and mineralisation) if stress occurs at the plate margin. In the latter case, knowledge of prior geological evolution is vital even if these events occurred several hundred million years earlier, because older structures are preferentially reactivated. In 2011, the section made advances in understanding these different periods. The targets studied were:

- Proterozoic island arc genesis. In Mali, in the region of Amalaoulaou, along the eastern edge of the west African craton, the root of a Neoproterozoic island arc remains intact. This is extremely rare in general, and is even more rare for the Precambrian. The geological history of this area was studied and results were published;
- Sahara metacraton, a vast region of the Sahara (500,000 km²) that was cratonic prior to Pan-African orogeny, which partially destabilised it. In 2011, we incorporated geophysical data in our study of the mechanisms behind the destabilisation of such a vast region;
- The western edge of the Saharan metacraton (eastern Hoggar, Algeria), marked by the Raghan mega-shear zone. Four granitoids in the area were zircon dated and analysed using AMS (anisotropy of magnetic susceptibility) to determine the nature of constraints arising from the shear zone;
- Post-collision and intraplate magmatism. This magmatism continued to be studied in Morocco's Anti-Atlas (in collaboration with the University of Agadir) and Algeria's Hoggar (in collaboration with the Université de Bab Ezzouar, Algiers, Algeria). International articles are currently being prepared.

All these research endeavours are carried out in close collaboration with the teams of the Université des sciences et techniques Houari Boumediene (Algiers, Algeria), the universities of Montpellier and Orsay (France), Mainz (Germany), VSEGEI in Saint Petersburg (Russia), the universities of El Jadida and Agadir (Morocco), Université de Liège, and University of Missouri in Rolla (USA).

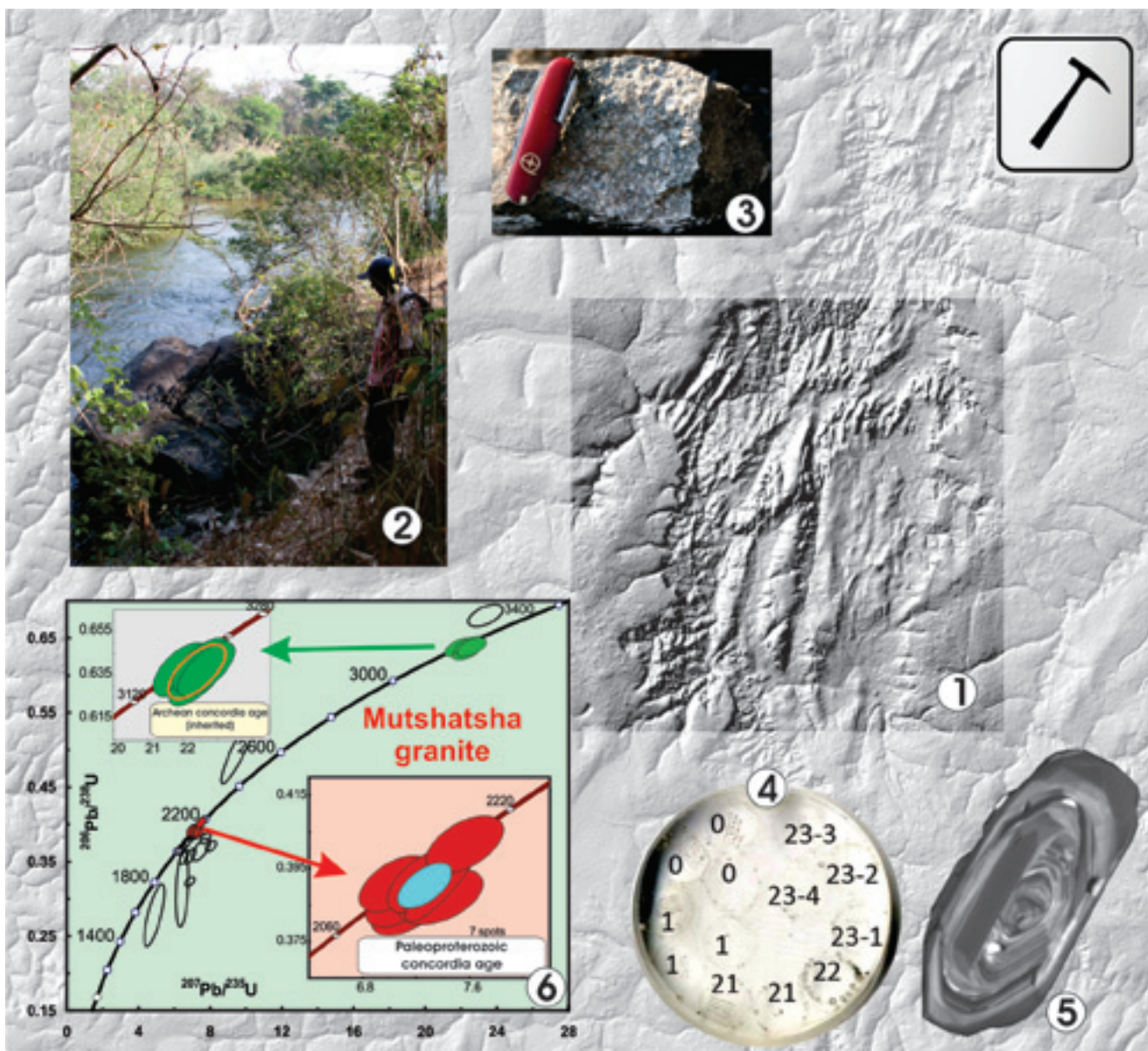
Geology of the Kasai Craton

The Archean/Paleoproterozoic basement (Liberian and Eburnean) of the Kasai craton's southern portion (DRC) is bordered to the east by two major central African belts containing some of the richest metal deposits in the world: tin and tungsten for the Mesoproterozoic Kibaran belt, thought to be intracratonic, and copper and cobalt (among others) for the Katanga Lufilian belt formed by late Neoproterozoic Pan-African nappes. This project tackles the following questions: how was the Kasai craton's lithosphere formed? How are the Liberian and Eburnean orogenies related?

What zones of the Kasai craton were reactivated by the younger Kibaran and Pan-African orogenies? What relationships exist between the Kasai craton and the neighbouring Kibaran and Pan-African belts?

The main topic of this research project thus entails the geological understanding of the Kasai craton, a vast region in the heart of central Africa about five times the size of Belgium, found essentially in the DRC but also part of Angola and Zambia, and which has an abundance of Archaean and/or Paleoproterozoic rock. Little is known of the craton's geology, and most studies date back to

Collection of geochronological data from the Kasai craton: 1. satellite image showing the Mutshatsha granitic batholith (DRC) ; 2. outcropping ; 3. porphyric granite sample ; 4. sample ready for U-Pb dating ; 5. zircon megacrystal used for Archean dating ; 6. Graph showing that the granite dates back to the Paleoproterozoic. Ariel Boven © RMCA



the first half of the 20th century. The most recent geologic map for the DRC (Lepersonne, 1974) indicates that the Kasai craton is composed of 'undifferentiated pre-Kibaran formations'. Field observations acquired during numerous expeditions in the region were not analysed, assimilated, and integrated, leading to this lack of precision. The current project intends to remedy this.

In 2010, we took core samples from the northern portion of the craton, conducted a two-month mission, and retrieved some one hundred specimens. These were studied in 2011 (petrography, geochemistry, geochronology), and we inventoried and analysed the RMCA's rock collections and archives and integrated everything in a GIS environment. This project intends to create a geodynamic evolution model for the region as well as the beginnings of a geological map for the Kasai craton.

■ GEOMORPHOLOGY AND REMOTE SENSING

Section activities focus on geomorphology and water risks in Central Africa. Researchers investigate, share knowledge, and encourage the local study of natural catastrophes in the region.

In 2011, the section was involved in about a dozen projects, including the following examples:

Natural hazards in Butembo (DRC)

This study was undertaken for a doctoral thesis defended in November 2011 and supervised by the section. The study shows that the runoff coefficient (which indicates the percentage of rainfall that is not absorbed by the ground) is higher in urban areas owing to the lack of surfaces that would enable water to penetrate the ground. For instance, roads and roofs lead to more runoff and diminishes the water supply for groundwater. This leads to the formation of gullies and torrents. Annual damage to housing and infrastructure is estimated at 300,000€. A risk map was also created.

Jean-Paul Liégeois and the RMCA-USTHB team in front of the spectacular Arokam Ténéré marbles (eastern Hoggar, Algeria). Jean-Paul Liégeois © RMCA



Institutional collaboration between the RMCA and the Centre de Recherche Géologique et Minière (CRGM) in Kinshasa, sub-project 'Urban Geology: geomorphology'

This collaboration project between the RMCA and the CRGM (2008-2012) studies gully formation in Kinshasa. In 2010, a full inventory of gullies wider than 5 m was already made with the help of an anaglyph and two SPOT satellite images. In 2011, this inventory was analysed statistically. The analysis shows that the location of most of the gullies is not related to the city's natural topography, but rather to the location of roads, paths, and water channels. In order to determine which soil uses led to the greatest amount of water flow during rainfall, soil infiltration capacity was tested in several spots. To do so, a new technique in which a rain simulator was used as an infiltrometre.

Study and cartography of natural risks along the Albertine Rift

The section sought to determine if the erosion model created in 2003 for southern Rwanda could

be applied along the Albertine Rift. Results show that the model could indeed be applied to the stretch from Butembo to Uvira, both for gully formation and for landslides on slopes of up to 25°. The study was presented at the 'Water' international conference in Mekelle (Ethiopia) held from 19 to 26 September 2011.

Mekelle Land Management

In collaboration with Ghent University, the section developed its 'repeat photography' technique in 2011. In this technique, older (up to 140 years) and recent 'repeat' photos are analysed to determine soil use and identify changes in soil use over time. Maps can then be made by projecting the photos on a digital model. An initial analysis shows that northern Ethiopia did not have more forest cover in the early 20th century compared with the present, and that an increase in soil use by human activity tended to promote afforestation. This research will be the subject of a doctoral thesis in 2012.

Working on landslides affecting Dessie, along the Borkane river (Ethiopia). © RMCA



Training

Each year, the section organises workshops and study visits. In 2011, some ten students were welcomed by the section in this context.

In addition, a workshop on geomorphological observation and landslide cartography was organized in Dessie (Ethiopia) from 14 to 18 February 2011, in collaboration with the University of Rome 3. There were thirteen participants from South Africa, Cameroon, DR Congo, Italy, Sudan, Hong Kong, and India. Mornings were devoted to field observations for geology, geomorphology, and stratigraphy, as well as the distinction between different landslide types (active or inactive), forecasting, prevention, and mitigation (means and measures of attenuating their effects). During the first day, afternoon sessions discussed the nature and typology of mass movements. Illustrations of different landslide types were also shown.

Theoretical sessions in the subsequent days focused on the interpretation of aerial photographs and cartography using the ArcGIS 9 program.

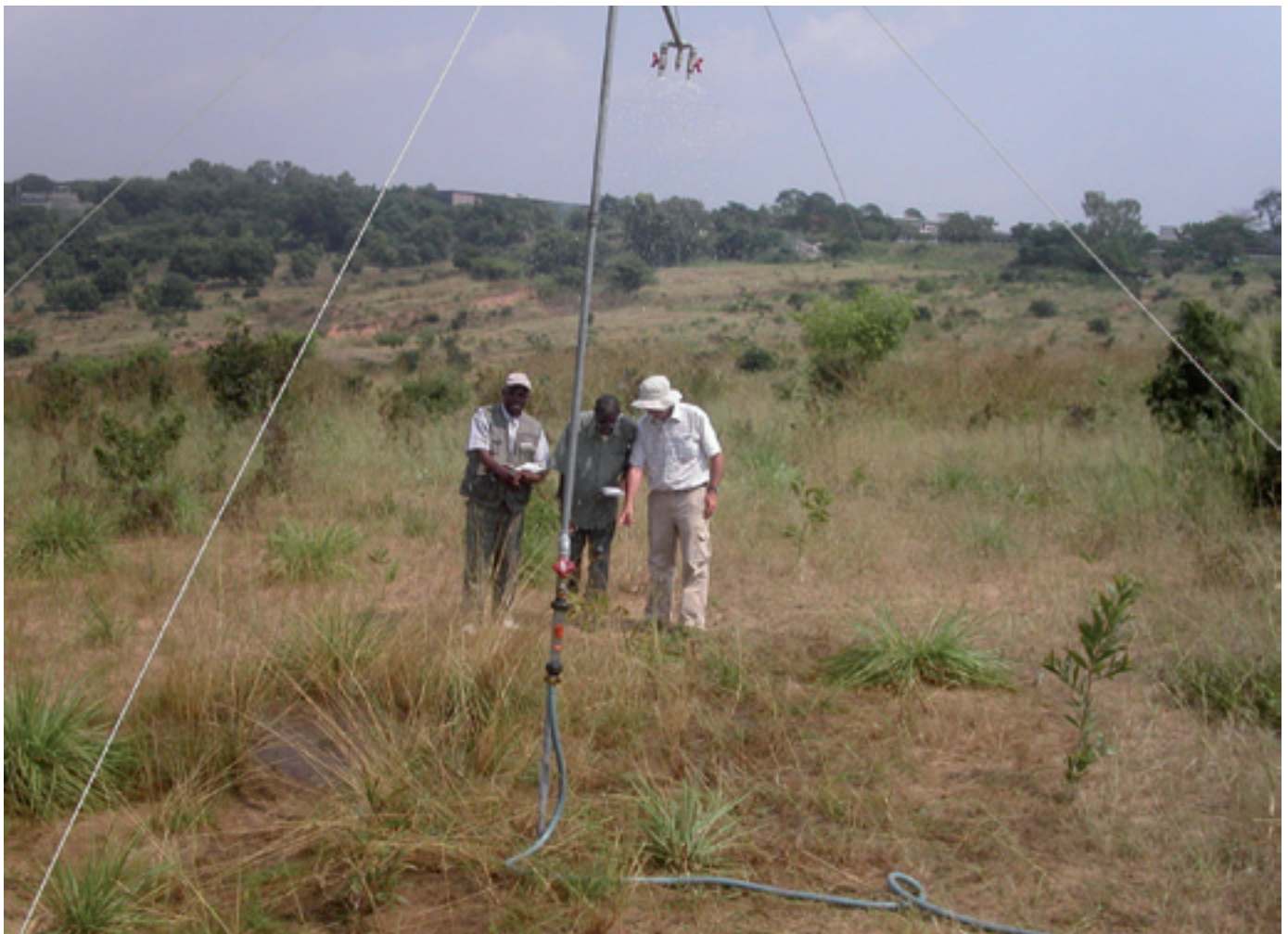
The section also participated in these **other projects**:

- Capacity building in recording geological catastrophes in volcanically active zones in southwestern Cameroon;
- RÉCO, a research network for water risks in central Africa;
- Natural Hazards Database for Central Africa;
- Hydro-geology – state of the art and water resource management in the Geba Catchment Tigray, in northern Ethiopia;
- African Geographic Pictures database
- Provinces project (see page 42).

Cartography session during the Dessie workshop, in Ethiopia. © RMCA



Rainfall simulation near the Université de Kinshasa (DRC). © RMCA



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KNOWLEDGE DISSEMINATION

■ THE CENTRAL LIBRARY

The RMCA central library is in charge of a vast consultable collection of books, periodicals, theses and dissertations, and audiovisual documents found in several section libraries (each of which has its own specialised collection). The number of interlibrary loan requests increased this year. Many of them came from other Belgian and foreign institutions who wished to consult our works. One of our library's main assets remains the large number of periodicals in its holdings. In 2011, 351 titles were purchased, 478 received through exchange agreements, and 64 acquired as donations. The number of books increased by 472.

The library also has a good collection of rare and ancient works. With the aid of the Collections Management service, it has determined how to best conserve these precious works. 238 books were measured using special equipment, and a special acid-free container was made especially for them. This precious collection is now kept in a cool enclosed space inside the library.

Digitisation

The conversion of data for the **Libis programme** continues.

The programme started in 2007 and is scheduled to be completed in early 2012. The library has also decided to scan and process its records using OCR (optical character recognition) so that they can be used.

This will allow users to search the RMCA's pre-2007 catalogue. Scanning and OCR processing were carried out in 2011 and the new search engine will be ready in 2012.

To make electronic periodicals more accessible, the service launched **Ebscohost**, a database that can be explored in several ways. In doing so, it hopes to optimise use of the application and extend it to other electronic publications, thereby reducing the load of paper versions.

■ KNOWLEDGE CENTRE

One of the Knowledge Centre's main task is providing technical support for the RMCA's intranet and website. Another consists of updating the databases on the network. In 2011, the metadata for 10,000 pieces from the ethnography and history collections were completed. RMCA collections made available for the Europeana project can be viewed on <http://www.africamuseum.be/collections/browsecollections/europeana>.

The Knowledge Centre lent considerable effort to studying DaRWIn, an open source programme developed by the RBINS for the management of natural science collections. Various RMCA scientific sections are interested in integrating their collections into this standardised system, so the Knowledge Centre embarked upon a detailed study of DaRWIn, its possible uses, and the modifications needed to adapt it to the needs of the RMCA's collections.

It was also involved in activities that were part of cooperation and development projects: database correction, adaptation, and finalisation for the RDC Mining website; assessment of the technical requirements for using the aforementioned site in the DRC, during a field mission at the CRGM in Kinshasa.

As part of its distance learning-related tasks, the Knowledge Centre finalised a visual identification key for wood as well as a basic wood anatomy course, both created using a large collection of photomicrographs of 37 wood species from the Congo Basin. This information was placed on CD-ROM for easy consultation by trainees of the Wood Biology section.

The centre also acquired equipment needed for videoconferencing and prepared a user manual as well as a demo session. The RMCA thus has the capability to organize videoconferences starting early 2012.

The Knowledge Centre also created maps for the *Fetish Modernity* exhibition, and bespoke applications such as a folioscope and photo album for *Artists in Residence* and, for *UNCENSORED*, promotional banners and a video database for the RMCA website.

The Knowledge Management committee was created in late 2011 to develop a knowledge management strategy for the RMCA. Knowledge Centre staff are actively involved in the subgroup of the committee tasked with assessing the ICT aspects

of new RMCA projects with a knowledge management component.

■ DIGITISATION PROJECTS

The digitisation of photos, films, archives, manuscripts, books, etc. is making progress and is pursued intensively. It aims to preserve the knowledge and expertise of the RMCA for the future, and make them available to a wide audience in Africa, Europe, and the rest of the world.

RMCA is involved in 4 of 9 digitisation projects launched by the Belgian Federal Science Policy Office (BELSPO) five years ago for the 10 federal scientific institutes. These are: the creation of a virtual catalogue for the libraries of the federal scientific establishments, the Belgian Royal Film Archive, and the National Botanic Garden of Belgium (DIGIT01); scanning of original photographic material such as negative and positive films and glass plates (DIGIT07); scanning of photos and other objects (DIGIT08, see also page 109 in the Collections Management section); and the digitisation of audiovisual material (DIGIT09).

The department of Geology and Mineralogy, for instance, is scanning aerial photographs of central Africa for the DIGIT07 project. The extremely strict and specific geometric requirements of the task led to the design of a special scanner called DAMIAN (Digital Access to Metric Images Archives Network), purpose-built to minimise image distortion. There are only 3 other such scanners in the world.

The 40,000 maps owned by the department are being processed to create a digital map library; The most usable maps are scanned in such a way that they can be viewed and ordered online. The map library also contains metadata on mining and geology archives. Newly created maps are virtual. They are only reproduced physically on demand, using the GIS Arcview and Arcinfo programs.

The RMCA also works on different European and national digitisation projects such as MIMO (Musical Instruments Museums Online), BHL (Biodiversity Heritage Library), OpenUp! (all created as part of Europeana), an archives guide to the colonial history of the RDC, Rwanda, and Burundi, and Cartesius. Cartesius is a project that seeks to make Belgium’s cartographic heritage available online. More detailed presentations of these various initiatives can be found in the sections

on Cybertaxonomy, Collections Management, and Ethnomusicology, on pages 33, 62 & 109 respectively.

■ RMCA PUBLICATIONS

Each year, museum researchers write articles in scientific works or journals, monographs, etc. for top-notch international publishers. In 2011, they published 290 texts of which 131 were peer-reviewed.

Publication types	2009	2010	2011
Total number of scientific publications by RMCA researchers in our database	271	320	290
Total number of peer-reviewed scientific publications by RMCA researchers in our database	142	181	131

Since it was established in 1887, the museum has published almost 1,700 works in the various disciplines studied by its research sections. While the bulk consists of scientific works – series, journals, and special publications, there are also exhibit catalogues, museum guides, and digital-only editions available on the museum website or on CD-ROM.

Turnover generated from publications has remained more or less steady since 2005 at around 100,000€. The Publications Service’s mission statement, however, emphasizes that its role goes beyond pure income generation, and includes acquisitions of works through international exchanges, dissemination targeted at Central Africa, donations, and other activities that do not bring in revenue but nonetheless remain capital and valuable for other reasons.

The digital age

In addition to these paper publications, the RMCA is also harnessing the advantages of digital publishing and Open Access.

Since 2004, the museum has been publishing three digital series online, making them freely available and totally free of charge on the museum website (<http://www.africamuseum.be/research/publications/rmca/online>):

- ‘Documents on Human and Social Sciences’: work of researchers, inventories, and doctoral

theses in humanities or publications that were originally part of the 'Annals of Human Science' collection and are currently out of print.

- 'Digital publications on Geology': works that in the past were available only as books in the RMCA series 'Tervuren African Geosciences Collection' but out of stock.
- 'Zoological Documentation Online Series': In 2010, this digital series replaced the paper version of the collection, and proposes the work of researchers, inventories, and doctoral theses in zoology.

The RMCA Annual Reports are also available in PDF format.

In 2011, the RMCA merged its *Journal of Afrotropical Zoology* with a new full open access journal launched by a European consortium (from the EDIT project) of the publications arm of several publicly funded natural science institutes: Museum national d'Histoire naturelle (Paris), National Botanic Garden of Belgium (Meise), RMCA, Natural History Museum (London), Royal Belgian Institute of Natural Sciences (Brussels), and Natural History Museum of Denmark (Copenhagen).

Launched in September 2011, the *European Journal of Taxonomy* (EJT) is a fully electronic peer reviewed journal that can be consulted on <http://www.europeanjournaloftaxonomy.eu>. In addition to the JAZ, it comprises journals from some of the partners, and has published its first volumes:

- Benichou, L., Martens, K., Higley, G., Gérard, I., Dessein, S. & Duin, D., "Editorial - Launch of the European Journal of Taxonomy". *European Journal of Taxonomy* 1: 3 p. DOI: <http://dx.doi.org/10.5852/ejt.2011.1>. (PR)
- Krapp, T., "New Antarctic stenothoids sensu lato (Amphipoda, Crustacea). *European Journal of Taxonomy* 2: 17 p. DOI: <http://dx.doi.org/10.5852/ejt.2011.2>. (PR)
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- Alencar, Isabel D.C.C. & Azevedo, Celso O., "Review of *Neurepyris* Kieffer, 1905 (Hymenoptera, Bethyridae), a new synonym of *Pristocera*

Klug, 1808". *European Journal of Taxonomy* 4: 12 p. <http://dx.doi.org/10.5852/ejt.2011.4>. (PR)

Publications for 2011

Scientific publications

Natural sciences

- Louette, M.** & Hasson, M., *Oiseaux du Katanga*, series "Studies in Afrotropical Zoology" vol. 296, 408 p. Also available in English: *Birds of Katanga*, vol. 297.
- Journal of Afrotropical Zoology*, vol. 7, under the direction of R. Jocqué (PR).

Social sciences

- Bostoën, K., Devos, M., Janssens, B. & Maniacky, J.** (eds). *Africana linguistica*, vol. XVII. Co-edition RMCA/Peeters uitgeverij (PR).

Ceyssens, R., *De Luulu à Tervuren. La Collection Oscar Michaux au Musée royal de l'Afrique centrale*, series "Studies in Social Sciences and Humanities", vol. 172, 356 p. (PR).

Noret, J. & Petit, P., *Ville et organisation de l'espace en RDC*, series « Cahiers africains », n° 78, co-edition RMCA/L'Harmattan, 160 p. (PR).

Omasombo, J. et al., *Maniema. Espace et vies*, series "Monographies des Provinces de la RD Congo", vol. 1, co-edition RMCA/Le Cri/Afrique Éditions, 304 p.

Omasombo, J. et al., *Haut-Uele. Trésor touristique*, Series "Monographies des Provinces de la RD Congo", vol. 2, co-edition RMCA/Le Cri/Afrique Éditions, 440 p.

Exhibition catalogues

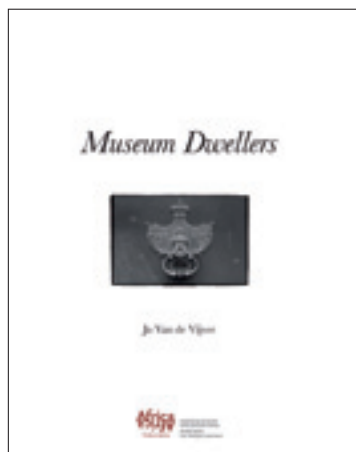
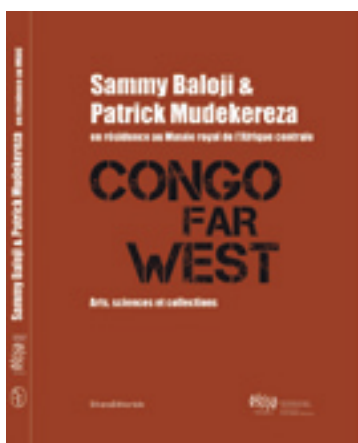
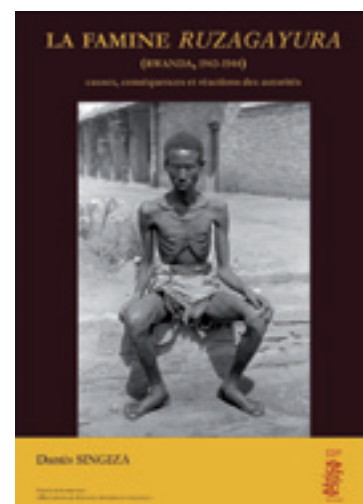
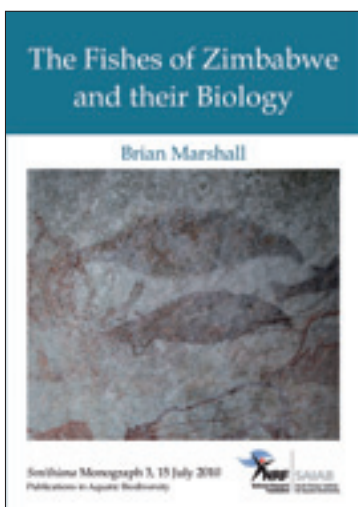
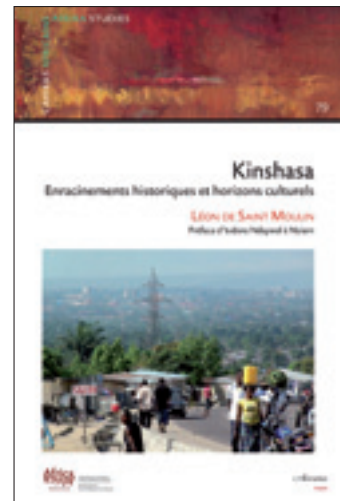
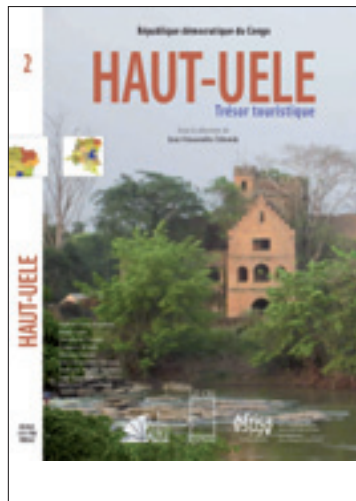
Cornelis, S. & Lagae, J., *Congo Far West. Artists in residence. Sammy Baloji & Patrick Mudekereza. Arts, Sciences & Collections*, Co-edition RMCA & Silvana Editoriale (Milan), 120 p.

Bouttiaux, A.-M. & Seiderer, A., *Fetish Modernity*, 272 p. (PR)

van de Vijver, J., *Museum Dwellers* (bilingual Dutch and French).

Partnerships

Eddy Van Gestel, *Africa XL. Een groots continent in beeld*, Het Bronzen Huis, in partnership with the RMCA, 176 p. Also available in French: *L'Afrique. Berceau de l'humanité à l'étonnante diversité*. Brussels: Éditions Racine.



Anne Cornet, *Politiques de santé et contrôle social au Rwanda. 1920-1940*. Paris : Éditions Karthala in partnership with the RMCA, 480 p.

Brian Marshall, *The Fishes of Zimbabwe and their Biology*. South African Institute for Aquatic Biodiversity (SAIAB) with a partnership of the RMCA, 294 p.

Special Issues

Jaarvelsag/Rapport annuel 2010.

Online Publications

Aka, K., *Aspects de l'art musical des Akan lagunaires, Côte d'Ivoire*, series "Documents on Human and Social Sciences".

Singiza, D., *La Famine Ruzagayura (Rwanda, 1943-1944). Causes, conséquences et réactions des autorités*, series "Documents on Human and Social Sciences".

■ DOCTORATES

The RMCA provides scientific and logistic support to doctoral students. The following defended their thesis in 2011:

Prehistory and Archaeology

- Alice Mezop Temgoua, Université libre de Bruxelles. 'Archéologie, tradition orale et ethnographie, une approche comparée de la dynamique du peuplement du bassin du Faro'. Adviser: Pierre de Maret. Defense: 19/5/2011.

- Bienvenu Gouem Gouem Université libre de Bruxelles. 'Premières communautés villageoises sur la côte atlantique méridionale du Cameroun'. Adviser: Pierre de Maret. Defense: 19/5/2011.

Geomorphology and Remote Sensing

- Sahani Walere Muhindo, Université catholique du Graben (DR Congo). 'Les risques naturels à Butembo'. Co-adviser: Jan Moeyersons. Defense: 23/11/2011.

- Che Vivian, Université de Buea (Cameroon). 'Les risques de glissement de terrain au Cameroun'. Co-adviser: Philippe Trefois. Defense: 27/7/2011.

Mineralogy and Petrography

- Harold Hugues, Université libre de Bruxelles. 'Si isotopes in tropical rivers as a proxy of the conti-

mental silicon cycle'. Adviser: Luc André. Co-adviser: Damien Cardinal. Defense: 13/12/2011.

Cartography and Remote Sensing

- Christelle Wauthier, Université de Liège. 'InSAR Applied to the Study of Active Volcanic and Seismic Areas in Africa'. Co-adviser: François Kervyn. Defense: 12/9/2011.

■ ICT SERVICE

The RMCA ICT service provides permanent support to the museum's other services and sections. It is responsible for the upkeep of the ICT system (approximately 400 workstations, 50 servers, 40 network components, 150 printers, 12 network copiers, and 2 videoconferencing systems), antivirus and spam filter updates, digital installations during temporary exhibitions, and so forth. Databases vital to the work of museum researchers are also created and managed by the service. ICT installs and maintains the RMCA website and related sites created for scientific projects or exhibitions. Finally, it provides input to various working groups and focus groups involved in digitisation projects.

Reorganisation

The ICT service saw a major overhaul in its structure in 2011. The old metafro service as well as the ICT staff of the Collections Management service and the Cybertaxonomy unit were formally merged with the unified ICT service. This streamlining increased consistency in the choice of systems and software programmes for different projects.

General management and support services

The service carries out numerous projects to ensure the smooth running of the museum. Some examples of successfully completed projects in 2011 are below:

- Given the exponential growth in **storage requirements** (owing to digitisation projects), several intermediate NAS (Network Attached Storage) solutions were installed and configured for different sections. A mirror of the original data was also created. These systems are an adjunct to the robust SAN (Storage Area Network) solution installed earlier, but which has already reached capacity after 3 years of use;

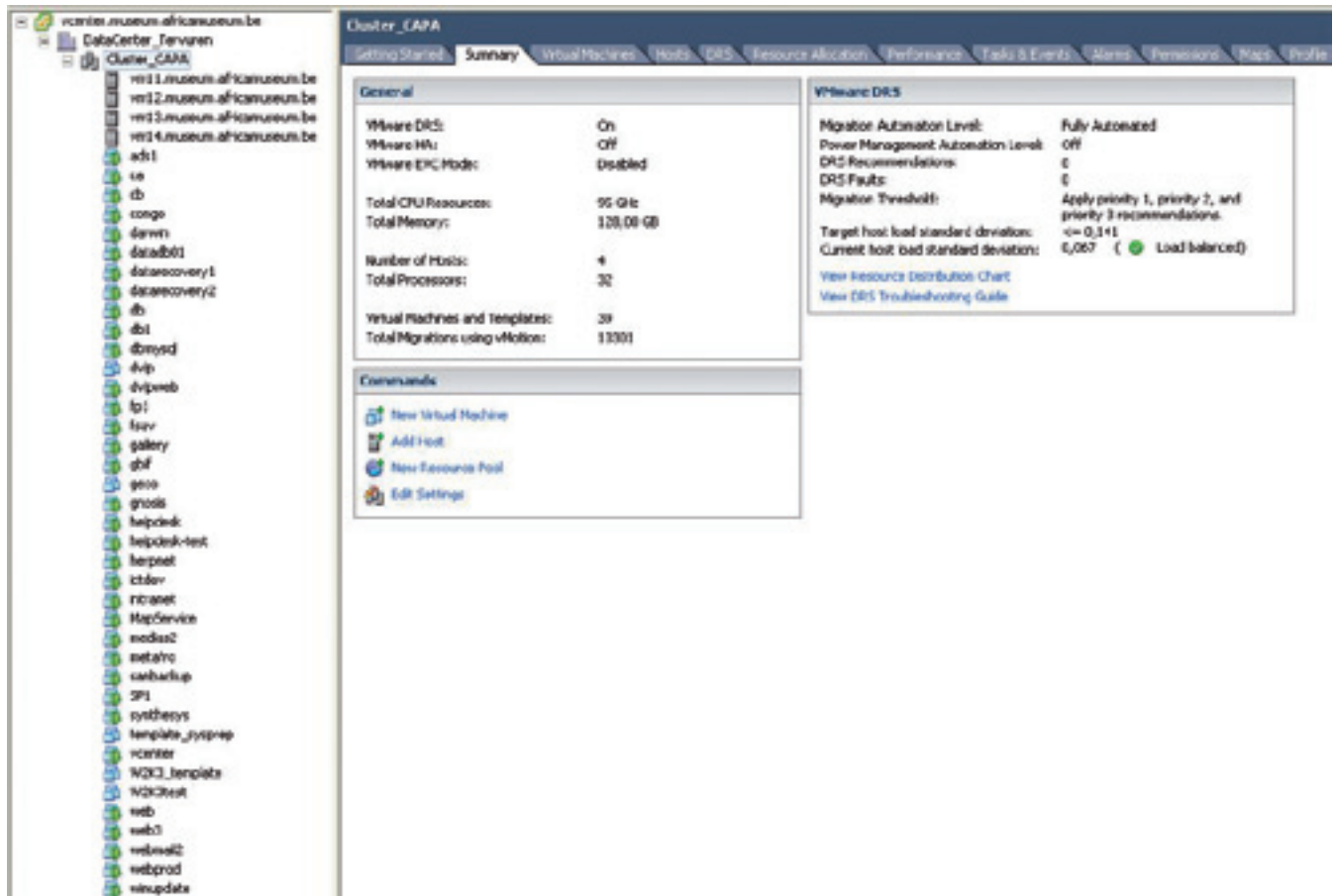
- ICT sought out an **alternative antivirus solution** to replace the current one, which used up too many resources and triggered performance losses if not outright server interruptions (especially email servers). A decision to migrate to the new antivirus solution will be made after the trial period;
- Given that Belnet offered an **antispam tool** at the same cost for the one used locally in the museum's infrastructure, ICT decided to use this service and carried out the necessary migration. RMCA is now using Belnet's Antispam Pro, which is bundled with an antivirus;
- Since larger volumes of data are being exchanged, and to avoid having such exchanges take place outside or on less reliable supports, ICT installed a 100 GB **internal transfer drive** to facilitate the exchange of large volumes between the RMCA's sections and services;
- ICT provides network configuration and Internet access during seminars, conferences, and events requiring a **WiFi internet access point**. Several WiFi hotspots were installed in 2011.

Innovative internal projects

ICT used its technical expertise during the **upgrade of the copying** infrastructure. Several visits and meetings were held at Canon, at FORCMS, Ricoh, and Xerox. A detailed study was written to allow selection of the provider best suited to meet the RMCA's needs. In 2011, ICT carried out the migration from existing Canon copiers to new Ricoh models in the different departments. An intelligent solution (equitrac) was implemented to allow centralised copier management. It also handles user access via building access badges, as well as the accounting and breakdown of costs per section. These copiers are also used as printers and scanners.

ICT provided technical expertise for the analysis and installation of a **new accounting program** that allows users to create electronic purchase orders. ARTIO was installed, tested, and went into production in 2011. A meeting was also held that year to study the possibility of an ARTIO web application, which would be more advantageous licence-wise.

The Datacenter upgrade was completed in early 2011. RMCA now has a modern server environment. © RMCA



ICT lent special support to the **HR service** given the growing use of online access to official – that is, government – applications and the use of electronic IDs (websign, Isabel, itma, medex, etc.).

Framework agreement cooperation project

Since 2008, ICT has been actively participating in a project to revive the Centre de recherches géologiques et minières (CRGM) in Kinshasa (DRC). A training workshop for the two CRGM ICT staffers

was held by the service over a 3-week period. They also went on a 2-week field mission in order to put the DNS (domain name system) and email servers into production. A specific CRGM domain name, *crgm.cd*, was reserved and linked to the servers to complete the configuration and render the CRGM completely independent for its emails. A new router was also installed so that CRGM would be spared from the network outages suffered by their partner (CEDESURK).



COLLECTIONS MANAGEMENT

The RMCA has extremely varied collections of great scientific value. Most of the pieces were collected before Congo's independence. The collections continue to expand through acquisitions from scientific expeditions, purchases, and donations.

Each section in the Natural Sciences has its own collection. For the Human Sciences, a Collections Management coordination service was created in 2006.

2011 marks the sixth year of existence of the Collections Management service. Compared with 2010, the section had the same tasks and responsibilities with regard to the former Cultural Anthropology and History departments.

Physical collection management

One of the main tasks of the service continues to be the preventive conservation of the museum's collections. To do so, the environmental conditions in the vaults (temperature and humidity) are constantly recorded and adjusted as needed. The vaults are also closely monitored for the presence of insect pests. Sticky traps and pheromone traps are checked regularly. In 2011, only one mite infestation, no longer active, was detected. All affected objects were disinfected and cleaned and storage conditions were adapted accordingly.

In 2011, special attention was paid to the American collection. Most of the armoires were retrofitted, packaging materials were adapted, and each object received a bespoke base. Finally, the inventory of storage locations for the objects was updated.

In 2011, the museum acquired 8 objects:

DESCRIPTION	ORIGIN
Painting by Marques	Donated by Jean Leleux
Painting by Mika	Purchased from J.-P. Mika
'Mobutu chair'	Purchased from Iviart Izamba
Brazilian musical instruments	Purchased from Catherine Weill
Photo albums of Guido Haazen	Donated by Haazen-Aendekerk
Jean Cordy Archives	Donated by Françoise Tordeur-Cordy
Photos and postcards	Donated by de Vleeschauwer
Ethnographic objects from East Africa	Donated by Dr. Harald Müller-Dempf

Reproductions

In 2011, 270 reproduction requests were processed. The majority of these requests were for reproductions of images from the photographic collections of the Ethnography and Colonial History sections. Other – rarer – requests for reproductions of photographs belonging to other sections were also handled by the 'Repro' office. A total of 11,623 photographic reproductions were thus provided.

New acquisitions

The RMCA has an acquisitions committee that makes critical assessments of new proposals and sends an opinion to the director. In addition to the strict conditions and criteria regarding what can be included in the museum's collections, priority is given to acquisitions that are made as part of research projects, in preparation for exhibitions, or to reinforce the RMCA's high priority collections.

Mika's painting complements the photos and videos of the 'Live painting in *Indépendance* exhibit on 31/10/2010' event. The painting, photo, and video set illustrates the museum's dynamics. The painting was created in the tradition of Kinshasa popular art and invites the viewer to reflect upon society.

The Brazilian musical instruments purchased from Catherine Weill reflect the long African tradition in Brazil. This acquisition reinforces the diaspora/globalisation aspect of the permanent exhibit as well as the basic collection.

In 2011, the museum acquired a digital version of 23 photo albums by Gaston de Witte, as the family wished to keep the originals. Given the scientific value of these albums, the two parties reached an agreement, and the RMCA digitised the albums and acquired the copyright to them.

Digitisation and online access to collections

Objects from the Colonial History section

In 2010, after verifying the data, the service began entering the details of all the historical objects held by the Colonial History section into the central collections database. Each object was given an inventory number, a description, and – when possible – a photo. Details for 8,000 objects were recorded thusly in 2011.

Photo collection

Also in 2010, the service began assigning themed keywords to the collections of digitised photos. This continued in 2011. Nearly 55,000 photos are now associated with one or several standardised keywords.

Website

Online publication of the museum collections is one of the pillars of the new website, created in May 2010. The service began publishing reproductions of items held by the Anthropology and History department. In 2011, 1,198 masks, 208 medals, 296 tax tokens, 193 Carvalho archive images and 290 pieces of Touareg jewellery were photographed. Metadata were then recorded for each object: keywords for geography, typology,

and materials used. Only high quality images of objects, along with their associated keywords, were published online. The search engine was also revamped and given new search parameters. At present, nearly 20,000 objects can be consulted on the site.

Cartesius

The Cartesius project was launched to create a centre of excellence that would give scientists and the general public online access to the cartographic documents and aerial photographs of four Belgian federal institutions: National Archives of Belgium, National Geographic Institute, Royal Library of Belgium, and RMCA. Within the RMCA, the General Geology and Colonial History sections and the Collections Management service are involved in the project. By the end of 2011, 1,750 maps had been inventoried. Completion of the project and publication of the website are scheduled for 2012.

MIMO (Musical Instruments Museums Online)

This project, successfully completed in 2011, sought to digitise the musical instrument collections of 11 European institutions. The service was tasked with photographing 8,000 musical instruments, completing and verifying their associated metadata, and sending them on to Europeana. Data from the project were also integrated into the RMCA website. Learn more about the project on page 33.

Before and after shots of the area connecting the CAPA and CODA wings, emptied prior to the transfer of the museum's laboratories. N. Minten © RMCA



Photo digitisation

Digitisation of the collection from the museum's former photography service (AP collection) was completed in 2011. Almost 30,000 images were added to the photo database.

The photo library of the Colonial History section also underwent the same processing. The service began scanning the 25,000-photo collection in late 2011 and is scheduled to finish the project in early 2012.

Archive management

In December 2010, the Royal Museum for Central Africa (RMCA) and the Belgian State Archives (AGR) organised the international conference 'Africa Europe Archives: Requirements? Collaborations? Plans? DRC, Rwanda, Burundi and Belgium'. It planted the seeds of a potential partnership between the RMCA, the AGR, and Burundi's archive services. A mission was conducted in Burundi in 2011 to examine their needs, and a new collabora-

tive project is being prepared. Its goals are to improve conservation conditions for Burundi's archives and develop training courses locally to enhance the value of archives and improve archival conservation training and the status of archivists in the country.

The **Emile Storms and Francis Dhanis archives** are among the oldest archives kept by the RMCA. While they are of great value and are often consulted, these archives have been damaged. The service thus decided to inventory and package them in a way that would minimise any unnecessary handling.

The **Archives Guide** project is a collaboration between the RMCA and the National Archives of Belgium. It aims to create an inventory of all archive sources on the colonial past of the DRC, Rwanda, and Burundi. Final results will take the form of a publication and an interactive work. Within the museum, the project is handled by the Colonial History section and the Collections

Objects loaned to and exhibited at Musée Dapper, Paris.
K. Ribbens © RMCA



These plaster statues and moulds by sculptor Arsène Matton were restored for the *UNCENSORED* exhibition.
F. Therry © RMCA



Management service. By late 2011, the RMCA's portion of the project had been almost completed. In view of the upcoming museum renovation, the service began preparing to **transfer the archives**, currently found in the cellars of the main museum building. An agreement was signed with the National Archives of Belgium, which granted use

of a new archive building in Leuven to the RMCA for 5 years. As the archives occupied an area that was to be part of the *UNCENSORED* exhibition, they were tallied, wrapped, and moved to another part of the cellars, where they await transfer to Leuven. The transfer is scheduled for 2012. See also pages 39 to 41.



One of the digitised photos from the RMCA's history collection: AP.0.0.22777, collection RMCA Tervuren ; photo Delhaize, undated.



English classes for Centre de surveillance de la biodiversité researchers in a laboratory of the Faculty of Sciences, Université de Kisangani, DRC. Hilde Keunen © RMCA



BELGIAN DEVELOPMENT COOPERATION

Belgian Development Cooperation (DGD) plays a crucial role in funding the RMCA's development cooperation activities. The basis for this collaboration is a multi-year protocol which was renewed in 2007.

The following are some of the activities (co-) financed by DGD in 2011:

- The exhibitions 'Fetish Modernity', 'Artists in Residence. Sammy Baloji et Patrick Mudekereza', and UNCENSORED. Read more about these exhibitions on pages 11 ss.
- A workshop organized at the RMCA on 3 June for biodiversity researchers, and focusing on the initial results of the 'Congo River 2010' expedition. Many Congolese scientists were among the participants.
- The multiyear research project on territorial decentralisation in DR Congo, a project explained on page 43.
- Multiyear collaboration projects with institutions in the DRC (e.g. the Centre de recherches géologiques et minières - CRGM, the Service de géophysique appliquée of the Université de Lubumbashi) and other African countries (e.g. the Sokoine Pest Management Center in Tanzania's Sokoine University of Agriculture).
- Cooperation with the Musée national de Lubumbashi to develop educational and school activities.

Belgian Development Cooperation also supports the RMCA's activities for children and youths, such as workshops, guided tours, and tour materials designed for children. Courses for teachers and extensive educational and cultural programmes for adults and families, including the Africa <>Teruren day on 15 May, are also made possible thanks to DGD. The Directorate-General for Development Cooperation also provides support to COMRAF, the RMCA-African Associations advisory committee. A more detailed presentation of these initiatives can be found on page 14 ss.

Again, thanks to funding from DGD, the RMCA can make its information systems and sources available to African scientists via the Knowledge Centre, the FishBase online encyclopaedia, and the Central African Biodiversity Information Network. It can also distribute its publications to major

university libraries in DRC. The museum's efforts to improve access to knowledge are detailed in chapter "Knowledge Dissemination", pages 96.

Belgian Development Cooperation Prize

The museum has been organizing and coordinating the Belgian Development Cooperation Prize since 1998. This prize is awarded every two years to students and early-career researchers from developing countries or Belgium. Since 2010, a central theme has been selected for the prize.

It recognizes scientific work that makes a significant contribution to knowledge that can further the development of the South. Prizes are awarded based on the merit of final graduate student projects, doctoral theses, or publications in a scientific journal. They take the form of a credit facility to finance the career development of the awardees:

- 5,000€ to a student from a Belgian university or school;
- 5,000€ to a student from a university or school in one of the Belgian Development Cooperation's partner countries;
- 15,000€ for an early-career researcher associated with a university in a DGD partner country.

The deadline for applications to the 2012 edition of the prize, on the topic of social determinants of health, was set for late March 2011. The broad topic covers all elements of society (education, infrastructure, housing, food, etc.) that determine whether or not someone can lead a healthy life. Applications tackled the theme from fields as diverse as psychology, medicine, biostatistics, anthropology, international relations, human rights, and transportation science.

An initial meeting by the judges led to the nomination of 1 American and 2 Belgian students affiliated with Belgian universities, and 2 students and 4 early-career researchers affiliated with a university in a DGD partner country.

The nominees were invited to the second round of selections held on 26 March 2012 as well as the



Awarding of certificates for the 'Programme d'approfondissement en résidence 2011' workshop (follow-up for the 'Immersion archives 2010' programme) (07/02/2011-29/04/2011). M. Van Nuffel © RMCA

themed day organized by the RMCA for the event on 28 March.

The new website for the Prize includes press kits presenting the work of the nominees for 2012: <http://devcoprize.africamuseum.be/nl/laureates/databank/2012>.

The 2010 awardees were also followed up and interviewed regarding the use of their credit facilities, in order to assess the contribution made by the Prize in advancing their careers. These interviews can be viewed on:

<http://devcoprize.africamuseum.be/nl/gebruik-van-de-kredietlijn>.

Organization of workshops

In 2011, the museum provided training for some 70 African scientists in workshops it organized with the DGD's support.

During the year, there was a second workshop session on the taxonomy and systematics of African fruit flies.

A group workshop in tropical rainforest botany and wood biology was also organized in collaboration with the National Botanic Garden of Belgium. This initial collaboration sought to address a need for training in both botany and wood biology. The workshop, conducted in French, welcomed 5 participants over a 3-month period.

An 'introduction to techniques of archaeological excavation' group workshop was also conducted at the Institution des musées nationaux du Congo (IMNC), in Kinshasa.

The two-week workshop explained the basic principles of trial excavations, helping meet the pressing need for such training in the DRC.

Finally, individual workshops gave participants



Awarding of certificates for the 'Botanique de la forêt tropicale et biologie du bois' workshop (28/09/2011-20/12/2011). M. Van Nuffel © RMCA

access to the collections, expertise, and libraries of the RMCA in the fields of African zoology and wood biology (CIBA-Centre d'information sur la biodiversité africaine programme), as well as in several other scientific sections.

Numerous African researchers and professors were also welcomed by the RMCA alongside these programmes, through the museum's cooperation projects.



Trainee Ester Otiobo of Cameroon worked on the topic 'Activité de butinage et de pollinisation des insectes floricoles à Yaoundé'. M. Van Nuffel © RMCA

Awarding of certificates for the 'Training course in taxonomy, systematics and basic ecology of African fruitflies' workshop (12/09/2011-23/09/2011). M. Van Nuffel © RMCA



CONSTRUCTION AND CREATION IN KISANGANI (DRC) OF THE CENTRE DE SURVEILLANCE DE LA BIODIVERSITÉ 'BOYEKOLI EBALE CONGO 2010'

With the end of the Congo River expedition, the Congo 2010 Consortium, comprising the Royal Museum for Central Africa, Université de Kisangani, Royal Belgian Institute of Natural Sciences, and National Botanic Garden of Belgium, still awaits the execution of the second component of the 'Boyekoli Ebale Congo 2010' project: the construction and creation of the Centre de surveillance de la biodiversité (CSB), in Kisangani (DRC). Funding is provided by Belgian Development Cooperation.

This Centre de surveillance de la biodiversité hopes to become an international centre of knowledge and expertise for nature conservation and biodiversity research in the Congo basin. It will also serve as the interim storage facility for specimens collected there.

Construction works

The new building is located on the campus of the Faculty of sciences of the Université de Kisangani and occupies a highly-visible location. Construction was assigned to a local architect and local contractors, who were responsible for supervising manual labour. The new CSB management committee, with the support of the university administration, was in charge of the general organization and monitoring of the works, through a technical review committee and Belgian coordinators.

The building has a surface area of 2,400 m². The ground floor has a large meeting room, offices, and collection rooms, as well as a restaurant, kitchens, and storage areas. The upper floor houses the library, more offices, laboratories, and smaller storage areas. There are plans to transform the mezzanine, which covers part of the upper floor, to a reception area. The mezzanine may also be expanded in the future, which would increase the floor area by some 400 m².

Rough work on the building was completed in October 2011, and finishing touches could then begin. The Congolese minister for higher education and universities paid a visit to the site to mark the occasion.

Creation of the institute

Over the year, a series of ministerial decisions were taken, ensuring the administrative creation of the CSB. These included the establishment of the articles of incorporation and departments; nomination of a director, a deputy director, and department heads; entry into service of 35 scientists and technicians; and nomination of administrative personnel. Much attention was also paid to the development of a strategic plan.

At the same time, a number of activities were launched in both Belgium and the Congo to help promote the CSB and prepare it to take on its planned role in the international scientific context. It was presented at the COP10 conference

Scale model of the CSB building. © RMCA



CSB facade. Erik Verheyen © RMCA



in Nagoya (Japan); it is featured on the Congo Biodiversity Initiative website (www.congobiodiv.org); its researchers have attended congresses in Gabon and Swaziland; its future role was discussed in depth during two Congo Network workshops; a VLIR micro-project launched the creation of a digital library for the centre; its personnel received tuition in English; in Kisangani, a photo exhibition on the 2010 expedition was held; etc. By initiating diverse institutional collaborations and launching joint projects, the CSB managed to expand and reinforce its network: VLIR-IUS, COBIMFO, COBAFISH, USAID (rodent haemorrhagic diseases), Global Viral Forecasting Initiative, CDC Atlanta (USA) and INRB (Kinshasa) (anti-rabies initiatives for bats), and so on. In addition, a large number of individual collaboration or training initiatives were taken by and for the Centre's researchers.

Yangambi herbarium

The 'Boyekoli Ebale Congo 2010' project also included the partial renovation of the facilities of the world-renowned INERA herbarium in Yangambi. Under the supervision of the Botanic Garden, solar panels were added to the building and its electrical installations were revamped. This required a number of minor modifications to the main building and the technical facility located behind it. The personnel received motorcycles for the field and new microscopes, and special attention was paid to classifying and digitising the existing collections. This last item is a long-term process funded by various donors and projects.

Minister Mashako Mambo visiting the CSB museum.
Jean Ngabu © RMCA



Support from the framework agreement

The RMCA's framework agreement provided the means necessary for the organization of a photo exhibition on the 2010 expedition. It also funded the renovation works of the small biology museum of the faculty of sciences campus. This museum is found in front of the CSB and will serve as its public section.

Other contributions from the framework agreement went to travel grants for Congo Network workshops and to administrative support.

Congo Network project

Funded by the Belgian Federal Science Policy Office, the Congo Network project supported initiatives to promote the CSB's visibility and place in the international scene. It organized two workshops, one in Kisangani and another at RMCA, both of which attracted a large number of participants. After presenting the results of the 2010 expedition, the workshops formulated and discussed the scientific community's expectations of the CSB. The Congo Network's tasks include: maintenance contracts signed with various organizations and institutions, NGOs and potential donors from Belgium and the Congo; development of the Congo Biodiversity Initiative, its website and newsletters; and the creation of a portal for expedition data in liaison with the Belgian Biodiversity Platform.

All the activities are pursued with the constant input of the members of the CONGO 2010 CONSORTIUM. For more information, visit www.congobiodiv.org

Specimens are cleaned and sorted in the Yagambi herbarium. Hilde Keunen © RMCA







FINANCES

REVENUE AND EXPENDITURES

	2008	2009	2010	2011
Revenue	17 579 924	17 683 683	19 761 462	17 407 499
Expenditures	17 131 655	18 103 569	18 041 319	17 826 768
Balance	448 269	-419 886	1 720 144	-419 269

SOURCES OF REVENUE

	2008	2009	2010	2011
Human resources envelope	6 792 777,00	7 170 965,61	6 800 424,50	6 920 449,30
Allocation	3 465 000,00	3 541 000,00	3 860 000,00	3 860 000,00
Own revenue	7 322 147,24	6 971 717,03	9 101 037,84	6 627 049,84
Total	17 579 924,20	17 683 682,60	19 761 462,30	17 407 499,14

EXPENSES BY SOURCE

	2008	2009	2010	2011
Human resources envelope	6 550 115,72	6 640 437,15	6 172 684,56	6 365 854,11
Personnel, own revenue	5 265 971,44	5 372 716,53	5 397 643,68	5 324 172,66
General operations	4 392 706,10	5 448 025,25	5 982 261,65	5 493 215,46
Equipment and library	922 861,80	642 389,61	488 728,78	643 526,03
Total	17 131 655,06	18 103 568,54	18 041 318,67	17 856 768,26

MANAGEMENT BODIES

The RMCA is a federal scientific institution under the aegis of the minister for SMEs, Self-Employed, Agriculture, and Science Policy. Administratively speaking, the RMCA is an independently-managed State institution with three management bodies.

1. Management Committee

Common to the RMCA and the Royal Belgian Institute of Natural Sciences (RBINS), the management committee is responsible for the institution's financial, material, and administrative management. It is presided by a representative of the SPP Federal Science Policy Office. The committee also includes 4 members from academia and management experts, the directors-general of the two institutions, and 2 more representatives of the SPP Federal Science Policy Office.

Members with a deliberative vote

- F. MONTENY, general advisor, SPP Federal Science Policy, chairman
- G. GRYSEELS, RMCA director, vice-chairman
- C. PISANI, RBINS director, vice-chairman
- R. RENIER, SPP Federal Science Policy
- J. de GERLACHE, Communication Manager, Solvay SA
- K. VERHOEST, professor, KULeuven
- E. SERUSIAUX, professor, ULg
- B. VAN DE ROYE, company management advisor

Members with a consultative vote

- P. ANNICAERT, General Inspector of Finance
- N. VANDENBERGHE, Chairman, RBINS Scientific Committee
- P. de MARET, Chairman, RMCA Scientific Committee
- M.-S. MUKARWEMA, RBINS accountant (starting October 2011)
- E. THIELEMANS, RMCA accountant (until October 2011)
- L. VAN WASSENHOVE, RMCA accountant (starting December 2011)
- S. CORNELIS, RMCA section head
- K. MARTENS, RBINS (until April 2011)
- J. LUST, secretary, SPP Science Policy Office
- Y. GOBERT, SPP Science Policy Office

Experts, with no vote

- V. MORAUX, RMCA head of administration and budget (starting October 2011)
- E. DE WEER, RBINS
- O. NINANE, RBINS

2. Scientific Committee

The Scientific Committee formulates opinions on the quality and relevance of the institution's scientific activities. Half of the committee is formed by outside experts from Belgian universities, while the other half comprises upper-level internal scientific staff. Committee members are named for a 4-year period by the minister in charge of Science Policy.

Internal members

- Guido GRYSEELS, director
- Els CORNELISSEN, department head
- Marc DE MEYER, section head
- Jean-Paul LIEGEOIS, section head

External members

- Pierre de MARET, Université libre de Bruxelles, chairman
- Pierre DEFOURNY, Université catholique de Louvain
- Frans OLLEVIER, Katholieke Universiteit Leuven
- Éric PIRARD, Université de Liège
- Valérie SANDOZ, Université de Paris I

3. Recruitment and Promotion Board

The Recruitment and Promotion Board is in charge of recruiting and promoting statutory scientific personnel. It is presided by a representative of the Federal Science Policy Office and also includes 2 external experts from Belgian universities as well as the RMCA director.

Members

- Robert VAN DE WALLE, chairman, BELSPO
- Guido GRYSEELS, director-general, RMCA
- Marc DE BATIST, Universiteit Gent
- Olivier GOSSELAIN, Université libre de Bruxelles

ADVISORY BODIES

In addition to its three management bodies, the RMCA has two advisory bodies.

1. The Basic Consultative Committee

The Basic Consultative Committee is an advisory body that monitors working conditions and well-being in the workplace. Its members are representatives of personnel and labour unions.

Internal members

G. GRYSEELS, chairman

Management Delegation

L. ANDRÉ, department head
E. CORNELISSEN, department head
J. MOEYERSONS, section head

Union delegation

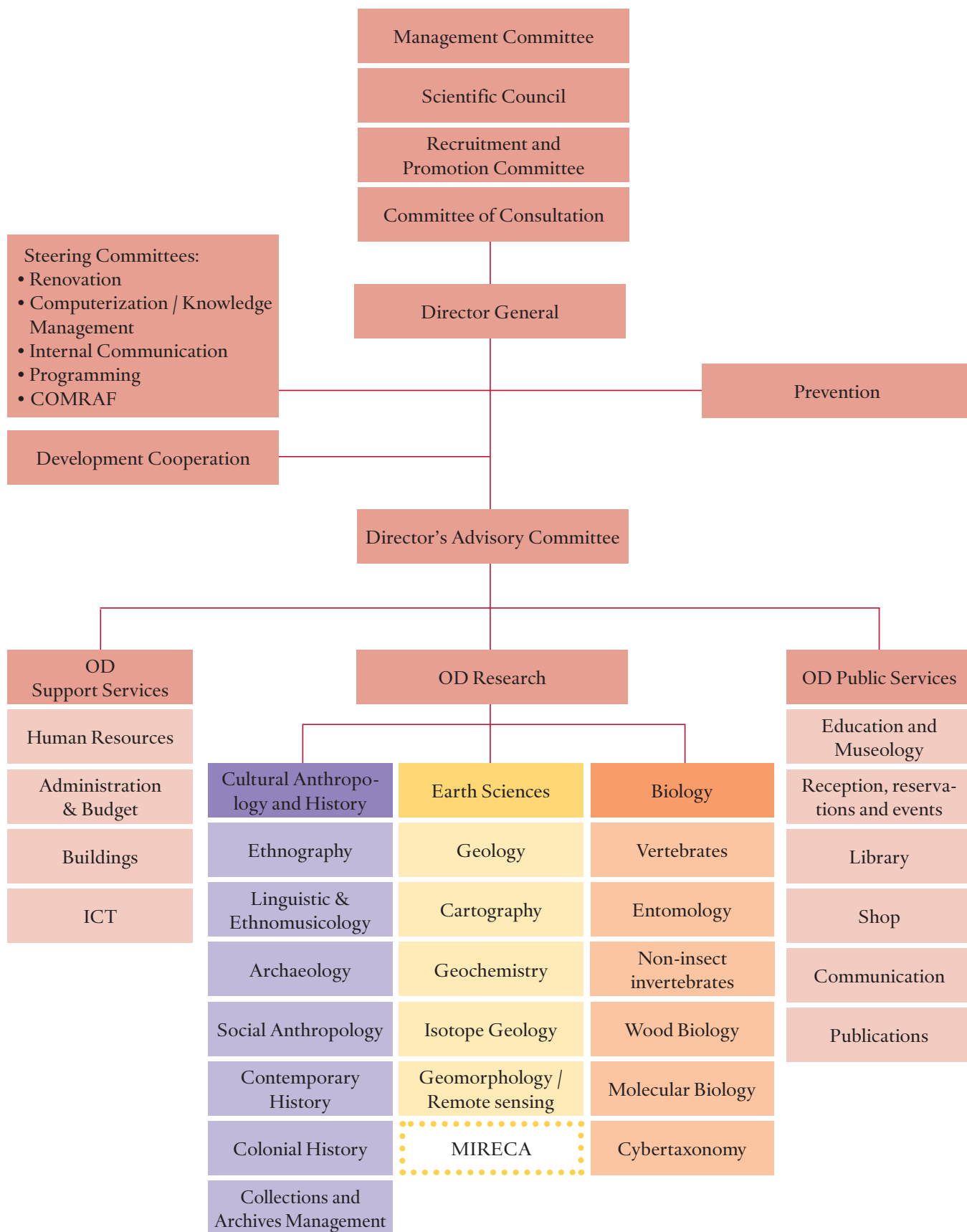
G. DEWULF (ACV/CSC)
R. TOURLAMAIN (ACLBV-VSOA-Gr II)
J.-P. VAN AUTREVE (ACOD/CGSP)
J.-C. VANCOPPENOLLE (ACV/CSC)
P. VAN SCHUYLENBERGH (ACV/CSC)
E. WARNER (ACOD/CGSP)

V. MORAUX, head of budget
Dr A. REINQUIN, occupational physician
D. VERBIST, prevention advisor

2. COMRAF

COMRAF is the advisory committee of the RMCA and African associations. It formulates opinions during the organisation of cultural events and exhibitions, on the museum renovation, and for the communications of the institution to the African diaspora.

ORGANIZATION CHART 2011



ORGANIZATIONAL INDICATORS

PERSONNEL BY LEVEL, STATUTORY VS CONTRACTUAL

	2005	2006	2007	2008	2009	2010	2011
Scientific personnel	91	91	101	112	121	114	113
Statutory	32	27	29	32	32	32	33
Contractual	59	64	72	80	89	82	80
Level A	24	30	29	29	24	25	25
Statutory	5	7	5	7	7	7	7
Contractual	19	23	24	22	17	18	18
Level B	29	26	29	27	33	34	34
Statutory	20	18	18	16	18	17	17
Contractual	9	8	11	11	15	17	17
Level C	67	65	67	65	61	60	60
Statutory	43	44	44	41	38	36	35
Contractual	24	21	23	24	23	24	25
Level D	77	72	74	71	73	75	74
Statutory	9	8	6	6	6	6	6
Contractual	68	64	68	65	67	69	68
Total	288	284	300	304	312	308	306

PERSONNEL BY GENDER

	2007	2008	2009	2010	2011
Statutory, male	60	60	56	55	55
Contractual, male	97	98	97	92	92
Statutory, female	42	42	45	43	43
Contractual, female	101	104	114	118	116
Total	300	304	312	308	306

SCIENTISTS BY GENDER

	2007	2008	2009	2010	2011
Statutory, male	20	23	23	23	24
Contractual, male	42	46	45	41	39
Statutory, female	9	9	9	9	9
Contractual, female	30	34	44	41	41
Total	101	112	121	114	113

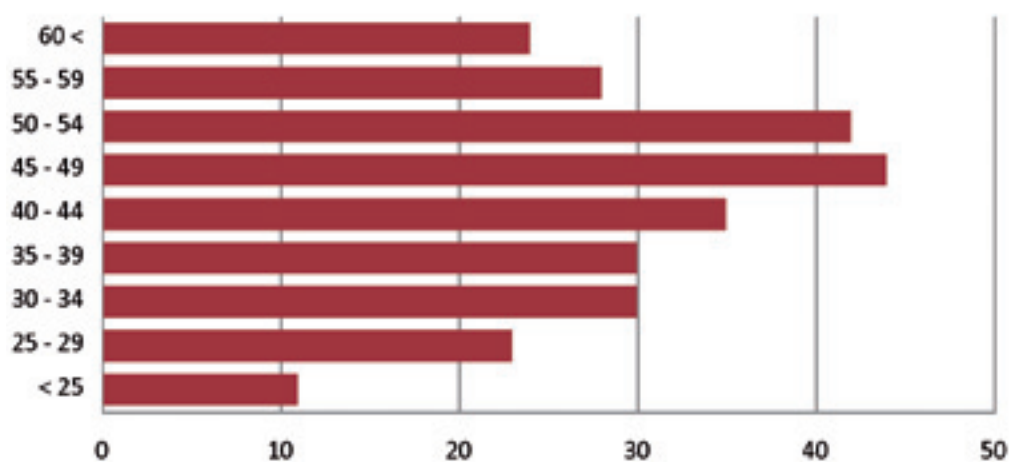
FINANCIAL RESOURCES FOR CONTRACTUAL PERSONNEL

	2007	2008	2009	2010	2011
Human resources envelope	62	52	56	58	55
Own revenue	78	87	88	88	90
External projects	58	63	67	64	63
Total	198	202	211	210	208

AGE PYRAMID AS OF 31-12-2011

Âge	H	F	Total
< 25	4	7	11
25 - 29	12	11	23
30 - 34	14	16	30
35 - 39	12	18	30
40 - 44	19	16	35
45 - 49	18	26	44
50 - 54	19	23	42
55 - 59	17	11	28
60 <	11	13	24
Total	126	141	267

Age pyramid as of 31-12-2011



PERSONNEL 2011 : 307 PERSONS

DIRECTOR**Greyseels Guido****Executive secretariat**

Claessens Koeki
Dekeyser Tamara
Keunen Hilde
Lauwers Dries
Taekels Veerle
Van Dijk Terenja

Budget & Admin.**Moraux Valérie**

Bruynseels Bianca
de Bruijn Roderick
Lamal Paula
Lefebre Koen
Thielemans Els
Van Wassenhove Luc
Verhulst Christine

Human resources**Lowette Nathalie**

Denis Murielle
Flahou Annick
Tielemans Fabienne
Van Hoey Sonja

Framework agreement**De Scheemaecker Mylène**

Debbaut Ann
November Eva
Ravelosaotra Isabelle
Van Nuffel Muriel

Communications**Opstaele Kristien**

Boukhalifa Leila
Janssens Bieke
Le Grelle Marie-Pascale
Van de Voorde Jonas

Publications**Gerard Isabelle**

Albinovanus Benoît
De Croes Dirk
Divinagracia Maria Fe Emily
Dumortier Mieke
Quadt Michèle
Smets Paulette
Spapen Iris
Tessens Miriam

Central library**De Jaeger Fleur**

Ben Dhiyf Aïda
Osselaer Brigitte
Thys van den Audenaerde
Katrien

ICT**De Mûelenaere André**

Bollen Kristof
Dohmen Guy
Du Thanh-Son
Gonzalez Anido Manuel
Hallaert Bernard
Hardy Benoît
Lagaert Wim
Toure Kélétigui
Vignaux Philippe

PUBLIC SERVICES**Bluard Christine****Van Loo Isabelle**

Bouillon Sofie
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Het Koninklijk Museum voor Midden-Afrika is niet enkel een museum, maar ook een internationaal wetenschappelijk onderzoekscentrum. Verspreid over zeven gebouwen in het park van Tervuren werken meer dan 300 personeelsleden waaronder meer dan 100 wetenschappers.

Le Musée royal de l'Afrique centrale n'est pas qu'un musée. Il est aussi un centre de recherche scientifique international. Le personnel, qui occupe sept bâtiments répartis dans le parc de Tervuren, compte plus de 300 personnes dont plus de 100 scientifiques.

The Royal Museum for Central Africa is not just a museum, but also a world-class scientific research institute. The museum's seven buildings inside Tervuren park are home to more than 300 staff members, including no fewer than 100 scientists.

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VOOR MIDDEN-AFRIKA
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