

GIA

Groningen Institute of Archaeology

Annual Report 2004

University of Groningen

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FOREWORD

The annual report of 2004 is GIA's first one to be published in English, following a general trend of internationalization. However, Groningen University is still firmly rooted in the Northern Netherlands and dissemination of results of archaeological research to locals and interested persons is still a valuable objective of the Groningen Institute of Archaeology.

In 2004 two theses were successfully defended, respectively on 22 April and 16 September. Paulien de Roever wrote her thesis about '*Swifterbantaardewerk*', an analysis of the pottery of the Early Neolithic wetland site of Swifterbant. Gert Jan Schutten investigated the local craft, cargo vessels and fishing boats of the Netherlands in the 19th/20th centuries. His thesis '*Verdwenen Schepen*' gives an overview of this lost aspect of our cultural heritage. Three PhD students Bjorn Smit, Elisabeth Devriendt and Saskia Mulder started their project in 2004.

For almost one year from September 2004 until August 2005 members of GIA, technicians, together with students and volunteers excavated a settlement in Midlaren near the Zuidlaren Lake. The settlement was inhabited from Roman times until the Late Middle Ages. The remains of farmsteads, granaries, wells and other features lay scattered over a large area. Other members of the institute conducted fieldwork in Swifterbant and Wierum (The Netherlands), the Pontine region (Italy), Halos (Greece), and Fayum (Egypt) in cooperation with foreign universities and archaeologists in the respective areas.

In September 2004, NWO announced the granting of a personal VIDI Stimulation Fund grant to Dr Martijn van Leusen, for a 5-year project investigating the methodology of Mediterranean landscape survey. This 'Hidden Landscapes' project will start on June 1st, 2005, and will employ one PhD student in the area of geo-archaeology.

The annual meeting of GIA members, support staff, students and alumni was organized on Friday 10 December. Ten papers on current research were presented in '*De Bonte Koe*'. On two occasions GIA members discussed topics as 'Ubbo Emmius' fellowships, self evaluation report and research program and organization for the period 2004-2009.

The annual report contains overviews of the research clusters, the postdocs and PhD students and a list of publications. More information may be found on the institute's website, <http://www.rug.nl/let/onderzoek/onderzoeksinstituten/gia>.

Reinder Reinders

1. GRONINGEN INSTITUTE OF ARCHAEOLOGY

The Groningen Institute of Archaeology (GIA) was established on 23 November 1995. Before 1995, archaeological research within the Faculty of Arts had been organized into four separate departments: the Biologisch-Archaeologisch Instituut, the Department of Classical Archaeology, the Department of Languages and Cultures of the Near East, and the Department of Arctic Archaeology.

1.1 INSTITUTIONAL EMBEDDING

The Groningen Institute of Archaeology is a research institute within the Faculty of Arts of the University of Groningen, and is responsible for all archaeological research within the University. Nationally, GIA is associated with ARCHON, the Dutch research institute and graduate school for archaeology, which comprises archaeology departments at five universities (University of Amsterdam, Vrije Universiteit Amsterdam, University of Groningen, University of Leiden, University of Nijmegen), and the National Service for Archaeological Heritage (ROB) at Amersfoort.

Within the University of Groningen, GIA is associated with the Centre for Isotope Research (CIR), the Department of Molecular Biology of Plants (MBP), the Centre for Ecological and Environmental and Evolutionary Studies (CEES), the Department of Cultural Geography, and other research groups in the Department of Biology and the Faculty of Spatial Sciences.

1.2 PROFILE

GIA engages in fundamental archaeological research with a strong ecological component in the Eurasian, Mediterranean and Arctic regions. Operating within the Faculty of Arts, it undertakes all the ecological-archaeological and cultural-archaeological research that is carried out by the University of Groningen. GIA stimulates and integrates fundamental research on past human societies and their environments, from the level of Palaeolithic hunter-gatherers to that of historical complex urban societies. The Institute facilitates research and archaeological fieldwork through its laboratories, drawing facilities, documentation, GIS, and technical support. In addition, GIA co-ordinates the PhD student training programme and stimulates the dissemination of knowledge and culture to society at large.

1.3 STAFF

Director

Prof.dr. H.R. Reinders

Managementteam

Prof.dr. P.A.J. Attema
Dr. R.T.J. Cappers
Prof.dr. L. Hacquebord
Prof.dr. D.C.M. Raemaekers
Prof. dr. H.R. Reinders

Advisory board

Prof.dr. P.A.J. Attema
Drs. J.N. Lanting
Dr. M.C. Galestin
Dr. W. Prummel
Drs. O. Satijn

Members

Attema, prof.dr. P.A.J.
Bos, dr. J.M.
Cappers, dr. R.T.J.
Galestin, dr. M.C.
Hacquebord, prof.dr. L.
Kooi, dr. P.B.
Lanting, drs. J.N.
Newell, dr. R.R.
Nijboer, dr. A.J.
Prummel, dr. W.
Raemaekers, prof.dr. D.C.M.
Reinders, prof.dr. H.R.
Stapert, dr. D.
Veluwenkamp, dr. J.W.
Van der Plicht, dr. J.

Research fellows

Nicolay, dr. J.A.W.
Van Leusen, dr. P.M.
Voutsaki, S.

PhD students

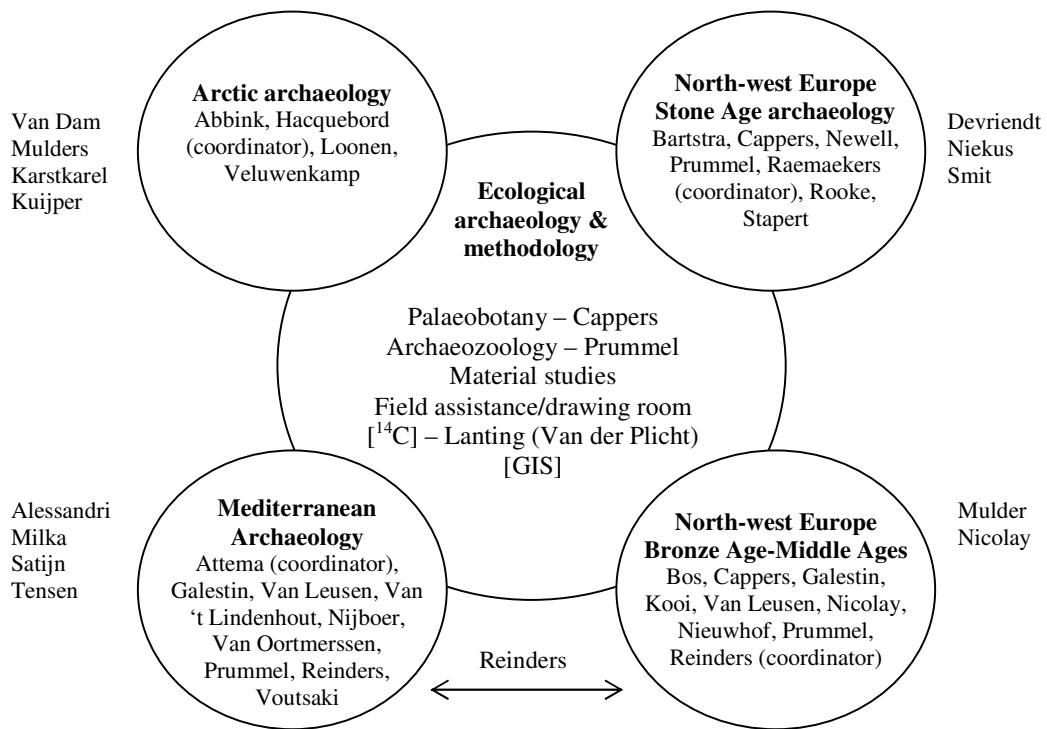
Alessandri, L. (Ubbo Emmius)
Dam, drs. K.I.M. van
Devriendt, I.
Karstkarel, drs. N. (oz NWO)
Mulder, drs. S.A.
Mulders, drs. K.E.A.
Niekus, drs. M.J.L.Th.
Satijn, drs. O.
Smit, drs. B.I.
Steenhuisen, F.

Support Staff

Bierma, M.
Bolhuis, E.
Entjes-Nieborg, G.
Jacobs, T.P.
Kosters, R.J.
Los-Weijns, M.A.
Maring, N.D.
Oortmerssen, drs. G.J.M. van
Palfenier-Vegter, R.M.

Ploeg, K. van der
Smit, J.M.
Tiebackx, S.
Tiekstra, N.
Tol, L.
Weitenberg, F.S.J.J.
Woldring, ing. H.
Zwier, J.H.

Groningen Institute of Archaeology: Society and Environment



In diagram permanent staff; outside diagram: temporary staff
Between brackets: associated researchers; between square brackets: associated lab or lab in development

2. RESEARCH RESULTS

Research Program 2004-2009: Society and Environment

The GIA research program for 2004-2009 focuses on the relationship between former societies and their environments. A major focus of research is on understanding how, on the one hand, the development of societies has been influenced by environmental factors such as climate, topography, and natural resources, and on the other hand, societies and the gradual development of a cultural landscape in which man-made elements predominate have changed the environment. For additional information about the program 2004-2009 the reader is referred to GIA's website.

2.1 GENERAL THEMES

Archaeological Heritage Management

Metal detector finds and amateur archaeology (Bos)

A start was made in formulating a common strategy in relation to this phenomenon, in collaboration with the colleagues in Kent (England). The way the GIA operated and still operates in Friesland is comparable to, but not identical to the Kent way (www.findsdatabase.org.uk).

International Polar Heritage Committee of ICOMOS (Hacquebord)

In 2004 Hacquebord has carried out several activities as member of the International Polar Heritage Committee of ICOMOS. He wrote an article on Dutch Cultural Heritage in the Arctic and he participated in discussions about polar cultural heritage. In the last months of the year he formulated some research questions about Cultural Heritage in Polar Regions and in the future the Arctic Centre will do research in this field to explore possibilities for tourist exploitation of historical sites in polar regions.

Terp mounds and preservation (Kooi)

Participation in a project 'Wierden en Waarden' (Terp mounds and preservation) initiated by the provincial government of Groningen. The aim of the project is to reconstruct parts of terp mounds that were dug off for commercial reasons in 19th and 20th century, in combination with research.

Protection of K-pits (Cappers and W.Z.W. Wendrich [UCLA])

The K-pits area (Fayum, Egypt), containing a large number of late Palaeolithic and early Neolithic granaries, has recently become seriously endangered by agricultural activities. The site evidences one of the earliest transitions to agriculture in Egypt. Recently, the area has been dissected by a large irrigation canal. In 2004, the larger part of the area could be protected in cooperation with the Supreme Council of Antiquity (SCA) and has been fenced off. A rescue excavation was carried out in small area which is most probably taken into cultivation in 2005. New pits were found (including an almost complete basket and plant remains).

Protection of Karanis (Cappers and W.Z.W. Wendrich [UCLA])

The Roman site Karanis (Fayum, Egypt), which for the main part consists of mud brick buildings, has been visited to determine its deterioration since the excavations in 1926-35 by the

University of Michigan. It is aimed to reburry important buidlings which suffer by wind erosion and to map out a scenic route through the settlement, preventing that tourists have access to the whole settlement.

Taphonomy of the archaeological archive

Taphonomy of ancient field floras (Cappers)

The reconstruction of former agricultural practices is mainly based on the interpretation of samples from domestic areas. A model is developed for the reconstruction of agricultural practices related with grain fields in ancient Egypt. The model is based on judgemental sampling of specific contexts, taking account of the stratified presence of weed plants in a field and of the processes by which plant remains from a field are transported to a site. A publication is finished and will be submitted.

Isotopes in archaeology: diets and chronology

Chronology of the Dutch pre- and protohistory (Lanting)

A large part of the available time for research was spent on preparing and writing the chapter on Middle and Late Iron Age chronology in the Netherlands and adjacent areas. Series of new radiocarbon dates on cremated bone make it possible to describe the development in burial customs during these periods in a more detailed way than before.

Stable isotope research (Lanting, Prummel)

Student Bettine van Klinken started a project on stable isotope characteristics ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$) of bone collagen in large herbivores, especially elk. The first results are very encouraging.

Vegetation, fauna and the human impact

Human impact on the wild fauna of the Wadden Sea ecosystem (Prummel)

A lecture on natural and man-made changes in the wild terrestrial mammal, bird and mollusc fauna of the Wadden Sea area was given on a conference on human transformations of the Wadden Sea ecosystem through time in List on Sylt (Germany), January 2004. For the conference proceedings this contribution was combined with that by Dr. D. Heinrich (University of Kiel, Germany) on marine mammals, fishes and amphibians. Our conclusions were that the human impact on the Wadden Sea ecosystem by agriculture, animal husbandry, hunting and fishing was very limited from the period Late Bronze Age until the Late Middle Ages. The late medieval diking of the former salt marshes and damming of the main gullies caused the disappearance of species of moisture habitats, such as the northern vole (*Microtus oeconomus*) and the natterjack toad (*Bufo calamita*), and a brackish habitat, such as the lagoon cockle (*Cerastoderma lamarcki*). Migrating fish, like sturgeon (*Acipenser sturio*), lost their breeding grounds in the rivers in the German part of the Wadden Sea area. Bird species of dry habitats, such as lapwing (*Vanellus vanellus*) and black-tailed godwit (*Limosa limosa*) gained new breeding ground.

Two species of cockles in the Wadden Sea (Prummel, in cooperation with E. Knol of Groningen Museum and H.J Streurman of Center for Isotope Research (RuG))

Valves of the lagoon cockle, *Cerastoderma lamarcki*, are often found in gully fillings of the Wadden Sea area dating 750 BC until 1000 AD. The large brackish habitats for this species disappeared after the diking of the salt marshes and the closing of the gullies. The distributions of

the cockle, *Cerastoderma edule*, and the lagoon cockle in the former salt marsh area of the provinces Groningen and Friesland was studied through time. The database of stable C and O isotopes of both cockle species collected by H.J. Streurman was used to get information on water parameters.

Material studies and conservation

Seed Atlas of the Netherlands (Cappers and R.M.Bekker [Community and Conservation Ecology. RuG])

An atlas of seeds and fruits of the Netherlands, including a selection of cultivated plants, will be produced in succession to the 'Zadenatlas der Nederlandsche flora' by Bijerinck (reprint 1976, currently out of print). In 2004, digital pictures have been made of all members of the grasses (Gramineae) and sedges (*Carex*). A dummy of the Atlas, dealing with sedges, is available. The production of pictures of the remaining seeds and fruits has been provided with funds and will be executed in 2005.

Fabrics research (Nijboer, Van Oortmerssen)

The Laboratory for Conservation and Material Research (LCM; www.lcm.rug.nl) continued the classification of fabrics from *Latium Vetus*. *Bucchero* and *Impasto Rosso* wares were analysed, as well as material from our Nettuno excavations (2001-2003).

2.2 NORTHWEST EUROPE: STONE AGE

Stone Age society: pattern and process

The Mesolithic Occupation of the Northern Netherlands; Time, Space, Location and Subsistence (Niekus)

In 2004 two excavated Mesolithic sites (Almere and Slochteren) were studied in detail. Special attention was paid to the typological composition of the assemblages in order to refine the existing typo-chronological framework for the Mesolithic in the study area. At both sites microlithic points were found which were hitherto unknown from the Mesolithic in the study area; tanged isosceles triangles (Slochteren) and micro-triangles (Almere). Based on a number of radiocarbon dates, the Almere site should be dated around 8100 BP. For Slochteren, several samples (charcoal and charred hazel nutshells) have been submitted for radiocarbon dating. At present only one date is available: 8300 BP. In addition, dozens of samples (charcoal and charred hazel nutshells) from other Mesolithic sites scattered all over the northern part of the Netherlands were also collected for dating purposes. A preliminary analysis of the available radiocarbon dates seems to indicate that there are differences in land-use between the earlier and later Mesolithic but also between different areas or even between different part of one and the same site.

The late mesolithic site of Jardinga in the Tjonger river basin (Prummel, Niekus, Bottema-Mac Gillavry, Bottema, Cappers, Baak, Van Gijn, Cleveringa)

The interpretation and the working out of the results of the 2002 and 2003 excavations on this late mesolithic aurochs (*Bos primigenius*), red deer (*Cervus elaphus*) and beaver (*Castor fiber*) kill-site and possible fishing site was continued in 2004. Conventional ¹⁴C dates have been obtained that are helpful in the interpretation of this site, which is situated in a wetland. The final writing up of the results is planned for 2005.

Middle Palaeolithic of the Northern Netherlands (Niekus, Stapert)

An overview of the Middle Palaeolithic was written (to be published in the journal *Archeologie* in 2005). Several finds from various findspots in Friesland, Drenthe and Overijssel were studied. Among these are a couple of new finds from near Mander, collected by D. Schlüter of the Natura Docet Museum at Denekamp (to be published in 2005). At the Museum of Rhenen, a collection of finds from quarries in the ice-pushed hills of the Veluwe were studied, with L. Johansen.

The Late Palaeolithic in the Northern Netherlands and Denmark (Stapert)

An overview paper was written for publication in *Archeologie* (in press). A lot of time was invested in the analysis of the material from a Hamburgian site near Haren (Sassenhein, excavated in the eighties of the 20th century), together with an advanced student of prehistory, R. den Boer, and L. Johansen. It is expected that a first paper on the site will be completed in 2005. Material from various other sites was also studied, including Ahrensburgian sites in Holland and Denmark. Two new Ahrensburgian sites in Denmark were visited with L. Johansen: Knudshoved Odde (Sjælland) and Ellebjerg (Lolland).

Archaeological heritage management (Smit)

The Phd-study 'Valuable Flints?' started in January 2004. The aim of this study is to gain knowledge about the scientific value of disturbed surface sites dating to the Stone Age in the Northern Netherlands. Due to the continuing disturbance of these sites it is of relevance to researchers and cultural heritage managers to know which kinds of information can be derived from the study of these remains. During the last year a research proposal and line of inquiry was written. This proposal has since then been followed and has resulted in the writing of an introductory chapter on the relevant literature (see Smit & Raemaekers 2005). Also several interviews have been conducted with local archaeologists from the northern provinces. Other interviews were held with regional cultural heritage managers (*provinciaal archeologen*) and with several members of the State Service of Archaeological Heritage Management (ROB). The aim of these talks was to get acquainted and to integrate ideas and experiences of persons, of regional and national institutions about the problems and possible solutions of the study of surface sites in this research.

ANALITHIC II: a new computer package for spatial analysis of Stone Age sites (Stapert)

In December 2003, the project ANALITHIC was completed with the publication of the book on the Hamburgian site at Oldeholtwolde, with L. Johansen. In 2004, it was decided to upgrade the computer package which was developed during this project (also called ANALITHIC), in cooperation with G.R. Boekschoten. A first draft of the new version of this package for spatial analysis of Stone Age sites, ANALITHIC II, was completed. This version has more applications and user options than the earlier one, and is presently being tested by using it in analysing various sites in Europe. After completion of ANALITHIC II (in 2005), we intend to extend the package still further, by including various statistical applications and combining these with our approaches of spatial analysis, especially with the ring and sector method.

Spatial analyses of Palaeolithic and Mesolithic sites (Stapert)

A lot of time was spent analysing several high-quality sites, dating from the Upper or Late Palaeolithic and the Mesolithic, such as Duvensee (early Mesolithic), Gönnersdorf (Magdalenian) and Niederbieber (*Federmesser* Group) in Germany, Pincevent (Magdalenian) in France, and Rekem (*Federmesser* Group) and Verrebroek (early Mesolithic) in Belgium. For the last two sites, digital files were provided by the excavators (respectively P. Crombé of Gent and

M. de Bie of Leuven), which are presently being analysed by a test version of ANALITHIC II. A paper on the spatial analysis of two sites at Duvensee was published in a congress volume edited by T. Terberger and B. Eriksen. Work was also done relating to the analysis of possible gender patterns in space, involving more than ten Upper or Late Palaeolithic sites in Europe. This continuing project will benefit from the new computer package.

'Points' of the Late Palaeolithic: 'projectiles' or 'knives'? (Stapert)

The cooperation with use-wear specialist V. Rots (Leuven) and L. Johansen was continued, resulting in a manuscript (to be completed in 2005) about the points from several Late Palaeolithic sites in Holland: Zeijen, Siegerswoude and Emmerhout (Creswellian), and Luttenberg (Hamburgian). A Dutch paper summarizing the results is in press (in *Paleo-Aktueel*). In general it can be said that the results are coherent and interesting.

The production of fire: ethnographical sources and archaeological indications (Stapert)

A large file has been built containing ethnographical data on ways of making fire from all continents, with L. Johansen. This work will be continued in the coming years. Several days were spent in the library of the Ethnographical Department of the National Museum in Copenhagen, resulting in enlargement of our database. At the same time a literature search was started aiming at the identification of as many as possible flint artefacts from the Palaeolithic and the Mesolithic that were (possibly) used for making fire in combination with pyrite or marcasite. Many candidate specimens were identified, but in most cases follow-up research is needed. A joint article about possible or probable firemakers of the Hamburgian (from sites in Holland, Germany, Denmark and Poland) is in preparation, together with L. Johansen. One implement from the Creswellian site of Siegerswoude, identified by us as a possible firemaker, was analysed by use-wear specialist V. Rots (Leuven), who supported our interpretation.

The ceramics from Schipluiden (Raemaekers, Rooke)

This year the research on the ceramics from the middle-neolithic site of Schipluiden was finished. A total of 5,000 sherds were described individually. The major conclusion from this research is that it was possible to subdivide the pottery into subgroups on the basis of temper, average wall-thickness and decoration. These subgroups were maintained throughout the several ages in which the site was occupied. The research will be published in *Analecta Praehistorica Leidensia*.

Origins and spread of agriculture

Research in Indonesia (Bartstra)

A series of small reconnaissance surveys were carried out. These probed the lower Pleistocene gravel sediments of the old Giritontro River in Central Java, in a search for stone implements. An absence of artefacts might further validate the theory that the Pacitanian industries are epi-Palaeolithic after all. In South and Central Sulawesi fieldwork was also carried out, notably near the villages of Paddangeng and Bada. Here, the relationship between fossils and artefacts is to be questioned, the former being Pleistocene and the latter probably Holocene. The investigations in Sulawesi were done within the framework of the larger project on the geomorphology and archaeology of the Walanae valley.

Neolithic revolution? (Raemaekers)

From the perspective of the archaeologist, the spread of farming is seen as a theme of world-wide relevance. The question is whether prehistoric people agree. This line of research was examined

for the early Neolithic Swifterbant culture of north-western Europe. On the basis of the selection of bones for the production of tools and the deposition of cattle horns in the peat of Drenthe, it was concluded that the categories wild and domesticated were not of relevance in these potentially meaningful contexts (Raemaekers, 2005).

Excavations at Swifterbant (Cappers, Devriendt, Prummel, Raemaekers)

After a break of exactly 25 years, excavations at Swifterbant were re-opened. In this trial year, new excavation techniques were tried. The methodological focus was on new ways of sieving the clay soil. A total of 17 m² were excavated on the Neolithic levee site S2. All soil was wet-sieved using a sieve with a 2mm mesh. This resulted in a large number of cereal grains (unknown from the earlier excavations) and many small bone fragments. These fragments seem to complement the hand-picked bone assemblage which was collected during the 1970's at neighbouring site S3. The excavations at Swifterbant will be continued the coming years in collaboration with the State Service for Archaeological Heritage Management and the province of Flevoland. In September Devriendt started her Ph.D. research on the flint and other stone material from the various Swifterbant excavations.

2.3 NORTHWEST EUROPE: BRONZE AGE-MIDDLE AGES

Occupation history of the sandy soils

Prehistoric habitation in the municipality of Appingedam (Kooi)

This subject will be published as part of a book on the history of the town of Appingedam and surroundings and is based on finds, reports and geomorphological publications. The first inhabitants in the north arrived as expected in the 5th century BC in this marsh area, resulting in settlements on terp mounds. It seems that the river Eems washed away part of the early settlements on its west bank. In the south settlements were established on a peat layer during the Roman period, but were abandoned when the sea level was rising and circumstances became less favourable.

Kalteren (Reinders)

Data were collected from geographical and written sources about the hamlet of Kalteren, where the remains of two late medieval farmsteads or a farmstead and a large barn were excavated in 2004 by Archaeological Research and Consultancy. Kalteren, near Diever in the province of Drenthe, was first mentioned in 1209. Around 1300 the hamlet counted nine farmsteads. The excavated farmstead was of the Gasselte type.

A possible central place at Midlaren, Drenthe (Nicolay)

At the flanks of the natural ridge called the 'Hondsrug' the remains of a settlement complex dating from the Late Iron Age into the Medieval period have been unearthed during large-scale excavations (2003-2004). The occupation history starts with several individual, scattered farmsteads. During the Roman period a real, fixed settlement develops. Although the exact size and lay-out of this settlement are still unclear, the sub-division into a central living area with houses and wells, and an area reserved for craft activities (weaving, metal and glass production) can be seen. That the produced goods were not only used locally, but also exchanged in inter-regional networks is shown by the relatively large number of Roman imports, mainly pottery, fibulae and coins. It will be interesting to compare this site with the well-known settlement from

Wijster and several recently excavated settlements in Drenthe. An important question to be asked is how far the concentration of specialized craft activities and the amount of imports point at a specific status of Roman Midlaren as central place with (inter-)regional importance. After the Roman period the picture is dominated by isolated farmsteads again. Occupation continues into the 12th century, when the settlement seems to move a little higher up the Hondsrug. Here the village of present-day Noorderlaren develops.

Exploration and exploitation of the coastal area

Wierum (Kooi, Nieuwhof & Prummel)

The excavation in the terp of Wierum was organized in close cooperation with the province of Groningen. It was aimed at documenting a section of the terp, prior to the construction of a mud deposit in the area. The section gave a good view on occupation phases of the terp settlement. Habitation started here in the 4th century BC and continued until at least until the 2nd or 3rd century AD. The area was probably depopulated in the 4th century. New inhabitants must have arrived in the Migration Period. New terp-layers on the excavated part of the terp date from the Merovingian Period. The youngest terp-layers dated from the Carolingian Period. The terp section was thoroughly documented. Potsherds in the layers and the stratigraphy made it possible to date the features. All finds categories (ceramics, bone, stone, wood, glass and metal) have been studied these last months. Publication of the results will follow in the early spring of 2005.

The animal remains found by hand collecting were studied. The remains date from the Middle Iron Age through the Early Middle Ages and (sub)recent period. The domestic mammals dog, cat (only in the Carolingian period), horse, pig, cattle and sheep are the only species represented. Cattle remains are the most numerous in all periods. Two special finds are presented here. The first are six thoracic vertebrae and six lumbar vertebrae of a dog from the Late Iron Age - Early Roman Period with cut marks that are the result of butchering. This means that the meat of this dog was eaten. The second are a group of sawed distal and proximal horse and cattle bone ends from the Carolingian period. This bone processing waste refers to a bone worker at the site.

Englum (Nieuwhof). In the year of 2000 an excavation was carried out in the terp of Englum (province of Groningen). The large amount of ceramics that was found there was studied short after the excavation. These results were now used in combination with the stratigraphy of terp layers to provide a good dating of all features. This will facilitate the work of finds specialists who study animal bone, metal and botanical macroremains.

Interrelation, exchange and trade

Anglo-Saxon Pottery from the Northern Netherlands (Bos)

In 2004 the catalogues of Anglo-Saxon pottery (Migration Period) for the Dutch provinces of Drenthe, Friesland and Groningen was completed. A beginning was made with the interregional comparison, as well as with regions abroad (Denmark, Germany, England). There appears to be a clear development, a movement from east to west.

Cruciform brooches from the Dutch province of Friesland (Bos)

The catalogue of cruciform brooches (Migration Period) was moulded in a typo-chronology. Comparisons were made with these finds from Denmark, Germany and several parts of England. There are clear regional differences, partly connected to differences in date. A clearer image of the movements in this period in this area is beginning to emerge.

Roman finds from non-Roman contexts in northwestern Europe (Galestin)

The Roman artifacts which are discovered in native settlements in the northern part of the Netherlands are the subject of this study. This study has led to new insights into the relations between native people and the Romans. From the analysis of Roman objects discovered outside the Empire, it appears that Roman finds vary in number and date in different sites. Therefore the interpretation of the interrelation between the native people and the Romans must lead to different outcomes in the different periods and different areas. New finds from the Dutch province of Friesland show that contacts existed already in the first century AD between people in the coastal areas of Friesland and the Roman Empire. The excavation at Midlaren, on the sandy soil more inland, has brought to light a number of Roman objects dating to the second and third centuries AD. On the basis of these new finds it will be possible to identify different types of interrelation between the areas in the northern part of the Netherlands and the Roman Empire.

Gold bracteates from the Frisian terp-region (Nicolay)

Since the introduction of the metal detector during the 80's in the province of Friesland a surprising number of new finds from the terp-region is known. Among them are two gold bracteates of Scandinavian type, dating from the early 6th century AD. Together with several older finds (six bracteates from a hoard and three single bracteates) these pendants point at strong cultural and political-religious relations between the Frisian terp-region and the Scandinavian world. It is assumed that the gold bracteates reflect the arrival of Jutish immigrants in the terp-region and that these new people played a crucial role in the process of power formation during the following century.

Roves and Rivets from Wijnaldum (Reinders)

In 2004 roves and rivets from the early medieval dwelling mound Wijnaldum (Frisia) were documented and investigated. They were found in layers dating from the 5th to the 9th century AD. Together with a hull fragment from Dorestad, the finds from Wijnaldum are the only indications for the presence of clinker boats in the Netherlands. Similar finds are known from early medieval cemeteries in Oosterbeintum and The Hague. Obviously, fragments of a ship's hull were used as firewood for cremations or as coffins for inhumations.

2.4 MEDITERRANEAN ARCHAEOLOGY

Centralization of settlement, urbanization and colonization processes, land use

ITALY

Nettuno (Attema)

Within the framework of this long term Pontine Region research project, in the spring and summer of 2004 a new project entitled 'Carta Archeologica per il Comune di Nettuno' was started, aimed at compiling an archaeological map of the municipality of Nettuno by means of a combination of intensive survey and desktop studies of earlier topographical work. As part of this project a museum collection is also being studied. The project will shed new light on the early urbanization and Roman colonization of the coastal area of the Pontine Region. The Nettuno project is subsidized with a € 30.000 grant by the province of Lazio and will be concluded in 2006. In the 2004 campaign around 90 archaeological sites were (re)located in the field and surveyed. The ceramics found were processed and are being catalogued. The museum collection

was inventoried and documented by means of drawings, scans and photos. During the year staff and students have elaborated the data acquired during fieldwork for future publication. Attema presented the project on two occasions and prepared a preliminary report for the Archaeological Service at Rome and the municipality of Nettuno for which van Leusen and graduate students did preparatory work.

Pontine Region

Attema, van Leusen and De Haas worked on two reports of earlier fieldwork for publication in *Palaeohistoria* including full site and material catalogues (the Doganella di Ninfa/ Norba and the Fogliano lake area surveys). In this project the PRP collaborates with the palaeontologist M. La Rosa.

During the year drs T. de Haas (temporary staff) worked on a compilation of sites and scatters of GIA surveys carried out in the Pontine Region in the period 1987-2002. This will be published with a commentary by Attema and de Haas in the series *British Archaeological Reports*.

PhD Research

As far as PhD research is concerned, Alessandri, van't Lindenhout and Satijn made good progress with their dissertations on respectively, the protohistorical, Archaic and post-antique periods in the Pontine Region. Alessandri studied the area south of the ancient city of Tusculum, as well as Monte Ara, Colle Iano in the Rocca di Papa territory, and the hill crest between Monte Cavo and Maschio delle Faete. At the same time the bibliography on the protohistorical finds was put together and the findspots were redated using up to date chronological studies. Two papers were prepared by him for the proceedings of the 6th Conference of Italian Archaeology:

L'occupazione costiera nell'età del Bronzo media, recente e finale nel Lazio centromeridionale, and L'area di Lucrezia Romana-Osteria del Curato (Roma). Ricerche su un comprensorio peri-insediativo della tarda età del Bronzo. Also entries on Fosso Foglino, Nettuno and Saracca, all protohistorical settlements along the Latial coast, were prepared for publication in the *Repertorio dei siti protostorici della provincia di Roma*. Van 't Lindenhout edited already written chapters on the early Archaic architecture of Latium aiming to conclude her dissertation in the summer of 2005.

Satijn continued work on the digital cartographic base for his dissertation on the post-antique landscape and finished the chapter on historical cartography. In collaboration with S. Pomicino, post-graduate student of the University Orsola Benincasa, Naples, who was granted a Constantijn Huygens fellowship at GIA for the period October 2004-June 2005, toponymical research was carried out.

The Raganello Archaeological Project (RAP, Attema, van Leusen)

Fieldwork in this project was carried out in October and comprised a continuation of the intensive systematic survey of the foothills between the Raganello and Caldano rivers and (re)visits of up- and highland sites in the hinterland of the Raganello valley. In the intensive survey many new sites were discovered, adding to our knowledge of the occupation history of these areas from the Bronze Age to the Hellenistic period. Various up- and highland sites were sampled for bone and ceramic materials in order to obtain dates for their occupation. Attema, van Leusen and Roncoroni prepared and published an internal report of the RAP fieldwork in Italian carried out in 2002-2003, with contributions by various researchers. Student assistant T. Derks worked on a catalogue of sites and scatters of the RAP surveys, to be published as a second internal report in the autumn of 2005.

Near the research area of the RAP, Alessandri carried out archaeological surveys, focused on the prehistory and protohistory near Catanzaro, between Torrente Fiumarella e Vallone Galliporo, in

collaboration with the Soprintendenza per i Beni Archeologici della Calabria.

Hidden Landscapes project (Van Leusen, PhD student)

Also in 2004, Van Leusen applied for and was granted a NWO VIDI-grant for a new 5-year research programme that will continue and extend the PRP and RAP. This project will concentrate on methodological issues concerning Mediterranean fieldwork methodologies and will run in the period 2005 - 2010. In Italy GIA works with Dr Nick Ryan of the University of Kent at Canterbury on the development of digital fieldwork registration systems.

Regional Pathways to Complexity Project (Attema, van Leusen)

Within this NWO-financed project that was co-directed by Attema (GIA) and Burgers (VU) in the period 1998 – 2003, two publications are still due, the fourth and last dissertation of drs. B. Mater (promotion at the VU on 10 february, 2005) and a synthesis in book form by Attema, Burgers and van Leusen (manuscript ready for editing summer of 2005).

The Absolute Chronology of the Iron Age in the Mediterranean (Nijboer)

This programme aimed at acquiring new absolute datings of archaeological contexts is of great importance for our understanding of the chronological interrelationships between different cultural areas in the Mediterranean and Central-Europe. The radiocarbon analysis of various contexts in Italy and Carthage is not in line with the conventional absolute chronology. The increasing use of the scientific dating methods creates especially for the 10th to 8th century BC problems regarding the reconstruction of the colonization process. In 2004 several contexts from Italy and Carthage have been dated with short-lived samples using the radiocarbon method. Tree-trunk tombs from Celano assigned to the Final Bronze Age have been dated with dendrochronology and wiggle-matching indicating that the absolute chronology around 1000 BC is in line with the conventional absolute chronology.

GREECE

The Southeast Gate of New Halos (Reinders)

The excavation of the Southeast Gate of New Halos was continued in 2004. Large parts of this Hellenistic courtyard gate were already excavated during previous campaigns. After the destruction of the gate by an earthquake around 265 BC, the gate complex was inhabited again during the period 260-220 BC. The 2004 campaign focused on the documentation of the sections and the investigation of the stratigraphy. The sections were drawn and analyzed and the baulks were subsequently excavated. In the centre of the courtyard a hearth came to light. Carbonized seeds of cereals and pulses were found around the hearth. A large sample of charred faba beans have been processed. All complete seeds have been measured with a digital camera and the measurements have been compared with surface measurements of recent herbarium accessions.

Burned pottery and a layer of burned material and ash indicate that the habitation came to an end due to a fire. During all campaigns Hellenistic coins were found which will provide a solid base for the chronology of the habitation. At the end of the 2004 campaign a hoard of 35 Middle Byzantine bronze coins, 12th century AD, was discovered in a hole between the limestone blocks of the city wall.

Prehistoric sites (Reinders)

The results of a survey in the Almiros and Sourpi plains (Thessaly, Greece) were published in the series of the Netherlands Institute at Athens. Among the sites were the Neolithic *magoules*

Zerelia and Ambelia Almirou, the Bronze Age Site Magoula Pavlina and an Iron Age cemetery in the Voulokaliva area.

Animal remains from the Southeast Gate of New Halos (Prummel)

The bird remains from the habitation period of the gate, 260-220 BC, were studied in 2004. The poultry species chicken (*Gallus gallus domesticus*) and domestic pigeon (*Columba livia*) were the most numerous bird species in this site. Eleven wild bird species were fowled in the surroundings. A remarkable find among the wild bird remains are two wing bones of a still undescribed, extinct owl species of the genus *Athene*. The species, which had longer wing bones than the extant little owl, *Athene noctua*, must have been an island species. Bones of the same or another island *Athene* species were found at the site Karystos on nearby Évvia island, which was excavated by Donald Keller of Boston University. Lynn Snyder and Walter Klippel of Smithsonian Institution in Washington DC studied the Karystos material, but did not yet publish it. The Karystos material will be compared with the Halos material in summer 2005. The species will be published as a new species in cooperation with the avian-palaeontologist Cécile Mourer-Chauviré of Lyon University and the American colleagues.

Identity and social differentiation

Shifting identities (Voutsaki, Milka)

The NWO research project 'Shifting Identities, social change and cultural interaction in the southern Greek mainland, 2000-1500 BC' by dr. S. Voutsaki is progressing very well. After lengthy and difficult negotiations the research group has finally been given the permit to take samples from the human skeletons in Lerna and Asine. The samples were taken in October, and the various analyses are now in progress: The radiocarbon analysis is undertaken by Prof. J. van der Plicht at the Centre for Isotope Research in Groningen, and the data will be interpreted by Dr. A.J. Nijboer, GIA. The stable isotopes analysis is being done by Prof. M. Richards, University of Bradford. The DNA analysis is carried out at the University of Thessaloniki, by Prof. S. Kouidou-Andreou and Dr. L. Kovatsi. Eleni Milka, AIO, is progressing with the comparative analysis of the main MH cemeteries at the Argolid. Four articles are in press: an article on age and gender differentiation in MH Lerna and Mycenae; an article on the interpretation of change during the MH period; an article on the pilot analysis of Lerna & a preliminary report on the project as a whole.

Voutsaki's study on the history of archaeology is also progressing. She is co-editing (with Prof. P. Cartledge, University of Cambridge) a volume on this topic, for which she also contributes an article and writes the Introduction. This will be published by Ashgate, London. The dissertation of E. Milka on '*The analysis of the funerary data from the Middle Helladic cemeteries of Lerna and Aspis, Argolid, Southern Greece*' progressed well. During 2004 the pilot analysis of the funerary data from the cemeteries of Lerna and Aspis was carried out. First, the burial offerings were systematically re-examined and photographed at the Museum of Argos. The old excavation photographs were also studied and an electronic archive of all photos was created.

During the second stage, all the available archaeological and anthropological information from the 217 graves from Lerna and the 14 graves from Aspis were encoded into a relational data base. The type, size, construction and orientation of the tomb, the burial offerings, the sex and the age of the deceased and the position and orientation of the body together with any evidence of ritual behaviour were used as tools in order to detect variation among the burials. Special attention was given to the association of graves with houses, since both cemeteries are intramural. This information together with the geographical clustering of the graves will be used to test our main working hypothesis: that these grave groups represent kinship groups. A further

test will be provided by the ancient DNA analysis from two grave clusters. The second question to be addressed is whether there is differentiation between groups and individual burials.

Pottery and metal artifacts; technology, production modes and distribution

Classification of fabrics (Nijboer, van Oortmerssen)

The Laboratory for Conservation and Material Research (LCM; www.lcm.rug.nl) continued the classification of fabrics from Latium Vetus. Bucchero and Impasto Rosso wares were analysed, as well as material from the excavations carried out in the Astura project.

EAST MEDITERRANEAN

Plant domestication and seed size of pulses and cereals (Cappers)

Plant domestication is related with natural seed dispersal and the increase of yields. A project has been initiated in which large numbers of recent and subfossil seeds from grass pea (*Lathyrus sativus*) and barley grains (*Hordeum vulgare*) are measured with a digital camera. Differences in seed size of grass pea, in relation with the archaeological context and crop processing, are used to adjust the proxy value of seeds size as a domestication feature. Measurements of barley grains are used to distinguish between 2-row barley (ssp. *distichum*) and 6-row barley (ssp. *vulgare*), which improves the estimates of yields

Early agriculture at tell Sabi Abyad (Syria) (Cappers)

Charred plant remains from late PPNB and Pottery Neolithic at Sabi Abyad have been studied. The plant remains were secured during the 1996-1999 seasons. A publication has been submitted for *Excavations at the Neolithic tell Sabi Abyad (Syria: 1996-1999)*.

Pilot study ancient DNA (Tensen and Cappers)

From August 2003 until August 2004, Marrie Tensen worked in the group Molecular Biology of Plants at the Biological Centre of the RuG. This was a one-year pilot study aimed at investigating the feasibility of using molecular biological techniques for the study of archaeological plant materials from dried contexts in Egypt. She practised molecular biological techniques using modern wheat samples, and in the last months did some experiments using wheat samples from Berenike, Roman Egypt, dated 1st - 6th century AD and morphologically identified as *Triticum aestivum* spp *aestivum* or *T. turgidum* spp *durum*. For comparative studies, she built up a collection of landrace wheat accessions from seed banks (deposited at the GIA).

She presented a poster at a symposium on Biomolecular Archaeology organised by the Free University in Amsterdam. In April 2004, she supervised two students working on ancient DNA during a 4 weeks' practical lab course. In August 2004, the pilot study ended. At present, no funding is available and the work has been discontinued.

Survey and fieldwork Fayum (Egypt) (Cappers)

The UCLA/RUG project has found several undisturbed granary pits, which are of great importance for the archaeobotanical research. Plant remains have been identified from several pits a Greco-Roman site was located. A magnetic survey showed that this site probably has large number of kilns (see next page). This settlement on the El-Qarah el-Hamra peninsula may have been an important pottery production center of Fayum in antiquity. Botanical samples have been secured for archaeobotanical analyses.

The UCLA/RUG project has started the excavation of a large, undisturbed trash deposit in

Karanis. The 2.0 mm fraction of some 150 samples has been analyzed. Additionally, a start has been made with the re-identification of the botanical samples from the Greco-Roman period which are stored in the Agricultural Museum in Cairo. A preliminary compilation of cultivated species from Karanis, comprising some 45 species, has been made.

Early agriculture at Ilipinar (Turkey) (Cappers)

Samples from the Chalcolithic period have been analysed, comprising samples from storage facilities (area LM8-9, containing pottery vessels and basket bins *in situ*) and trash deposits. The results will be published in 2005.

2.5 ARCTIC ARCHAEOLOGY

Exploration and exploitation of the polar areas

Spitsbergen (Hacquebord)

In 2004 fieldwork is carried out in the Hornsund, in the southern part of Spitsbergen. This fieldwork is a continuation of the GIA fieldwork in 1998 and 1999. Beside a survey in which the sites in Gåshamna were mapped, some archaeological test excavations were carried out especially to collect bird bones which together with recent ornithological data, will be used to reconstruct the seventeenth century avifauna of the west coast of Spitsbergen. In this way the impact of two hundred years whaling in and around Spitsbergen will be studied.

Secondly a field course was carried out which was focused on the mining period of Spitsbergen. Remains of the old mining period were mapped with total station and gps equipment and compared with old photographs. The study of the material culture and historical sources made it possible to reconstruct the history of the mining industry in all its aspects. The research was done by students coached by senior scholars. Some earlier (1999) collected information was studied.

Dietary changes in relation to goose grazing pressure (Kuijper)

Experimental grazing with captive Barnacle geese was carried out in a similar way as in 2003. Geese were put for one hour on the low intensity grazing plots and for five hours on the high intensity grazing plots during each grazing period. Next to that the grazing gradient (established in 2003) was grazed by putting geese for 0,5, 2, 3, 4, 5 and 7 hours on each plot.

Before grazing, geese were starved for two hours. During each hour that geese were grazing, behavioural protocols were made. During ten minutes each individual goose was followed and the number of steps and the time spend feeding were recorded. After grazing, geese were removed from the plots and the droppings on each plot were counted. During two successive hours droppings were collected when the geese were deprived of food.

Droppings samples were microscopically analysed for diet composition and chemically analysed for C/N and ADF content. The behavioural protocols were used to calculate a total actual grazing time on each plot and total dropping number was used to calculate the intake rate on a plot.

Allometric constraint of digestion in an Arctic herbivore (Kuijper)

Six goslings, collected in Ny Ålesund, were used in feeding trials to determine food plant selection and digestive efficiency compared to adult geese. Feeding trials were carried out when goslings were 5, 10, 15 and 20 days old in homogeneous wet vegetation, dominated by

Eriophorum scheuchzeri and *Dupontia fisherii* and several moss species. The time spent foraging, time till first dropping appeared and the dropping interval were determined. These data were used to calculate the retention time of the food and the digestive flow rate. After each feeding trial droppings were collected, microscopically analysed for diet composition and chemically analysed for C/N and ADF content.

There were clear patterns in the exploitation of different food plants in both the wet and the dry habitat in relation to the cumulative grazing pressure of 2003 and 2004. Goslings showed a different selection of food plants than adult geese. The diet started to resemble that of adult geese when they grew older.

The Arctic products markets (Veluwenkamp)

In 2004 I have carried out historiographical research to analyse the development of the international business communication patterns in the Dutch commercial system between 1500 and 1800. In the course of these three hundred years the quality of the postal services and the reliability of the foreign business relations increased to such an extent that the pattern of business communication gradually changed from business trips to direct correspondence. During this transformation, the communication pattern passed through two intermediate phases. The first intermediate phase was the representatives pattern, when merchants sent their own representatives abroad to settle there and do business on their account. The second intermediate phase was the commission trade pattern when commission agents settled abroad took care of other people's business. I have presented the first findings of this project at a conference held in Rome in February 2004. I have included the definitive finding in an article which will be published in the conference proceedings hopefully in 2005.

Changes in shelf ice extent in West Antarctica between 1840 and 1960. Analysing historical maps in a geographical Information System (Karstkarel)

The analysis of historical maps is completed in 2004 and the writing process of the dissertation is finished. The dissertation is approved by the committee and the defense of the dissertation will take place in June 2005.

Hunting communities in a changing natural environment

FRAGILE project (Loonen)

The year 2004 was the second out of three years for the EU-project FRAGILE. In this project, the effects on tundra vegetation of increased goose numbers in combination with global warming are studied. The study is a field experiment with captive geese in Spitsbergen. A positive test on avian influenza made it impossible to transport captive geese from the Netherlands to Spitsbergen and we had to rely on wild geese caught locally. Despite this drawback, we had a very productive field season in close cooperation with our foreign partners.

The Netherlands Arctic Program financed a study on allometric effects of digestion in growing goslings. Digestion appears to be a limiting factor determining habitat and diet selection. The long-term research on an arctic breeding population of barnacle geese was continued from the Netherlands Arctic Fieldstation in Ny-Ålesund, Spitsbergen. The focus of the study is on individual differences in breeding success, which finally determine population size.

Science and politics in polar areas

Dutch Antarctic policy and research since 1945, in comparison with that of Belgium and Germany (Abbink)

In the first year of this doctoral research, first, a research plan was made. The research focuses on the history of policy, including science policy. About one third of the archival research and 60 percent of the historiographical research has been done. Archival research has been done in archives in The Hague, Amsterdam and Brussels. A total amount of twelve persons which participated in either the Antarctic policymaking or in Antarctic science had been interviewed in the Netherlands, Belgium and Germany. The first version of the chapter about the Belgian-Dutch Antarctic expeditions in the 1960's has been written. Political arguments prevailed over scientific arguments to implement and to end this bilateral cooperation in Antarctic science.

Regional Identity and Sustainable Development in Nunavut, North Canada (Van Dam)

In March 2004 (after maternity leave) the research project continued with literature study and desk research. In particular the activities focused on the representation of Nunavut by so called outsiders. For this content analysis newspaper articles on Nunavut were used. The same methods were used for the analysis of the Hansards (the parliamentary records) of the Legislative Assembly of Nunavut Government 1999-2004. This analysis will help to understand the representation of Nunavut by 'insiders', in this case the politicians of Nunavut. Also the preparation started for fieldwork in Nunavut, planned in May 2005. Side activities included the participation in two meetings (Selfoss and Whitehorse) of the Sustainable Development Working Group of the Arctic Council.

3. RESEARCH ACTIVITIES

3.1 FIELDWORK

ITALY

Nettuno, 16 June-31 July. Survey and study of museum collection as part of the project 'Carta Archaeologica per il Comune di Nettuno'.

Director: Peter Attema.

Staff: Martijn van Leusen, Luca Alessandri, Erwin Bolhuis, Tymon de Haas.

Participants: Tycho Derks, Sander Droogsma, Colinda Kaal, Tijm Lanjouw, Tanja van Loon, Chris Luinge, Jolanda Maassen, Neeltje Oome, Itamar de Rooze, William Pouille, Jorn Seubers, Anke Stoker, Gijs Tol, Gretha van der Veen, Naomi Wildeman, Sarah Willemsen.

Francavilla Marittima, 14-22 October. Survey as part of the Raganello Archaeological Project.

Director: Peter Attema.

Staff: Martijn van Leusen.

Participants: Marc Bajema (UL), Axel Blommaert (Un. Gent), Erwin Bolhuis, Rika Dehombreux (Un. Brussel), Jan Delvigne (RUG), Tycho Derks, Paul van Ginneken, Siddharta Ghosh (Un. Kent), Tymon de Haas, Nino Larocca, Neeltje Oome, Patricia Roncoroni, Nick Ryan (Un. Kent), Jorn Seubers, Ivar Svensson (UL), Geert Verhoeven (Un. Gent), Jeroen van Zoolingen (UL).

Cooperation: P. Roncoroni (Freie Universität Berlin, ceramologist), J. Delvigne (Biological Department, University of Groningen), N. Larona (local speleologist).

GREECE

Halos, 19 June-20 July. Excavation of the Southeast Gate of New Halos.

Director: Reinder Reinders.

Staff: Sander Tiebackx, Paulien de Roever, Colette Kruyshaar.

Participants: Annelies Berends, Rosa Doreleyers, Michél de Jong, Anke Kramer, Richard Fens, Daniël Postma, Irene Verhagen, Antje Visser, Ypie Aalders, Sascha Benerink, Marloes Bergmans, Gert Bunt, Jasper Holl, Naomi Huisman, Harry Pape, Brigitte Saan.

Cooperation: NAGREF, Larisa (Greece); 13th Ephorate of Prehistoric and Classical Antiquities (Volos, Greece).

EGYPT

Fayum, 15 October-30 December. Survey and excavation as part of the UCLA-RUG Fayum project.

Directors: René Cappers and W.Z. Wendrich (UCLA)

Staff: Maria Gatto, Shirai Noriyuki, Brian Damatia, Hans Barnard, Tom Wake, Lewis Owen

Participants: Kamel Moshen, Sander Droogsma, Rebecca Phillipps, Tonny de Wit, Ahmed Ismail, Mahmoud Ahmed Hillal, Astraf Sobhy Sumhaan Mohammed, Yoursi El Sayed Ahmed, Anwar Ahmed Abu Samad, Brian Damatia, Mustafa Abd el-Gadr, Amber Meyers.

THE NETHERLANDS

Swifterbant, 26 June-20 July. Excavation Neolithic site S2.

Director: Daan Raemaekers.

Staff: Izabel Devriendt, Hans Zwier.

Participants: Sandra Beckerman, Meinte van Egmond, Jort Hoekstra, Sebastiaan Kesselaar, Mans Schepers, Albert Vissinga, Marieke van der Wal.

Co-operation:

- Province of Flevoland
- State service for Archaeological Heritage Management

Wierum, 6-21 September. Partial excavation of the terp of Wierum.

Director: Piet Kooi.

Staff: Annet Nieuwhof (co-director), Sander Tiebackx (technician).

Participants: Bert Tuin, Brigitte Saan and Daniel Postma.

De Held, 10 May-4 June. Excavation of a (post)medieval settlement in De Held, in cooperation with the Municipality of Groningen.

Director: Daan Raemaekers.

Staff: Gert Kortekaas, Milo Verhamme, Kristof Verelst.

Participants: Martha de Jong, Helle Molthof, Jaap Bergman, volunteers and employees of the Monument & Material Foundation, 25 archaeology students.

Midlaren-‘De Bloemert’, September 2003-July 2004. Large-scale excavations of a settlement complex dating from the Late Iron Age, Roman period and Middle Ages (c. 200 BC-1200 AD).

Director: Johan Nicolay.

Staff: Erwin Bolhuis, Sander Tiebackx and Robert Kusters.

ARC: Hulya Halici, Gerti Bergsma, Bart Huizinga, Jan Boudestein, Margot Dalenberg.

Participants: students and volunteers.

Eemster, 5 April. Survey of alleged Middle Palaeolithic site.

Participants: Prof. dr. W. Roebroeks (Archaeological Centre, University of Leiden), dr. E.

Rensink (ROB, Amersfoort), dr. W.A.B. van der Sanden (Province of Drenthe), drs. M. Niekus

(GIA) en J. Glimmerveen (volunteer).

ARCTIC

Longyearben (Spitsbergen), 7-16 August. International field course industrial archaeology.

Director: Louwrens Hacquebord, Marie Nisser en Patrick Martin

Staff (Netherlands): Louwrens Hacquebord

Participants (Netherlands): Wouter Ytsma, Jorieke Rutgers, Martha de Jong

Staff (Sweden): Marie Nisser, Dag Avango, Urban Wråkberg

Participants (Sweden): Oscar Törnqvist, Ulf Gustavsson

Staff (Norway): Gustav Rossnes

Participants (Norway): Tor Einar Fagerland, Roy Åge Håpnes

Staff (UK): Miles Oglethorpe

Participants (UK): Ian West

Staff (USA): Patrick Martin, Susan Martin

Participants (USA): Larry Mishkar, Arron Kotlensky, Ed Tennant, Mike Deegan
Staff (Russia): Vadim Starkov
Interpreter (Russia): Eugene Bouzney
Co-operation: Royal Institute of Technology, Stockholm (Sweden)

Hornsund (Spitsbergen), 16-31 August. Archaeological fieldwork, English 17th century whaling station.

Director: Louwrens Hacquebord

Staff: Frits Steenhuisen

Participants: Marlies van Kruining en Marcel Niekus

Co-operation:

- Polish Academy of Sciences, Institute of Geophysics, Warszawa (Polen)
- Royal Swedish Academy of Sciences, Stockholm (Sweden)
- Michigan Technological University, USA
- Royal Commission on the Ancient and Historical Monuments of Scotland, Edinburgh (UK)
- Directorate for Cultural Heritage, Oslo (Norway)
- Institute of Archaeology, Russian Academy of Sciences, Moscow (Russia)

Participation in fieldwork of other universities:

Paliambela Kolindrou, Pieria (North Greece), 2-20 August: Neolithic excavation by Aristotle University of Thessaloniki and Sheffield University (Eleni Milka, trench supervisor).

Zakros (Greece), 1-16 August. Zakros Palace and Tour Project (Sofia Voutsaki, processing of finds).

3.2 WORKING VISITS

Abbink, B.P.

- 11 days during 2004, The Hague (Netherlands): visiting archives of Ministry of Foreign Affairs.
- 3 days in February-April, Amsterdam (Netherlands): Dutch Committee of the International Union for the Conservation of Nature.
- 4 days in February-April, Amsterdam (Netherlands): Royal Netherlands Academy of Sciences and Art.
- 8 April, Den Hoorn, Texel (Netherlands): Symposium at Royal Netherlands Institute for Sea Research.
- 10-11 May, Haarlem (Netherlands): Polar Symposium at Teylers Museum.
- 1-3 June, Brussels (Belgium): Belgian Ministry of Foreign Affairs.
- 25-28 July, Bremen (Germany): International SCAR Conference.

Interviews in several places in The Netherlands (9), Belgium (2) and Germany (1).

Attema, P.A.J.

- 2-8 February, Rome (Italy): meeting with the Soprintendenza Archeologica per il Lazio, Comune di Nettuno and other fieldwork contacts.

- 7-8 June, University of Gent (Belgium): Fieldwalking survey workshop of the Mediterranean survey group, 'Defining villas, farms, hamlets and villages in ancient Mediterranean landscapes'.

Cappers, R.T.J.

- March, Amsterdam (Netherlands): symposium on ancient DNA (presentation of poster)
- 23-24 March, Manchester (UK): University of Manchester/ Institute of Science and Technology (UMIST)
- March and October, Catholic University of Leuven (Belgium)

Dam, K.I.M. van

- 3-5 May, Selfoss (Iceland): Sustainable Development Working Group Meeting, Arctic Council.
- 14-16 September, Whitehorse (Canada): Sustainable Development Working Group Meeting, Arctic Council.

Devriendt, I.

- 9-10 September, Groningen (Netherlands): participation RUG-UG workshop.
- 1 October, Leiden (Netherlands): PhD meeting Archon.
- 13 October, Amersfoort (Netherlands): NOA lecture.
- 20 October, Hempens (Netherlands): excavation of a Mesolithic site.
- 27 October, Lelystad (Netherlands): archaeological depot (Dick Velthuisen).
- 5 November, Leiden (Netherlands): Archon meeting.
- 9 December, Amersfoort (Netherlands): NOA lecture.
- 10 December, Groningen (Netherlands): Annual meeting GIA.
- 11 December, Mons (Belgium): Stone Age meeting.

Hacquebord, L.

- 19-21 March, Stockholm (Sweden): Preparation for the international field course industrial archaeology on Spitsbergen.
- 4-9 February, Ottawa (Canada): Executive Committee meeting of the IASC, various arctic research subjects.
- 20-27 April, Reykjavik (Iceland): Council meeting IASC, various arctic research subjects.
- 28-30 July, Bremen (Germany): Presentation IASC and the International Polar Year.
- 12-14 September, Paris (France): Discussion forum International Polar Year.
- 31 October-2 November Oslo (Norway): Executive Committee meeting of IASC, various arctic research subjects.

Kooi, P.B.

- 14 October, Borger (Netherlands); ARC excavation Bronze Age-Iron Age settlement.

Kuijper, D.P.J.

- 28 November-3 December, Aberdeen (Scotland): FRAGILE progress workshop.

Leusen, P.M. van

- 2-3 February, Leiden (Netherlands): postgraduate Workshop on the Use of Scientific Approaches to non-Destructive Discovery.
- 19-22 February, Halle (Germany): EJA Board of Editors meeting.
- 30-31 March, Leiden (Netherlands): postgraduate training in field computing.

- February 26, May 17, June 23, July 21 and December 2, Amsterdam (Netherlands): working visits in relation to BBO at the Oer-IJ-project.

Loonen, M.J.J.E.

- 25-28 February, Thorshavn (Faroe): CBIRD working group CAFF.
- 11 March, Groningen (Netherlands): IPO meeting
- 16-17 March, Beek-Ubbergen (Netherlands): SOVON scientific advisory committee.
- 22-23 April, Reykjavik (Iceland): NySMAC meeting.
- 14-16 September, Fairbanks (Alaska): CAFF Biannual meeting.
- 30 November-2 December, Aberdeen (Scotland): workshop EU project Fragile.

Milka, E.

- June-July, Museum of Argos (Greece): study of the burial offerings and the photographs from the cemeteries of Lerna and Aspis.
- 7-15 October, Museum of Argos (Greece): taking samples from the human skeletons from Lerna and Aspis for DNA, stable isotopes and C14 analysis (together with Dr. S. Triantaphyllou).

Niekus, M.J.L.Th.

- 7 February, University of Leiden (Netherlands): Stone Age meeting.
- 20 October, Hempens (Netherlands): excavation of a Mesolithic site.
- 9 December, Amersfoort (Netherlands), ROB (Rijksdienst voor het Oudheidkundig Bodemonderzoek): lectures on the Palaeolithic and Mesolithic.
- several visits to the ROB, the Archaeological Centre of Leiden University, the Northern Archeological Depot and the Museum of fen community in Veendam (Netherlands).

Nijboer, A.J.

- May 15-27, Sardinia (Italy): many museum and site visits dating to the LBA till the 7th century BC such as Nora, Cagliari, Sulcis, Tharros and recent excavations at Sant'Imbenia and Sardara. Libraries were visited in Rome looking for specific literature on the Iron Age in Northern Italy.

Prummel, W.

- 7 October, Biologisch Centrum Haren (Netherlands): dr. P.D.M. Weesie, on the undescribed *Athene* owl species from the Southeast Gate at New Halos.
- 19 October, Athens (Greece): Netherlands Institute at Athens, Fitch Laboratory (British School at Athens), Wiener Laboratory (American School at Athens), use of reference collections for the identification of an undescribed *Athene* owl species from the Southeast Gate at New Halos.
- 3 November, Natuurmuseum Rotterdam (Netherlands) comparing the *Athene* owl species from the Southeast Gate at New Halos with the bones of *Athene cretensis* (described by P.D.M. Weesie in 1982).

Raemaekers, D.C.M.

- various dates, Midlaren (Netherlands): excavation Roman period settlement De Bloemert.

Reinders, H.R.

- 15-18 October, Frauenfeld (Switzerland): transportation to Frauenfeld of documentation and artifacts (excavation of the Neolithic site of Niederwill).

Smit, B.I.

- January-February: Province of Friesland (G. de Langen), Province of Drenthe (W. van der Sanden), Province of Groningen (H. Groenendijk), ROB (Rijksdienst voor het Oudheidkundig Bodemonderzoek) (E. Rensink, B. Groenewoudt, H. Peeters en J. Deeben), RAAP Foundation Leeuwarden (Netherlands).
- 7 February, University of Leiden (Netherlands): Stone Age meeting.
- 9-10 September, Groningen (Netherlands): participation RUG-UG workshop.
- 20 October, Hempens (Netherlands): excavation of a Mesolithic site.
- 27 October, Lelystad (Netherlands): archaeological depot (Dick Velthuizen).
- 18-19 November, Alkmaar (Netherlands): Reuvenusdagen.
- 10 December, Groningen (Netherlands): Annual meeting GIA.
- 15 December, Deventer (Netherlands): first meeting with M. Bartels, municipal archaeologist.

Stapert, D.

- 13 February, Lelystad (Netherlands), Museum Nieuwland Polder: inspection of the artefacts from a Mesolithic site (with M. Niekus).
- 24-26 May, Rhenen (Netherlands), Museum Het Rondeel: inspection of the Middle Palaeolithic finds from the Kwintelooijen Quarry near Rhenen. Reconnaissance of the Kwintelooijen Quarry (with L. Johansen).
- 6 August, 'Friescheveen' near Haren (Netherlands), Reconnaissance of a Medieval site at (discovered by me in July 2004) (with H. Groenendijk, provincial archaeologist).
- 16-18 August, Copenhagen (Denmark), National Museum: visit of P.V. Petersen (Archaeological Department), discussions about the Late Palaeolithic and Mesolithic in eastern Denmark; inspection of material from Kongemose (Mesolithic) and several Ahrensburgian sites (for instance Ellebjerg) (with L. Johansen); visit of M. Appelt en U. Odgård (Ethnographical Department), discussions about hearths in Greenland; researching ethnographical sources about firemaking in the library (with L. Johansen).
- 19 August, Denmark: visit of the excavation at the Ahrensburgian site of Knudshoved Odde, discussion with the excavation leader, K.Møller Hansen; inspection of the flint artefacts from the site (with L. Johansen).
- 20 August, Denmark: reconnaissance of the Ahrensburgian site at Ellebjerg, the site will be excavated in 2005 (with L. Johansen).
- 10 December, Den Haag (Netherlands), Museon Museum: inspection of the (large) collection of artefacts from the late Mr. A. Wouters (especially dating from the Middle and Late Palaeolithic) (with A. Carmiggelt).

Tensen, M.A.

- 23-24 March, Manchester (UK), University of Manchester/ Institute of Science and Technology: to start up a collaboration (with René Cappers).
- 9 March, Leiden (Netherlands): National Herbarium Netherlands, DNA lab: to start up a collaboration (with René Cappers).
- 25-29 June, Basel (Switzerland), Institut für Prähistorische und Naturwissenschaftliche Archäologie of Basel University: to write up the results of the practical work done during the Two weeks' training at the GIA.

Veluwenkamp, J.W.

- 6-8 September, Cambridge (UK), Scott Polar Research Institute: Humanities Research in the Arctic, preparatory workshop for a EUROCORES programme (BOREAL).

3.3 LECTURES

Attema, P.A.J.

- February 19, University Library Groningen (Netherlands), 'Zout en andere Zaken', lecture at the occasion of the opening of the exhibition 'Zout en andere Zaken'.
- May 7, Velletri (Italy), L'occupazione della campagna nel periodo protostorico nell'ager di Lanuvio, Convegno 'Museo e Territorio'.
- March 27, Latina (Italy), L'età protostorica lungo la costa tra Nettuno e Torre Astura. Recenti scavi dell'università di Groningen, Convegno 'Astura, Satricum, Pometia, un itinerario alle origini della città di Latina'.
- September 17, Rome, Swedish Institute (Italy), Roman Landscapes of the Pontine region between c. 300 B.C. and A.D. 300. Continuity and Change, Conference on 'Roman villas around the Urbs' (lecture prepared in collaboration with drs. T. de Haas).
- November 12, Groningen (Netherlands), The Nettuno 2004 survey, Fieldwalking survey workshop of the Mediterranean survey group.
- December 10, Groningen (Netherlands), 'Nieuwe veldverkenningen en een oude museumcollectie: werken aan de archeologische kaart van de gemeente Nettuno, Italië', GIA Annual Meeting (with E. Bolhuis and drs. G. Tol).

Cappers, R.T.J.

- March 11, Amsterdam (VU) (Netherlands): 'Tracing the origin of wheat'
- October 7, Westerbork (Netherlands): 'Beerput en waterput als botanisch archief.'
- December 14, Tunis (Egypt): 'Methodological aspects of archaeobotanical research'

Dam, K.I.M. van

- May 10-11, Haarlem (Netherlands), Dutch Polar Symposium: 'Nunavut Identities: Sustainable Development and Regional Identities in Nunavut'.
- June 19, Groningen (University) (Netherlands): participation Symposium Heritage Seminar: 'Public Places Public Pasts'. Academy for Irish Cultural Heritages/Faculty of Spatial Sciences.

Hacquebord, L.

- 9 February, Middelstum (Netherlands): 'Dutch whaling in the seventeenth century'.
- 17 February, Zuidhorn (Netherlands): 'The international activities of the Arctic Centre'.
- 1 March, Sauwerd (Netherlands): 'Seventeenth century dutch whaling'.
- 28 July, Bremen (Germany): SCAR-symposium, IASC presentation.
- 10 August, Longyearbyen (Spitsbergen): 'Dutch whaling stations on the westcoast of Spitsbergen'.
- 11 October, Antwerpen (Belgium): 'Dutch whale fishers in Spitsbergen'.

Kuijper, D.P.J.

- 13 January, Groningen (Netherlands), Arctic centre: 'Depletion of forage plants by grazing Barnacle geese'.
- 18 January, Groningen (Netherlands), Zoological laboratory: 'Depletion of forage plants by grazing Barnacle geese'.

Leusen, P.M. van

- 10 February, Amsterdam (Netherlands), AIVU: capita selecta-college 'Survey comparison', third and fourth grade students.
- 8 June, Wageningen (Netherlands): 'Progress report on the BBO-project Predictive Modelling', international Workshop Multiple Landscapes.
- 6 December, Leiden (Netherlands), University: guestcollege 'Viewshed analyse' (second and third year collegeseries GIS).

Loonen, M.J.J.E.

- 21 January, Uffelte (Netherlands), Bird working group Uffelte: Research on arctic geese.
- 17 April, Leiden (Netherlands), NOU symposium: Reintroductions of geese.
- 10-11 March, Haarlem, Teylermuseum (Netherlands), NPP symposium: 'Digestion in growing goslings'.
- 4 October, Zuidlaren (Netherlands), Farmers: 'Geese and farmers'.

Milka, E.

- 17 August, Paliambela Kolindrou, North Greece, seminar at the excavation: 'Analysis and interpretation of the human skeletal remains'.
- 10 December, Groningen (Netherlands), GIA Annual meeting: 'Mortuary variability in the Middle Helladic Argolid'. A case study.

Niekus, M.J.L.Th.

- 10 September, Groningen (Netherlands), Workshop GIA- Ghent University: 'The Mesolithic Occupation of the Northern Netherlands; Time, Space, Location and Subsistence'.

Nijboer, A.J.

- 25 November, Florence (Italy): XXXIX Riunione Scientifica dell'Istituto Italiano di Preistoria e Protostoria. Materie prime e scambi nella Preistoria italiana: 'Organizzazione della produzione e modalità dello scambio dal Bronzo Finale al periodo arcaico'.

Nicolay, J.A.W.

- 10 December, Groningen (Netherlands), GIA Annual meeting: 'Archeologie aan het Zuidlaardermeer: de eerste resultaten van het onderzoek Midlaren-'De Bloemert'.

Nieuwhof, A.

- October 8, Assen (Netherlands), Museum of Drenthe, Symposium: 'Gaven en Giften' ('Ritual findings in the northern Dutch coastal area').

Prummel, W.

- 23 January, List on Sylt (Germany), Alfred-Wegener-Institut für Polar- und Meeresforschung: 'Man-made and natural changes in terrestrial mammals, birds and molluscs in the Wadden Sea area: the archaeological evidence'.
- 4 June, Groningen (Netherlands), University, Ouderdag (day for parents of students): 'Jardinga aan de Tjonger (Friesland): a hunting area of the final hunter-gatherers in the northern part of the Netherlands, 5500-5000 BC.
- 16 June, Groningen (Netherlands), University, 'Society comes to visit the RuG' (jubilee conference of the Science Shops: 'De universitaire archeologie en de maatschappij: De opgraving Jardinga aan de Boven-Tjonger (Fr.), een jacht- en slachtplaats van jager-

verzamelaars’.

- 27 July, Munich (Germany): Staatssammlung für Anthropologie und Paläoanatomie / Institut für Paläoanatomie und Geschichte der Tiermedizin Ludwig-Maximilians-Universität München, 5th Meeting of ICAZ Bird Working Group: ‘The wild and domestic avifauna of the Hellenistic town of New Halos, Greece’.
- 19-23 September, Bonn (Germany), 78. Jahrestagung der deutschen Gesellschaft für Säugetierkunde, Poster together with D. Heinrich and U. Schmölcke (Kiel, Germany): ‘Seehund, *Phoca vitulina*, und Kegelrobbe, *Halichoerus grypus*, im Wattenweeer - einst und jetzt’.

Raemaekers, D.C.M.

- 24 January, Groningen (Netherlands), AWN-afdeling Noord: ‘Het Vroeg- en Midden-Neolithicum van Noord-Nederland’
- 10 February, Groningen (Netherlands), HOVO: ‘Van jager tot boer’
- 13 October, Amersfoort (Netherlands), Rijksdienst voor het Oudheidkundig Bodemonderzoek: ‘Het nieuwe Swifterbant-project’
- 5 November, Leiden (Netherlands), ARCHON lecture: ‘Between the old and the New’
- 8 December, Assen (Netherlands), Drents Prehistorische Vereniging: ‘Het nieuwe Swifterbant-project’

Reinders, H.R.

- 28 January, Leeuwarden (Netherlands): ‘Friese klinkerscheppen in de vroege Middeleeuwen?’
- 18 March, Volos (Greece): ‘Hellenistic cities in Achaia Phthiotis’.

Veluwenkamp, J.W.

- 20 February, Rome (Italy), Dutch Institute in Rome: ‘Patterns of international business relations in the Dutch commercial system, 1500-1800.’
- 3 April, Irsee (Germany), Schwaben Akademie: ‘Family networks and business practices in the Amsterdam trade to Russia in the early modern period’.
- 10 May, Haarlem (Netherlands), Teylers Museum, Polair Symposium NWO en KNAW: ‘Netherlands Arctic Program (NAP) 2002-2006, ongoing research and future perspectives.’

Voutsaki, S.

- 20 February, Paris IV, Sorbonne (France), Seminar in Department of Archaeology: ‘Burials and territories in the Argolid, 2000 – 1200 BC’.
- 11 March, Leiden (Netherlands), Seminar: Presentation of NWO project.
- 18-20 March, Amsterdam (Netherlands): Poster presentation at Biomolecular Archaeology Symposium. ‘Lerna, 200 – 1500 BC: the biography of a community’.
- 26-28 March, Berlin (Germany), Humboldt Universität: Paper presentation at Conference ‘From Birth to Death’. Age and Gender in prehistoric Societies; ‘Age and gender at Lerna, 200-1500 BC’.
- 1 April, Amsterdam (Netherlands), University of Amsterdam, Seminar at Modern Greek Department: ‘Greek archaeology and the ideological use of the past in 19th century Greece’.
- 11 November, Leiden (Netherlands), University of Leiden, ARCHON meeting: presentation of NWO project.

3.4 WORKSHOPS AND EXHIBITIONS

- 14-15 January, Leiden (Netherlands): Winter symposium Netherlands-Flemish Ecological Society (NECOV), organised by J.J.E. Loonen (with Ir. R. Hendriks).
- 19 February-18 April, 'Zout en Andere Zaken', fieldwork of Groningen students in Central Italy, Exhibition organised at the University Library (with Tycho Derks and Jorn Seubers).
- 11 March, Haarlem (Netherlands): NECOV Working group Polar ecology, organised by J.J.E. Loonen.
- 16 April, Prato (Italy): session 'New developments in Landscape Archaeology', congress CAA.
- 10-11 May, Haarlem (Netherlands), Teylers Museum: Antarctica tentoonstelling 'Extreem overleven op Antarctica', organised by L. Hacquebord.
- 9-10 September, Groningen (Netherlands): Groningen-Gent Workshop on Stone Age Research, organised by D.C.M. Raemaekers.
- 12 and 13 November, Groningen (Netherlands): Fieldwalking survey workshop of the Mediterranean survey group, theme 'Survey and Geoarchaeology' (organised by P.A.J. Attema and dr. P.M. van Leusen).
- 10 December, Groningen (Netherlands): GIA Annual meeting, organised by M.C. Galestin, J.N. Lanting, P.M. van Leusen and R.T.J. Cappers.

3.5 VISITING SCHOLARS

- 9-10 February: Lothar Schulte, University Göttingen, to discuss and study the fibulas with high catchplate from Wijnaldum and Winsum (Netherlands).
- Dr. Gerd Johanne Valen, Norway.
- Dr. Kirstin Prestvold, Norway.
- Mr. Willem Munthe-Kaas, Norway, Svalbard Museum, discussion Smeerenburg Collection and exhibition Svalbard Museum, Longyearbyen (Spitsbergen).
- Dr. Susan Barr, Oslo (Norway): Smeerenburg Collection.

3.6 EDITORSHIPS AND REPRESENTATION IN BOARDS AND COMMITTEES

Abbink, B.P.

- Member of the Dutch Committee of the International Polar Year of NOW

Attema, P.A.J.

- Chairman Advisory Board GIA
- Member Managementteam GIA
- Member meeting Faculty Board and Directors and Chairman Advisory Boards Research Institutes
- Member of Science Board Research School ARCHON
- Co-editor Palaeohistoria
- Member Advisory Board Journal of Mediterranean Archaeology (TMA)

Bos, J.M.

- Secretary Foundation for Archeology of the Middle-Ages
- Co-editor Paleo-aktueel
- Co-editor series Archeology in Fryslân
- Member editorial board Groningen Archaeological Studies

Cappers, R.T.J.

- Member Advisory Board GIA
- Member GIA/ MT
- Member Board of governors/ trustees of the Dutch Institute for the Near East (Leiden, Netherlands) and Dutch Historic Archaeological Institute (Istanbul, Turkey)
- Editorial board Groningen Archaeological Studies
- Editorial board Palarch

Dam, K.I.M.

- Member Centre for Canadian Studies

Galestin, M.C.

- Member Advisory Board GIA

Hacquebord, L.

- Vice-president of the International Arctic Science Committee (IASC)
- Member of the National Committee of Polar Research, ALW, NWO
- Member of the Interdepartmental Polarconsult, Ministries of Foreign Affairs, V&W, LNV, OCW en VROM
- Member of the International Polar Heritage Committee of ICOMOS
- Core member of the Dutch Committee for the International Polar Year
- Circum Polar Studies
- Editorial Board Groningen Archaeological Studies

Kooi, P.B.

- Northern Archaeological Platform (NAP)
- National Research Agenda Archaeology (NOA)

- Member Committee MER (Milieu Effect Rapportage Gasselterveld)

Lanting, J.N.

- Co-editor Palaeohistoria

Loonen, M.J.J.E.

- Temporary chairman Terrestrial Section Dutch-Flemish Ecology Association (NECOV)
- Chairman study group 'Ecology of the Polar areas' of NECOV
- Member Scientific Advisory Committee Foundation Birdresearch The Netherlands (SOVON)
- Representative for the Netherlands Ny-Ålesund Science Managers Committee (NySMAC)
- Representative for the Netherlands Committee Arctic Flora and Fauna (CAFF)
- Treasurer Foundation Underwaterbiology
- Webmaster Dutch Ornithological Union

Leusen, P.M. van

- Co-editor European Journal of Archaeology, 2002-2005
- Member UISPP (Union Internationale des Sciences Préhistoriques et Protohistoriques) Commission IV: Methodology
- Co-editor Paleo-aktueel

Mulders, K.E.A.

- Member PhD board ARCHON

Nijboer, A.J.

- Coordinator Library GIA
- Coordinator International Studies Archaeology, International Office, Faculty of Arts
- Co-editor BABesch
- Co-editor Palaeohistoria
- Member Educational Board Archaeology

Prummel, W.

- Member of the Science Board of ARCHON (until June)
- Member of UCCA (from June): Board on academic archaeology education (bachelor, masters and postgraduates)
- Member of the Expert Group Computerization of the Faculty of Arts, RuG
- Participant for Archaeozoology in NOA (Nationale Onderzoeksagenda)
- Member workgroup Bibliography, Groningen
- Member of the jury W.A. van Es-award of SNA (Foundation for Dutch Archaeology)

Raemaekers, D.C.M.

- Member of the Board of Research School ARCHON
- Member of the Educational Advisory Board Archaeology
- Secretary of the Educational Board Archaeology
- Co-author National Research Agenda, chapter Early Prehistory
- Editorial Board Groningen Archaeological Studies

Reinders, H.R.

- Director GIA

Satijn, O.

- PhD board ARCHON
- Member of Advisory Board GIA
- Chairman editorship Journal of Mediterranean Archaeology (Tijdschrift voor Mediterrane Archeologie (TMA))

Stapert, D.

- Co-editor Paleo-aktueel

Veluwenkamp, J.W.

- Member of the Board of the Association Northern Maritime Museum
- Member of the Board of the Foundation Acker Stratingh
- Co-editor Journal of Marine History

Voutsaki, S.

- Council of the Foundation Archaeological Dialogues
- Member of the Advisory Board of Hesperia, the official Journal of the American School of Classical Studies at Athens

3.7 INTERNATIONAL CO-OPERATION

GIA has many contacts with other institutes, particularly in those countries where GIA has long-term fieldwork projects (see also 3.1 Fieldwork and 3.2 Working visits). A survey of co-operation with foreign institutes is given for each cluster.

Cluster 1

RGZM Institute Neuwied (Germany)

University of Ghent (Belgium)

Laboratory of Prehistory, Catholic University Leuven (Belgium)

Department of Geology, Lund University (Sweden)

National Museum, Copenhagen (Denmark)

University of Basel (Switzerland)

University of Manchester, Institute of Science and Technology (UMIST, UK)

Cluster 2

Institut für Meereskunde, Dept. Experimentelle Ökologie, University Kiel (Germany)

Institut für Haustierkunde, University Kiel (Germany)

Niedersächsische Institut für historische Küstenforschung, Wilhemshaven (Germany)

Department of Geology, Lund University (Sweden)

Cluster 3

Archeological Services of Abruzzo (Italy)

Archeological Services of Calabria (Italy)

Archaeological Services of Lazio (Italy)

Archaeological Services of Rome (Italy)

Municipalities of Nettuno (Lazio, Italy) and Francavilla Marittima (Calabria, Italy)

ICCROM (international Council for Conservation at Rome) (Italy)

DendroData, Verona (Italy)
Dutch Institute at Athens (Greece)
Faculty of Classics, Cambridge (UK)
University of California, Los Angeles (USA)

Cluster 4

EU-project FRAGILE with 13 partners from 6 countries
Statens Strålevern, Østerås (Norway)
Norsk Institute for Luftforskning, Oslo (Norway)
IPY-project with 8 partners from 5 countries including USA and Russia
Polish Academy of Sciences, Warsaw (Polen)
ACD-project with 20 partners from 15 countries
Norsk Polar Institute, Tromsø (Norway)
Alfred Wegener Institute for Sea and Polar Research, Potsdam/ Bremerhaven (Germany)
IASC, International Arctic Science Committee, 18 countries

4. PHD TRAINING PROGRAM

The training program of the PhD students is the responsibility of Research Schools: PhD students attend courses organised by ARCHON, the Archaeological Research School of the Netherlands. From 2004 PhD students of GIA followed practical and interdisciplinary courses of the Groningen Research School for the Study of the Humanities (OGWG). Plans for a local Graduate School are in preparation.

4.1 CURRENT PHD PROJECTS

Peter Abbink (Supervisors Hacquebord and Veluwenkamp)

'Dutch Antarctic policy and research since 1945 in comparison with that of Belgium and Germany'.

Luca Alessandri (Supervisors Attema, Peroni and Vanzetti)

'Landscape and human settlement in protohistoric Southern Latium, Italy'.

Kim van Dam (Supervisor Hacquebord)

'Reception of sustainability in the Inuit territory Nunavut'.

Izabel Devriendt (Supervisor Raemaekers)

'Het vuursteen en natuursteen van Swifterbant'.

Nanka Karstkarel (Supervisors Hacquebord and Oerlemans)

'The development of the Antarctic ice sheet, pack ice and iceberg boundaries during the period ca. 1770-1950 on the basis of old maps, charts and logbooks'.

Eleni Milka (Supervisors Attema and Voutsaki).

'Mortuary differentiation and social structure in the Middle Helladic Argolid'.

Saskia Mulder (Supervisors Raemaekers and Cappers)

'The development of agricultural autonomy in the northern Netherlands during the Iron Age, Roman period and early Middle Ages (800 BC-AD 1000)'.

Karin Mulders (Supervisors Hacquebord and Veluwenkamp)

'Culturele contacten tussen West-Europeanen en Russen in het Barentsgebied in middeleeuwse en postmiddeleeuwse tijd (1400-1700) en de invloed op de lokale samenlevingen (Saami, Nenets, Pomoren) in Noord-Rusland'.

Marcel Niekus (Supervisor Raemaekers)

'Stone Age Occupation of the Northern Netherlands. Time, Space, Location and Subsistence'.

Olaf Satijn (Supervisor Attema)

'Een socio-economische en politieke landschapsarcheologie in de overgang van de late Oudheid naar de Middeleeuwen in Lazio'.

Bjørn Smit (Supervisor Raemaekers)

'Waardering en selectie van vuursteenvindplaatsen in de pleistocene gebieden van Noord-Nederland'.

Marrie Tensen (Supervisors Reinders, Hille and Cappers)

Tracing the origin of ancient Egyptian wheat by genetic analyses.

4.2 PHD PROJECTS 1998-2004

In this table the GIA PhD students are listed over the period 1998-2004 (B= Begindate, E = End date, D = Defense, S = Stopped).

Name	1998	1999	2000	2001	2002	2003	2004
Alessandri, L.					1-11 B		
Bakker, R.						8-5 D	
Bosma, K.L.B.				28-2 E			
Dam, K.I.M. van				1-6 B			
Devriendt, I.							1-9 B
Es, L.J.M. van	21-12 E						
Gerrets, D.A.			16-1 E				
Haagsma, M.J.	31-5 E						
Hekman, J.J.						15-5 D	
Hoekstra, T.R.	31-12 E						
Jelsma, J.			15-5 D				
Joolen, E. van					31-8 E	12-6 D	
Karstkarel N.		1-1 B					1-6 E
Leusen, P.M. van					30-5 D		
Milka, E.						1-11 B	
Mulder, S.A.							1-9 B
Mulders, K.E.A.		1-6 B					31-5 E
Niekus, M.J.L.Th.					1-9 B		
Pasveer, J.	31-3 E					1-5 D	
Satijn, O.				1-11 B			
Smit, B.I.							1-1 B
Tensen, M.A.						16-8 B	15-8 E
Ubbens, J.C.	31-12 S						

5. PUBLICATIONS 2004

Number of publications

<i>Department</i>	<i>sp</i>	<i>pp</i>
Archaeology (non-resident members included)	37	10
Total	37	10

Scientific papers

Attema, P.A.J., Review article. De impact van malaria op de antieke demografie; een bespreking van Robert Sallares' 'Malaria and Rome, a history of malaria in ancient Italy', In: Tijdschrift voor Mediterrane Archeologie, 16, nr. 31, 2004, pp. 42-48

Attema, P.A.J., Haas, T. de, Nijboer, A.J., The Astura project, interim report of the 2001 and 2002 campaigns of the Groningen Institute of Archaeology along the coast between Nettuno and Torre Astura (Lazio, Italy), In: BABESCH, nr. 78, 2003, pp. 107-140

Attema, P.A.J., Leusen, P.M. van, Intra-regional and Inter-regional Comparison of Occupation Histories in Three Italian Regions: The RPC Project, In: Alcock, S.E., Cherry, J.F. (red.), Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World, Oxbow Books, Oxford, 2004, pp. 86-100

Attema, P.A.J., Delvigne, J.J., Haas, T. de, Leusen, P.M. van, Recenti ricerche nei pressi di Timpone della Motta (Francavilla Marittima), In: Diodato, L. (red.), Atti II Giornata Archeologica Francavillese, 9 dicembre 2003, (Associazione per la scuola internazionale d'archeologia "Lagaria"), Associazione ONLUS, Francavilla Marittima, 2004, pp. 44-51

Attema, P.A.J., Zoutwinning aan de Tyrrheense kust in bronstijd Italië, In: Tijdschrift voor Mediterrane Archeologie, 16, nr. 31, 2004, pp. 3-11

Attema, P.A.J. (red.), 2004, Centralization, Early urbanization and colonization in first millennium BC Italy and Greece, part 1, Uitg. Peeters, Leuven.

Attema, P.A.J. (red.), Leusen, P.M. van, The Early Roman Colonization of South Lazio; a Survey of Three Landscapes. In: Early urbanization and colonization in first millennium BC Italy and Greece, part 1, 2004, pp. 157-195

Boschman, N., Hacquebord, L. (ed.), Permanence in Diversity: Netherlands Ecological Research on Edgeøya, Spitsbergen, Circumpolar Studies Volume 1, Barkhuis Publishing, Groningen, 2004, 162 p.

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