# THE PLEISTOCENE SUCCESSION AT KENN, SOMERSET (BULLETIN OF THE GEOLOGICAL SURVEY OF GREAT BRITAIN) pdf

## 1: Quaternary Malacology of the Carpathian Basin

*The Pleistocene Succession at Kenn, Somerset (Bulletin of the Geological Survey of Great Britain) Paperback - August 31, by Geological Sciences Inst. (Author).*

It falls within the area of the North Somerset unitary authority. The parish has a population of  The soil is loamy with subsoil clay. The living is a perpetual curacy in the diocese of Bath and Wells , in the patronage of the Vicar of Yatton. The church is a stone structure partially rebuilt in  In the interior are several ancient monuments , among which is that of Christopher Kenn. The register dates from  The parish council evaluates local planning applications and works with the local police, district council officers, and neighbourhood watch groups on matters of crime, security, and traffic. Conservation matters including trees and listed buildings and environmental issues are also of interest to the council. The parish falls within the unitary authority of North Somerset which was created in , as established by the Local Government Act  It provides a single tier of local government with responsibility for almost all local government functions within their area including local planning and building control , local roads, council housing , environmental health , markets and fairs, refuse collection , recycling , cemeteries , crematoria , leisure services, parks, and tourism. They are also responsible for education , social services , libraries , main roads, public transport, Trading Standards , waste disposal and strategic planning, although fire, police and ambulance services are provided jointly with other authorities through the Avon Fire and Rescue Service , Avon and Somerset Constabulary and the Great Western Ambulance Service. Its administrative headquarters are in the town hall in Weston-super-Mare. Between 1 April and 1 April , it was the Woodspring district of the county of Avon. It elects one Member of Parliament MP by the first past the post system of election. The sequence is then capped by aeolian windblown coversands and Holocene silts. Archived from the original Excel on 4 January  Retrieved 4 January  Retrieved 9 September  The Kenn Hangings of  Archived from the original on 30 January  Retrieved 9 December  A vision of Britain Through Time. Retrieved 14 January

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## 2: Stonehenge and the Ice Age: Glaciation of the Bristol - Gloucester region

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The geology of the hot springs at Bath Spa, Somerset. Geoscience in south-west England, 11, There are only six known occurrences of thermal springs in the region, of which only that at Bath can be described as hot. The thermal springs at all six localities are hosted in the Carboniferous Limestone in structural settings that allow meteoric water to descend to sufficient depth for it to be heated by the geothermal gradient, and then return to the surface without a significant fall in temperature. The source of the Bath springs is known from geochemical studies to be rain that fell several thousand years ago and descended to depths of at least m on its path to the hot springs. Hypotheses proposed to explain their mechanism include volcanic heat, a simple hydraulic model and a Europe-wide fracture zone. However, none of these hypotheses explains why the hot springs are confined to such a small 20 x 80 m area. Their formation appears to have been dependent on a geological history that is unique to this area, one that included the formation of limestone karst in Triassic deserts and the local melting of a permafrost aquiclude in the late Pleistocene. It closed after the accident at Seascale now Windscale in McNulty, Despite convincing According to legend and the historian Geoffrey of evidence that immersion in the spa waters had beneficial effects Monmouth Historia Regum Brittaniae, , the hot springs at for some conditions, treatment ceased to be available on the Bath were discovered in the 9th century BC by Bladud, a Celtic NHS in A new spa, the only place in the UK where one prince who was so disfigured by leprosy that he became a can bathe for healing, relaxation and leisure purposes in wandering swineherd so that his people would not have to natural hot-spring water, opened in Bath in August When he chanced upon the There are only six known occurrences of thermal springs in springs and noticed that the sores on his pigs were healed by the British Isles, of which only that at Bath can genuinely be their waters, he cured himself. However, the documented and the Hetling Spring also known at various times as the history of the springs did not begin until the Romans built the Com[m]on Spring or Hot Bath Spring are situated in a small magnificent baths that now lie at the heart of the Bath Spa 20 x 80 m area on the floodplain of the River Avon Figure 1. The extent of their walled city remained Their combined flow is currently c. Historical records suggest that the flows Like most hot springs, those at Bath have been considered were higher in the past, but few of the measurements are since time immemorial as magical by some and medicinally sufficiently accurate to make meaningful comparisons with valuable by many more. King Bladud reputedly built a temple the accurate present-day monitoring. Not all medicine is efficacious. In and are now protected by an Act of Parliament the County of the 18th century it was claimed that the hot springs could cure Avon Act, One result of this was that the first national hospital geological advice on the nature of the springs and any possible in Britain, the Royal Mineral Water Hospital, was founded adverse effects that building developments in central Bath in Bath in to treat those who could not afford private might have on them. This advice was provided from about treatment Rolls, Rastall, from to by Dr G. The discovery in of significant concentrations of radium Kellaway, and is currently supplied by the present author. Gallois carried out by Dr Kellaway. The history, geology, hydrogeology, geochemistry and medicinal uses of the hot springs are summarised in Kellaway a. The present account supplements these results with data obtained from investigations carried out in the Bath area during the last 20 years. The area lies on the northern edge of the Variscan Front and was complexly folded and faulted during the later stages of the orogeny. Erosion and depositional infilling of an irregular topography during the Permo-Trias resulted in a low relief landscape in the latest Trias that was invaded by the early Jurassic sea. As a result, much of the Variscan structure is concealed beneath Mesozoic deposits Figure 2. Coal seams ranging in age from Westphalian A to D of the Figure 1. Geological sketch map of the Bristol-Bath area showing the presumed potential catchment area of the Bath hot springs based largely on

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Kellaway and Welch,  The most important the Cross Bath revealed a similar structure. The that was fed by hot water from the springs. The cause was topographically higher parts of the outcrop are in the Mendip shown to be a thermophilic amoeba Naegleria fowleri Carter Hills, and these have been assumed since the time of William that was subsequently found to be present in large numbers in Smith to be the recharge area for the hot springs. All use of the spa basinward-dipping potential catchment area extends around the water ceased and an alternative, medically safe source was whole of the structure see below. The springs originally emerged from where it would be anaerobic and free from amoeba Figure 3. Beneath this an almost Carboniferous Limestone for water-supply purposes close to the horizontal, unbroken late Triassic Mercia Mudstone Group to Cross Bath and Hetling springs. Most significantly, original floodplain. A recent CCTV events occurred. First, subsidence at the Roman Baths prompted survey showed that the clasts on the floor of the deepest cavity urgent remedial action. A pattern of site-investigation proved in the borehole 70 m below ground level include river boreholes was drilled that enabled Kellaway b to gravel and what appear to be fragments of Roman tile. The importance of the springs to the local tourist trade and the World Heritage designation, combined with the probable sensitivity of the springs mechanism, led to the passing of the Avon Act in  This is designed to ensure that all excavations including boreholes made to a depth of greater than 5 m in central Bath 10 m and 15 m in the adjacent areas are carefully monitored. Most of the site-investigation boreholes since that time have been continuously cored, and this has resulted in much additional data. Taken together, they have shown that a laterally variable mid to late Triassic succession of terrestrial deposits Dolomitic Conglomerate and Mercia Mudstone Group infills an irregular topography cut in Carboniferous rocks. This is overlain by latest Triassic brackish-water to early Jurassic marine sediments Westbury Formation to Charmouth Mudstone Formation that show little lateral variation either in thickness or lithology. The hot springs overlie a high point on the late Triassic land surface that appears to be a small knoll of karstified limestone Figure 4. Mechanism and formation of the hot springs The chemistry of the hot-springs waters is well documented Andrews, ; Edmunds and Miles, ; Darling and Edmunds, ; Edmunds and there is, therefore, general agreement on the conditions required to produce them. The stable-isotope compositions indicate that the source was meteoric, and the noble-gas compositions that it was precipitated in a temperate, post-glacial climate thousands rather than hundreds of years ago. Several hypotheses have been published to explain all or part of the mechanism that gives rise to the hot springs. Rastall suggested that deeply buried hot volcanic rocks or a concealed granite batholith might be the heat source. Geological succession and structure proved in the Stall Gray, , and there is no geophysical evidence for a Street Inclined Borehole after Kellaway, b. Geological sketch section through central Bath and the hot springs area based on selected boreholes. The most widely accepted explanation to date has been the hundred years even if there was no additional meteoric intake Mendips Model Andrews et al. This envisages rain during that time. The model also explains the artesian head of up to by high hydrostatic heads. The proven structural complexity 9 m above natural ground level at the hot springs. First, the assumption that the and adjacent to the estuary, suggest that any such flows do not Carboniferous Limestone sheet is unbroken and in hydraulic reach the Bristol-Bath Basin. It is The artesian heads at the hot springs remain problematical, unlikely to be correct given the tectonic complexity proved at but are unlikely to be due to the difference in topographical the southern end of the section where there are large height between the Mendips and the springs. Artesian heads gravity-collapse structures e. Kellaway and Welch, , are absent c. Second, there is to date no evidence for the major Formation, the aquiclude that confines the head at the springs, thrust that is presumed to be the conduit that allows the comes to crop. Artesian heads are also absent from the heated water to escape quickly to the surface beneath Bath. Carboniferous Limestone where it is confined beneath the In addition, there is no reason to assume that the Mendips Westbury Formation in the Alice Park [ST ] and outcrop is the only catchment area that would allow water to Tuckingmill [ST ] boreholes, 2. The top of the Carboniferous hot springs respectively. Given local phenomenon related to the high-relief topography of the the extent of the known faulting and associated fracturing in the Avon Valley at Bath. Bristol-Bath Basin, there is no reason why rain falling on the In an alternative to the Mendips Model,

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Kellaway Carboniferous Limestone outcrops of the Bristol area could not suggested that the hot springs are located either on an contribute to the groundwater in the deepest part of the basin. Both fracture zones edges of the Bristol-Bath Basin has a potential catchment area are presumed to cross the Avon Valley at Bath. The Avon- of about km2 and the formation within the basin has a Solent Fracture Zone theory is indirectly supported by data from potential reservoir volume of c. This may have been the site of springs are underlain by rocks that are more heavily fractured thermal springs when the knoll of Carboniferous Limestone was than those of the adjacent areas is difficult to test. It would exposed in the late Triassic. Rapid down-cutting at that Seismic-reflection surveys carried out in to determine the time, when the groundwater in the region was additionally structure of the Carboniferous Limestone in the area beneath confined by permafrost, could have brought warm water in the and adjacent to the hot springs were unable to detect any limestone knoll close enough to the surface to melt the faulting or fracturing that could be directly related to them permafrost and produce springs in the valley floor Figure 6. Once formed, their flows would have increased and removed Neither the Mendips Model nor the fracture hypotheses fine-grained material in the cavities in the limestone. This, in explains why the hot springs are unique in Britain nor why they turn, would have caused collapse of the overlying sediments to are confined to such a small area. With time, higher flow rates would where suitable aquifers and structures are present in areas with allow deeper-hosted water to reach the surface more quickly significantly higher geothermal gradients than that at Bath. An and the temperature at the springs to increase. This process alternative hypothesis Gallois, in press focuses on the would have continued until an equilibrium was reached in geology of the springs where they emerge rather than on where which the rate of flow was balanced against the transmissivity they are sourced and how the water gets to Bath. Conceptual hydrogeological section to illustrate the Mendips Model after Andrews et al. Sketch section through the Avon Valley to illustrate the suggested origin of the hot springs in the latest Pleistocene after Gallois, in press. Investigation of the Bath hot springs  Bath City Council, Bath,  Environmental factors and the development of Bath Spa, thermal springs in Britain are also hosted in the Carboniferous England. Environmental Geology, 24,  Limestone aquifer, but they emerge at significantly lower temperatures. Discovery of the Avon-Solent Fracture Zone and its been linked to karst features other than joint widening and, relationship to Bath hot springs. Environmental Geology, 28,  Geology of the Bristol district. Memoirs that would prevent mixing with cool near-surface waters. A report on Limestone outcrop several thousand years ago, and was the Bath Spa Project: Part Two, Further geophysical investigations into the geological structure of the Bath area. Bath and North-East Somerset Council, geothermally heated at depths of at least m on its path to Bath. Geophysical Carboniferous Limestone has extensive outcrops and beneath investigation of the thermal springs of Bath, England. Geological Society, London, Special Publication, ,  The radium waters of Bath. Their formation appears to have been Springs of Bath. On the geology of Bath springs. Geological Magazine, 63,  Quest for the quintessence. Almost all the pioneer work relating to the geology of the hot springs at Bath was carried out by Dr G. On the origin of the thermal waters at Bath, United Kingdom:

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## 3: Browse subject: Geology -- New Zealand | The Online Books Page

*Bulletin of the Geological Survey of Great Britain. No. 6: Ref no: CB Year of publication: Abstract: Contents: The least-squares method of determining regional contours. A gravimeter survey of the Ston Easton-Harptree district, east Somerset. A gravimeter survey over the Tilmanstone Fault, Kent Coalfield.*

A personal choice from literature which is in my opinion important for the research of Quaternary molluscan assemblages from Europe. Many titles to follow! A cleaning technique for land molluscs from archaeological contexts. Recent and fossil growth rates of marine bivalves, Canadian arctic, and Late-Quaternary arctic marine environments. A glossary of a thousand-and-one terms used in conchology. Molluscan taphonomy in a braided river environment and its implications for studies of Quaternary cold stage deposits. On glochidia of the genera Unio and Anodonta from the Quaternary fresh-water sediments of Poland. Interpreting buried landsnail assemblages from archaeological sites - problems and progress. Clutton-Brock eds , Research problems in zoo-archaeology; Occasional publication 3; London. The reconstruction of land snail death assemblages. Studies on Cepaea IV. Climate and selection of banding morphs in Cepaea from the climatic optimum to the present day. On the dispersal of freshwater bivalves. Numerical analysis of subfossil wet ground molluscan taxocenes from overbank alluvium at Kingsmead Bridge, Wiltshire. An approach to the interpretation of dry-ground and wet-ground molluscan taxocenes from central-southern England. Perspective from neoecology, palaeoecology and environmental archaeology. On the connexion between the distribution of the existing fauna and flora of the British Isles, and the geological changes which have affected their area, especially during the epoch of the Northern Drift. Steppenfaunen in Mitteleuropa und ihre Geschichte. Remains of animals in Quaternary lake and bog sediments and their interpretation. The use of landsnail shells as environmental archives: The Pleistocene succession at Kenn, Somerset. The minute shell structure of the glochidium of some species of the genera Unio, Potomida and Anodonta Bivalvia, Unionacea. Variation in land-snail shell form and size and its cause: Chronostratigraphic studies of sediments in the Negev Desert, using amino acid epimerization analysis of land snail shells. Mid-Holocene rainfall in the Negev Desert from 13C of land snail shell organic matter. The use of land snail shells in paleoenvironmental reconstruction. A preliminary note on the nature of certain granules from Post-Glacial deposits in the Lea-Valley. Die Spuren der Eiszeit in der Tierwelt Europas. Om den fossile kvartaere molluskfauna i Danmark og dens relationer til forandringer i klimaet. Pleistocene environments in the British Isles. An indexed catalogue of publications on molluscan type specimens. Dept of Mollusks, Mus. Significance of the record provided by Pleistocene fluvial deposits and their included molluscan faunas for palaeoenvironmental reconstruction and stratigraphy: Palaeobiological and sedimentological implications of fossil concentrations. Die Mollusken Kunde im Dienst der Vorgeschichte. Rheinische Vorzeit in Wort und Bild, 1 3. Implications climatiques et environnementales. The oxygen-isotope composition of landsnail shells as a climatic indicator: Soil conditions and their influence on terrestrial gasteropoda in Central Europe. Congress Quaternary, Warsaw , 2 Stratigraphical Section: Molluscan Faunas and absolute Chronology. Problems of analysis of the Quaternary nonmarine molluscan fauna in Europe. The relationship between the development of soils and faunas in the warm Quaternary phases. The loess environment in Central Europe. Molluskenstratigraphie im Gebiet der Skandinavischen Vereisungen. Konference , Universita Karlova: Contribution of malacology to the chronological subdivision of the Central European Holocene. Quaternary malacology and fauna genesis in Central Europe. Palaeoecology of Quaternary Molluscs. Loesses and related deposits. Quaternary non-marine Mollusca and palaeoclimates in Mediterranean France. The occurrence of Truncatellina cylindrica in an uncharacteristic habitat. Mollusca from the borehole Zuurland-2 at Brielle, the Netherlands an interim report. Malacological evidence relating to the insularity of the British Isles during the Quaternary. Aminostratigraphy of UK Pleistocene deposits. Aminostratigraphy of European Marine Interglacial Deposits. Aminostratigraphic evaluation of conflicting age estimates for the "Young Loess" of Hungary. Methodik einer quantitativen

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Untersuchung der Landschneckenfauna. Significance of fresh water molluscs for correlation of continental and marine Pleistocene of Ponto Caspian. The value of the shell microsculpture as a guide to the identification of land mollusca from Quaternary deposits. Mapping snails in time: The spatial response of non-marine Mollusca to past climatic changes. The spatial and evolutionary responses of terrestrial biota. Comparisson of Post-glacial molluscan and vegetational successions from a radiocarbon-dated tufa sequence in Oxfordshire. Est et Centre-Est,  Mollusques continentaux quaternaires de Bourgogne. The Subboreal coastal barriers at Leidschendam, with a description of the faunas. Province of Zuid Holland, The Netherlands. Changes in the macrofauna of a shallowing subtidal channel Subatlantic, Holocene in the mouth of the Oosterschelde Province of Zeeland, The Netherlands. The aerial dispersal of Mollusca. On the natural history of isolated ponds. Desert or steppe conditions in Britain: On the taxonomic significance of the internal shell in the identification of european slugs of the families Limacidae and Milacidae Gastropoda, Pulmonata. Quantitative methods in the study of nonmarine Pleistocene mollusca. Les associations malacologiques forestieres des tufs "Holsteiniens" de la France septentrionale. Une application du concept de biome. New approach to the pleistocene land snails. French, Loess and periglacial phenomena. Is causal ecological biogeography a progressive program? Climatic transfer function from Quaternary molluscs in European loess deposits. Variations de Pupilla muscorum L. Temperature oscillations over the last 10, years in western Europe estimated from terrestrial mollusc assemblages. Palaeomalacological proxydata for European Holocene climates, a review. Evaluation of climate proxydata in relation to the European Holocene. Holocene environmental signals from mollusc assemblages in Burgundy France. A , years climatic record from the loess sequence of Achenheim, Alsace, France. The ecology of extinction. Biogeographic significance of land snails, Paleozoic to Recent. Rosen eds , Vicariance and biogeography: The ecological interpretation of Quaternary non-marine mollusca. Non-marine Mollusca and archaeology. Higgs eds , Science and Archaeology, pp. Non-marine Mollusca and Quaternary ecology. The Ice Age in Britain. Malacological and isotopic geochemical methods for tracing Upper Quaternary changes. Schweitzer eds , Quaternary environments in Hungary. Corbicula fluminalis als gidsfossiel [Corbicula fluminalis as a guiding fossil]. Verfahren zur Gewinnung von Konchylienschalen aus Genist. Pleistocene geology and biology with special reference to the British Isles.

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## 4: Leonard Johnston Wills - Wikipedia

*Books by Geological Sciences Inst., United Kingdom Mineral Statistics, Magnetic Results (Geomagnetic Bulletins), Geological and Shallow Subsurface Geophysical Investigations in the Western Approaches to the English Channel, Seismicity and Seismic Hazard in Britain (Seismological Bulletins), The Pleistocene Succession at Kenn, Somerset (Bulletin of the Geological Survey of Great Britain.*

Stonehenge and the Ice Age How much do we know about Stonehenge? Less than we think. And what has Stonehenge got to do with the Ice Age? More than we might think. This blog is mostly devoted to the problems of where the Stonehenge bluestones came from, and how they got from their source areas to the monument. Now and then I will muse on related Stonehenge topics which have an Ice Age dimension Bad bookshops might not have it As the authors say: There is no assessment here of the likely easternmost limit of the Anglian ice. Bristol and Gloucester region Third edition. Glacial deposits The glacial deposits of the region are mostly scattered remnants and provide difficult problems of interpretation. The general opinion is that the deposits are heavily decalcified and probably include both tills and the fluviatile deposits derived from them. They predate organic Cromerian deposits in the Oxford area and thus provide evidence for pre-Cromerian glaciation see summary in Bowen et al. The Anglian glaciation is better represented in the district. In the Vale of Moreton there is a three-fold sequence. At the base lies the Stretton Sand, a fluviatile, cross-bedded quartz sand, which has yielded a temperate fauna including straight-tusked elephant and red deer. This was formerly dated as Hoxnian in age but now must be considered to be older. The Stretton Sand is similar to the supposedly younger Campden Tunnel Drift see below , and it has been suggested that the temperate fauna in it is derived from an earlier interglacial deposit. The overlying Paxford Gravel, which comprises local Jurassic limestone material, has yielded mammoth remains and has an irregular erosive contact with the Stretton Sand. Thin red clay is locally present immediately beneath the till, possibly representing a feather-edge remnant of the glacial lake deposits of Lake Harrison. The deposits occupy a glacial overflow channel, up to 23 m deep, caused by the ponding of the Avon and Severn valleys by the Welsh glacier farther downstream. Evidence in Somerset and Avon, combined with that from South Wales, for an Anglian glacier moving up the Bristol Channel has been accumulating in the last decade or so. The construction of the M5 motorway through the Court Hill Col on the Clevedonâ€”Failand ridge led to the discovery in the bottom of the col of a buried channel, 25 m deep and filled with glacial outwash deposits and till. Drilling has since proved similar drift-filled channels in the Swiss and Tickenham valleys crossing the same ridge. South of the ridge, and rising from beneath the Flandrian alluvium of Kenn Moor, marine, brackish and freshwater interglacial sand and silt overlying red stony and gravelly till and poorly sorted cobbly outwash material were disclosed in drainage trenches and other works. AAR results indicate that whilst the bulk of the interglacial deposits are Ipswichian in age, samples of Corbicula fluminalis from fluvial deposits directly overlying the glacial deposits give a much earlier date and suggest that the latter are Anglian in age Andrews et al. Similar local occurrences of possible till have been reported beneath the Burtle Beds of the Somerset levels. In the light of these and other discoveries, the glacial overflow hypothesis of Harmer [3] for the cutting of the Bristol Avon and Trym gorges has been revived to explain why these rivers cut through hard rock barriers in apparent preference to easier ways through adjacent soft rocks. Quaternary Science Reviews, Vol. The Pleistocene succession of the Severn Estuary: Journal of the Geological Society of London, Vol. On the origin of certain canon-like valleys associated with lake-like areas of depression. This page was last modified on 30 January Posted by.

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## 5: Kenn, Somerset | Revolvy

*Memoir of the Geological Survey, England and Wales, Sheet with parts of sheets and Gilbertson, D D and Hawkins, A B. The Pleistocene succession at Kenn, Somerset.*

Boreas 33, â€"] and http: The wide range of evidence that has been scrutinized for inclusion on the glacial map is assessed with respect to the variability of its quality and quantity and the existing controversies in ice sheet reconstructions. Landforms interpreted as being of unequivocal ice-marginal origin moraines, ice-contact glacifluvial landforms and lateral meltwater channels and till sheet margins are used in conjunction with available chronological control to locate former glacier and ice-sheet margins throughout the last glacial cycle. Subglacial landforms drumlins, flutings and eskers have been used to demarcate former flow patterns within the ice sheet. The compilation of evidence in a regional map is crucial to any future reconstructions of palaeo-ice sheet dynamics and will provide a clearer understanding of ice sheet configuration, ice divide migration and ice thickness and coverage for the British Ice Sheet as it evolved through the last glacial cycle. Glacial and post-glacial geology of Middlesborough and the Tees estuary. Proceedings of the Yorkshire Geological Society, 29, â€"  The sand and gravel resources of the country around Garmouth, Grampian Region. Quaternary Newsletter, 60, 13â€"  Sedimentology and palaeoenvironmental significance of Late Devensian to mid-Holocene deposits in the Don Valley, northâ€"east Scotland. Unpublished PhD thesis, University of Aberdeen. Geology of the country around Garstang Sheet  The geology of the West Cumbria District. Memoir of the British Geological Survey, Sheets 28, 37 and  Drift in the Wye Valley. Geological Journal, 17, 31â€"  Geology of the country around Harlech. The Pleistocene succession of the Severn Estuary. A revised model based upon amino acid racemization studies. Journal of the Geological Society of London, , â€"  Geology of the country around Penrith. Geology of the country around settle Sheet  Scottish landform examples 6: Scottish Geographical Magazine, , â€" On the glacial and interglacial marine beds of north Lewis. Geological Magazine, 75, â€" Ice-sheet moraines in southern Skye. Scottish Journal of Geology, 24, â€"  The late Quaternary history of the Trotternish Escarpment, Isle of Skye Scotland and its implications for ice sheet reconstruction. Chapman and Hall, London, pp. Gibbsitic soils on former nunataks: Journal of Quaternary Science, 9, 73â€"  Periglacial trimlines in the Scottish Highlands. Scottish Journal of Geology, 35, 97â€"  Scottish Geographical Journal, , â€"  The glacial history of the Isle of Skye. Quaternary Research Association, Cambridge, pp. The Quaternary geomorphology of Scotlandâ€"the research contribution of J. Quaternary Science Reviews, 3, â€"  Journal of Quaternary Science, 10, â€"  Maximum altitude of the late Devensian ice sheet on the isle of Rum. Scottish Journal of Geology, 33, â€"  Periglacial trimlines, former nunataks and the altitude of the last ice sheet in Wester Ross, northwest Scotland. Journal of Quaternary Science, 12, â€"  The last ice sheet in north-west Scotland. Quaternary Science Reviews, 17, â€"  High-resolution reconstruction of the last ice sheet in NW Scotland. Terra Nova, 10, 63â€" The glacial sequence of the southern North Sea. Pollen diagrams from Holderness, north Humberside. Journal of Biogeography, 8, â€"  Scottish Late Glacial Moraines: Debris Supply, Genesis and Significance. Glacial landforms and sediments on Skye. Westward proglacial drainage in Cleveland. Proceedings of the Yorkshire Geological Society, 30, â€"  Glacial deposits of the English Lake District. Iceberg discharge into the North Atlantic on millennial timescales during the Last Glaciation. Correlations between climate records from North Atlantic sediments and Greenland ice. Nature, , â€"  A multiple till sequence formed by a late Devensian Welsh ice cap, Glanllynnau, Gwynedd. Cambria, 4, 10â€"  A highly mobile Laurentide ice sheet revealed by satellite images of glacial lineations. The laurentide ice sheet through the last glacial cycle: Transactions of the royal society of Edinburgh. Earth Sciences, 81, â€" Late Weichselian glaciation of the Cheshireâ€"Shropshire basin. A British ice-sheet model and patterns of glacial erosion and deposition in Britain. Clarendon Press, Oxford, pp. Glacial geology and glaciology of the last mid-latitude ice sheets. On the supposed ice-dammed lakes of South Wales. Views on the extent of the Weichselian glaciation in Wales. South-east and central South Wales. The Pleistocene succession and related

landforms in north Pembrokeshire and south Cardiganshire. The Pleistocene history of Wales and the borderland. Geological Journal, 8, â€”  The Pleistocene succession of the Irish Sea. The Quaternary of Wales. University of Wales Press, Cardiff, pp. The coast of Wales. Seel House Press, Liverpool, pp. The bSouth Wales end moraineQ: University of Wales Press, Cardiff. Pleistocene deposits and fluvioglacial landforms of north Preseli. National Museum of Wales, Cardiff, pp. Gower, Preseli, Fforest Fawr. Late Cenozoic Wales and south west England. Proceedings of the Usher Society, 28, â€”  A glacial drainage system near Fishguard, Pembrokeshire. The Quaternary geology of the lower Teifi Valley. Correlation of marine events and glaciations on the north east Atlantic margin. Philosophical Transactions of the Royal Society of London. B, , â€”  Amino acid geochronology of raised beaches in south-west Britain. Quaternary Science Reviews, 4, â€” Correlation of quaternary glaciations in England, Ireland, Scotland and Wales. Quaternary Science Reviews, 5, â€”  New data for the last glacial maximum in Great Britain and Ireland. Quaternary Science Reviews, 21, 89â€”

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## 6: BGS Lexicon of Named Rock Units - Result Details

*Gilbertson, D.D. and Hawkins, A.B. The Pleistocene succession at Kenn, Somerset. Bulletin of the Geological Survey of Great Britain 66, 55 - 55 pp. Google Scholar.*

Life timeline and Nature timeline The Pleistocene has been dated from 2. It was not until after the development of radiocarbon dating, however, that Pleistocene archaeological excavations shifted to stratified caves and rock-shelters as opposed to open-air river-terrace sites. Above this point there are notable extinctions of the calcareous nanofossils: Discoaster pentaradiatus and Discoaster surculus. The name Plio-Pleistocene has, in the past, been used to mean the last ice age. The revised definition of the Quaternary , by pushing back the start date of the Pleistocene to 2. Paleogeography and climate[ edit ] The maximum extent of glacial ice in the north polar area during the Pleistocene period. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. September Learn how and when to remove this template message Pleistocene climate was marked by repeated glacial cycles in which continental glaciers pushed to the 40th parallel in some places. In addition, a zone of permafrost stretched southward from the edge of the glacial sheet, a few hundred kilometres in North America , and several hundred in Eurasia. During interglacial times, such as at present, drowned coastlines were common, mitigated by isostatic or other emergent motion of some regions. The effects of glaciation were global. Antarctica was ice-bound throughout the Pleistocene as well as the preceding Pliocene. The Andes were covered in the south by the Patagonian ice cap. There were glaciers in New Zealand and Tasmania. Glaciers existed in the mountains of Ethiopia and to the west in the Atlas mountains. In the northern hemisphere, many glaciers fused into one. The Cordilleran ice sheet covered the North American northwest; the east was covered by the Laurentide. Scattered domes stretched across Siberia and the Arctic shelf. The northern seas were ice-covered. South of the ice sheets large lakes accumulated because outlets were blocked and the cooler air slowed evaporation. When the Laurentide ice sheet retreated, north-central North America was totally covered by Lake Agassiz. Over a hundred basins, now dry or nearly so, were overflowing in the North American west. Lake Bonneville , for example, stood where Great Salt Lake now does. In Eurasia, large lakes developed as a result of the runoff from the glaciers. Rivers were larger, had a more copious flow, and were braided. African lakes were fuller, apparently from decreased evaporation. Deserts, on the other hand, were drier and more extensive. Rainfall was lower because of the decreases in oceanic and other evaporation. It has been estimated that during the Pleistocene, the East Antarctic Ice Sheet thinned by at least meters, and that thinning since the Last Glacial Maximum is less than 50 meters and probably started after ca 14 ka. Timeline of glaciation Ice ages as reflected in atmospheric CO2 , stored in bubbles from glacial ice of Antarctica. Over 11 major glacial events have been identified, as well as many minor glacial events. During a glacial, the glacier experiences minor advances and retreats. The minor excursion is a "stadial"; times between stadials are "interstadials". These events are defined differently in different regions of the glacial range, which have their own glacial history depending on latitude, terrain and climate. There is a general correspondence between glacials in different regions. Investigators often interchange the names if the glacial geology of a region is in the process of being defined. However, it is generally incorrect to apply the name of a glacial in one region to another. For most of the 20th century only a few regions had been studied and the names were relatively few. Today the geologists of different nations are taking more of an interest in Pleistocene glaciology. As a consequence, the number of names is expanding rapidly and will continue to expand. Many of the advances and stadials remain unnamed. Also, the terrestrial evidence for some of them has been erased or obscured by larger ones, but evidence remains from the study of cyclical climate changes. The glacials in the following tables show historical usages, are a simplification of a much more complex cycle of variation in climate and terrain, and are generally no longer used. These names have been abandoned in favor of numeric data because many of the correlations were found to be either inexact or incorrect and more than four major glacials have been

recognized since the historical terminology was established.

# THE PLEISTOCENE SUCCESSION AT KENN, SOMERSET (BULLETIN OF THE GEOLOGICAL SURVEY OF GREAT BRITAIN) pdf

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**The Pleistocene succession at Kenn, Somerset', Bulletin Of the Geological Survey of Great Britain, 'Notes on gravels at Kenn, Somerset', Proceedings of the.*

Family background[ edit ] Jack Wills was born on 27 February in the Birmingham suburb of Erdington. His paternal great-grandfather, William Wills, had been a prosperous Birmingham attorney from a nonconformist, Unitarian, family. The family was comfortably off. One of his great uncles was Sir Alfred Wills , a well-known Victorian mountaineer and judge. Sir Alfred was a founder member and early President of the Alpine Club , and was interested in the origin and shaping of the Alps â€" an interest which may well have influenced his great-nephew. As a judge, Sir Alfred presided over the second Oscar Wilde trial and sentenced Wilde to two years in Reading gaol. The family had a strong interest in scientific matters. Early years and school[ edit ] Jack Wills was brought up in the country near Birmingham, initially in Wylde Green, then Sutton Coldfield, and finally Barnt Green, all then villages. His house was Fircroft, where the housemaster was the Revd Raven. The academic emphasis was firmly on the classics, with natural sciences receiving little attention. In spite of this, his interest in geology, encouraged by his father, was already developing. In the same year he was awarded the Harkness Research Scholarship and began his postgraduate work. In the same year Jack Wills was awarded the Walsingham Medal. His Fellowship lasted until  During this period there were several family connections with Cambridge. Norse sword[ edit ] In , while out cycling from Cambridge, Jack Wills sheltered from a thunderstorm in a quarry at Hauxton Mill, just south of Trumpington, and noticed something unusual protruding from the rock face. It turned out to be a perfectly preserved tenth- or eleventh-century double-edged Norse sword, probably a relic of a Viking invasion. It is now in the Museum of Archaeology and Ethnology at Cambridge. Birmingham University[ edit ] In , he started his long association with the geology department of Birmingham University , joining as Lecturer in Geology and Geomorphology, under Professor William Boulton. Birmingham University awarded him his PhD in  In , when Boulton retired, Jack Wills succeeded him as Professor and Head of Department, remaining in this post for seventeen years until his retirement in turn in  He then became Professor Emeritus, retaining his link with the department until his death in , a few weeks short of his ninety-sixth birthday. They had two children: Jack Wills suffered various family bereavements, losing before the age of thirty both his father in and his sister Edith in  Later he lost his wife Janet in , and his son Leonard in  He had several serious medical issues, suffering a severe coronary thrombosis shortly after his retirement, losing the sight of one eye, and losing all his body hair to alopecia. Farley Cottage[ edit ] In , the Willses bought Farley Cottage, with some 45 surrounding acres in a valley near the Lickey Hills between Bromsgrove and Romsley, together with the neighbouring mediaeval Shut Mill. In , this small and idyllic estate was extremely remote, with no mains electricity or water. Jack Wills installed a turbine which generated electricity from the mill pool. A ram supplied water from a spring. There was a telephone: In , Farley Cottage was enlarged and modernised by their architect son, Leonard, then newly graduated from the Architectural Association. He was a churchwarden at Romsley from to  He was a keen gardener with extensive horticultural knowledge. In , the FSC decided that Farley Cottage was not of a size to be economic as a Centre, but that it would be sold and the proceeds put towards buying and restoring a new Centre. Jack Wills and his daughter Penty moved to a small bungalow half a mile away from Farley Cottage in the same valley, where he lived until his death in  He wrote accounts of new ostracoderm fishes from the late Silurian and Devonian , and became a particular specialist on terrestrial arthropods, notably with delicate dissections and interpretations of fossilized Triassic scorpions and Carboniferous eurypterids. He developed ingenious methods of dissection, revealing details even of their respiratory and reproductive organs. His research work then took him into Lower Paleozoic stratigraphy, the Trias to Quaternary succession of the Severn valley and the origin of the Ironbridge Gorge. His interests developed into more recent geological history, the Pleistocene deposits of the Midlands , and the evidence for extensive, ice-dammed lakes of which

one, named by him Lake Lapworth after Charles Lapworth the Professor at Birmingham until , covered most of the north-west Midlands. This work continued until his last paper at the age of  His first were two papers in about fossils in the Bromsgrove area. His last was a Palaeogeological Map produced in  His first book appeared in â€" a guide to Worcestershire in the Cambridge County Geographies series, published by Cambridge University Press. This covers all aspects of the county with, not surprisingly, a considerable emphasis on its geology and natural history. However, his major works were his four imaginative and influential textbooks written between and  The first two were: These presented his research into the deep structure and evolution of the British Isles and his pioneering interpretations of subsurface data. The second two, both published after his retirement from the Chair of Geology at Birmingham, were: The research work embodied in these second two titles had considerable economic significance. Cambridge also awarded him the Harkness Scholarship in and the Walsingham Medal in  In , the year of his retirement from the Chair of Geology, he became Professor Emeritus. The Geological Society of London awarded him the Lyell Medal in and then the Wollaston Medal , its highest award to geologists throughout the world, in  Finally and uniquely, in when he was 92, the Geological Society of London made him an Honorary Fellow, the only British geologist to be so honoured. He retired in , was widowed in , but continued to work more or less up to his death on 12 December  This was made possible by the loving care provided by his unmarried daughter Penty. She had moved back in with her parents after working in occupied Germany for the Control Commission after the end of the Second World War. She initially acted as housekeeper, and cared devotedly for her father both at Farley Cottage and in the bungalow to which they moved in on the sale of Farley Cottage by the FSC.

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## 8: Professor D.J.A. Evans - Durham University

*the Geological Survey of Great Britain and the Museum of The Pleistocene succession at Kenn, Somerset. Bulletin of the geological survey of Great Bulletin of.*

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