

MENSCH, SIEDLUNG UND LANDSCHAFT  
IM WECHSEL DER JAHRTAUSENDE AM BALATON

PEOPLE, SETTLEMENT AND LANDSCAPE  
ON LAKE BALATON OVER THE MILLENNIA

Herausgegeben von

Orsolya Heinrich-Tamáská und Péter Straub



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JAHRTAUSENDE AM BALATON

PEOPLE, SETTLEMENT AND LANDSCAPE ON LAKE BALATON  
OVER THE MILLENNIA

# CASTELLUM PANNONICUM PELSONENSE

Vol. 4



Redigunt

A Magyar Tudományos Akadémia  
Bölcsészettudományi Kutatóközpontjának Régészeti Intézete  
(Archäologisches Institut des Geisteswissenschaftlichen Forschungszentrums  
der Ungarischen Akademie der Wissenschaften)  
Geisteswissenschaftliches Zentrum Geschichte und Kultur Ostmitteleuropas e. V.  
Balatoni Múzeum (Balatoni-Museum)

Budapest • Leipzig • Keszthely • Rahden/Westf.  
2014

**MENSCH, SIEDLUNG UND LANDSCHAFT IM  
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440 Seiten, 162 Abbildungen, 28 Farbabbildungen, 20 Tabellen, 28 Tafel, 5 Farbtafel, zzgl. CD-ROM

Gedruckt mit Unterstützung

des Geisteswissenschaftlichen Zentrums Geschichte und Kultur Ostmitteleuropas e. V.,  
gefördert durch das Bundesministerium für Bildung und Forschung

Bibliographische Information der Deutschen Nationalbibliothek

Orsolya Heinrich-Tamáska, Péter Straub (Hrsg.): Mensch, Siedlung und Landschaft im Wechsel der Jahrtausende am Balaton – People, Settlement and Landscape on Lake Balaton over the millennia. Budapest/Leipzig/Keszthely/Rahden Westf. 2014.

(Castellum Pannonicum Pelsonense, Bd. 4, hrsg. v. Archäologisches Institut des Geisteswissenschaftlichen Forschungszentrums der Ungarischen Akademie der Wissenschaften, dem Geisteswissenschaftlichen Zentrum Geschichte und Kultur Ostmitteleuropas e. V., dem Balatoni-Museum)

ISBN 978-3-89646-154-4

© 2014



Verlag Marie Leidorf GmbH  
Geschäftsführer: Dr. Bert Wiegler  
Stellerloh 65. D-32369 Rahden/Westf.  
Tel: +49/(0)5771/9510-74  
Fax: +49/(0)5771/9510-75  
E-Mail: info@vml.de  
Internet: <http://www.vml.de>

ISBN 978-3-89646-154-4

ISSN 1869-9901

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Umschlagentwurf: Anita Mezei, Zalaegerszeg

Umschlagvignette: Vorne: Ausschnitt aus der Karte „Ungarie loca Praecipua...per. Johannem Sambucum Pannonium 1579, Antwerpen (Magyar Földtani Intézet/Geological Institut of Hungary, Budapest).

Hinten: Rekonstruktion des Südtores der Festung von Keszthely-Fenekpuszta, Grafik: Natascha Vogt, LVR-LandesMuseum Bonn.

Satz und Layout: Anita Mezei, Zalaegerszeg

Scans und Bildbearbeitung: Orsolya Heinrich-Tamáska, Krisztián Kolozsvári

Redaktion: Orsolya Heinrich-Tamáska, Geisteswissenschaftliches Zentrum Geschichte und Kultur Ostmitteleuropas e. V. – Internet: [www.uni-leipzig/gwzo](http://www.uni-leipzig/gwzo)

Übersetzung/Sprachredaktion: Péter Tamáska, Dani Hofmann, Madeleine Hummler (englisch), Linda Bártus, Orsolya Heinrich-Tamáska, David Huszti, Evamaria Tepest (deutsch)

Druck und Produktion: Druckhaus Köthen GmbH, Friedrichstr. 11-12, D-06366 Köthen

## Vorwort

Der vierte Band der Reihe *Castellum Pannonicum Pelsonense* ist in mehreren Hinsicht eine Besonderheit. Erstens weil es einem Kollegen gewidmet ist, Dr. Róbert Müller, der sowohl als Autor dieser Reihe als auch als langjährige Erforscher des Fundplatzes von Keszthely-Fenékpuszta hervortrat und zweitens weil man darin zum ersten Mal auch die Vorgeschichte dieses Fundortes und der Balaton-Region mit einbindet.

Die Gründung dieser Reihe ist auf ein ungarisch-deutsches Forschungsprojekt zurückzuführen, die zwischen 2006 und 2009 in Kooperation zwischen dem Archäologischen Institut der Ungarischen Akademie der Wissenschaften, dem Balatoni Museum Keszthely und dem Geisteswissenschaftlichen Zentrum Geschichte und Kultur Ostmitteleuropas e.V. (im folgenden GWZO) durchgeführt worden ist. Die Erforschung des Fundplatzes wurde anschließend Teil eines neuen Forschungsprojektes am GWZO zur „Transformation früher Zentren im mittleren Donauebiet von der Spätantike bis zur Karolingerzeit“. In deren Rahmen konnte das Netzwerk zu Kollegen an Museen und Forschungsinstitute am Balaton und in Ungarn ausgebaut werden und diese erfolgreiche Zusammenarbeit spiegelt sich u. a. in den Beiträgen des vorliegenden Bandes wieder.

Die Entstehung und Untergang bzw. Verlagerung von Grenzen, Zentralorte und -räume lassen sich im transdanubischen Kontext über mehrere Zeitphasen hinweg erforschen: die Umgebung des wichtigsten Sees in Pannonien liefert anschauliche Beispiele für solche Vorgänge. Die Autoren dieses Bandes bieten anhand einzelner Exempel Einblicke in aktuelle Ausgrabungsergebnisse, in die Forschungsgeschichte oder suchen nach neuen methodischen Wege um alte Fragen beantworten zu können.

Der Band wurde chronologisch gegliedert: die Beiträge zu neuen Funde und Befunde zum Neolithikum, zur Kupferzeit und zur Eisenzeit durch Judit P. Barna, Zsuzsanna M. Virág und László Horváth folgt ein weites Spektrum an Studien zu den römerzeitlichen Fundorten am Balaton und seiner näheren Umgebung. Neben der Auswertung von früh entdeckten Grabfunde und Inschriften durch Zsolt Mráv und Péter Prohászka, wenden sich Endre Tóth und Sylvia Palágyi frühchristlichen bzw. als solches interpretierten Befunden zu. Den Kreis schließen die Beiträge von László Schilling und László Rupnik, die sich mit ausgewählten Fundgruppen der Römerzeit beschäftigen. Im dritten Teil des Bandes sind Aufsätze versammelt, die inhaltlich von der Völkerwanderungszeit bis zum Mittelalter reichen. So werden das frühvölkerwanderungszeitliches Gräberfeld von Fonyód durch Péter Straub und die Scheibenfibel der Keszthely-Kultur durch Ágota Perémi und Ádám Bollók behandelt. Zwei weitere Studien widmen sich mittelalterlichen Klöstern: Ágnes Ritoók der Benediktinerabtei von Zalavár und László Vándor dem Franziskanerkloster in Kanizsa. Den Abschnitt schließen Gábor Kiss und László Mayer ab, die den Lebensweg des ersten Erforschers der Keszthely-Gräberfelder, den von Vilmos Lipp nachzeichnen. Den letzten Teil des Ban-

des füllen Beiträge, die die Zusammenarbeit zwischen Archäologie und Naturwissenschaften thematisieren: Daniel Peters (u. a.) und László Költő (u. a.) aus dem Bereich der Archäologie und Anthropologie, Pál Sümegi, Orsolya Heinrich-Tamáska und Ferenc Gyulai (u. a.) aus der Sicht der Paläoökologie, Landschaftsarchäologie und Archäobotanik.

Die Herausgeber möchten an dieser Stelle sämtlichen Autoren, die dem Jubilar zu Ehre ihre Forschungsergebnisse in diesem Band präsentieren, für die gute Zusammenarbeit danken. Ebenso gilt unseren Dank dem Redaktionsteam mit Evamaria Tepest, Daniela Hofmann und Madeleine Hummler und der erfahrene Arbeit am Satz durch Anita Mezei. Wir danken auch dem GWZO hier besonderes Prof. Dr. Christian Lübke und Prof. Dr. Matthias Hardt, die die Herausgabe dieses Bandes unterstützen und dem Ministerium für Bildung und Forschung, die dafür die finanzielle Unterstützung im Rahmen der GWZO-Projektförderung bereit hielt.

Wir hoffen im Namen allen Autoren, dass die hier präsentierten Ergebnisse einen wichtigen Beitrag für künftige Forschungen des Plattensees – Balaton – *Pelso* liefern werden.

Leipzig/Zalaegerszeg, 20.11.2013

die Herausgeber

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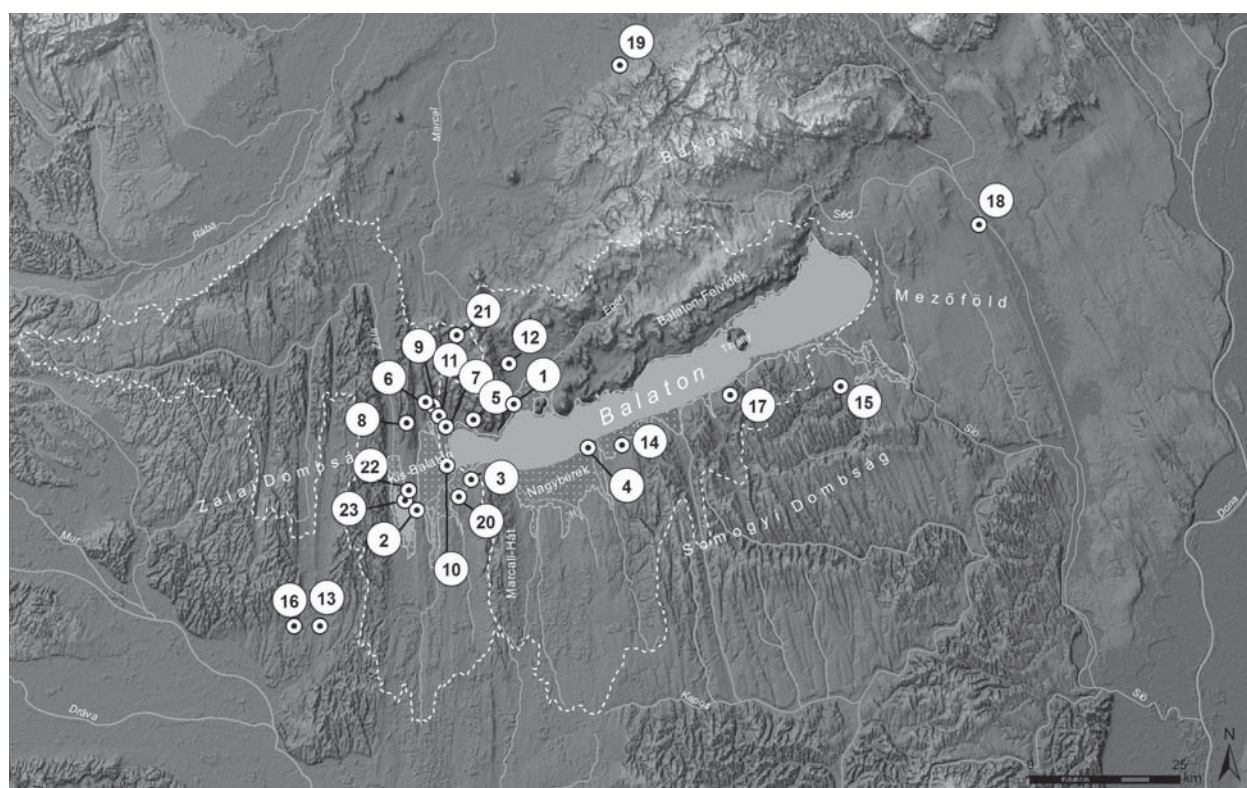


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Die in diesem Band erwähnten Fundplätze um den Balaton  
The sites around Lake Balaton mentioned in this volume



- 1 Balatonederics (P. Sümegi); 2 Balatonhídvég (O. Heinrich-Tamáska); 3 Balatonszentgyörgy (L. Horváth);  
4 Fonyód (P. Straub, F. Gyulai u. a.); 5 Gyenesdiás (L. Horváth); 6 Hévíz-Egregy (L. Horváth);  
7 Keszthely (Á. Bollók, L. Horváth, G. Kiss u. a.); 8 Hévíz-Alsópáhok (O. Heinrich-Tamáska, G. Kiss u. a.);  
9 Keszthely-Dobogó (Á. Bollók, G. Kiss u. a., Zs. Mráv); 10 Keszthely-Fenekpuszta (Á. Bollók, O. Heinrich-Tamáska, L. Horváth, Kiss u. a., L. Rupnik); 11 Keszthely-Vadaskert (L. Horváth); 12 Lesencetomaj-Piroskereszt (Á. Perémi); 13 Nagykanizsa (L. Vándor); 14 Ordacsehi (P. Prohászka); 15 Ságvár (E. Tóth);  
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20 Vörs (L. Költő u. a.); 21 Zalaszent-Tátika (L. Horváth);  
22 Zalavár-Vársziget (Á. Ritoók, O. Heinrich-Tamáska); 23 Zalavár-Basasziget (Zs. M. Virág).



Am 8. Mai 2005 im Balatoni-Museum Keszthely: Róbert Müller als „Ritter des Weines“ im Rahmen der Veranstaltung „Wein und der Balaton“.

On 8 May 2005 at the Balaton Museum in Keszthely: Róbert Müller as “Knight of the Wine” during the *Wine and the Balaton* event.

## Grußwort

Der lange und erfolgreiche Werdegang des pensionierten Museumsdirektors Róbert Müller ruft Anerkennung hervor. Er konnte neben der Leitung des Balatoni-Museums in Keszthely zu einem international anerkannten Archäologen werden und sein Institut zu einem Ort machen, an dem sich neben musealen Aufgaben auch ein Zentrum für Forschung etablierte. Er hat seine Aufgaben im wissenschaftlichen Betrieb ebenso erfüllen können, wie im gesellschaftlichen Leben und der kulturellen Öffentlichkeit der Stadt Keszthely und er setzt seine Arbeit auch nach seiner Pensionierung mit ununterbrochener Energie fort.

Róbert Müller wurde 1944 in Szombathely geboren. 1958, als Gymnasiast, entschied er während einer Klassenfahrt nach Keszthely-Fenékpuszta Archäologe zu werden. Als Student nahm er 1963 an Ausgrabungen dort teil und bereits 1971 leitete er die Erforschung des Nordtores. Nachdem er sein Diplom in Archäologie und Geschichte an der Loránd-Eötvös-Universität erhielt, wurde ihm 1971 der Dokortitel mit *summa cum laude* verliehen und 1978 erhielt er den Status „Kandidat der Geschichtswissenschaft und Archäologie“. Seine über die Entwicklung der Landwirtschaftsgeräte verfasste Studie gilt bis heute als Standardwerk.

Sein Berufsleben begann er im Jahre 1967 am Gőcseji-Museum in Zalaegerszeg. Seit 1970 ist er Mitarbeiter des Balatoni-Museums, dem er ab 1979 bis zu seiner Pensionierung 2005 als Direktor vorstand. In dieser Position war seine Arbeit mit Keszthely und mit dem Komitat Zala sowie mit der Erforschung des Balaton und seiner Umgebung eng verbunden. Auch die im Jahre 1986 eröffnete Dauerausstellung des Balatoni-Museums stellte den See in den Mittelpunkt. Daher lag es für uns nahe für den gewählten Band zu seinem 70. Geburtstag dieses Thema aufzugreifen und mit Beiträgen von Kollegen und Freunde einen bunten Strauß an neuen Forschungen zwischen Neolithikum und Spätmittelalter aus dieser Region zu präsentieren. Die Auswahl der Themen stand an erster Stelle bei der Zusammenstellung der Beiträge, die Reihe an KollegInnen, die sich dem Jubilar zu Ehren an einem solchen Band hätten beteiligen wollen, ist mit Sicherheit länger. Unter den Autoren finden sich aber sowohl lange Wegbegleiter, die ihn bereits seit dem Studium kennen als auch viele jüngere KollegInnen, die durch Zusammenarbeit, ihre Forschungsthemen oder durch andere Anlässe Róbert Müller als Mensch und Kollegen zu schätzen lernten.

Neben den Geländearbeiten und wissenschaftlichen Aufgaben erschien es Róbert Müller wichtig, die Ergebnisse seiner Arbeit auch der breiten Öffentlichkeit zu vermitteln. Er hat zahlreiche Ausstellungen organisiert bzw. mitkonzipiert. Neben den Dauer- und Sonderausstellungen im Balatoni-Museum Keszthely, ist sein Name mit erfolgreichen internationalen, archäologischen Ausstellungen verbunden von Österreich (Die Awaren in der Umgebung von Keszthely, 1990 und Germanen am Plattensee, 2002/2003) über Deutschland (Hunnen, Germanen und Awaren, 1987/1988, Sieben Jahrtausende am Balaton 1989/1990) bis Finnland (Attila Jumalan rouska, 2002).

Seine Arbeit für die öffentliche Vermittlung der Archäologie und für die Denkmalpflege wurde in den letzten Jahren mit zahlreichen Auszeichnungen anerkannt. 2011 erhielt er den Schönvisner-Preis und ein Jahr später die Römer-Gedenkmünze, die sowohl seine reiche fachliche Qualifikation als auch seine Verdienste innerhalb der ungarischen Archäologie auszeichnet. Von Róbert Müllers Wissen und Erfahrungen profitierte man auch in Fachkreisen. Ab 1990 war er Mitglied der Archäologischen Kommission der Ungarischen Akademie der Wissenschaften und er wirkte mehrfach am Archäologischen Komitee des Wissenschaftlichen Landesforschungsfonds Ungarns (OTKA) mit. Ab 2002 war er Mitglied des Ausgrabungskuratoriums des Amtes für kulturelles Erbe, wo er schließlich zwischen 2008 und 2012 auch als Präsident agierte. In dieser Position war es sein Verdienst, dass



2011 eine aktualisierte Fassung des 1954 zuerst aufgelegten Archäologischen Handbuchs (Ungarns) erschien. Als Lehrer nahm er an der universitären Ausbildung von Studenten an den Hochschulen in Keszthely und Pécs teil.

Die wissenschaftliche Biographie von Róbert Müller ist engstens verbunden mit der Erforschung des europaweit bekannten Fundplatzes von Keszthely-Fenekpuszta, wo neben dem spätantiken Erbe awaren- und karolingerzeitliches Fundgut zu Tage gefördert werden konnte. Róbert Müller leitete zwischen 1968 und 2006 dort und im Komitat Zala mehr als 80 Ausgrabungen, seine Hauptforschungsgebiete sind die Völkerwanderungszeit und das frühe Mittelalter. Seine internationalen Kontakte und seine Anerkennung auf dieser Ebene basieren nicht zuletzt auf seinen Vorträgen und Publikationen, deren fremdsprachlicher Ertrag mehr als ein halbes Hundert an der Zahl umfasst. Seine Publikationsliste, die zu seinem 60. Geburtstag im 14. Band des Zalai-Múzeums zusammengestellt wurde, hat in den letzten 10 Jahren noch beachtlich zugenommen und legt ein Zeugnis von seinem aktiven und erfolgreichen wissenschaftlichen Wirken ab. Darüber hinaus organisiert er weiterhin Ausstellungen, er hält Vorträge und stellt Bücher vor und steht als Lektor und Ausgrabungskonsultant jungen Kollegen hilfreich zur Seite.

Der erste Band der 2010 gegründeten Reihe Castellum Pannonicum Pelsonense erschien aus seiner Feder: Er stellte darin die archäologischen Ergebnisse der Gräberfelder vor der Südmauer der spätrömischen Innenbefestigung von Keszthely-Fenekpuszta vor. Als Höhepunkt seiner fachlichen Karriere erhielt er für dieses Werk am 2.10.2013 den Dokortitel der Ungarischen Akademie der Wissenschaften.

Die Herausgeber dieses Bandes haben als junge Kollegen viel Unterstützung und kreative Kritik von Róbert Müller erhalten. Er hat unsere Arbeit hilfreich unterstützt und er steht bei unseren aktuellen Forschungen in Keszthely-Fenekpuszta mit Rat und Tat zur Seite. Wir möchten an dieser Stelle dem Jubilar für seine Hilfe und Freundschaft danken und mit allen Autoren dieses Bandes zusammen wünschen wir ihm Gesundheit, damit er seine zahlreichen Pläne in den folgenden Jahren verwirklichen kann!

Leipzig/Zalaegerszeg, 20.11.2013

Orsolya Heinrich-Tamáska und Péter Straub



2. Oktober 2013: bei der Verteidigung des Dokortitels der Ungarischen Akademie der Wissenschaften.

On 2 October 2013, Róbert Müller on the occasion of his doctoral *viva* examination at the Hungarian Academy of Sciences.

(von links nach rechts/from left to right): László Borhy, Dénes Gábler, Csanád Bálint, Miklós Takács, Zsolt Visy, István Draskóczy, László Veszprémy, Róbert Müller.



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Dr. Helmut Windl (Traismauer)  
Prof. Dr. Josef Zábojník (Nitra)  
Dr. Paula Zsidi (Budapest)

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### 2007

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## 2013

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# ARCHÄOLOGIE UND NATURWISSENSCHAFTEN

## ARCHAEOLOGY AND NATURAL SCIENCES



Beudant, F. S., Geologische Karte Ungarns, 1822. Ausschnitt Balaton.

Beudant, F. S., Geological Map of Hungary, 1822. Balaton sheet.





Fasching Mitte der 1980er Jahre mit den Mitarbeitern des Balatoni-Museums in Keszthely (in der Mitte Róbert Müller mit seiner Frau Liza).

Carnival in the mid-1980s with colleagues of the Balaton Museum in Keszthely (in the centre, Róbert Müller and his wife Liza).



1997 in Kulcs, Treffen der Absolventen der Archäologie des Jahrgangs 1966 der Loránd-Eötvös-Universität mit Ehepartnern.

In 1997 in Kulcs, reunion of the 1966 archaeology graduates of the Loránd Eötvös University, with partners.

Unten (von links nach rechts)/Front row (from left to right):

Júlia Altmann, Katalin Gémes, Sylvia Palágyi, Liza Müller, Margit Németh.

Oben (von links nach rechts)/Back row (from left to right):

Zsolt Visy, Gábor Vékony, Éva Vadász, György Kemény, Róbert Müller, Judit Gádor, Aba Hadházy.



Balatoni-Museum Keszthely, 2004: zum Anlass des 60. Geburtstages von Róbert Müller mit den damaligen und früheren Mitarbeitern der Einrichtung.

In 2004 at the Balaton Museum in Keszthely on the occasion of Róbert Müller's 60<sup>th</sup> birthday with former and then active colleagues.

# Families, finds and generations: an interdisciplinary experiment at the early medieval cemetery of Vörs-Papkert B<sup>1</sup>

László Költő, József Szentpéteri, Zsolt Bernert and Ildikó Pap

## Introduction

The biochemical analysis of blood groups using serological data from bone samples introduced and applied by Imre Lengyel (1934–1992) gradually gained currency in Hungarian archaeology from the mid-1960s, and was used in the examination of countless sites from prehistory to the later Middle Ages<sup>2</sup>. Suffice here to cite but a few examples of the widespread application of this procedure: Neolithic: Mórággy Tűzkődomb<sup>3</sup>; Late Bronze Age<sup>4</sup>; Keszthely culture: Keszthely-Horreum<sup>5</sup>;

Avar period: Kisköre-Halastó<sup>6</sup>, Kereki<sup>7</sup>, and Pókaszeptk<sup>8</sup>; Carolingian period: Garabonc I-II<sup>9</sup>; Hungarian Conquest period: Algyő<sup>10</sup>, Karos<sup>11</sup>, and Szakony<sup>12</sup>; Árpád period: Letkés-Téglaégető, Szob-Kiserdő<sup>13</sup>, and Sza-

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Gräberfeldes von Keszthely-Fenekpuszta aus dem 6. Jahrhundert. *Jahrb. RGZM* 18, 1971, 191–199; P. STRAUB, A Keszthely-kultúra kronológiai és etnikai hátterének újabb alternatívája (Die neuere Alternative des chronologischen und ethnischen Hintergrundes der Keszthely-Kultur). *Zalai Múz.* 9, 1999, 195–224 here 199 f.

<sup>1</sup> The Hungarian version of this paper "Családok, leletek, generációk. Egy interdiszciplináris kísérlet tanulságai: Vörs-Papkert B" will be published by the same authors in: A. Anders/Cs. Balogh/A. Türk (eds), *Avarok pusztái. Tanulmányok Lőrinczy Gábor 60. születésnapjára*. *Opitz Arch.* 6 (Budapest, in press).

<sup>2</sup> I. LENGYEL, ABO blood typing of human skeletal remains in Hungary. *Am. Journal of Physical Anthr.* 63, 1984, 283–290.

<sup>3</sup> I. LENGYEL, Sozialarchäologische Deutung der Ergebnisse von Laboruntersuchungen unter besonderer Berücksichtigung der spätneolithischen Gräbergruppe von Mórággy-Tűzkődomb. *Béri Balogh Ádám Múz. Évk.* XIII, 1986, 155–169; I. ZALAI-GAÁL, Közép-európai neolitikus temetők szociálarcheológiai elemzése (Sozialarchäologische Untersuchungen des mitteleuropäischen Neolithikums aufgrund der Gräberfeldanalyse). *Béri Balogh Ádám Múz. Évk.* XIV, 1988, 3–178 here 15–31, 77; IDEM, A státus és hierarchia kérdései a lengyeli kultúra közösségeiben (Die Fragen des Status und der Hierarchie in den Gemeinschaften der Lengyel-Kultur). *Janus Pannonius Múz. Évk.* 44–45, 1999–2000 (2002) 43–69 here 56.

<sup>4</sup> E. PATEK, A Szabó János Győző által feltárt „preszkíta” síranyag. A Füzesabony-Mezőcsát típusú temetkezések újabb emlékei Heves megyében (Die von János Győző Szabó freigelegten „preskythischen” Grabfunde. Die neuen Denkmäler der Bestattungen des Typs Füzesabony-Mezőcsát im Komitat Heves). *Agria XXV–XXVI*, 1989–1990 (1990) 61–118 here 62, 64 f.

<sup>5</sup> I. LENGYEL, Die Laboratoriumuntersuchung des

<sup>6</sup> I. LENGYEL, Laboratoriumsuntersuchungen an den menschlichen Knochenresten des Grabes Nr. 47. aus dem Gräberfeld von Kisköre. *Acta Arch. Acad. Scien. Hungaricae* 25, 1973, 289–291; É. GARAM, Das awarenzeitliche Gräberfeld von Kisköre. *Fontes Arch. Hungariae* (Budapest 1979).

<sup>7</sup> KÖLTŐ 2005, 216.

<sup>8</sup> O. BOTTYÁN, Pókaszeptk kora-avarkori temetőjének antropológiai értékelése (Anthropologische Auswertung des Pókaszeptker Friedhofes aus der frühawaren Periode). *Anthr. Hungarica* XIV, 1975, 5–56 here 7–9.

<sup>9</sup> K. ÉRY, Anthropologische Untersuchungen an der Populationen aus dem 9. Jahrhundert in Westungarn (Gräberfelder Garabonc I und II, Zalaszabar-Dezsősziget). *Antaeus* 21, 1992, 375–381; SZÓKE 1992; IDEM 1994.

<sup>10</sup> KÜRTI 1997; IDEM 1998, 22 f.

<sup>11</sup> L. RÉVÉSZ, A karosi honfoglalás kori temetők. Régészeti adatok a Felső Tisza-vidék X. századi történetéhez (Die Gräberfelder von Karos aus der Landnahmezeit. Archäologische Angaben zur Geschichte des oberen Theißgebietes im 10. Jahrhundert). (Miskolc 1996) 197 f.

<sup>12</sup> K. ÉRY, Honfoglaló magyar csontvázletek Szakonyról (Data about skeletal finds of Hungarian conquerors from Szakony). *Arrabona* 19–20, 1977–1978 (1978) 177–182; L. RÉVÉSZ, Magyar honfoglalás kori sírok keltezési lehetőségei. Régészeti keltezés – természettudományi keltezés (Dating options of the graves from the time of the Magyar conquest. Archaeological dating – scientific dating). *Arrabona* 44,1, 2006, 411–440 here 418.

<sup>13</sup> K. BAKAY, A X–XI. századi magyar köznép temetkezési rendjének egyik változata (Eine Variante der Bestattungsordnung des ungarischen gemeinen

bolcs<sup>14</sup>; Middle Ages: Balatonfüred<sup>15</sup>, Kislánána<sup>16</sup>, and Tornaszentmárton<sup>17</sup>; Ottoman period: Dombóvár<sup>18</sup>, and Szentendre<sup>19</sup>. The Vörs site is unique in that – unlike other sites chosen for analyses of this type, where a single period, a single archaeological culture or a single ethnic group is usually represented – the anthropological material from Vörs spans several periods and comprises various ethnic groups (Late Avar period, Carolingian period, Hungarian Conquest period and early Árpád period), and thus one of the key questions during the assessment of the material was whether the observed phenomena represented contemporaneity or continuity, or both.

The Vörs-Papkert B site was excavated by the Directorate of Somogy County Museums between 1983 and 1996 as part of the Little Balaton research project. The burials of an early medieval cemetery were uncovered within this project. The osteo-chemical analysis of the

human remains was an important part of the cemetery's assessment. Imre Lengyel's serological analysis included the greater part of the 578 burials excavated up to 1991. His sudden death in 1992 prevented him from examining every skeleton from the total of 716 graves that the fully excavated cemetery contained. In parallel to the archaeological work on the site, Lengyel analysed over 400 graves, on the basis of which he reconstructed 48 genetic units (53 including sub-groups: Fig. 1). One of the most significant results was the reconstruction of 'families' whose members had been buried with grave goods previously assigned, partly on the basis of the relative chronology of such grave goods, to different archaeological periods.

While carrying out the serological analysis of the human remains from Vörs, Imre Lengyel was unaware of the chronological assignment of the grave goods accompanying the burials. After determining the sex, age, blood group and collagen group of the deceased, he proceeded to determine possible consanguinity between individuals whose grave goods could be securely assigned to a specific archaeological period (based on distance analysis and other statistical and mathematical procedures). He initially identified eight genetic groups, to which he later added a ninth (after re-determining the composition of one group; Group 46a), and he can thus be credited with identifying nine genetic units.

Aside from a few inhumation burials of the Early Bronze Age Kisapostag group, four major horizons could be distinguished in the Vörs-Papkert B cemetery using the conventional chronology based on archaeological periods: Late Avar period (8<sup>th</sup>–9<sup>th</sup> centuries AD), Carolingian period (9<sup>th</sup> century), Hungarian Conquest period (10<sup>th</sup> century) and Early Árpád period (11<sup>th</sup> century). One of the most important chronological issues in the assessment of the Vörs-Papkert population is the problem of the assimilation of the Late Avar population (its survival into the 9<sup>th</sup> century and the possible identification of their descendants during the Hungarian Conquest period)<sup>20</sup>.

Volkes in den 10. und 11. Jahrhunderten). Somogyi Múz. Közl. 2, 1975, 23–47; IDEM, Honfoglalás- és államalapítás-kori temetők az Ipoly mentén (Gräberfelder an der Eipel aus der Zeit der ungarischen Landnahme und Staatsgründung). Stud. Comitatus 6 (Szentendre 1978).

<sup>14</sup> I. PAP, Anthropological investigation of the Arpadian age population of Szabolcs-Petőfi utca. Anthrop. Hung. 17, 1980–1981 (1981) 65–107; KOVÁCS 1994.

<sup>15</sup> I. LENGYEL, VII. Kémiai vizsgálatok a balatonfüredi középkori templomromból előkerült csontokon (VII. Chemische Untersuchungen an den bei der Freilegung der Kirchenruine von Balatonfüred zum Vorschein gekommenen Knochen). Beitrag in I. VALTER et al., A Balatonfüred-temetői templomrom feltárása és helyreállítása (Geschichte, Bauperioden und Freilegung der Kirchenruine im Friedhof zu Balatonfüred). Veszprém Megyei Múz. Közl. 11, 1972, 149–194 here 182–184.

<sup>16</sup> J. GY. SZABÓ, Gótikus pártaövek a kislánai vártetőjéből (Spätmittelalterliche Prunkgürteln aus dem Burg-Friedhof von Kislánána). Egrei Múz. Évk. 8–9, 1972, 57–90 here 63.

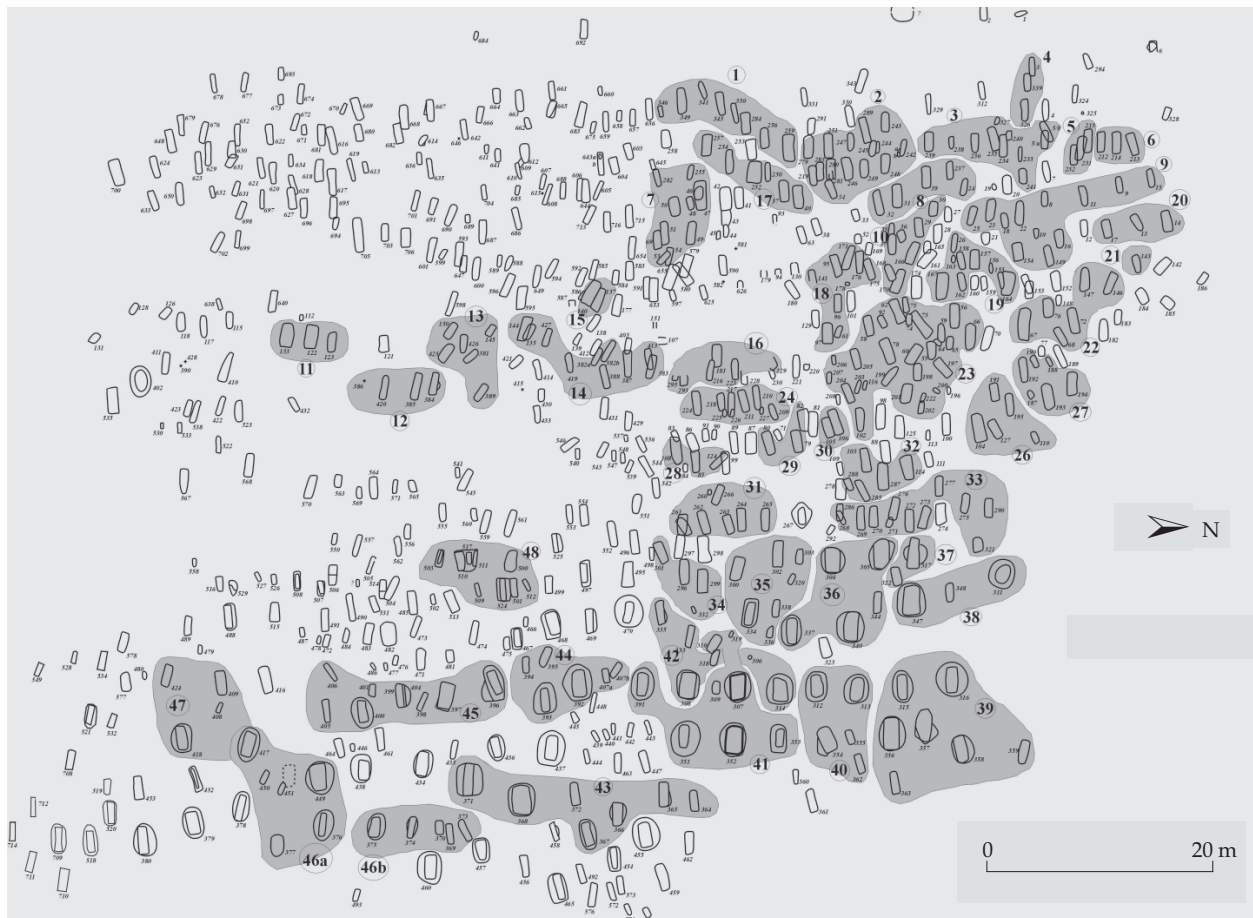
<sup>17</sup> I. VALTER, A tornaszentandrás r. k. templom kutatása (Research of the Roman Catholic Church in Tornaszentandrás). Hermann Ottó Múz. Évk. 19, 1980, 99–130 here 114.

<sup>18</sup> K. ÉRY, Balkáni eredetű, török kori népesség csontmaradványai Dombóvár határából (The osteological remains of a Turkish period Balkan population in the vicinity of Dombóvár). Béri Balogh Ádám Múz. Évk. X–XI, 1979–1980 (1982) 225–298 here 226.

<sup>19</sup> Zs. LOVAG, Krisztus kínszenvedésének eszközeivel díszített gyűrű Szentendréről (Ein Ring mit den Leidenswerkzeugen Christi aus Szentendre). Stud. Comitatus 17, 1985, 499–507 here 499.

<sup>20</sup> L. KÖLTŐ et al., Etnikumok, régészeti kultúrák a koraközépkori Pannoniában (Egy Somogy-megyei régészeti ásatás előzetes eredményei – Vörs). (Ethnika, archäologische Kulturen im frühmittelalterlichen Pannonien [Vorläufige Ergebnisse einer archäologi-





**Fig. 1** The genetic groups identified by Imre Lengyel in the Vörs-Papkert B cemetery.

The cemetery's anthropological analysis was begun by Ildikó Pap, the palaeo-stomatological analysis was carried out by Ildikó Szikossy<sup>21</sup> and the facial reconstruction was undertaken by Ágnes Kustár<sup>22</sup>. After the conclusion of the excavations, the cemetery's entire anthropological material was examined by Zsolt Bernert, who employed the procedures conventionally used in physical

anthropology<sup>23</sup>. The comparison of Imre Lengyel's sex and age determinations, based on his serological analyses, with the results of the morphological analyses revealed a number of contradictions, calling for a re-assessment of the reliability of the genetic units published earlier: the main findings of this research will be summarised here.

sche Ausgrabung im Komitat Somogy/Vörs]). Jósa András Múz. Évk. XXX-XXXII, 1987-1989 (1992) 283-307; EADEM, Vorläufige Ergebnisse der Ausgrabungen am Gräberfeld Vörs aus dem 9.-11. Jahrhundert (Ungarn, Komitat Somogy). Zur Problematik der Ethnien und archäologischen Kulturen im frühmittelalterlichen Pannonien. Slovenská Arch. XL2, 1992, 223-241.

<sup>21</sup> I. SZIKOSSY, Studies on oral pathology in the cemetery of Vörs-Papkert B, Western Hungary. *Annales Hist.-Naturales Mus. Nat. Hungarici* 91, 1999, 219-230.

<sup>22</sup> Á. KUSTÁR, Arcrekonstrukciók a Vörs-Papkert „B” temetőből (Face reconstruction from Vörs-Papkert „B” cemetery). In: M. Kiss/I. Lengvári (eds), „Együtt a Kárpát-medencében”. A népvándorlaskor fiatal kutatóinak VII. összejövedele. Pécs 1996. szeptember 22-29 (Pécs 2001) 135-155.

<sup>23</sup> ZS. BERNERT, Paleoantropológiai programcsomag (Paleoanthropological program package). *Folia Anthr.* 3, 2005, 71-74; IDEM, Data for the calculation of body height on the basis of extremities of individuals living in different historical periods in the Carpathian Basin. *Annales Hist.-Naturales Mus. Nat. Hungarici* 100, 2008, 385-397; IDEM/S. ÉVINGER/T. HAJDU, New data on the biological age estimation of children using bone measurements based on historical populations from the Carpathian Basin. *Annales Hist.-Naturales Mus. Nat. Hungarici* 99, 2007, 199-206; I. PAP et al., Történeti embertani protokoll a régészeti feltárások embertani anyagainak kezelésére, alapszintű feldolgozására és elsődleges tudományos vizsgálatára (Historical Anthropological Protocol for recovering, curation, caring and preliminary anthropological investigations of the anthropological materials deriving from archaeological excavation). *Anthrop. Közl.* 50, 2009, 105-123.

In the first phase, we examined sixty individuals of nine families reconstructed on the basis of Lengyel's serological work. The sex determinations based on the serological analysis and the morphological traits identified by Bernert are at variance in eight cases (13.3%). This is a high proportion in itself, even though the interpretation of a particular family tree is rendered wholly meaningless only in a few instances. In other cases, the age determinations are contradictory, challenging earlier reconstructions (e.g. descendants in the case of individuals who did not live to a reproductive age). During our analysis, we strove to eliminate family reconstructions containing controversial data of this type and limit our analysis to the groups where the anthropological (both serological and morphological) data were consistent and which were also suitable for tracing the material heritage of consecutive generations from an archaeological point of view.

### The genetic groups reconstructed by serological analysis

In the following, will be described the nine 'genetic units' whose family tree was reconstructed by Imre Lengyel. The tables also show the determinations by Zsolt Bernert. In the case of controversial data, we shall, if possible, seek to resolve the contradictions with the aid of the grave goods, and then establish the chronology of the successive generations based on finds with a dating value.

#### Group 5 (Appendix, No 1; Fig. 2<sup>24</sup>)

According to Lengyel, this generation is made up of a mother-daughter-grand-daughter series. The grandmother (Grave 232) died young; her husband could not be identified. Her daughter (Grave 215), who was probably a

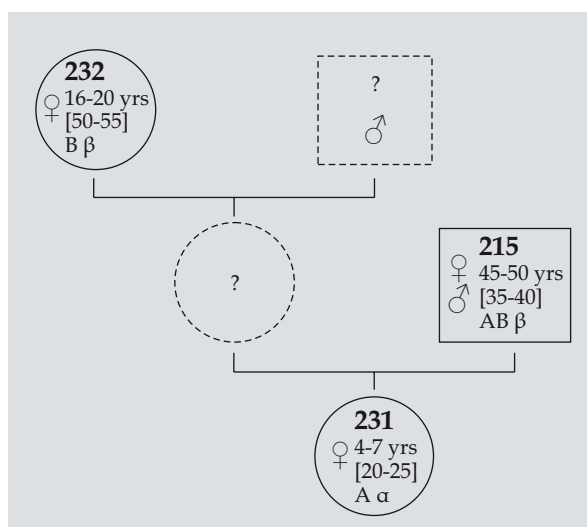


Fig. 2 Vörs-Papkert B: Genetic group ('family') 5.

small girl at the time of the death of her grandmother, died much later, at the upper end of the mature age group. Her husband could not be identified either. The grand-daughter (Grave 231) representing the third generation inherited the father's collagen type.

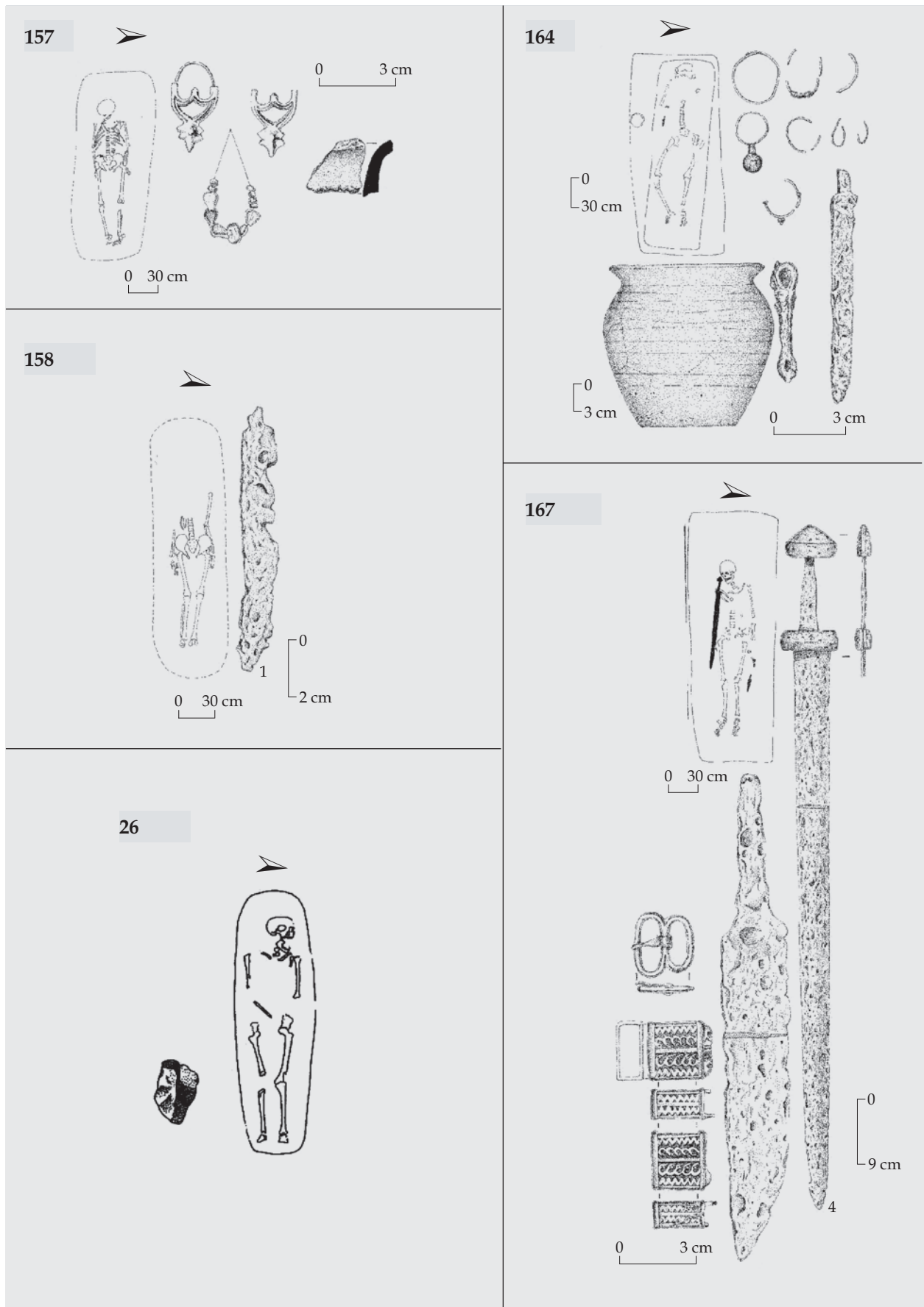
According to Bernert's analysis, the individual buried in Grave 215 was a 35-40 year-old male. The corrected family tree (male instead of female grandparent) does not render the genealogical line meaningless. None of the three individuals had any grave goods. The suggested 9<sup>th</sup> century date, based on the location of the graves near the north-western edge of the cemetery, cannot be proven conclusively.

#### Group 19 (Appendix, No. 2; Fig. 3; Pl. I)

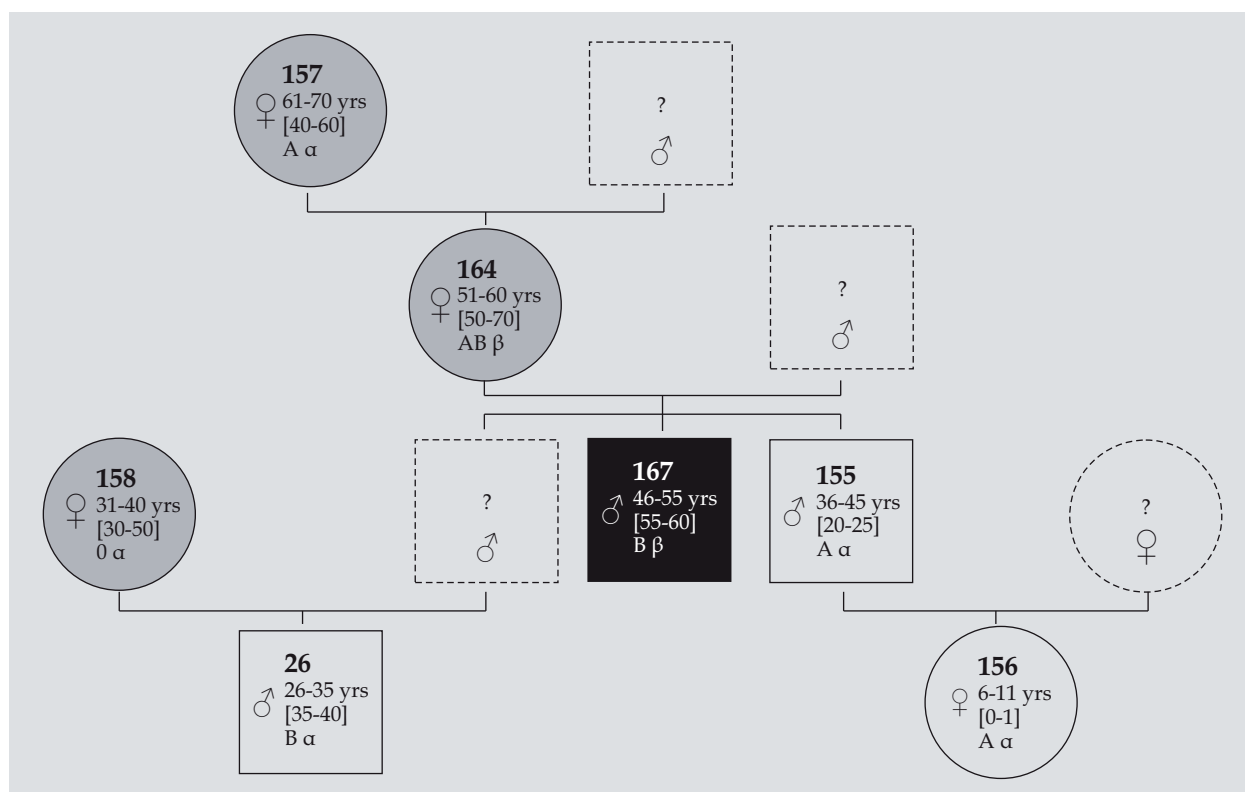
The four-generation 'family' reconstructed by Lengyel began with the grandmother (Grave 157), who had probably been born elsewhere. Her husband was not identified, and neither was the husband of the daughter (Grave 164) representing the next generation. One of her descendants, a son (Grave 155) had a daughter (Grave 156), but his wife could not be identified. The other male (Grave 158) married into the family, becoming the husband of the daughter of the woman in Grave 164, i.e. the younger or older sister of the man buried in Grave 155. Although the wife of the man buried in Grave 158 could not be identified, the genetic link between the family's other members is indicated by the young man buried in Grave 26, in whose

<sup>24</sup> The family trees in Figures 2-10 show the grave number at the top, followed by the deceased's sex (indicated by internationally used pictograms) and age (Lengyel's sex and age determination is followed by Bernert's, shown in square brackets), the blood type (0, A, B, AB) and the collagen type ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ). The figures were drawn by Krisztián Balla, in part based on Lengyel's notes and in part on the guidelines given by the authors. The illustrations of the finds from the burials were made by Zsolt Nyári.





Pl. I Vörs-Papkert B, Group 19: Graves 26 (without scale), 157, 158, 164 and 167.



**Fig. 3** Vörs-Papkert B: Genetic group ('family') 19 (light gray = Carolingian period; black = Hungarian Conquest period).

case gene B of the grandmother's AB phenotype could be identified together with the father's collagen type. The third child (Grave 167) of the woman buried in Grave 164 was a man who lived to a mature age. The reconstructed family tree suggests that this man was buried last. Interestingly, the men laid to rest in Graves 26 and 167 apparently had no wives or descendants in the grave group, even though they had reached a reproductive age, suggesting that the tradition of family burials had been broken (perhaps owing to migration).

According to Bernert's data, a single case called for the correction of the sex determination: the individual buried in Grave 158 was a 30–50 year-old woman. This correction does not affect the family tree because there was no spouse.

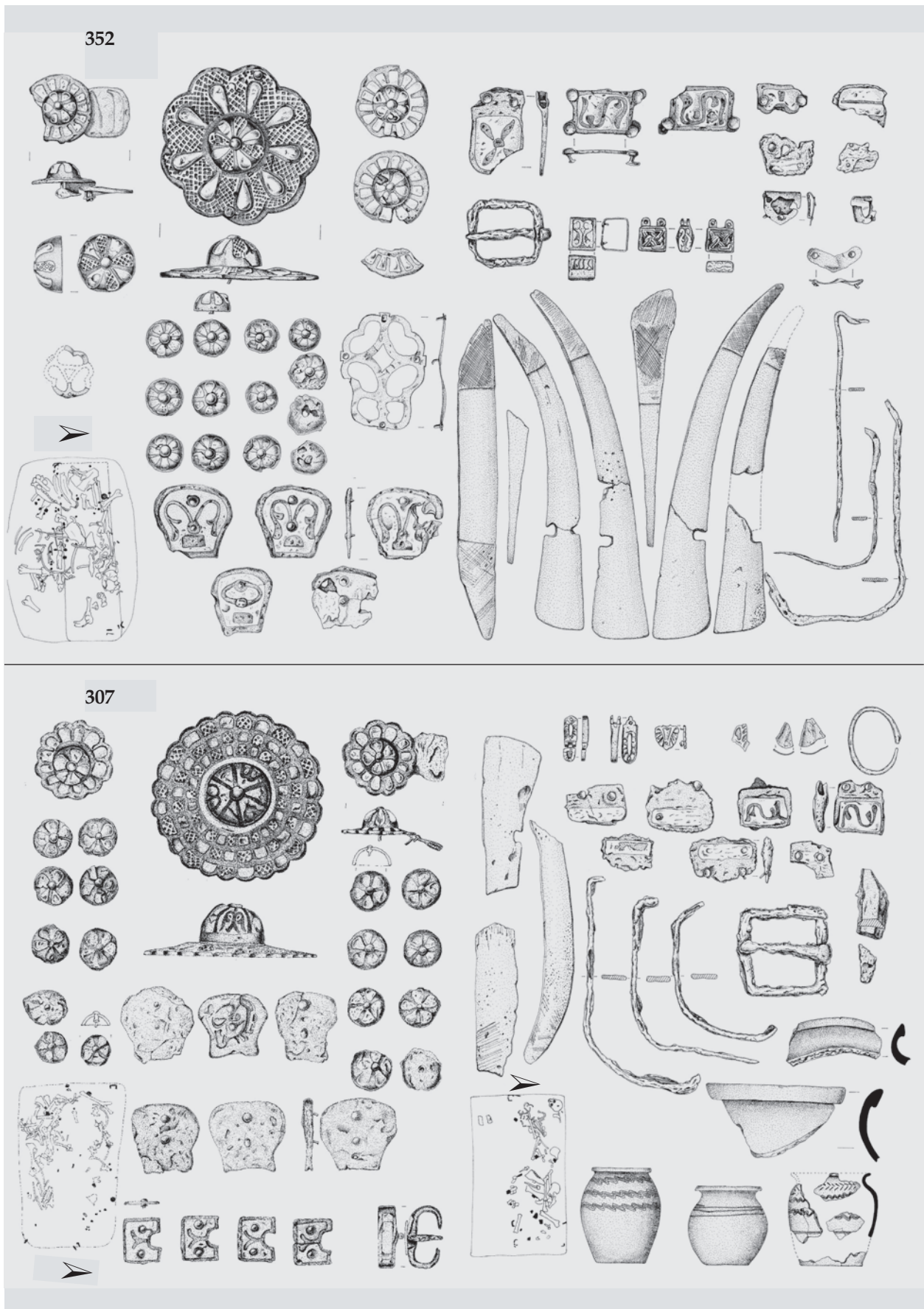
The group is made up of seven individuals (four men and three women). Three burials contained grave goods: Grave 157 yielded a pair of cast bronze crescent-shaped earrings with a star pendant and a necklace made of translucent light green and light blue melon seed beads, a dark blue, flattened spherical bead and millet beads; Grave 164 contained an earring with a

spherical pendant and wire trinkets with plain or wire-wound hoop; and Grave 167 had a double-edged Carolingian sword, a lyre-shaped bronze buckle, a bronze strap holder with two opposed animal heads and an iron knife.

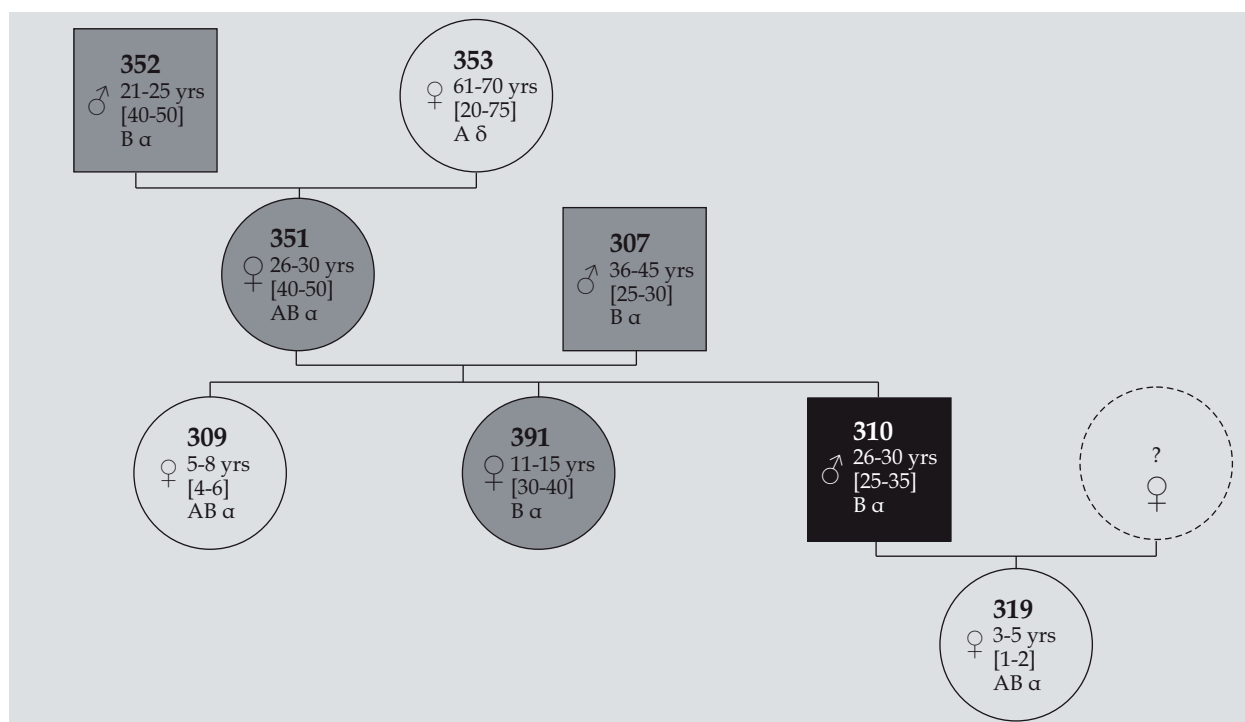
#### Group 41 (Appendix, Nr. 3; Fig. 4; Pl. II–III)

Lengyel reconstructed a four-generation model: the great-grandfather (Grave 352) and the great-grandmother (Grave 353) had one daughter (Grave 351), representing the next generation. Her husband (Grave 307) was also identified. This couple had three children (Graves (309, 391 and 310), only one of whom (Grave 310) lived to a reproductive age. The wife of the man interred in Grave 310 is missing from the group, but his daughter (Grave 319) could be identified.

The anthropological analysis indicated that the sex determination of the individual buried in Grave 351 was controversial. According to Bernert, the deceased was a 40–50 year-old man (however, the grave goods would suggest a female burial: a clasp with animal figures was re-



Pl. II Vörs-Papkert B, Group 41: Graves 307 and 352 (without scale).



**Fig. 4** Vörs-Papkert B: Genetic group ('family') 41 (dark gray = Late Avar period; black = Hungarian Conquest period).

covered from the robbed grave). The other difference is the age of the woman from Grave 391, another disturbed burial: according to the serological analysis, she died while still in her teens, while the morphological analysis indicates that she died at a mature age.

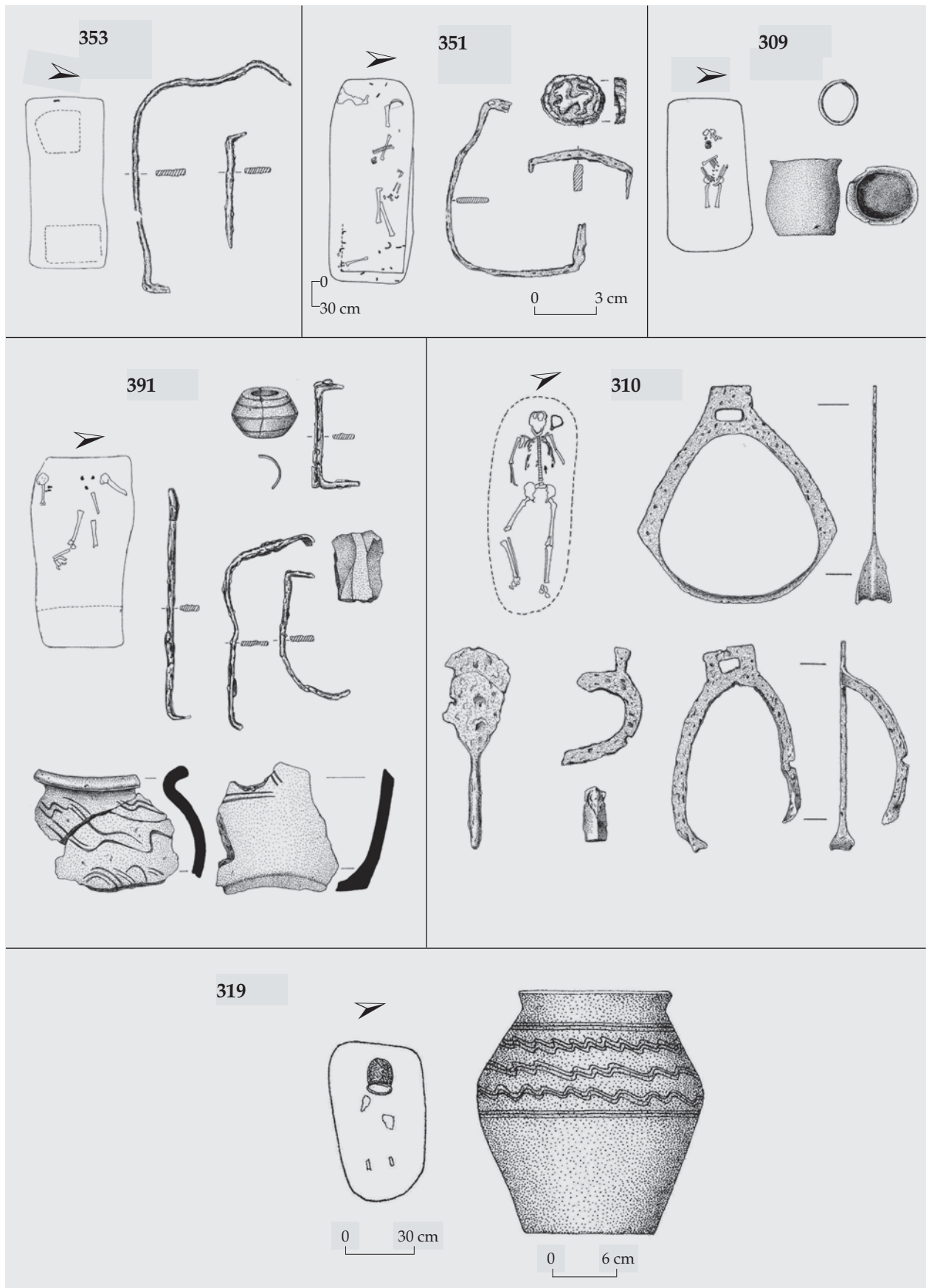
The group is made up of eight individuals, four of whom were buried with their horses. Five graves contained grave goods with a dating value, despite the plundering of the graves. On the testimony of the grave goods, the two men buried in Graves 352 and 307, whose grave goods included gilt bronze belt mounts decorated with an interlace pattern and scale motifs, gilt bronze and silver harness mounts, silver-inlaid iron harness rosettes and bows stiffened with bone plaques, were both high-ranking leaders of their community (according to the family tree reconstruction, the older man was the father-in-law of the younger one). The boy (Grave 310) representing the next generation was buried in a grave with a symbolic horse burial, conforming to the funerary customs of the Hungarian Conquest period, while his sister (Grave 391) was interred with a spindle whorl, a custom more in line with Avar tradition.

#### Group 42 (Appendix, No. 4; Fig. 5; Pl. IV)

Lengyel identified a two-generation family. The central figure was the father (Grave 314), whose younger brother (Grave 308) did not reach a reproductive age and was also buried in this group. The father's wife (Grave 335) and their three sons (Graves 306, 318, 333) could also be identified. Only one son (Grave 333) lived to the adult-mature transition age, but his family relationship could not be identified. The family is characterised by a high degree of homogeneity: each of the identified family members, even the mother who married into the family, is homozygous in view of the O phenotype. It would appear that there was a high degree of endogamy in the family, perhaps owing to some social or economic reason.

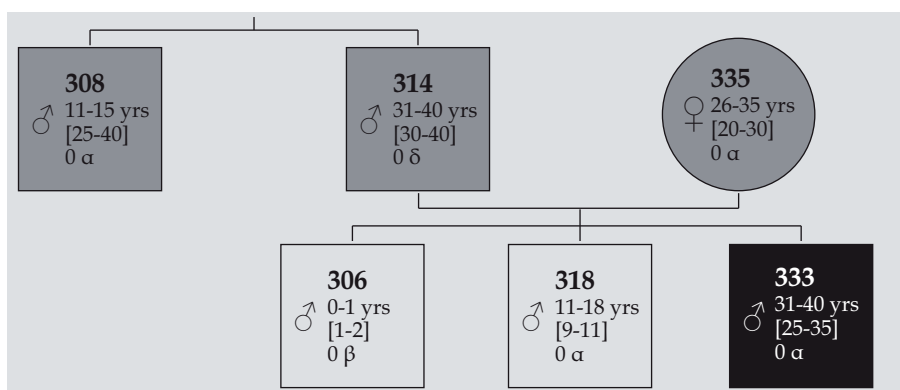
The greatest divergence between the results of the anthropological/morphological data and the serological analysis can be noted in the case of Grave 308, a plundered horse burial: the serological analysis suggested the grave of an 11–15 year-old boy, while the anthropological evaluation indicated a 25–40 year-old man. It must be noted, however, that bones of a 10–12 year-old boy was also found in this grave. The correction does not influence the interpretation of the reconstructed family tree.



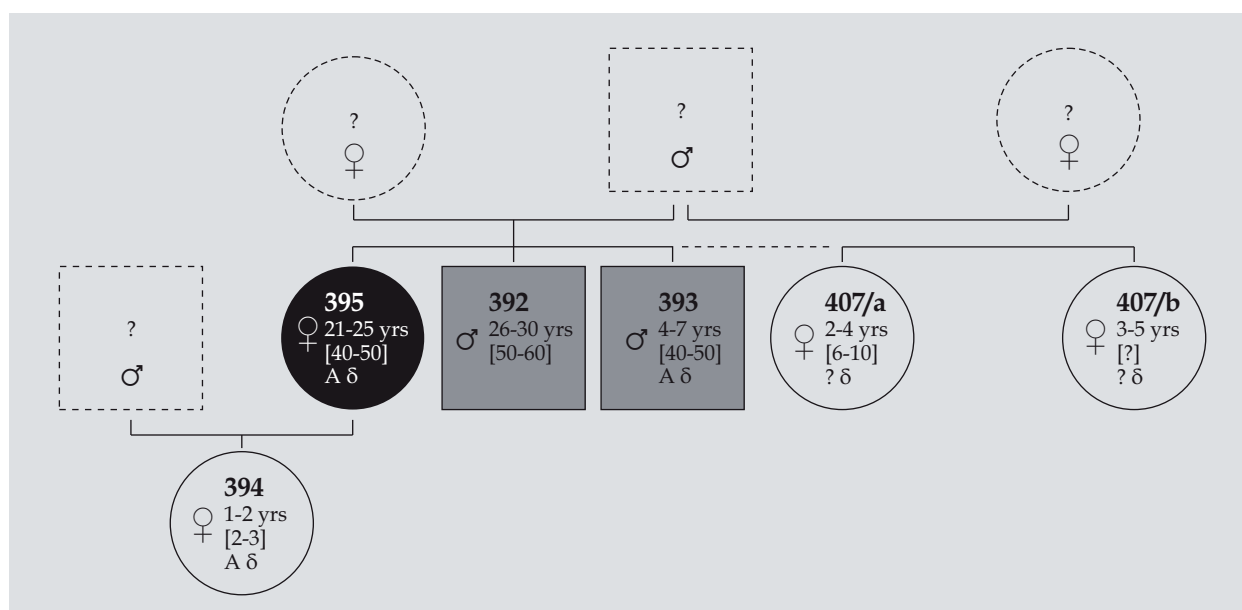


Pl. III Vörs-Papkert B, Group 41 (continued): Graves 309, 310, 319, 351, 353 and 391 (309, 301, 353, 391 without scale).





**Fig. 5** Vörs-Papkert B: Genetic group ('family') 42 (dark gray = Late Avar period; black = Hungarian Conquest period).



**Fig. 6** Vörs-Papkert B: Genetic group ('family') 44 (dark gray = Late Avar period; black = Hungarian Conquest period).

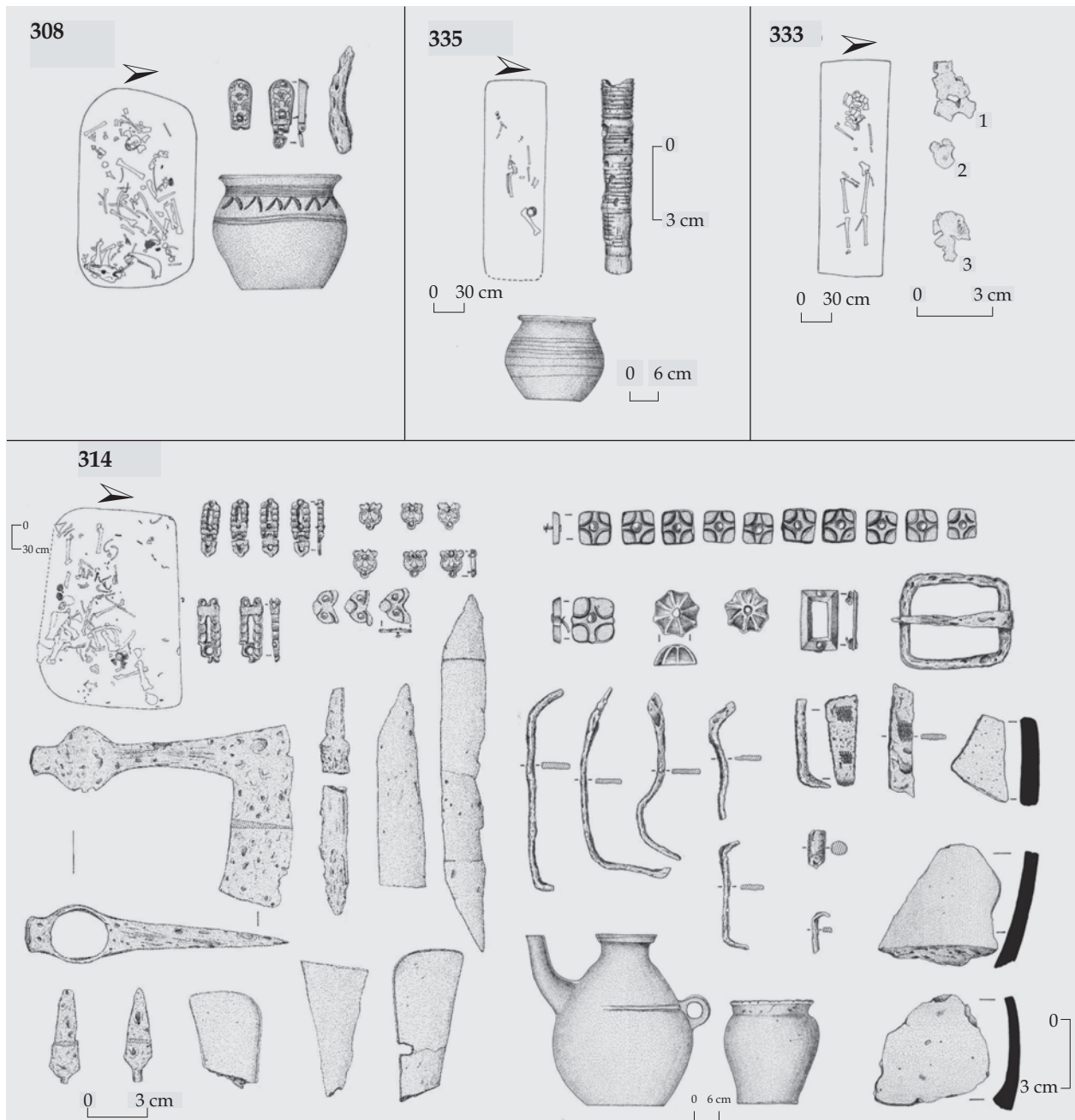
Grave goods with a dating value were recovered from the robbed burials of the same generation brothers interred with their horses: bronze pendent mounts with punched background, probably from a weapon belt, were recovered from Grave 308, and tinned bronze belt mounts decorated with scale motifs, a bow, arrowheads, a battle-axe and gilt bronze star-patterned and four-lobed harness mounts from Grave 314. The plundered female grave (335) contained a bone needle-case.

#### Group 44 (Appendix, No. 5; Fig. 6; Pl. V)

Lengyel reconstructed a very fragmentary family tree, which needs to be complemented, and thus his reconstruction contains many un-

certainities. Of the five members of the 'middle' generation, two were half-sisters (407a and 407b) of the other three persons inhumed in Graves 395, 392 and 393, suggesting that the initial generation had been made up of three individuals (e.g. the father had two wives). However, this initial generation could not be identified. The daughter (Grave 394) of the woman buried in Grave 395 could be identified in the group, although the father remains unknown. This family was also rather homogenous in terms of its genetic make-up, given the many A phenotypes and the almost exclusive presence of delta collagen type.

According to Bernert, the man interred in Grave 393 was 40–50 years old (the burial of an adult individual was documented during the



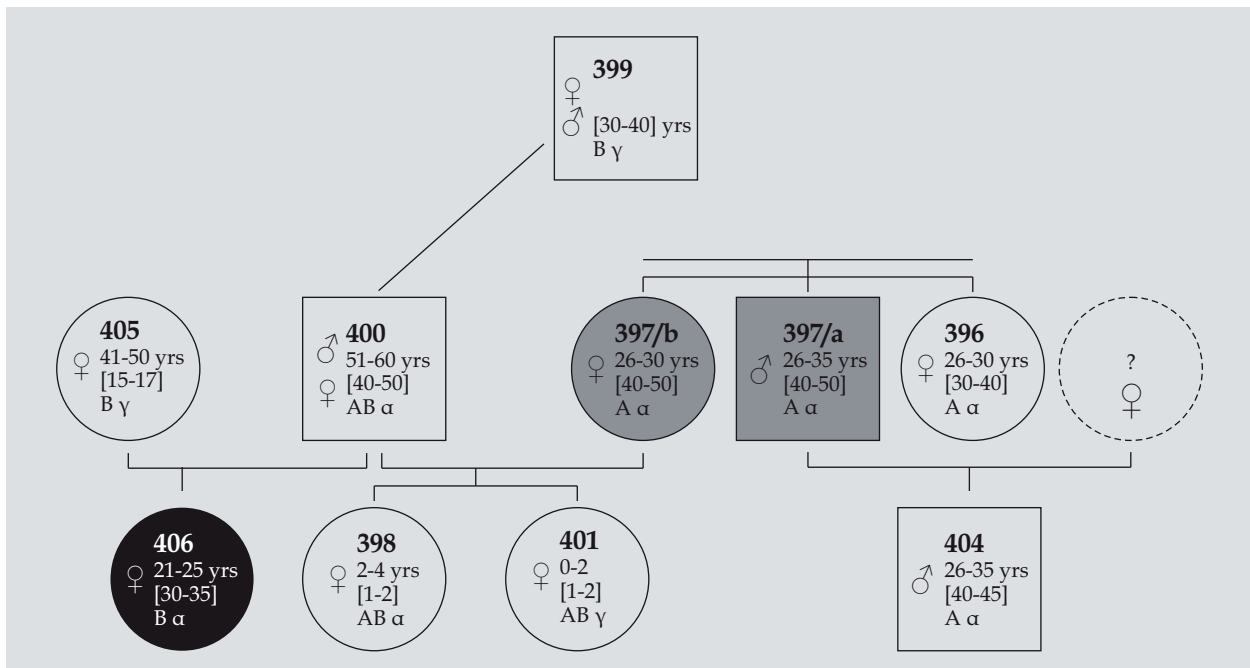
Pl. IV Vörs-Papkert B, Group 42: Graves 308 (without scale), 314, 333 and 335.

excavation). The correction does not affect the interpretation of the family tree.

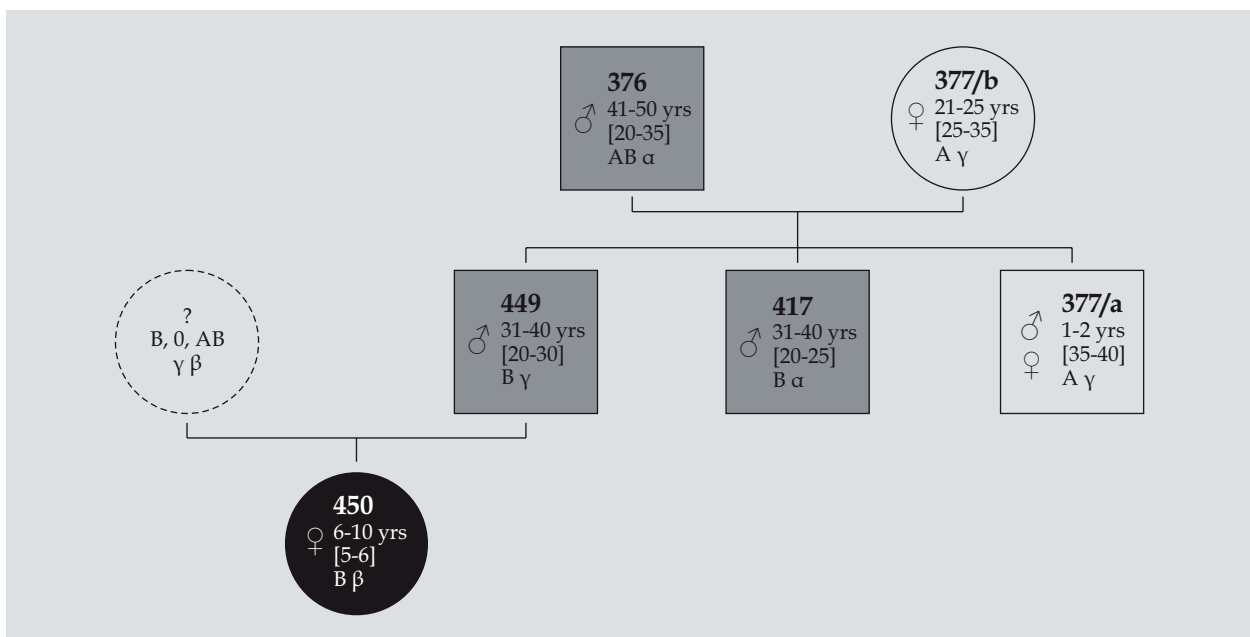
The two men (Graves 392 and 393) thought to be related to the sisters in the same generation mentioned above were provided with grave goods typical for the Late Avar period (belt and harness mounts, bow), while their sister (Grave 395) wore a silver bracelet of the Hungarian Conquest period.

#### Group 45 (Appendix, No. 6; Fig. 7; Pl. VI)

This group represents a complicated, two-generation family. The first generation centres around two individuals: the man interred in Grave 400 and his younger sister (Grave 399) who died at a juvenile age and had no family. The man buried in Grave 400 probably had two wives. The first was most probably the woman laid to rest in Grave 397b, with whom he fathered two children (Graves 398 and 401), both of whom died before reaching juvenile age. His



**Fig. 7** Vörs-Papkert B: Genetic group ('family') 45 (dark gray = Late Avar period; black = Hungarian Conquest period).

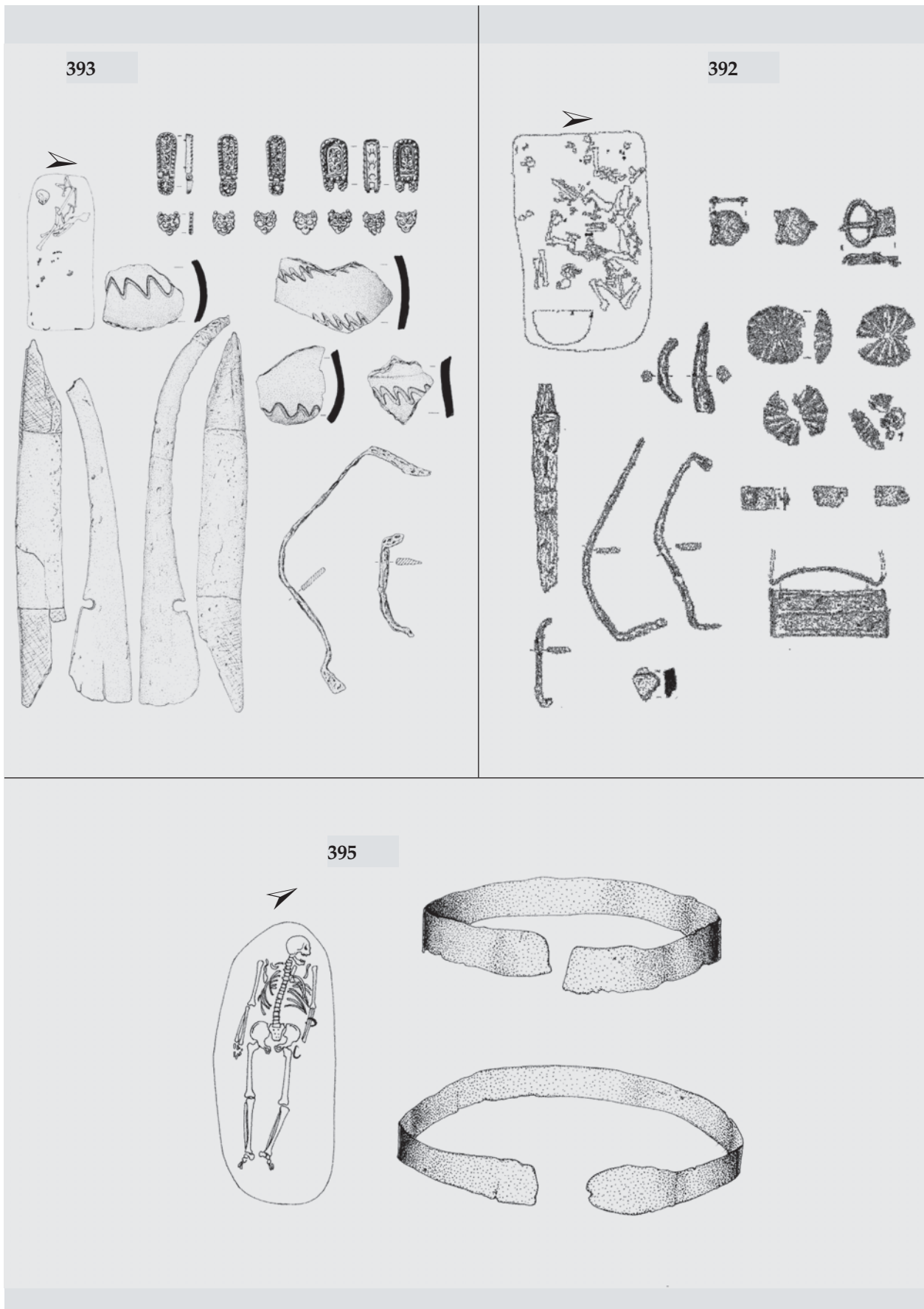


**Fig. 8** Vörs-Papkert B: Genetic group ('family') 46a (dark gray = Late Avar period; black = Hungarian Conquest period).

second wife (Grave 405) bore him a daughter (Grave 406), whose family could not be identified in the grave group. The other central figure is the man interred in Grave 397a, the older brother of the woman interred in Grave 397b. Their sister (Grave 396) was also buried in this group. The wife of the man in Grave 397a is missing, but his son (Grave 404), who had

reached a reproductive age, could be identified.

The assessment of this group is difficult owing to the contradictions between the serological and the anthropological/morphological data. The individual buried in Grave 399 was a 16–20 year-old woman according to the serological data, while the morphological traits suggested a 30–40 years old man; however, this contradic-



Pl. V Vörs-Papkert B, Group 44: Graves 392, 393 and 395 (without scale).

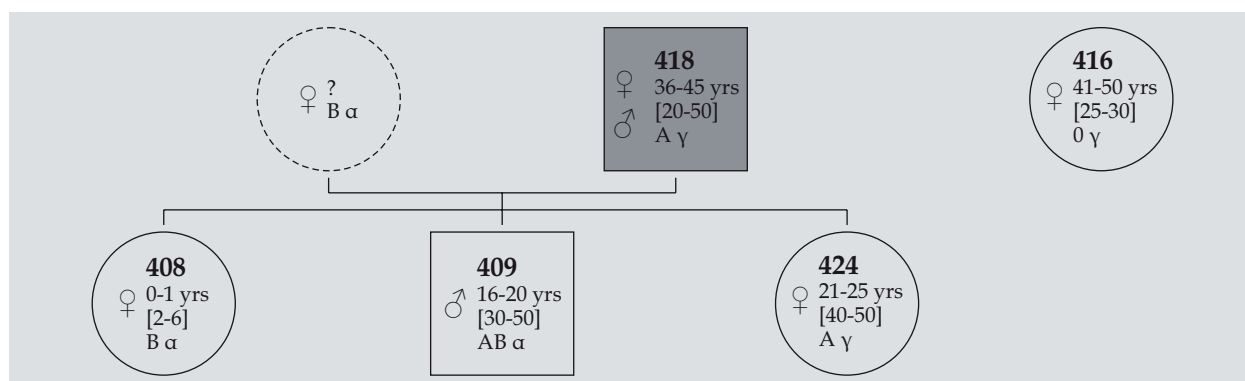


Fig. 9 Vörs-Papkert B: Genetic group ('family') 47 (dark gray = Late Avar period).

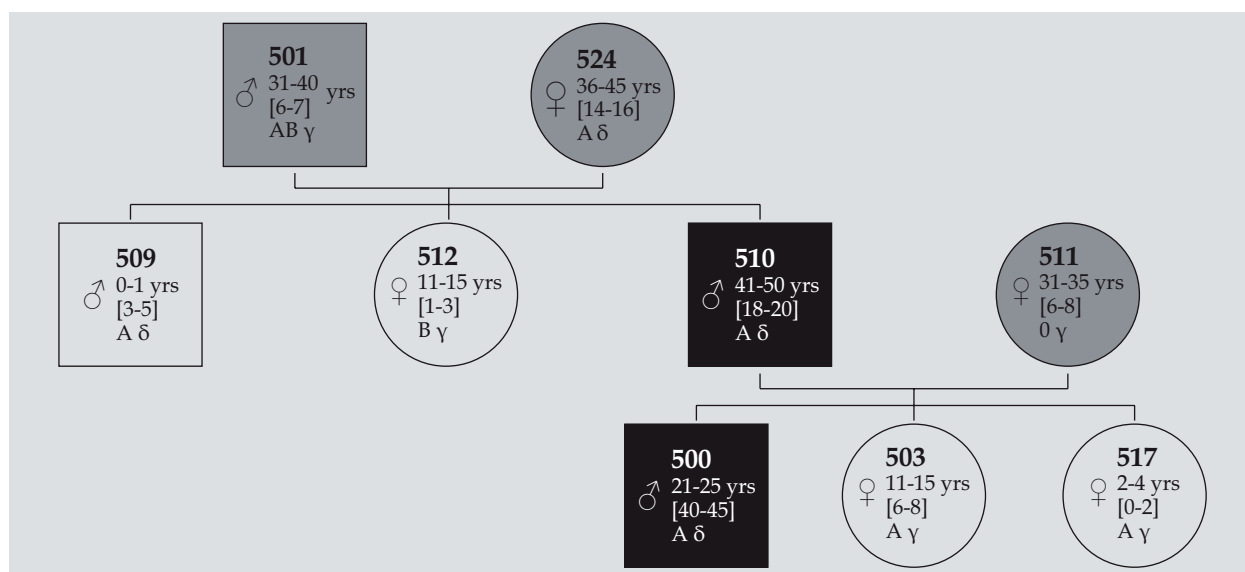


Fig. 10 Vörs-Papkert B: Genetic group ('family') 48 (dark gray = Late Avar period; black = Hungarian Conquest period).

tion does not affect the overall interpretation. The sex of the individual buried in Grave 400 is more problematic: the identification of the man as a woman has a bearing on the reconstruction, because this individual plays a central role. Another divergence is represented by the age of the woman interred in Grave 405 (41–50 years old and 14–17 years old, respectively). Owing to these uncertainties, this group was not included in the analysis of families whose members were buried with grave goods dating from different periods.

Group 46a (Appendix, Group No. 7; Fig. 8; Pl. VII)

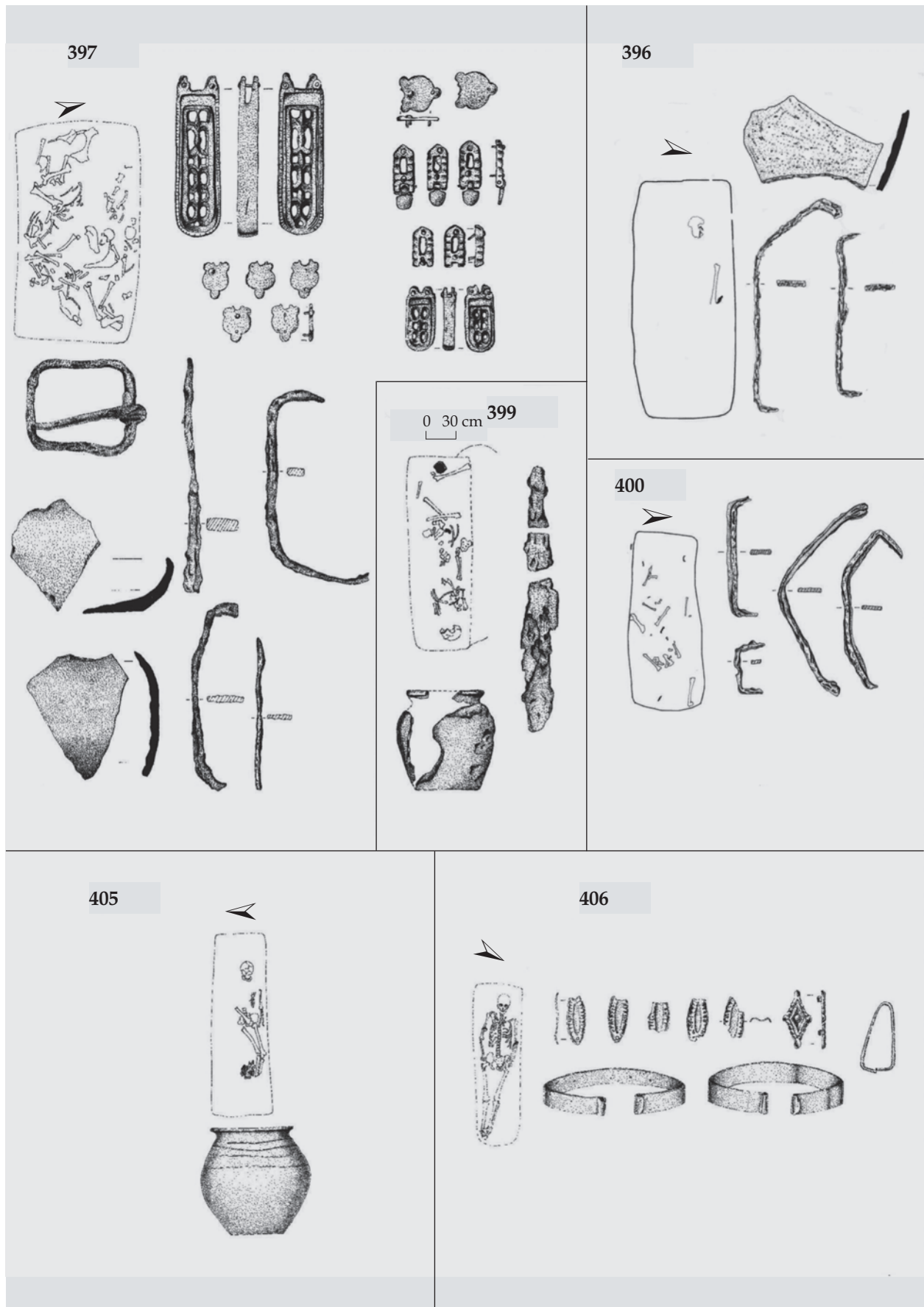
Lengyel reconstructed a fragmentary family with three generations. The two grandparents (Graves 376 and 377b) had three children buried

in this group. All three were boys, two of whom reached a reproductive age (Graves 417 and 449), and either could have fathered the girl in Grave 450. Their wives could not be identified.

The anthropological data revealed one controversial case: the morphological data for Grave 377a were at variance with the serological results regarding both the age and the sex of the deceased. Grave 377 was heavily disturbed owing to looting, and the human skeletal remains included two skulls, this being the reason why Bernert identified two adults. This correction does not affect the interpretation of the family tree.

The group is made up of six individuals (four men and two women), four of whom were interred with dateable grave goods. The assumed descendants of the man (Grave 376) buried with a fleur-de-lys motif decorated tinned bronze belt set were interred in graves with a





Pl. VI Vörs-Papkert B, Group 45: Graves 396, 397(a-b), 399, 400, 405 and 406 (without scale).

horse burial (Graves 417 and 449). The surviving grave goods from their plundered graves were belt mounts and harness ornaments. One of the two men had fathered a girl (Grave 450), who had been interred with a Berengar rex coin minted between AD 888 and 915, a necklace made of dark brown opaque glass beads with dark red eyes and trailing glass thread, and a twisted bronze torc.

#### Group 47 (Appendix, No. 8; Fig. 9; Pl. VIII)

This group consisted of a couple and their three children, and a genetically unrelated woman in view her phenotype. The couple had died fairly young (father: Grave 417, mother: Grave 418). Of their three descendants, the woman interred in Grave 424 had reached a reproductive age, but there was no indication of her family. The woman laid to rest in Grave 416 may have been the sister of the three other descendants (if the parents' genotype was BO and AO), but this seems rather unlikely.

Bernert's data indicate that the individual interred in Grave 418, identified as a woman by the serological analysis, was a 20–50 year-old man and thus a husband-wife relationship with the individual buried in Grave 417 can be excluded (the latter also appears in Group 46a, the only individual in two groups, suggesting a possible relationship between the two families).

The graves of all the members of this group had been plundered. A date in the Late Avar period is indicated by the surviving girth buckle, pottery fragments, iron coffin fittings and a spindle whorl. Owing to the above controversial data, Grave 417 was considered in relation to Group 46a.

#### Group 48 (Appendix, No. 9; Fig. 10; Pl. IX)

According to Lengyel, the backbone of the almost complete three-generation family tree is made up by the grandparents (Graves 501 and 524). Only one of their sons, the man interred in Grave 510 had reached a reproductive age. The woman buried in Grave 511 was his wife, with whom he had three girls, of whom only the one buried in Grave 500 lived to a juvenile age, the other two girls (Graves 503 and 517) having died earlier.

Bernert's analyses indicated that Grave 501 contained the burial of a 6–7 year-old child, who could thus hardly have been the family's grandfather, and that the woman in Grave 524 had been 14–16 years old (the field documentation describes her as an adult). The woman in Grave 511 was an adult according to the serological analysis, while the morphological traits of the skull suggested a 6–8 year-old child (the field documentation described the grave as a juvenile burial). Grave 500 contained the burial of a 40–50 year-old man (and the grave goods too are typical for a male burial: bone plaques to stiffen a bow, an arrowhead, quiver mounts and a pair of stirrups). According to Lengyel's reconstructed family tree, the younger one of the two archers of the Hungarian Conquest period (Grave 510) had a wife (Grave 511) buried with yellow pottery of the Late Avar period, whose mother (Grave 524) was interred with a pair of earrings with a glass bead pendant, and thus this group could provide important information on the relative chronology of certain finds' assemblages. However, this family tree must be treated with caution owing to the uncertainties detailed above.

### Results of the anthropological and morphological analyses

We chose four groups for a control analysis from among the genetic groups of the Vörs-Papkert B cemetery reconstructed on the basis of the serological analyses. It must however be noted that material for the conventional anthropological study of the human remains from these four supposedly genetically related 'families' was rather poor.

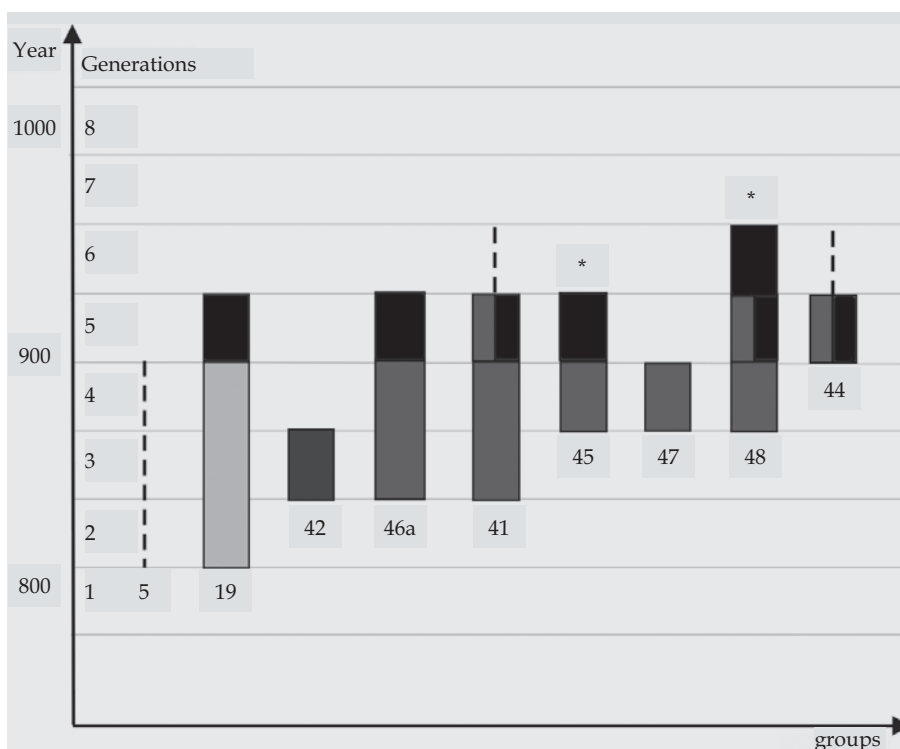
#### Group 19

This study examined the supposed genetic relationship between the individuals buried in Graves 157, 164 and 167.

Grave 157: female, 40–60 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 164: female, 50–70 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 167: male, 55–60 years old. The skull is intact, the mandible and post-cranial bones are fragmentary and incomplete.



Pl. VII Vörs-Papkert B, Group 46a: Graves 376, 417, 449 and 450 (without scale).



**Fig. 11** The chronological sequence of the analysed genetic groups of the Vörs-Papkert B cemetery (dark grey = Late Avar period; light gray = Carolingian period; black = Hungarian Conquest period).

A comparison based on metric and non-metric traits was not possible because only the skull from Grave 167 was suitable for study. None of the post-cranial bones could be measured.

#### Group 41

This study examined the supposed genetic relationship between the individuals buried in Graves 307, 310, 351, 352 and 391.

Grave 307: male, 25–30 years old. The skull is intact, the mandible is fragmentary and incomplete, the post-cranial bones are intact. Grave 310: male, 25–35 years old. The skull and post-cranial bones are fragmentary and incomplete. Grave 351: female, 40–50 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 352: male, 40–45 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 391: female, 30–40 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete.

A comparison based on metric and non-metric traits was not possible because only the skull from Grave 307 was suitable for study. The long bones of the five individuals could be compared. Their estimated stature was medium

high. The man in Grave 307 was 169.1 cm tall (medium), the man in Grave 310 was 170.4 cm tall (medium), while the man in Grave 352 was 171.4 cm tall (high medium). The woman laid to rest in Grave 351 was 169.3 cm tall (high).

#### Group 44

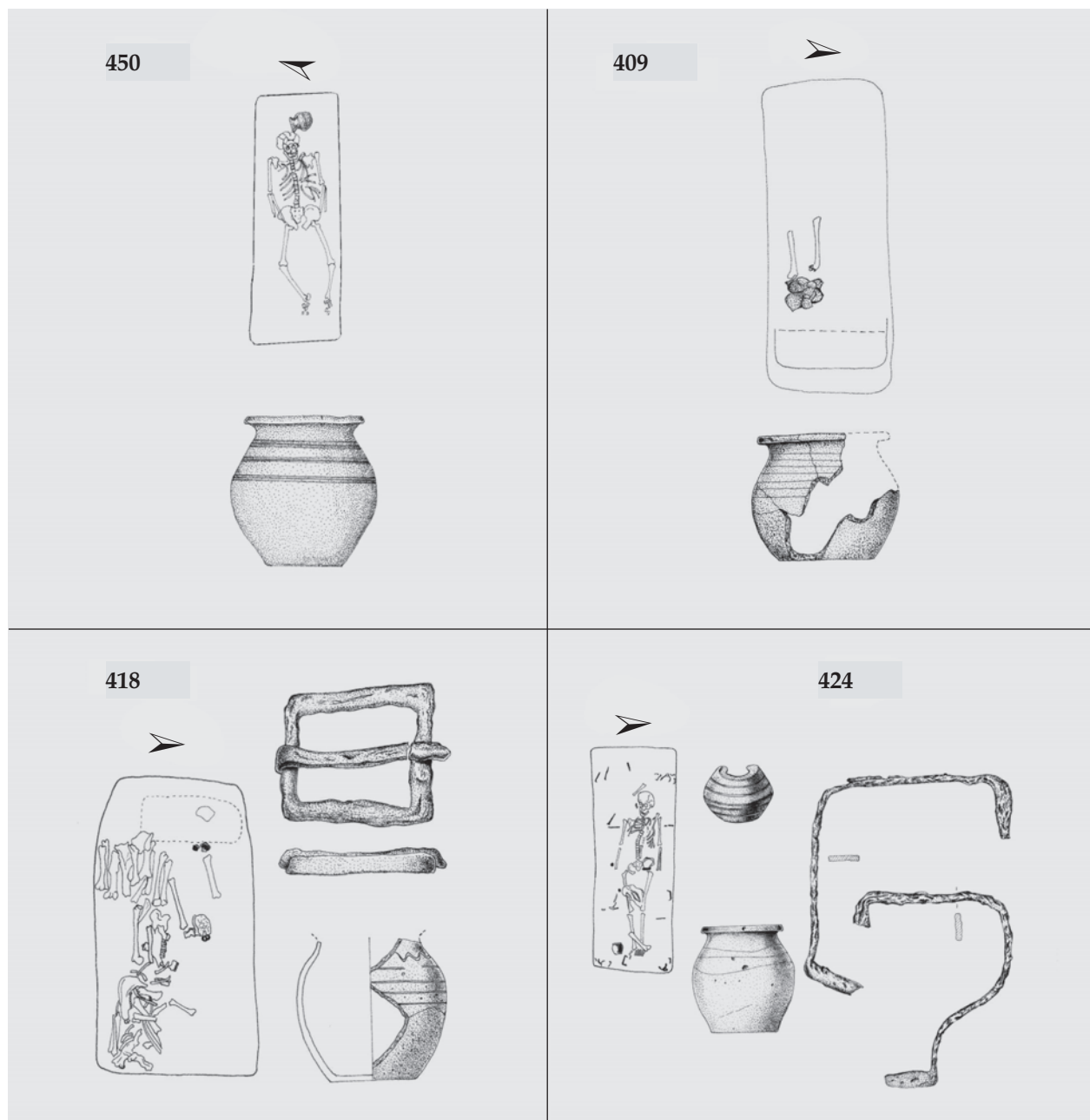
This study examined the supposed genetic relationship between the individuals buried in Graves 392, 393 and 395.

Grave 392: male, 50–60 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 393: male, 40–50 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 395: female, 40–50 years old. The skull is intact, the mandible is fragmentary and incomplete, the post-cranial bones are intact.

A comparison based on metric traits was not possible because only the skull from Grave 395 was suitable for study.

A comparison based on non-metric traits was possible because several traits could be observed on all three individuals. We found several shared traits such as the presence of the sutura supranasalis, the absence of the tubercu-





Pl. VIII Vörs-Papkert B, Group 47: Graves 409, 416, 418 and 424 (without scale).

lum zygomaxillare, the presence of the tuberculum marginale and the absence of the spina mentalis. These traits are the so-called present/absent traits. The absence of spina mentalis (a slight projection on the inner surface of the mandible) is the trait found most infrequently (in 38% of cases), i.e. there is a 14% probability that two random individuals lacking this trait will be found beside an individual similarly lacking this trait. The estimated stature of the man interred in Grave 383 was 166.0 cm (small medium), that of the woman in Grave 395 was 172.0 cm (high).

#### Group 46a

This study examined the supposed genetic relationship between the individuals buried in Graves 376, 417 and 449.

Grave 376: male, 20–35 years old. The skull and post-cranial bones are fragmentary and incomplete. Grave 417: male, 20–25 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete. Grave 449: male, 20–30 years old. The skull, mandible and post-cranial bones are fragmentary and incomplete.

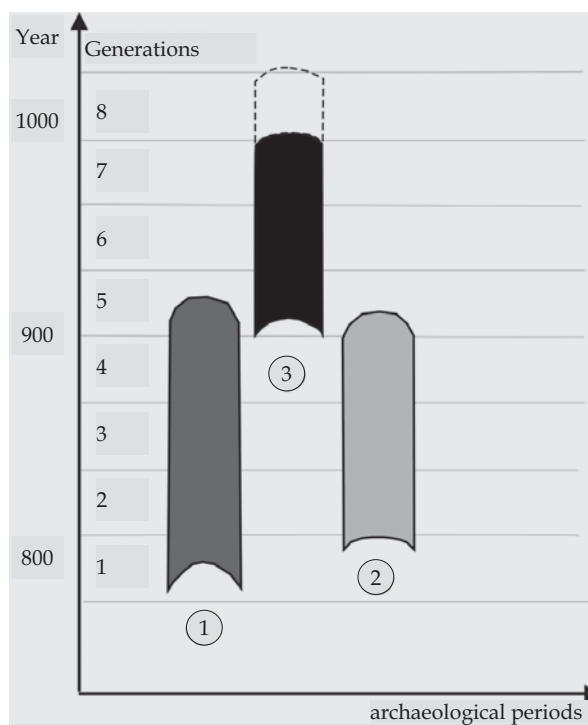


A comparison based on metric and non-metric traits was not possible because none of the skulls were suitable for study. Stature could only be estimated for the individual interred in Grave 417. The results of the anthropological/morphological analyses indicated that the human remains from two 'families' (Group 19 and 46a) were so poorly preserved that a classical anthropological analysis could not be carried out. In the case of Group 41, only the statures could be compared, which yielded very close results, reflecting a greater likelihood of a genetic relationship between these individuals than not (even though it can hardly be regarded as conclusive proof). We could identify several non-metric traits in the case of this 'family', most of which were of the same type. Considering the proportion of the traits in the entire Vörs population, there is a slightly higher than 85% probability that this is not mere chance. However, knowing that the accepted significance level in anthropology is 95%, we cannot claim that the genetic relation could be verified by classical anthropological measurements.

### Lessons, hypotheses and prospects

The main goal of this experiment was to establish whether an interdisciplinary approach can provide meaningful answers for resolving problems for which no breakthrough has been made for decades. One of these is the survival of the Avar population in the 9<sup>th</sup> century. During this work, we were faced with the persistent problem of how to interpret – both anthropologically and archaeologically – the appearance of the first generation of a new population appearing at a particular site (or in a smaller region or even in the entire Carpathian Basin). The problem of interpretation involves three dimensions: firstly, the typo-chronological dimension, i.e. the determination of the chronology of the artefacts deposited in the burials; secondly, the ethnic attribution of the finds to a particular people or population group; and thirdly, the problem of what is described as 'mixed argumentation'<sup>25</sup>; the latter is one of the most pressing issues in research of this period, relating to the potential of interdisciplinary research, which, no matter how useful, can often lead astray.

<sup>25</sup> LANGÓ 2007, 227.



**Fig. 12** Distribution of grave goods according to period in the Vörs-Papkert B cemetery:  
1 Late Avar period; 2 Carolingian period;  
3 Hungarian Conquest period.

Imre Lengyel carried out his analysis of the bone samples in parallel to the archaeological excavations at Vörs. After determining the sex and age of the 362 individuals interred in the graves uncovered until late September 1988, he distinguished various groups ('families') based on the distance of the graves from each other and various probability calculations using the combined Boyd and Robert-Hyornis method. He assigned 320 individuals to 47 groups; the sero-biological characteristics of 47 individuals did not permit an assignment to any of the identified groups. In summer 1991, Imre Lengyel distinguished a 48<sup>th</sup> group and he also modified the genetic unit of Group 46 in the light of the more recently uncovered burials: he distinguished a new group (Group 46a), while the individuals who had earlier been assigned to Group 46, but were now treated separately, were assigned to Group 46b. (Two variants were presented for the cemeteries uncovered at the Garabonc-Ófalu I-II sites for similar reasons<sup>26</sup>). These analyses led to the realisation among archaeologists that earlier cemetery analyses in which grave rows

<sup>26</sup> SZÓKE 1992, 167 f.; IDEM 1994, 281.

were treated as kinship and chronological units do not accurately reflect past circumstances<sup>27</sup>.

Imre Lengyel's early death prevented him from completing his analysis of all the families: he reconstructed the family tree of 9 of the 48 groups he had identified, which causes difficulties in the interpretation of the Vörs kinship groups. He did not have time to assemble a summary table showing the correlations between the generations identified in each group according to the rules of serogenetics, his chosen analytical method. This is all the more regrettable because the summary tables he had prepared for other sites offered interesting insights into the period's social history (e.g. the assessment of the Garabonc I-II cemeteries from this perspective<sup>28</sup>).

Although the small number of 'family trees' and groups presented here (Fig. 12) must be treated with caution, they are nonetheless suitable for identifying several interesting phenomena. The 'families' buried with artefacts of the Late Avar period and those with artefacts of the contemporary Carolingian fringe culture apparently kept their distance from each other, at least judging from the location of their graves in the Vörs cemetery.

The groups in which the members of the last generation can be securely linked to the Hungarian Conquest period in the light of their grave goods were, with one exception (Group 19), all (assumed) descendants of individuals buried with artefacts of the Late Avar period (Groups 46a, 41 and 44). We disregarded Groups 45 and 48 owing to the uncertainties in their assessment (these are marked with an asterisk in fig. 12).

The assessment of the genetically related groups revealed that, irrespective of the contradictions regarding the age and sex determinations identified during the comparison with the results of the anthropological/morphological analysis (for which Lengyel offered an explanation in one of his letters<sup>29</sup>), the relative chronology suggested by the genealogical line in the identified 'families' never once contradicted the traditional sequence of archaeological periods.

In other words, there was no case when an individual buried with artefacts of the Late Avar period was a descendant of an individual interred with an assemblage of the Hungarian Conquest period. This is all the more noteworthy because, as has already been mentioned above, Lengyel was unaware of the chronological position of the burials based on the grave goods during the initial phase of his analysis.

The absolute dating of the generations within each 'family' was based on the assumption that if, and insofar as, the Avar population had lived to see the arrival of the ancient Hungarians in the Carpathian Basin, and if the grave goods in that family included one or more artefact type that can be exclusively linked to the appearance of the ancient Hungarians, then the graves in question can be linked to the first generation of the ancient Hungarians<sup>30</sup>. In Lengyel's system, the construction of the 'family trees' is based on the identification of the ancestors; similarly, the chronological positioning of archaeological assemblages was based on counting backwards from the latest generation. Although genetic and historical generations are not synonymous concepts<sup>31</sup> and, moreover, they often span different periods<sup>32</sup>, the division of three generations per century used here (Fig. 12) can practically be correlated with the three-fold division of centuries into three thirds used in archaeological dating, especially regarding the 9<sup>th</sup> and 10<sup>th</sup> centuries AD.

One of the selected groups (Group 5) was only suitable for illustrating the analytical procedure because none of its members had any datable grave goods. 'Families' 42 and 47 had an Avar tradition only (Pls. IV; VIII). The consecutive sequence of the Carolingian and Hungarian Conquest period material can be noted in Group 19 (Pl. I). The members of Groups 46a, 41 and 44 (Pls. III; V; VII) were interred with artefact types of the Avar and the Hungarian Conquest period, and the same holds true for Groups 45 and 48 (Pls. VI; IX), although there are many uncertainties in the interpretation of the latter two groups.

The beginning of the Vörs settlement can be dated to the very end of the Late Avar period.

<sup>27</sup> L. RÉVÉSZ, *Honfoglalás kori temető Tiszavasvári-Aranykerti táblán* (Das landnahmezeitliche Gräberfeld von Tiszavasvári-Aranykerti tábla). Jósza András Múz. Évk. 47, 2005, 161–213 here 186.

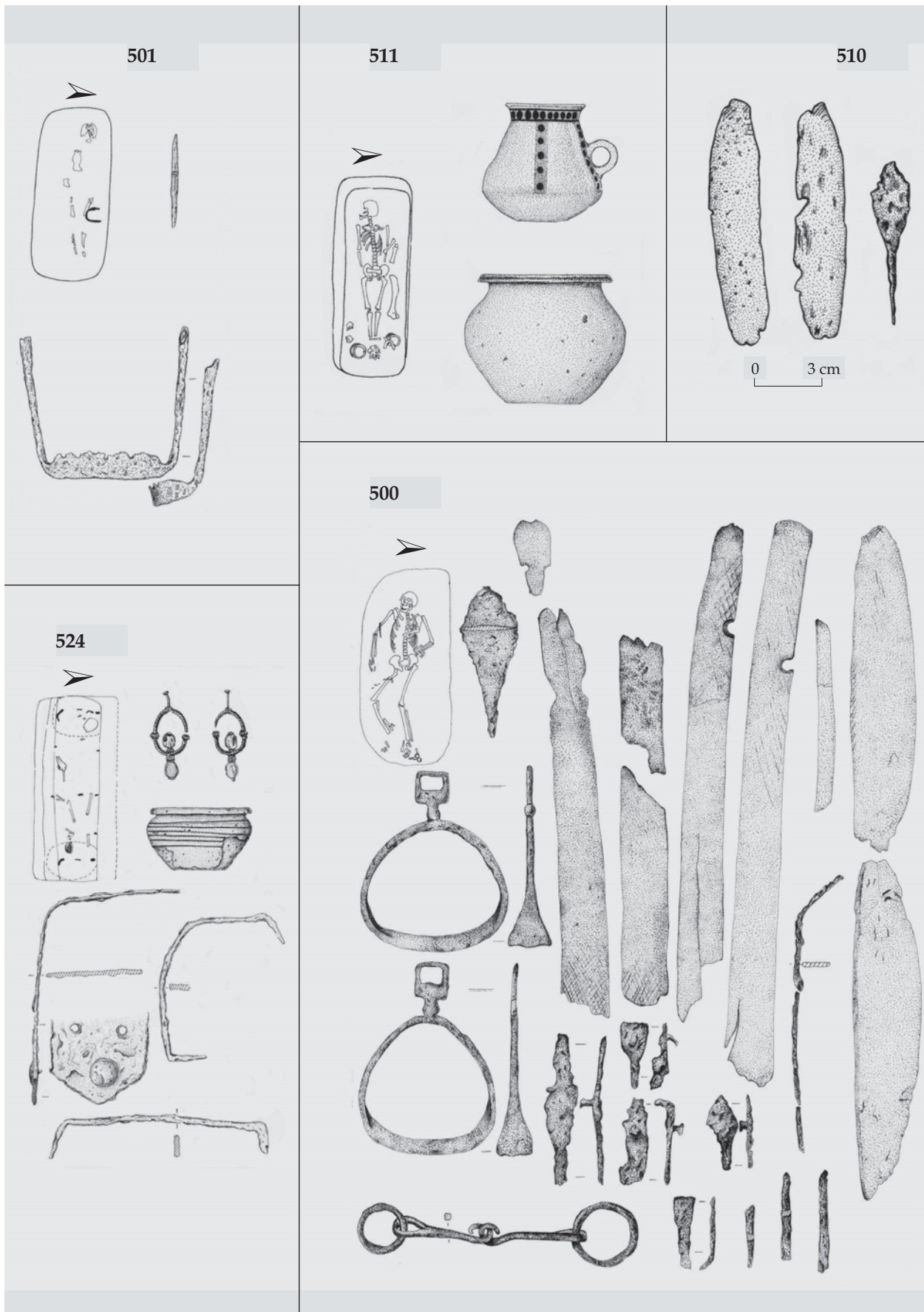
<sup>28</sup> KÜRTI 1997; SZÓKE 1994, 281–287.

<sup>29</sup> See KOVÁCS 1994, 173.

<sup>30</sup> L. RÉVÉSZ, *Líra alakú csatok a Kárpát-medencében* (Lyraförmige Schnallen im Karpaten-Becken). Hermann Ottó Múz. Évk. 27 (1989) 513–541 here 525.

<sup>31</sup> KÜRTI 1998, 23.

<sup>32</sup> LANGÓ 2007, 225, note 61.



Pl. IX Vörs-Papkert B, Group 48: Graves 500, 501, 524, 511 (without scale) and 510.



None of the groups described and discussed here represent any of the founding families (late 8<sup>th</sup> century), and neither do they represent the last families living at the time the Vörs settlement was abandoned (sometime in the last third of the 10<sup>th</sup> century). These shall be described and discussed in the monographic report on the site.

Recent overviews on the archaeology of the Hungarian Conquest period also touched upon the problems raised by Lengyel's serogenetic analyses, namely the problem of correlating generations and assemblage horizons, when successive generations are identified with anthropological methods, while the chronology of the archaeological finds is based on typo-chronological studies<sup>33</sup>. The combined use of the two disciplines is regarded as a case of 'mixed argumentation' and has been rejected by some scholars<sup>34</sup>.

Lengyel's method cannot continue to be applied without modification<sup>35</sup>; serogenetic stud-

ies have taken a different course<sup>36</sup>. Modern, DNA-based studies are now employed, offering new potential for identifying ancient family relationships<sup>37</sup>. In addition to morphological analyses, there is a need for DNA analyses to verify and broaden previously identified genetic consanguinity and family trees<sup>38</sup>. This procedure seems suitable for mapping the internal relationships of the Vörs-Papkert population and for verifying Imre Lengyel's results, despite the fact that the preliminary results of the archaeological study of the Hungarian Conquest period population call for extreme caution, as well as a healthy dose of scepticism<sup>39</sup>.

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material ranging from the Neolithic to the 19<sup>th</sup> century will need to be submitted to very strict verification both in general and regarding finer details" (L. KOVÁCS, Bár személyesen megbeszélhettük volna! Megjegyzések Lengyel Imre biokémiai nem- és életkor-meghatározási eredményeihez [Hätten wir es doch persönlich beschprechen können! Anmerkungen zu den Ergebnissen der biochemischen Geschlechts- und Altersbestimmungen von Imre Lengyel]. Móra Ferenc Múzeum Évk. – Stud. Arch. XII, 2011, 559–608). Kovács compared the age and sex determinations based on the serological analyses with the results of the morphological analyses in seven cemeteries from the 11<sup>th</sup>–12<sup>th</sup> centuries. His conclusions do not modify the tentative findings presented here, in part because we did not restrict the morphological analysis to age and sex determination, and in part because we re-checked the morphological data of the groups discussed here. Where there were significant differences and irresolvable contradictions, we did not draw any archaeological or chronological conclusions. However, in view of Kovács's suggestions, we intend to publish the age and sex determinations based on both the serological and the morphological analyses for the entire Vörs-Papkert cemetery and the 8<sup>th</sup>–9<sup>th</sup> century AD Avar cemetery uncovered at Kereki-Homokbánya (Zs. BERNERT, Anthropological analysis of the Avar period cemetery of Kereki-Homokbánya [Kereki sand-pit]. Annales Hist.-Naturales Mus. Nat. Hungarici 95, 2003, 225–309; KÖLTŐ 2005), together with the conclusions drawn from the comparison of the two methods.

<sup>33</sup> E.g. inlaid harness ornaments: J. SZENTPÉTERI, Késő avar kori lovas temetkezések Vörsön (Somogy megye). (Die spätawarenzeitlichen Reitergräber von Vörs). Móra Ferenc Múz. Évk. 1984–1985,2 (1991) 265–276; G. KISS, A Szombathely-Kőszegi úti avar lovassír. – A késő avarkori négy- és ötkaréjos lószerszámveretek (Das awarische Reitergrab von Szombathely-Kőszegi út. – Die spätawarenzeitlichen vier- und fünfblättrigen Pferdegeschirrbeschläge). Móra Ferenc Múz. Évk. 1984–1985,2 (1991) 431–462; IDEM, A lukácsházi avar temető 8. számú lovassírja. A késő avar tausirozott vas falerák (Reitergrab 8 des awarenzeitlichen Gräberfeldes Lukácsháza-Hegyalja dűlő. Die spätawarenzeitlichen tauschierten Eisenphalaren). Savaria 22, 1992–1995 (1996) 107–143; L. BENDE, A pitvarosi késő avar kori temető 51. sírja. – Adatok a késő avar kori lószerszámok díszítéséhez (Das Grab 51 im spätawarenzeitlichen Gräberfeld von Pitvaros. – Beiträge zur Verzierung der spätawarenzeitlichen Pferdegeschirre). Móra Ferenc Múz. Évk. – Stud. Arch. IV, 1998, 195–230; L. KÖLTŐ/J. SZENTPÉTERI, Der Fundplatz von Vörs-Papkert B (Ungarn, Komitat Somogy). Ein Gräberfeld des 8.–10. Jahrhunderts. In: O. Heinrich-Tamácska, Studien zu den awarenzeitlichen Tauschierarbeiten. Monogr. zur Frühgesch. und Mittelarch. 11 (Innsbruck 2005) 157–161. – Belt mounts with fleur-de-lys motif: Cs. SZALONTAI, A késő avar kori liliomos övveretek (Die spätawarenzeitliche mit Lilien verzierte Gürtelbeschläge). Somogyi Múz. Közl. 11, 1995, 127–143. For correlation of the chronology of the Avar period with the Carolingian period, see SZÓKE 1994, 288–290.

<sup>34</sup> LANGÓ 2007, 225–227.

<sup>35</sup> A study by László Kovács of Imre Lengyel's serological method appeared after the completion of the manuscript. In the section on research history, László Kovács notes that Lengyel's "research findings on

<sup>36</sup> L. MÁRK, A szarmata népesség temetkezési rítusairól, vegyészszemmel (A burial rite of the Sarmatian population, in Mirror of the Chemistry). Móra Ferenc Múz. Évk. – Stud. Arch. IX, 2003, 151–163; IDEM, A csontkémiai vizsgálatok jelentősége és alkalmazása a történeti és igazságügyi antropológiában. Unpubl. PhD Dissertation (Pécs 2006).

<sup>37</sup> LANGÓ 2007, 227.

<sup>38</sup> I. RASKÓ, A DNS mint régészeti lelet. Magyar Tudomány 169,10, 2008, 1199–1203 here 1199.

<sup>39</sup> B. G. MENDE, Archeogenetika és a honfoglalás kor népességtörténete: új módszer – régi problémák. Magyar Tudomány 169,10, 2008, 1188–1197 here 1197.



## Appendix: The genetic groups at Vörs-Papkert B – Results of the comparative study of the serological and morphological analyses

### 1 Group 5 (Fig. 2)<sup>40</sup>

| Grave | Sex     |         | Age     |         |
|-------|---------|---------|---------|---------|
|       | Lengyel | Bernert | Lengyel | Bernert |
| 215   | female  | male    | 41–50   | 35–40   |
| 231   | female  | female  | 4–7     | 20–25   |
| 232   | female  | female  | 16–20   | 50–55   |

| Generation | Grave | Sex         | Period |
|------------|-------|-------------|--------|
| 2          | 232   | female      | –      |
| 3          | 215   | female/male | –      |
| 4          | 231   | female      | –      |

### 2 Group 19 (Fig. 3, Pl. I)

| Grave | Sex     |         | Age     |         |
|-------|---------|---------|---------|---------|
|       | Lengyel | Bernert | Lengyel | Bernert |
| 26    | male    | male    | 26–35   | 35–40   |
| 155   | male    | male    | 36–45   | 20–25   |
| 156   | female  | ?       | 6–11    | 0–1     |
| 157   | female  | female  | 61–70   | 40–60   |
| 158   | male    | female  | 31–40   | 30–50   |
| 164   | female  | female  | 51–60   | 50–70   |
| 167   | male    | male    | 46–55   | 55–60   |

| Generation | Grave | Sex         | Period             | Finds with dating value                        |
|------------|-------|-------------|--------------------|--|
| 2          | 157   | female      | Carolingian        | Earrings, necklace                             |
| 3          | 164   | female      | Carolingian        | Earring, wire trinkets                         |
| 4          | 155   | male        | –                  |  |
| 4          | 158   | male/female | Carolingian        |  |
| 4          | 167   | male        | Hungarian Conquest | Lyre-shaped buckle, strap holder, sword, knife |
| 5          | 26    | male        | –                  |  |
| 5          | 156   | female      | –                  |  |

<sup>40</sup> The following abbreviations are used in the Appendix: H: horse burial, SH: symbolic horse burial, C: coin find. Avar: Late Avar period (8<sup>th</sup>–9<sup>th</sup> centuries AD), Carolingian: Carolingian period (9<sup>th</sup> century), Hungarian Conquest: Hungarian Conquest period (10<sup>th</sup> century).

## 3 Group 41 (Fig. 4, Pl. II-III)

| Grave    | Sex     |         | Age     |         |
|----------|---------|---------|---------|---------|
|          | Lengyel | Bernert | Lengyel | Bernert |
| 307 (H)  | male    | male    | 36-45   | 25-30   |
| 309      | Female  | ?       | 5-8     | 4-6     |
| 310 (SH) | male    | male    | 26-30   | 25-35   |
| 319      | female  | ?       | 3-5     | 1-2     |
| 351 (H)  | female  | male    | 26-30   | 40-50   |
| 352 (H)  | male    | male    | 21-25   | 40-45   |
| 353      | female  | female  | 61-70   | 20-75   |
| 391 (H)  | female  | female  | 11-15   | 30-40   |

| Generation | Grave    | Sex    | Period             | Finds with dating value  |
|------------|----------|--------|--------------------|--|
| 3          | 352 (H)  | male   | Avar               | Gilt bronze belt mounts with an interlace pattern, inlaid harness ornaments, bone plaques to stiffen bow |
| 3          | 353      | female | -                  |  |
| 4          | 307 (H)  | male   | Avar               | Gilt bronze belt mounts with a scale pattern, inlaid harness ornaments, bone plaques to stiffen bow      |
| 4          | 351 (H)  | female | Avar               | Pressed clasp with animal figures  |
| 5          | 309      | female | -                  |  |
| 5          | 391 (H)  | female | Avar               | Spindle whorl  |
| 5          | 310 (SH) | male   | Hungarian Conquest | Arrowhead, stirrups  |
| 6          | 319      | female | -                  |  |

## 4 Group 42 (Fig. 5, Pl. IV)

| Grave   | Sex     |         | Age     |             |
|---------|---------|---------|---------|-------------|
|         | Lengyel | Bernert | Lengyel | Bernert     |
| 306     | male    | ?       | 0-1     | 1-2         |
| 308 (H) | male    | male    | 11-15   | 25-40/10-12 |
| 314 (H) | male    | male    | 31-40   | 30-40       |
| 318     | male    | ?       | 11-18   | 9-11        |
| 333     | male    | ?       | 31-40   | 25-35       |
| 335     | female  | female  | 26-35   | 20-30       |

| Generation | Grave   | Sex    | Period | Finds with dating value   |
|------------|---------|--------|--------|---|
| 3          | 308 (H) | male   | Avar   | Tendrill-ornamented bronze belt mounts  |
| 3          | 314 (H) | male   | Avar   | Tinned bronze belt mounts with scale motifs, gilt bronze four-lobed harness ornaments, battle-axe, bow, two arrowheads, yellow ware pottery |
| 3          | 335     | female | Avar   | Bone needle-case  |
| 4          | 306     | male   | -      |   |
| 4          | 318     | male   | -      |   |
| 4          | 333     | male   | -      |   |

## 5 Group 44 (Fig. 6, Pl. V)

| Grave   | Sex     |         | Age     |         |
|---------|---------|---------|---------|---------|
|         | Lengyel | Bernert | Lengyel | Bernert |
| 392 (H) | male    | male    | 26-30   | 50-60   |
| 393 (H) | male    | male    | 4-7     | 40-50   |
| 394     | female  | ?       | 1-2     | 2-3     |
| 395     | female  | female  | 21-25   | 40-50   |
| 407a    | female  | ?       | 2-4     | 6-10    |
| 407b    | female  | -       | 3-5     | -       |

| Generation | Grave   | Sex    | Period             | Finds with dating value  |
|------------|---------|--------|--------------------|--|
| 5          | 392 (H) | male   | Avar               | Tinned bronze belt mounts, pressed bronze harness mounts, wide-footed stirrups |
| 5          | 393 (H) | male   | Avar               | Gilt bronze belt mounts, bow   |
| 5          | 407a    | female | -                  |  |
| 5          | 407b    | female | -                  |  |
| 5          | 395     | female | Hungarian Conquest | Silver bracelet  |
| 6          | 394     | female | -                  |  |

## 6 Group 45 (Fig. 7, Pl. VI)

| Grave    | Sex     |         | Age     |         |
|----------|---------|---------|---------|---------|
|          | Lengyel | Bernert | Lengyel | Bernert |
| 396      | female  | female  | 26-30   | 30-40   |
| 397a (H) | male    | male    | 26-35   | 40-50   |
| 397b     | female  | female  | 26-30   | 40-50   |
| 398      | female  | ?       | 2-4     | 1-2     |
| 399      | female  | male    | 16-20   | 30-40   |
| 400 (H)  | male    | female  | 51-60   | 40-55   |
| 401      | female  | ?       | 0-2     | 1-2     |
| 404      | male    | male    | 26-35   | 40-45   |
| 405      | female  | female  | 41-50   | 15-17   |
| 406      | female  | female  | 21-25   | 30-35   |

| Generation | Grave    | Sex    | Period             | Finds with dating value  |
|------------|----------|--------|--------------------|--|
| 4          | 396      | female |                    | Belt mounts with fleur-de-lys and scale motifs                             |
| 4          | 397a (H) | male   | Avar               |  |
| 4          | 397b     | female | Avar               |  |
| 4          | 399      | female | -                  |  |
| 4          | 400 (H)  | male   | Avar               | (Completely looted horse burial)   |
| 4          | 405      | female | -                  |  |
| 5          | 398      | female | -                  |  |
| 5          | 401      | female | -                  |  |
| 5          | 404      | male   | -                  |  |
| 5          | 406      | female | Hungarian Conquest | Oval and lozenge-shaped pressed silver gilt dress mounts, silver bracelets |

## 7 Group 46a (Fig. 8, Pl. VII)

| Grave   | Sex     |         | Age     |         |
|---------|---------|---------|---------|---------|
|         | Lengyel | Bernert | Lengyel | Bernert |
| 376 (H) | male    | male    | 41-50   | 20-35   |
| 377a    | male    | female  | 1-2     | 35-40   |
| 377b    | female  | female  | 21-25   | 25-35   |
| 417 (H) | male    | male    | 31-40   | 20-25   |
| 449 (H) | male    | male    | 31-40   | 20-30   |
| 450 (C) | female  | ?       | 6-10    | 5-6     |

| Generation | Grave   | Sex         | Period             | Finds with dating value                               |
|------------|---------|-------------|--------------------|---|
| 3          | 376 (H) | male        | Avar               | Belt mounts with fleur-de-lys motifs                  |
| 3          | 377b    | female      | -                  |   |
| 4          | 417 (H) | male        | Avar               | Scale-decorated belt mount, four-lobed harness mounts |
| 4          | 449 (H) | male        | Avar               | Pyramidal harness mounts, flask                       |
| 4          | 377a    | male/female | -                  |   |
| 5          | 450 (C) | female      | Hungarian Conquest | Berengar rex coin, bronze torc, glass bead necklace   |

## 8 Group 47 (Fig. 9, Pl. VIII)

| Grave   | Sex     |         | Age     |         |
|---------|---------|---------|---------|---------|
|         | Lengyel | Bernert | Lengyel | Bernert |
| 408     | female  | ?       | 0-1     | 2-6     |
| 409     | male    | male    | 16-20   | 30-50   |
| 416     | female  | female  | 41-50   | 25-30   |
| 417 (H) | male    | male    | 31-40   | 25-35   |
| 418 (H) | female  | male    | 36-45   | 20-50   |
| 424     | female  | female  | 21-25   | 40-50   |

| Generation | Grave   | Sex    | Period | Finds with dating value |
|------------|---------|--------|--------|-------------------------|
| 4          | 416     | female | -      |                         |
| 4          | 417 (H) | male   | Avar   | See Group 46a           |
| 4          | 418 (H) | female | Avar   |                         |
| 5          | 408     | female | -      |                         |
| 5          | 409     | male   | -      |                         |
| 5          | 424     | female | -      | Spindle whorl           |



## 9 Group 48 (Fig. 10, Pl. IX)

| Grave    | Sex     |         | Age     |         | Remarks                     |
|----------|---------|---------|---------|---------|-----------------------------|
|          | Lengyel | Bernert | Lengyel | Bernert |                             |
| 500 (SH) | female  | male    | 21–25   | 40–45   | Finds: male burial          |
| 501      | male    | male    | 31–40   | 6–7     | Grave description: juvenile |
| 503      | female  | ?       | 11–15   | 6–8     |                             |
| 509      | male    | ?       | 0–1     | 3–5     |                             |
| 510      | male    | male    | 41–50   | 18–20   |                             |
| 511      | female  | ?       | 31–35   | 6–8     | Grave description: juvenile |
| 512      | female  | ?       | 11–15   | 1–3     |                             |
| 517      | female  | ?       | 2–4     | 0–2     |                             |
| 524      | female  | female  | 36–45   | 14–16   | Grave description: adult    |

| Generation | Grave    | Sex    | Period             | Finds with dating value                                  |
|------------|----------|--------|--------------------|--|
| 4          | 501      | male   | Avar               |  |
| 4          | 524      | female | Avar               |  |
| 5          | 509      | male   | –                  |  |
| 5          | 511      | female | Avar               | Painted, single-handled, yellow cup                      |
| 5          | 510      | male   | Hungarian Conquest | Bone plaques to stiffen bow, arrowhead                   |
| 5          | 512      | female | –                  |  |
| 6          | 500 (SH) | male   | Hungarian Conquest | Bone plaques to stiffen bow, arrowhead, quiver, stirrups |
| 6          | 503      | female | –                  |  |
| 6          | 517      | female | –                  |  |

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## Summary

The Vörs-Papkert B site was excavated by Directorate of Somogy County Museums between 1983 and 1996 as part of the Little Balaton research project. The burials of an early medieval cemetery (Late Avar period, Carolingian period, Hungarian Conquest period and early Árpád period) were uncovered within this project. The biochemical analysis of blood groups using serological data from bone samples introduced and applied by Imre Lengyel and was used in the examination of countless sites from prehistory to the later Middle Ages. The anthropological material from Vörs spans several periods and comprises various ethnic groups; thus one of the key questions during the analysis of the material was whether the observed phenomena represented contemporaneity or continuity, or both. One of the most significant results from Lengyel was the reconstruction of various 'families' whose members had been buried with grave goods previously assigned, partly on the basis of the relative chronology of such grave goods, to different archaeological periods. The comparison of Imre Lengyel's sex and age determination, based on his serological analyses, with the results of the morphological analyses revealed a number of contradictions, calling for a re-assessment of the reliability of the genetic units published earlier. During present analysis, it was stroved to eliminate the family reconstructions containing controversial data of this type and limit the analysis to the groups where the serological and the morphological data were consistent and which were thus also suitable for tracing the material heritage of successive generations from an archaeological point of view. The main goal of this experiment was to establish whether an interdisciplinary approach can provide meaningful answers for resolving problems for which no breakthrough has been made for decades. Although the small number of 'family trees' and groups presented here calls for caution, they are nonetheless suitable for identifying several interesting phenomena. The 'families' buried with artefacts of the Late Avar period and those with artefacts of the contemporary Carolingian fringe culture apparently kept their distance from each other, at least judging from the location of their graves in the Vörs cemetery.

## Zusammenfassung

### **Familien, Funde und Generationen: ein interdisziplinäres Experiment am Beispiel des frühmittelalterlichen Gräberfeldes von Vörs-Papkert B**

Der Fundplatz von Vörs-Papkert B wurde unter der Leitung des Museums des Komitats Somogy im Rahmen des Klein-Balaton-Forschungsprojektes zwischen 1983 und 1996 ausgegraben. Dabei wurden Gräber einer frühmittelalterlichen Nekropole (Spätawaren-, Karolinger-, Landnahme- und frühen Árpáden-Zeit) entdeckt. Die biochemische Bestimmung von Blutgruppen, die Imre Lengyel anhand von serologischen Daten von Knochenproben der Bestatteten vornahm, wurde in mehreren Kontexten von der Vorgeschichte bis zum Mittelalter erprobt. Im vorliegenden Beitrag wird der anthropologische Befund von Vörs – der mehrere Zeitphasen und verschiedene Ethnien umfasst – besprochen, um der Frage näher zu kommen, ob die Ergebnisse eine Gleichzeitigkeit oder Kontinuität der Gräber oder beide Möglichkeiten annehmen lassen. Eines der wichtigsten Resultate Lengyels war die Rekonstruktion von „Familien“, deren Mitglieder mit Grabbeigaben bestattet wurden, die früher – teilweise aufgrund der Relativchronologie solcher Beigaben – verschiedenen archäologischen Perioden zugeordnet worden sind. Der Vergleich der Geschlechts- und Altersbestimmungen, die Lengyel durch seine serologische Analyse erhielt und die anhand der neuen morphologischen Auswertung erstellt wurden, zeigen allerdings mehrere Widersprüche, die noch überprüft werden müssen. In der vorliegenden Untersuchung wurde versucht, Familienrekonstruktionen, die solche umstrittene Daten enthielten, auszulassen und die Analyse auf Gruppen zu beschränken, die einerseits morphologisch und serologisch einheitlich waren und andererseits archäologisches Fundmaterial von mehreren Ge-

nerationen enthielten. Das Hauptziel des Experimentes war es, zu prüfen, ob ein interdisziplinäres Vorgehen aussagekräftige Antworten auf Probleme liefern kann, die seit mehreren Jahrzehnten bestehen. Die geringe Anzahl von „Stammbäumen“ und Gruppen, die rekonstruiert werden konnten, mahnt zur Vorsicht, trotzdem ist es möglich, einige interessante Beobachtungen zu machen. Das Beispiel von Vörs zeigt, dass „Familien“ mit spätawarischen Beigaben und die Toten mit einem pannonisch-karolingischen Fundspektrum scheinbar voneinander getrennt beigesetzt wurden.

## Bildnachweis / Sources of illustrations

9 Konzept: Orsolya Heinrich-Tamáska; technische Umsetzung: Lisa Goldmann.

### Zwischenüberschriften / sub-headings

- 17 Nach Abb. 2,1a von J. P. Barna in diesem Band.
- 99 Nach Bildvorlage umgezeichnet von K. Kolozsvári.
- 205 Balatoni-Museum, Keszthely, Invnr. 59.14.1., Foto: J. Bicskei.
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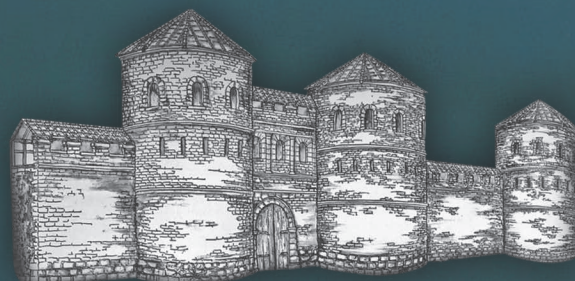
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Im vierten Band der Reihe *Castellum Pannonicum Pelsonense* werden neue Ergebnisse der archäologischen Erforschung der Balaton-Region präsentiert. Der Band ist dem 70. Geburtstag von Dr. Róbert Müller gewidmet, der sowohl als Autor dieser Reihe als auch als langjähriger Erforscher der Region und besonders von Keszthely-Fenékpuszta hervortrat. Die Autoren dieses Bandes bieten anhand einzelner Exempel Einblicke in aktuelle Ausgrabungsergebnisse, in die Forschungsgeschichte oder suchen nach neuen methodischen Wegen, um alte Fragen beantworten zu können.

Die Aufsätze sind chronologisch gegliedert und in vier Abschnitte unterteilt. Den Beiträgen zu neuen Funden und Befunden, zum Neolithikum, zur Kupfer- und zur Eisenzeit folgt ein weites Spektrum an Studien zu den römischen Fundorten am Balaton und seiner näheren Umgebung. Anschließend sind Aufsätze zusammengestellt, die inhaltlich von der Völkerwanderungszeit bis zum Mittelalter reichen und im letzten Teil des Bandes sind schließlich Beiträge versammelt, die die Zusammenarbeit zwischen Archäologie und Naturwissenschaften thematisieren. Der vorliegende Band bietet somit eine interessante Auswahl an neuen Forschungsergebnissen, die, von Keszthely-Fenékpuszta ausgehend, die Besonderheiten und Spezifika des Siedlungsgebietes um den Balaton vom Neolithikum bis zum späten Mittelalter aufzeigen.

The fourth volume of the series *Castellum Pannonicum Pelsonense* presents new results of archaeological research in the Balaton region. The volume is in honour of the 70th birthday of Dr. Róbert Müller, known both as a contributor to this series and as a man long active in research in the region, particularly on Keszthely-Fenékpuszta. The authors of this volume use specific examples to provide an insight into current excavation results, to reflect on research history or to develop new methods for answering long-standing questions.

The contributions are arranged chronologically and grouped into four sections. Those treating new finds and sites dating to the Neolithic, Copper and Iron Ages are followed by a broad spectrum of studies on the Roman sites around the Balaton and in its surroundings. The third section comprises papers dealing with material from the Migration Period to the Middle Ages, while the contributions in the last section focus on collaborations between archaeology and the natural sciences. The present volume thus offers an interesting collection of new research, centred on Keszthely-Fenékpuszta, which illustrates the specific characteristics of the settlement region around Lake Balaton from the Neolithic to the Late Middle Ages.



ISBN 978-3-89646-154-4

ISSN 1869-9901