Package `archdata`

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Description The archdata package provides several types of data that are typically used in archaeological research. It provides all of the data sets used in ``Quantitative Methods in Archaeology Using R'' by David L Carlson, one of the Cambridge Manuals in Archaeology.
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Description

Includes archaeological data sets used in *Quantitative Methods in Archaeology Using R* by David L Carlson (Cambridge Manuals in Archaeology).

Details

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<td>archdata</td>
<td>Package</td>
<td>1.2</td>
<td>2018-01-31</td>
<td>GPL</td>
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**Acheulean** Seven African Acheulean Sites

**Arnhofen** Point pattern of mining pits from the Neolithic chert mine at Arnhofen

**BACups** Bronze Age Cups from Italy

**BarmoseI.grid** Flakes per grid unit from Barmose I, South Zealand, Denmark

**BarmoseI.pp** Piece plotted artifacts from Barmose I, South Zealand, Denmark

**Bornholm** Female Iron Age Graves, Bornholm, Denmark

**DartPoints** Five dart point types from Fort Hood, Texas, U.S.A.

**EIAGraves** Early Iron Age Graves - Tell el-Far’ah, Palestine

**EndScrapers** Upper Paleolithic End Scrapers from Castenet A and Ferrassie H, France

**EngrBone** Upper Paleolithic Engraved Bone Design Elements - Spain

**ESASites** Early Stone Age Sites - Norway
**Acheulean**

 ErlBurials  Ernest Witte Cemetery, Austin, County, Texas, U.S.A.
 Fibulae   Bronze La Tène fibulae from Münsingen, Switzerland
 Handaxes  Lower Paleolithic handaxes from Furze Platt, Maidenhead, Berkshire, England
 MaskSite  Mask Site, Alaska, USA
 Mesolithic  British Mesolithic assemblages
 Michelsberg  Younger Neolithic Pottery from Central Europe
 Nelson  Prehistoric Ceramics at Pueblo San Cristobal, New Mexico, U.S.A.
 OIorgesailie.maj  Major stone tool classes, Olorgesailie, Kenya
 OIorgesailie.sub  Stone tool subclasses, Olorgesailie, Kenya
 OxfordPots  Distribution of Late Romano-British Oxford Pottery
 PitHouses  Late Stone Age and Early Sami Iron Age Pithouses in Arctic Norway
 RBGlass1  Romano-British Glass, Major and Minor Elements
 RBGlass2  Romano-British Glass, Trace Elements
 RBPottery  Romano-British Pottery
 Snodgrass  House pits at the Mississippian Snodgrass site in Butler County, Missouri, U.S.A.
 TRBPottery  Neolithic TRB Pottery from Demark

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**References**

 See individual data sets for information on the source and publications illustrating their use.

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**Description**

Stone tool assemblage data from a paper by Lewis Binford (1972). The sites include Olorgesailie, Isimila, Kalambo Falls, Lochard, Kariandusi, Broken Hill, and Nsongezi. Data include approximate latitude and longitude for each site as well as the frequency for each of 12 stone tool types.

**Usage**

data(Acheulean)
**Format**

A data frame with 7 observations showing the site location and the number of specimens for each of 12 stone artifact types. The localities are identified by *rownames*.

<table>
<thead>
<tr>
<th>Lat</th>
<th>Longitude (approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HA</strong></td>
<td>Number of handaxes</td>
</tr>
<tr>
<td><strong>CL</strong></td>
<td>Number of cleavers</td>
</tr>
<tr>
<td><strong>KN</strong></td>
<td>Number of knives</td>
</tr>
<tr>
<td><strong>FS</strong></td>
<td>Number of flake scrapers</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>Number of discoids</td>
</tr>
<tr>
<td><strong>CS</strong></td>
<td>Number of core scrapers</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td>Number of picks</td>
</tr>
<tr>
<td><strong>CH</strong></td>
<td>Number of choppers</td>
</tr>
<tr>
<td><strong>SP</strong></td>
<td>Number of spheroids</td>
</tr>
<tr>
<td><strong>OLT</strong></td>
<td>Number of other large tools</td>
</tr>
<tr>
<td><strong>SS</strong></td>
<td>Number of small scrapers</td>
</tr>
<tr>
<td><strong>OST</strong></td>
<td>Number of other small tools</td>
</tr>
</tbody>
</table>

**Details**

Binford (1972) presents the percentages for 12 tool types at 32 assemblages from 7 sites (including Olorgesailie) which was based on Maxine Kleindienst’s analysis of Lower Paleolithic Acheulean sites in Africa (1961 and 1962). The data were also analyzed by Glynn Isaac (1977). To create the Acheulean data set, the percentages in the original publication have been converted back to counts by dividing by 100 and multiplying by the number of tools. The assemblages from each site are summed. The largest assemblage is Kalambo Falls with 1349 artifacts and the smallest is Broken Hill (Kabwe) with 94. The *rownames* identify each site and an attribute named *Variables* provides variable labels for each column.

**Source**


**References**


Examples

```r
data(Acheulean)
# Compute percentages for each assemblage
Acheulean.pct <- prop.table(as.matrix(Acheulean[,3:14]), 1)*100
round(Acheulean.pct, 2)
plot(OST~HA, Acheulean.pct)
boxplot(Acheulean.pct)
```

Description

The list object contains two data tables of coordinates, one representing the centers of round mining pits, the other holding the vertices of the observed polygonal area. Data was generated by G. Roth in 2006 (Roth 2008). Spatial distance unit is meter. For converting the data to a point pattern see Examples.

Usage

```r
data(Arnhofen)
```

Format

A list with two entries. The first is a data frame, `points`, with 216 observations of `x` and `y` coordinates. Each line represents the center of a round mining pit. The second is a data frame, `window`, with 100 observations and 3 variables, `x`, `y`, and vertex ID. Each line represents a vertex of the polygonal observation area.

```r
points$x (num) x coordinates of pit centers in m
points$y (num) y coordinates of pit centers in m
window$x (num) x coordinates of observation window vertices in m
window$y (num) y coordinates of observation window vertices in m
window$id (num) id for observation window vertices
```

Details

The coordinates in dataframe `points` represent the centres of 216 mining pits in the southeastern section of the 2001 excavation at the Neolithic chert mine of Abensberg-Arnhofen (Roth 2008). Direct dates for mining from the excavation place the site at 5300-4200 BC while use of mined material ends with the Bell Beaker Culture suggesting an end date for the mine of ca. 2200 BC. The regular pit pattern presented here dates to about 4200 BC, i.e. to the Münchshöfen Culture (4500-4000 BC). Arnhofen is the largest neolithic mine in Germany. The mining organization was analyzed by Roth (2008) using point pattern analysis (cf. Baddeley et al. 2016) which showed the neolithic mining to be conducted by farmers from surrounding villages (presumably on a seasonal basis).
The pit centers were located manually in a GIS using excavation maps from between 3 to 4 m below present surface. Mining pits were similar to vertical tubes with an average diameter of 1 m and a rounded horizontal section. A point therefore represents the center of such a vertical tube in the horizontal plane. A few of the pits reached a depth of nearly 8 m below surface. The vertices of the observation area polygon circumscribe a slightly smaller region than the excavated area. The list contains the additional attributes: reference for the data, short data description (site) and geographical coordinates (Lat/Lon) of the excavation.

Source


References


Examples

```r
# data and package spatstat by A. Baddeley et al. 2016 for point pattern analysis
# package spatstat is described and illustrated in Baddeley et al. (2016)
if (requireNamespace("spatstat", quietly = TRUE)) {
  library(spatstat)
  data(Arnhofen) # to shorten the following code
  ap <- Arnhofen
  # generate observation window object; note the polygonal outline.
  arnwin <- owin(poly=ap$window[, 1:2])
  # generate point process pattern object from points and owin object
  app <- ppp(ap$points$x, ap$points$y, arnwin)
  unitname(app) <- c("metre", "metres") # optional, assign unitnames
  # note that owin vertices traverse the polygon anticlockwise
  plot(arnwin)
  points(ap$window[, 1:2], pch=3, cex=.5)
  text(ap$window[, 1], ap$window[, 2], ap$window[, 3], pos=3, cex=.7)
  # visual inspection of the point process pattern
  plot(app)

  # Computing the summary function "centered Besag's L" assuming
  # homogeneous intensity. Centered Besag's L is just a conveniently
  # transformed Ripley's K. see references in ?Lest.
  set.seed(1)
  Lcentrd <- envelope(app, Lest, nsim=49, nrank=1, global=TRUE, r=seq(0,7, 0.01),
    correction="translate", transform=expression(-r))
  # for the arguments see ?Kest and ?envelope.
```
BACups

Bronze Age Cups from Italy

Description

Measurements on Early and Late Bronze Age ceramic cups from Italy analyzed by Lukesh and Howe (1978).

Usage

data("BACups")

Format

A data frame with 60 observations on the following 6 variables.

RD Rim Diameter
ND Neck Diameter
SD Shoulder Diameter
H Total Height
NH Neck Height
Phase Chronological Phase: Protoapennine, Subapennine
Details

These data on the dimensions of Bronze Age cups from Italy are a subset extracted from a set published by Lukesh and Howe (1978) of the specimens for which full data was available. The data were scanned from Table A4 (Appendix A) in Baxter (1994). The Protoapennine cups are Early Bronze Age while the Subapennine cups are Late Bronze Age.

Source


Examples

data(BACups)
by(BACups[, -6], BACups$Phase, summary)
plot(RD~H, BACups, pch=as.numeric(Phase))
legend("topleft", levels(BACups$Phase), pch=1:2)

---

BarmoseI.grid  
*Flakes per grid unit from Barmose I, South Zealand, Denmark*

Description

Flake counts for each of 107 contiguous grid units at the Barmose I Maglemosian site used by Blankholm (1991) to illustrate several spatial analysis methods.

Usage

data(BarmoseI.grid)

Format

A data frame with 107 observations on the following 3 variables.

- North  North coordinate of southwest corner of unit
- East    East coordinate of southwest corner of unit
- Debitage Number of flakes

Details

Barmose I is an early Maglemosian (7500 - 6000 BCE) site located in Barmosen in South Zealand, Denmark. The site was excavated in 1967-1971 by Axel Johansson (Johansson 1971 and 1990). Flake counts and grid coordinates were taken from Figure 100 in Blankholm (1991) for BarmoseI.grid. BarmoseI.pp includes the locations of 473 artifacts from Appendix C of Blankholm’s book.
Source

References

Examples
```r
data(BarmoseI.grid)
plot(North~East, BarmoseI.grid, xlim=c(0, 12), ylim=c(0, 14), type="n", asp=1)
with(BarmoseI.grid, text(East+.5, North+.5, Debitage, cex=.8))
```

**BarmoseI.pp**

*Piece plotted artifacts from Barmose I, South Zealand, Denmark*

Description
Two dimensional locations of 473 artifacts at the Barmose I Maglemosian site used by Blankholm (1991) to illustrate several spatial analysis methods.

Usage
data(BarmoseI.pp)

Format
A data frame with 473 observations on the following 4 variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>North coordinate</td>
</tr>
<tr>
<td>East</td>
<td>East coordinate</td>
</tr>
<tr>
<td>Class</td>
<td>Numeric code used by Blankholm: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11</td>
</tr>
<tr>
<td>Label</td>
<td>Artifact type: Scrapers, Burins, Lanceolate Microliths, Microburins, Flake Axes, Core Axes, Square Knives, Blade/Flake Knives, Denticulated/Notched Pieces, Cores, Core Platforms</td>
</tr>
</tbody>
</table>

Details
Barmose I is an early Maglemosian (7500 - 6000 BCE) site located in Barmosen in South Zealand, Denmark. The site was excavated in 1967-1971 by Axel Johansson (Johansson 1971 and 1990). Flake counts and grid coordinates were taken from Figure 100 in Blankholm (1991) for BarmoseI.grid. BarmoseI.pp includes the locations of 473 artifacts from Appendix C of Blankholm’s book (1991).
Source

References

Examples
```r
data(BarmoseI.pp)
plot(North~East, BarmoseI.pp, asp=1, pch=as.numeric(Class))
legend("bottomleft", levels(BarmoseI.pp$Label), pch=1:11, cex=.75)
```

---

Bornholm

Female Iron Age Graves, Bornholm, Denmark

Description
Data on the occurrence of 39 different types of ornamentation in 77 female graves at Iron age sites in in Bornholm, Denmark.

Usage
data("Bornholm")

Format
A data frame with 77 observations on the following 42 variables.

- Number Observation Number
- Site Site/Bural Number
- Period Chronological period: 1a, 1b, 2a, 2b, 2c, 3a, and 3b
- N2c count
- R3d count
- N2a count
- Q3b count
- R3c count
- N1 count
Nielsen used data on 39 different types of ornaments from Ørsnes (1966) to seriate a series of 77 Late Germanic Iron Age (CE 550 - 800) graves from Bornholm, Denmark (1988, Table 4 and Figure 7). Baxter re-analyzed the data to illustrate correspondence analysis (1994: 104-107, Table A6). These data were taken from Nielsen’s Table 4 showing her seriation. Baxter’s version is scrambled in order to evaluate different seriation methods and does not include the ornament types (illustrated in Nielson’s Figure 7). The data include Ørsnes’s period and subperiod designations (1966).
DartPoints

Source


Examples

```r
if (requireNamespace("MASS", quietly = TRUE)) {
  data(Bornholm)
  Bornholm.ca <- MASS::corresp(Bornholm[, 4:42], nf=2)
  plot(Bornholm.ca$rscore, pch=substring(Bornholm$Period, 1, 1), cex=.75)
  boxplot(Bornholm.ca$rscore[, 1]~Bornholm$Period, main="First CA Axis by Period")
} else {
  cat("This example requires the MASS package.\n")
}
```

DartPoints

*Five dart point types from Fort Hood, Texas, U.S.A.*

Description

Metric and categorical measurements on 91 Archaic dart points recovered during surface surveys at Fort Hood, Texas representing five types.

Usage

```r
data(DartPoints)
```

Format

A data frame with 91 observations on the following 17 variables.

- **Name**: Dart point type: Dar1, Ensor, Pedernales, Travis, Wells
- **Catalog**: Fort Hood catalog number
- **TARL**: Texas Archeological Research Laboratory site number
- **Quad**: Fort Hood Quad
- **Length**: Maximum Length (mm)
- **Width**: Maximum Width (mm)
- **Thickness**: Maximum Thickness (mm)
B. Width Basal width (mm)
J. Width Juncture width (mm)
H. Length Haft element length (mm)
Weight Weight (gm)
Blade Sh Blade shape: E - Excurvate, I - Incurvate, R - Recurvate, S - Straight
Base Sh Base shape: E - Excurvate, I - Incurvate, R - Recurvate, S - Straight
Should Sh Shoulder shape: E - Excurvate, I - Incurvate, S - Straight, X - None
Should Or Shoulder orientation: B - Barbed, H - Horizontal, T - Tapered, X - None
Haft Sh Shape lateral haft element: A - Angular, E - Excurvate, I - Incurvate, R - Recurvate, S - Straight
Haft Or Orientation lateral haft element: C - Concave, E - Expanding, P - Parallel, T - Contracting, V - Convex

Details

Measurements on five types of dart points from Fort Hood in central Texas (Darl, Ensor, Pedernales, Travis, and Wells). The points were recovered during 10 different pedestrian survey projects during the 1980’s and were classified and measured by H. Blaine Ensor using the system created by Futato (1983) as described in Carlson, S., et al 1987, pp 51-70 and Appendices 4 and 7.

Source

Fort Hood Projectile Points. Electronic database compiling the results of multiple surface surveys at Fort Hood in the possession of David L. Carlson, Department of Anthropology, Texas A&M University, College Station, TX. The artifacts are curated at Fort Hood, TX by the Cultural Resources Branch of the Directorate of Public Works.

References


Examples

```r
data(DartPoints)
boxplot(Length~Name, DartPoints)
plot(Width~Length, DartPoints, pch=as.numeric(Name), main="Fort Hood Dart Points")
legend("topleft", levels(DartPoints$Name), pch=1:5)
```
Early Iron Age Graves - Tell el-Far’ah, Palestine

Description

Counts of 52 different ceramic types in 6 large tombs and 10 broadly contemporaneous groups of tombs.

Usage

data("EIAGraves")

Format

A data frame with 52 rows (ceramic types) found in 16 units (a grave or a group of graves).

Type  Ceramic type number
G100  19 broadly contemporaneous graves and tombs
G200B 30 broadly contemporaneous graves and tombs
G200C 28 broadly contemporaneous graves and tombs
G201 An indidivual tomb
G229 An indidivual tomb
G500N 19 broadly contemporaneous graves and tombs
G532 An indidivual tomb
G542 An indidivual tomb
G552 An indidivual tomb
G562 An indidivual tomb
G600 52 broadly contemporaneous graves and tombs
G800 39 broadly contemporaneous graves and tombs
G900B 41 broadly contemporaneous graves and tombs
G900L 3 broadly contemporaneous graves and tombs
G900S 5 broadly contemporaneous graves and tombs
G900U 7 broadly contemporaneous graves and tombs

Details

The data on counts of 52 different ceramic types in 6 large tombs and 10 broadly contemporaneous groups of tombs come from Tell el-Far’ah (South), Palestine. They were originally published in McClellan (1979). The data were scanned from Table 2.5 in Baxter (2003, p. 25-6). The 52 rows correspond to different pottery types found in association with the burials.
Examples

```r
data(EIAGraves)
# How many ceramics of each type?
# Exclude the first column which is the ceramic type number
rowSums(EIAGraves[, -1])
# How many tomb groups contain each type?
rowSums(EIAGraves[, -1]>0)
# How many ceramics in each tomb group?
colSums(EIAGraves[, -1])
# How many types are found in each tomb group?
colSums(EIAGraves[, -1]>0)
```

Description

Data on 3000 Upper Paleolithic end scrapers from two sites analyzed by James Sackett (1966) and reanalyzed by Dwight Read (1974 and 2007).

Usage

data(EndScrapers)

Format

A data frame with 48 observations on the following 6 variables.

- **Width** Width: Narrow, Wide
- **Sides** Sides: Convergent, Parallel
- **Curvature** End Curvature: Round, Medium, Shallow
- **Retouched** Retouching: Retouched, Unretouched
- **Site** Site: Castenet A, Ferrassie H
- **Freq** Number of end scrapers

Details

The scrapers are grouped on 5 categorical variables into 48 groups. Sackett’s analysis employed Chi square and the examination of residuals. Read used the data to illustrate loglinear modelling (1974, 2007). The data come from Tables IV and VIII (pp 373 and 380) in Sackett’s original article.
Source


References


Examples

data(EndScrapers)
xtabs(Freq~Site+Curvature, EndScrapers)
xtabs(Freq~Curvature+Sides+Site, EndScrapers)

---

**EngrBone**

*Upper Paleolithic Engraved Bone Design Elements - Spain*

Description

Counts of 44 engraved bone design elements at five Upper Paleolithic hunter-gatherer sites in Cantabrian, Spain.

Usage

data("EngrBone")

Format

A data frame with 44 types of engraved bone found at 5 sites.

- Altamira
- CM Cueto de la Mina
- EJ El Juyo
- EC El Cierro
- LP La Paloma

Details

Counts of 44 engraved bone design elements at five prehistoric hunter-gatherer sites in Cantabrian, Spain. The data were originally analyzed by Conkey (1980) and appear in this format in Kaufman (1998). Kintigh (1984) used these data to illustrate a method for comparing the diversity between samples. The data were scanned from Table 2.4 in Baxter (2003, p. 24).
ESASites

Source


References


Examples

data(EngrBone)
# Number of engraved bone specimens at each site
NS <- colSums(EngrBone)
# Number of kinds of engraved bone at each site
NT <- colSums(EngrBone>0)
plot(NS, NT, xlab="Number of Specimens", ylab="Number of Types", main="Engraved Bone", las=1)
text(NS, NT, names(EngrBone), pos=c(1, 3, 3, 3, 3))
Key <- apply(attr(EngrBone, "Variables"), 1, paste, collapse=" - ")
legend("topleft", legend=Key)

ESASites

Early Stone Age Sites - Norway

Description

Data on 43 Early Stone Age assemblages in Norway come originally from Bølviken et al (1982).

Usage

data("ESASites")

Format

A data frame with 43 observations on the following 16 variables.

TA Tanged Arrows
BA Blade Arrows
TOA Transverse and Oblique Arrows
AA Atypical Arrows
M Microliths
FK Flake Knives
BK Blade Knives
Notched Knives
Core and Flake Scrapers
Blade Scrapers
Disc Scrapers
Burins
Axes
Chisels
Slate Axes
Perforators

Details
Data on 43 Early Stone Age (8000 - 4000 BCE) assemblages in Norway come originally from Bølviken et al (1982). The data were scanned from Table A5 (Appendix A) in Baxter (1994).

Source

References

Examples
```r
data(ESASites)
NS <- rowSums(ESASites)
NT <- rowSums(ESASites > 0)
plot(NS, NT, xlab="Number of Artifacts", ylab="Number of Types", main="Early Stone Age Sites", las=1)
```

usage
```r
data(EWBurials)
```
**Format**

A data frame with 49 observations on the following 7 variables.

- **Group**: Cemetery group, a factor with levels 1, 2
- **North**: North grid location of the burial in meters (excavation grid system)
- **West**: East grid location of the burial in meters (excavation grid system)
- **Age**: Age category, a factor with levels Fetus, Infant, Child, Adolescent, Young Adult, Adult, Middle Adult, Old Adult
- **Sex**: a factor with levels Female, Male
- **Direction**: circular data in degrees indicating the direction of the individual measured from the head along the vertebral column
- **Looking**: circular data in degrees indication the direction the individual is facing
- **Goods**: Presence or absence of grave goods

**Details**

The Ernest Witte site in Austin County, Texas contains four burial groups from different time periods. Group 1 includes 60 interments and that occurred between about 2000 and 1200 BCE. Group 2 is the largest with 148 interments. The burials in this group were interred between about CE 200 and 500. Groups 3 and 4 include only 10 and 13 interments and date to CE 500 to 1500, but are not included in this data set which was taken from Appendix II (Hall 1981). Two of the variables, direction and looking, are circular data and require package circular. Hall (2010) provides a summary of the site and its significance.

**Source**


**References**


**Examples**

```r
data(EWBurials)
xtabs(~Age+Sex+Group, EWBurials)

if (requireNamespace("circular", quietly = TRUE)) {
  plot(EWBurials$Direction)
} else {
  cat("This example requires package circular.\n")
}
```
Fibulae  

Bronze La Tène fibulae from Munsingen, Switzerland

Description

The La Tène fibulae from the Iron Age cemetery of Münsingen near Berne, Switzerland (100 - 500 BCE) described by F. R. Hodson (1968).

Usage

data("Fibulae")

Format

A data frame with 30 observations on the following 16 variables.

Grave  Grave number
Mno  Museum number
FL  Foot Length
BH  Bow Height
BFA  Bow Front Angle
FA  Foot Angle
CD  Coil Diameter
BRA  Bow Rear Angle
ED  Element Diameter
FEL  Foot Extension Length
C  Catchplate
BW  Bow Width
BT  Bow Thickness
FEW  Foot Extension Width
Coils  Number of Coils
Length  Total Length

Details

The La Tène fibulae from the Iron Age cemetery of Münsingen near Berne, Switzerland were reported by F. R. Hodson (1968). They were featured in several papers by Hodson over the years and used to illustrate a variety of multivariate statistical techniques. The data here were taken from Doran and Hodson (1975), Table 9.1. These are the raw measurements including 5 missing values in foot extension thickness and 1 in foot extension length.
Handaxes

Source


References


Examples

data(Fibulae)
t(sapply(Fibulae[, 3:16], quantile, na.rm=TRUE))
plot(density(Fibulae$Length, bw="SJ"), main="Kernel Density Plot of Length")

Handaxes Lower Paleolithic handaxes from Furze Platt, Maidenhead, Berkshire, England

Description

Handaxes from the Furze Platt site stored at the Royal Ontario Museum.

Usage

data(Handaxes)

Format

A data frame with 600 observations on the following 8 variables.

Catalog Specimen catalog number
L Maximum Length
L1 Distance from the butt to the location of the maximum breadth measured along the length dimension
B Maximum breadth
B1 Breadth measured at 1/5 of the length from the tip. Measured perpendicular to the length
B2 Breadth measured at 1/5 of the length from the butt. Measured perpendicular to the length
T Maximum thickness, not necessarily measured at the maximum breadth
T1 Thickness measured at B1

Details

The data consist of measurements on 600 handaxes from the Furze Platt site stored at the Royal Ontario Museum that were measured by William Fox. The measurements follow the system used by Derek Roe (Roe 1964, 1968, 1981). Fox’s measurements were digitized by Tony Baker and uploaded to his website.

Source


References


Examples

data(Handaxes)
summary(Handaxes)
**MaskSite**

**Mask Site, Alaska, USA**

**Description**

The distribution of five categories of artifacts at the Mask site, occupied by the Nunamiut (Binford 1978a).

**Usage**

data("MaskSite")

**Format**

A data frame with 494 observations on the following 3 variables.

- **X** horizontal coordinate
- **Y** vertical coordinate
- **Category** a factor with levels Artifacts, Spent Cartridges, Wood Shavings, Bone Splinters, and Large Bones

**Details**

The Mask Site was reported by Binford (1978a) as an example of a hunting stand where Nunamiut men watched for game as part of a larger ethnoarchaeological study of the Nunamiut (Binford 1978b). The data from the site have been widely used to illustrate the utility of various methods of intra site spatial analysis (including Baxter 2003, Blankholm 1991, Kintigh 1990, and Whallon 1984). The data consist of 494 locations of five different classes (artifacts, spent cartridges, wood shavings, bone splinters, and large bones). The data were scanned from Appendix A (Blankholm 1991).

**Source**


**References**


Examples

data(MaskSite)
plot(Y~X, MaskSite, main="Mask Site", asp=1, pch=as.numeric(Category), cex=.75)
legend("bottomright", levels(MaskSite$Category), pch=1:5)

Mesolithic       British Mesolithic assemblages

Description

Counts of 5 different stone artifact types from 33 Mesolithic sites in Britain.

Usage

data("Mesolthic")

Format

A data frame with 33 observations on the following 5 variables.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microliths</td>
<td>Number of microliths</td>
</tr>
<tr>
<td>Scrapers</td>
<td>Number of scrapers</td>
</tr>
<tr>
<td>Burins</td>
<td>Number of burins</td>
</tr>
<tr>
<td>Axes</td>
<td>Number of axes</td>
</tr>
<tr>
<td>Saws</td>
<td>Number of saws</td>
</tr>
</tbody>
</table>

Details

Data on 33 Mesolithic (9000 - 4000 BCE) assemblages are a subset Pitts (1979) extracted from a set published by Mellars (1976). The data were scanned from Table A3 (Appendix A) in Baxter (1994).

Source


Examples

data(Mesolithic)
Mesolithic.pct <- prop.table(as.matrix(Mesolithic), 1)*100
apply(Mesolithic.pct, 2, quantile)
cor(Mesolithic.pct)
Description

A sites by types table of abundance data on vessel types in archaeological features of the Younger Neolithic Michelsberg Culture from Belgium, France and Germany by Birgit Höhn (2002).

Usage

data(Michelsberg)

Format

A data frame with 109 observations on the following 42 variables. Each line represents one feature. Some categorical variables are not converted to factors.

- **id**: Unique identifier (categorical, integer)
- **site_name**: Name of site (categorical, character)
- **catalogue_nr**: Number in catalogue of Höhn (2002) (categorical, integer)
- **feature_nr**: Number of the archaeological feature (categorical, numeric)
- **to3**: Pot/vessel type 3 count
- **f4**: Bottle type 4 count
- **b2**: Beaker type 2 count
- **to2**: Pot/vessel type 2 count
- **b3**: Beaker type 3 count
- **b7**: Beaker type 7 count
- **kw5**: Carinated bowl type 5 count
- **vg1**: Storage vessel type 1 count
- **vg2**: Storage vessel type 2 count
- **t4a**: Tulip beaker type 4a count
- **kw2**: Carinated bowl type 2 count
- **kw4**: Carinated bowl type 4 count
- **b5**: Beaker type 5 count
- **t3b**: Tulip beaker type 3b count
- **f3**: Bottle type 3 count
- **kw3**: Carinated bowl type 3 count
- **kw1**: Carinated bowl type 1 count
- **b6**: Beaker type 6 count
- **to1**: Pot/vessel type 1 count
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>b1</td>
<td>Beaker type 1 count</td>
</tr>
<tr>
<td>t3a</td>
<td>Tulip beaker type 3a count</td>
</tr>
<tr>
<td>vg4</td>
<td>Storage vessel type 4 count</td>
</tr>
<tr>
<td>ks2</td>
<td>Conical bowl type 2 count</td>
</tr>
<tr>
<td>ks1</td>
<td>Conical bowl type 1 count</td>
</tr>
<tr>
<td>t2b</td>
<td>Tulip beaker type 2b count</td>
</tr>
<tr>
<td>f2</td>
<td>Bottle type 2 count</td>
</tr>
<tr>
<td>bs3</td>
<td>Globular bowl type 3 count</td>
</tr>
<tr>
<td>t2a</td>
<td>Tulip beaker type 2a count</td>
</tr>
<tr>
<td>bs2</td>
<td>Globular bowl type 2 count</td>
</tr>
<tr>
<td>b4</td>
<td>Beaker type 4 count</td>
</tr>
<tr>
<td>bs1</td>
<td>Globular bowl type 1 count</td>
</tr>
<tr>
<td>f1</td>
<td>Bottle type 1 count</td>
</tr>
<tr>
<td>t1b</td>
<td>Tulip beaker type 1b count</td>
</tr>
<tr>
<td>vg3</td>
<td>Storage vessel type 3 count</td>
</tr>
<tr>
<td>t1a</td>
<td>Tulip beaker type 1a count</td>
</tr>
</tbody>
</table>

mbk_phase MBK phase according to Lüning (1967) as an ordered factor with levels I < I/II < II < II/III < III < III-V < III/IV < IV < IV/V < Munz < V

x_<sub>utm32n</sub> x coordinate in m; projection UTM WGS 84, zone 32 nord

y_<sub>utm32n</sub> y coordinate in m; projection UTM WGS 84, zone 32 nord

### Details

Höhn (2002) recorded pottery vessel shapes from 108 archaeological features (pits, ditches etc.) from 69 sites of the Central European Younger Neolithic Michelsberg Culture (MBK; 4350-3500 BC) following Lüning’s (1967) typology. Her correspondence analysis of the abundance data (columns 5 to 39) exhibits a pronounced Guttman effect or arch, suggesting the data set is structured by a time gradient. Recently Mischka et al. (2015) projected an 109th Michelsberg assemblage, Flintbek LA48, a pit with Michelsberg pottery from a North German site of the Funnel Beaker Culture (TRB), as a supplementary row into the existing chronology thereby connecting the relative chronologies of TRB and MBK. The data frame contains as attributes the references for the data, a typological key and the map projection. Note that ambiguous fragments of conical bowls (ks1 and ks2) are assigned as 0.5 to each of the two types resulting also in positive entries suitable to analysis by CA.

### Source


Examples

```r
if (requireNamespace("ca", quietly = TRUE)) {
  data(Michelsberg)
  str(Michelsberg)
  names(Michelsberg)[5:39]
  attributes(Michelsberg)$typological_key

  # geographical distribution
  xy <- as.matrix(Michelsberg[,41:42])/1000
  plot(xy, asp=1, pch=16, col=rgb(.3,.3,.3,.5))
  text(xy[1,], xy[2,], Michelsberg$id, cex=.7, pos=2)
  # Note site 109 to the Northeast;

  # preparing the data set for CA
  abu <- Michelsberg[, 5:39]
  rownames(abu) <- Michelsberg$id

  # CA with site 109, Flintbek LA48, as supplementary row
  MBK.ca <- ca::ca(abu, ndim=min(dim(abu)-1), suprow=109 )

  # asymmetric biplot with row quality and column contribution
  plot(MBK.ca, map="rowprincipal", contrib=c("relative", "absolute"))

  title(main="Row-isometric Biplot of Michelsberg CA", cex.sub=.7,
       sub="color intensity represents quality for sites and contributions for types")
} else {
  cat("This example requires package ca to run.\n"
}
```

---

Nelson

Prehistoric Ceramics at Pueblo San Cristobal, New Mexico, USA

Description

Ceramic distribution in a midden deposit at Pueblo San Cristobal reported by Nels Nelson in 1916.

Usage

data(Nelson)

Format

A data frame with 10 observations on the following 8 variables.

Depth  Depth in feet from 1 to 10 for 1 foot arbitrary excavation levels
Corrugated  Number of corrugated ware ceramics
Biscuit  Number of Biscuit ware ceramics
Type_I  Number of two and three color painted ware ceramics
Details

Data from a midden deposit at San Cristobal in the American Southwest. It has been used as a classic illustration of the potential for creating a relative chronology using frequency seriation of ceramic artifact types. The site was occupied approximately from CE 1350 to 1680. Ceramic artifact fragment counts are presented for each 1-foot (30 cm) arbitrary level excavated in the midden deposit. When converted to percentages (usually excluding the corrugated ware), the data illustrate a classical "battleship curve" like those described in Ford (1962).

Source


References


Examples

data(Nelson)

# Remove Depth and Corrugated and compute percentages
Nelson.pct <- prop.table(as.matrix(Nelson[,3:7]), 1)*100
# Percentages for each type by level
round(Nelson.pct, 2)

# Battleship plot from plotrix package
if (requireNamespace("plotrix", quietly = TRUE)) {
  plotrix::battleship.plot(Nelson.pct, col="gray")
} else {
  cat("This example requires package plotrix.
")
}
Major stone tool classes, Olorgesailie, Kenya

Description

The data represent the number of specimens in each of 6 major artifact classes recovered from 19 localities at the Lower Paleolithic site of Olorgesailie as described in Isaac (1977).

Usage

data(Olorgesailie.maj)

Format

A data frame with 19 observations showing the number of specimens for each of 6 stone artifact types.

Large.cutting.tools Number of large cutting tools
Heavy.duty.tools Number of heavy duty tools
Large.scrapers Number of large scrapers
Other.large.tools Number of other large tools
Small.tools Number of small tools
Spheroids Number of spheroids

Details

The data come from Table E1 in Isaac (1977: 239). The rownames identify localities in the lower, middle and upper strata to provide relative chronological placement. They are in the same order as the columns in the table: LS1 (BBB), LS2 (BBA), LS3(FB), LS4(FB-HL), LS5(FB-I3), MS1a(DE/89 A-L), MS1b(DE/89 A-I), MS2a(DE/89 B-L), MS2b(DE/89 B-I), MS3(DE/89 C), MS4(H/6), MS5(H/9 A), MS6(H/9 AM), MS7(Mid), MS8(Meng), MS9(LHS), US1(TRTrM10), US2(Hog), US3(MFS). Potts (2011) provides updated information on the site complex.

Source


References


Examples

data(Olorgesailie.maj)
# Chi square after removing the first two columns and simulating the p
# value since there are a number of very small expected values
chisq.test(Olorgesailie.maj, simulate.p.value=TRUE)
# Compute percentages over the localities
Olor.pct <- prop.table(as.matrix(Olorgesailie.maj), 1)*100
boxplot(Olor.pct)

Olorgesailie.sub  Stone tool subclasses, Olorgesailie, Kenya

Description

The data represent the number of specimens in each of 16 artifact subclasses recovered from 19
localities at the Lower Paleolithic site of Olorgesailie as described in Isaac (1977).

Usage

data(Olorgesailie.sub)

Format

A data frame with 19 observations showing the stratum, locality and the number of specimens for
each of 16 stone artifact types.

Strat  stratum: Lower, Middle, Upper
Locality  Locality
HA  Number of handaxes
PHA  Number of pick-like handaxes
CHA  Number of chisel handaxes
CL  Number of cleavers
KN  Number of knives
BLCT  Number of broken large cutting tools
PAT  Number of picks and trièdres
CH  Number of choppers
CS  Number of core scrapers
LFS  Number of large flake scrapers
CB  Number of core bifaces
OLT  Number of other large tools
SSS  Number of small scrapers simple
SSNP  Number of small scrapers nosed point
OST  Number of other small tools
SP  Number of spheroids
Details

The data come from Table E1 in Isaac (1977: 239). The Locality contains the column headings in the original table. The rownames are the same as those in Olorgesailie.maj. The attribute Variables in the data frame includes the full variable names. Potts (2011) provides updated information on the site complex.

Source


References


Examples

data(Olorgesailie.sub)
# Chi square after removing the first two columns and simulating the p
# value since there are a number of very small expected values
chisq.test(Olorgesailie.sub[,3:18], simulate.p.value=TRUE)
# Compute percentages over the localities
Olor.pct <- prop.table(as.matrix(Olorgesailie.sub[,3:18]), 1)*100
boxplot(Olor.pct, cex.axis=.7)

OxfordPots

Distribution of Late Romano-British Oxford Pottery

Description

Percentages of Late Romano-British Oxford Pottery on 30 sites

Usage

data("OxfordPots")

Format

A data frame with 30 observations on the following 7 variables.

Place Site name
OxfordPct Percentage of Oxford pottery
OxfordDst  Distance to Oxford in miles
NewForestPct Percentage of New Forest pottery
NewForestDst Distance to New Forest
WalledArea Acreage of walled towns
WaterTrans Availability of a water transportation link, 1=probable presence

Details

In several publications Ian Hodder analyzed the spatial distribution of Late Romano-British pottery produced at Oxford as evidence of trade and marketing patterns. These data come from the article by Fulford and Hodder (1974). In addition to the percentage of Oxford pottery and the distance to Oxford for 30 sites, data on New Forest pottery was included and information on walled town size and the availability of water transportation.

Source


References


Examples

data(OxfordPots)
# Construct Fulford and Hodder's Figure 3
Oxford.lm1 <- lm(log(OxfordPct)~OxfordDst, OxfordPots, subset=WaterTrans==0)
Oxford.lm2 <- lm(log(OxfordPct)~OxfordDst, OxfordPots, subset=WaterTrans==1)
plot(log(OxfordPct)~OxfordDst, OxfordPots, xlim=c(0, 160), yaxt="n", ylim=c(0, 3.25),
     ylab="Percentage of Oxford Pottery", xlab="Distance (miles)",
     pch=c(1, 16)[WaterTrans+1], cex=1.5, lwd=2)
# Add log y-axis
axis(2, log(c(1, 5, 10, 20)), c(1, 5, 10, 20), las=1)
abline(Oxford.lm1, lwd=2)
abline(Oxford.lm2, lwd=2)

PitHouses  Late Stone Age and Early Sami Iron Age Pithouses in Arctic Norway

Description

The morphology of 45 Arctic Norway pithouses is described in terms of 6 categorical variables.
Usage
data("PitHouses")

Format

A data frame with 45 observations on the following 6 variables.

Hearths  a factor with levels None, One, Two, and Charcoal Conc
Depth    a factor with levels Deep and Shallow
Size     a factor with levels Small, Medium, and Large
Form     a factor with levels Oval and Rectangular
Orient   a factor with levels Parallel Coast and Gabel Toward Coast
Entrance a factor with levels One Side, Front and One Side, and None

Details

Data on the morphology of pit houses from Arctic Norway described by Engelstad (1988). The data were scanned from Table A7 in Baxter (1994). The category labels are used rather than the numeric values listed in Table A7. The data represent the Group C pithouses as described in Engelstad (1988) which was more variable than groups A or B. The data were converted into an incidence matrix (Table A8 in Baxter (1994) and Table 3 in Englestad (1988)) and used in a multiple correspondence analysis.

Source


References


Examples

data(PitHouses)
# Crosstabulation of Hearths with Size
PitHouses.tbl <- xtabs(~Hearths+Size, PitHouses)
PitHouses.tbl
barplot(PitHouses.tbl, ylab="Frequency", main="Arctic Norway Pithouses", beside=TRUE,
        legend.text=TRUE, args.legend=list(title="Hearths"))
barplot(prop.table(PitHouses.tbl, 2)*100, ylim=c(0, 60), main="Arctic Norway Pithouses",
        ylab="Percent", beside=TRUE, legend.text=TRUE, args.legend=list(title="Hearths"))
Description

The concentrations for 11 major and minor elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter).

Usage

data("RBGlass1")

Format

A data frame with 105 observations on the following 12 variables.

Site  a factor with levels Leicester and Mancetter
Al   Percentage Aluminum
Fe   Percentage Iron
Mg   Percentage Magnesium
Ca   Percentage Calcium
Na   Percentage Sodium
K    Percentage Potassium
Ti   Percentage Titanium
P    Percentage Phosphorus
Mn   Percentage Manganese
Sb   Percentage Antinmony
Pb   Percentage Lead

Details

The concentrations for 11 major and minor elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter) come from Caroline Jackson’s Ph. D. thesis at Bradford University. The data here were scanned from Baxter (1994) Table A1. Measurements are percentage for each element.

Source

RBGlass2

References


Examples

data(RBGlass1)
RBGlass1.pca <- prcomp(RBGlass1[, -1], scale.=TRUE)
biplot(RBGlass1.pca, xlabs=abbreviate(RBGlass1$Site, 1), cex=.75)

---

**RBGlass2**  
*Romano-British Glass, Trace Elements*

Description

The concentrations for 11 trace elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter).

Usage

data("RBGlass2")

Format

A data frame with 105 observations on the following 12 variables.

- **Site** a factor with levels Leicester and Mancetter
- **Ba** Barium ppm
- **Co** Cobalt ppm
- **Cr** Chromium ppm
- **Cu** Copper ppm
- **Li** Lithium ppm
- **Ni** Nickel ppm
- **Sr** Strontium ppm
- **V** Vanadium ppm
- **Y** Yttrium ppm
- **Zn** Zinc ppm
- **Zr** Zirconium ppm
Details

The concentrations for 11 trace elements in 105 Romano-British waste glass specimens from two furnace sites (Leicester and Mancetter) come from Caroline Jackson’s Ph. D. thesis at Bradford University. The data here were scanned from from Baxter (1994) Table A2. Measurements are parts per million (ppm) for each of 11 elements.

Source


References


Examples

data(RBGlass2)
RBGlass2.pca <- prcomp(RBGlass2[, -1], scale.=TRUE)
biplot(RBGlass2.pca, xlabs=abbreviate(RBGlass2$Site, 1), cex=.75)

RBPottery

Results of chemical analyses of 48 specimens of Romano-British pottery from 5 sites in 3 regions.

Usage

data("RBPottery")
Format

A data frame with 48 observations on the following 12 variables.

ID  Sample ID
Kiln  Kiln: Gloucester, Llanedeyrn, Caldicot, Islands Thorns, and Ashley Rails
Region  Region: Gloucester, Wales, and New Forest
Al2O3  Percentage aluminum trioxide
Fe2O3  Percentage iron trioxide
MgO  Percentage magnesium oxide
CaO  Percentage calcium oxide
Na2O  Percentage sodium oxide
K2O  Percentage potassium oxide
TiO2  Percentage titanium dioxide
MnO  Percentage manganese oxide
BaO  Percentage barium oxide

Details

Results of chemical analyses of 48 specimens of Romano-British pottery published by Tubb, et al. (1980). The numbers are the percentage metal oxide. "Kiln" indicates at which kiln site the pottery was found. The kiln sites come from three regions (1=Gloucester, (2=Llanedeyrn, 3=Caldicot), (4=Islands Thorns, 5=Ashley Rails)). The data were scanned from Table 2.2 in Baxter (2003, p. 21) and preserve three probable typographical errors in the original publication. Those errors are the values for TiO2 in line 4 (sample GA4), for MnO in line 35 (sample C13), and for K2O in line 36 (sample C14). Versions of these data are also available as Pottery in package car, pottery in package HSAUR, and Pottery2 in package heplots.

Source


References


Examples

data(RBPottery)
print(aggregate(RBPottery[, -c(1:3)], list(Region=RBPottery$Region), mean), digits=2)
plot(Na2O~CaO, RBPottery, pch=as.numeric(Region)-1)
legend("topright", levels(RBPottery$Region), title="Region", pch=0:2)
**Snodgrass**

*House pits at the Mississippian Snodgrass site in Butler County, Missouri, U.S.A.*

---

**Description**

Information on the size, location and contents of 91 house pits at the Snodgrass site which was occupied between about CE 1325-1420.

**Usage**

data(Snodgrass)

**Format**

A data frame with 91 observations on the following 15 variables.

- **East**  East grid location of house in feet (excavation grid system)
- **South**  East grid location of house in feet (excavation grid system)
- **Length**  House length in feet
- **Width**  House width in feet
- **Segment**  Three areas within the site 1, 2, 3
- **Inside**  Location within or outside the "white wall" Inside, Outside
- **Area**  Area in square feet
- **Points**  Number of projectile points
- **Abraders**  Number of abraders
- **Discs**  Number of discs
- **Earplugs**  Number of earplugs
- **Effigies**  Number of effigies
- **Ceramics**  Number of ceramics
- **Total**  Total Number of artifacts listed above
- **Types**  Number of kinds of artifacts listed above

**Details**

The data from 91 house pits at the Snodgrass site were reported by Price and Giffin in 1979. The layout of the houses follows a grid pattern with the long axis oriented northeast surrounded by a fortification trench. There is also evidence of an interior wall that may have separated the houses inside that wall from those outside the wall. Price and Griffin use differences in house size and artifact composition to suggest that those differences may have reflected rank differences between the occupants of the two areas. That conclusion has been questioned on a number of grounds by Cogswell, et al (2001), but the data are still useful for illustrating a number of quantitative methods. The data come from the appendices except for the house locations which were estimated from the base map in Figure 10 (Price and Griffin 1979).
Source


References


Examples

```r
data(Snodgrass)
plot(-South-East, Snodgrass, main="Snodgrass Site", pch=as.numeric(Inside)+4, asp=1)
legend("topleft", levels(Snodgrass$Inside), pch=5:6)
boxplot(Area~Inside, Snodgrass)
```

---

**TRBPottery**

*Neolithic TRB Pottery from Demark*

Description

Measurements at 8 landmarks along one side of 118 Neolithic TRB (Trichterrandbecherkultur, Funnelneckbeaker culture) pottery vessels representing 3 different groups.

Usage

```r
data("TRBPottery")
```

Format

A data frame with 118 observations on the following 17 variables.

Form a factor with levels Funnel beakers, Bowls, and Flasks

- **AX** Point 1, x
- **AY** Point 1, y
- **BX** Point 2, x
- **BY** Point 2, y
- **CX** Point 3, x
- **CY** Point 3, y
- **DX** Point 4, x
- **DY** Point 4, y
- **EX** Point 5, x
The data are based on a study by E. K. Nielsen (1983) of Neolithic Pottery of 135 complete pots. The measurements are taken at landmarks identified along the profile of each pot (see Madsen, 1988 Figure 5). The data were reanalyzed by Madsen (1988). Baxter (1994) reanalyzed the data using several different methods. The data were scanned from Table 1 in Madsen (1988, p. 18) which included only 118 pots.

Source


References


Examples

data(TRBPottery)
TRBPottery.frm <- aggregate(TRBPottery[, -1], list(Form=TRBPottery$Form), mean)
Xvals <- TRBPottery.frm[, seq(2, 16, by=2)]
Yvals <- TRBPottery.frm[, seq(3, 17, by=2)]
matplot(t(Xvals), t(Yvals), xlab="X", ylab="Y", type="l", asp=1, las=1, col="black", lwd=2)
legend("topleft", levels(TRBPottery$Form), lty=1:3, col="black", lwd=2)
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