

PLATE XI



Photograph by Ranney & Muirpratt, Cambridge

DOROTHY ANNIE ELIZABETH GARROD

DOROTHY ANNIE ELIZABETH GARROD

1892-1968

Personality. It was 1942 or 1943. She walked unexpectedly into the Combination Room of her Cambridge college, on short leave from Medmenham Abbey, Bucks., where she was one of a team working on the interpretation of aerial photographs for the R.A.F.

She wore the grey-blue uniform of a Section Officer in the W.A.A.F.; on her tunic was a ribbon of service in the First World War, in which her three brothers had lost their lives. Although 50 years old, her upright, well-knit figure, moving quietly and unselfconsciously, gave an impression of controlled energy of mind and body. A visitor asked 'Who is she?' 'The Disney Professor of Archaeology, Dorothy Garrod.' She had been appointed to the chair in 1939 (the first woman in Cambridge to hold one), but had decided to suspend the lesser task for the more urgent and physically uncomfortable one.

She appeared taller than her 5 ft. 2 in., with noticeably small, delicate, but strong hands which seldom fumbled. Her steady eyes were dark brown which when greeting people flickered momentarily; the lids seemed to curtsy. Her thick crisply waving dark hair was worn short. The pleasant quiet voice, pitched rather low, had a tendency to drop at the end of a sentence. Her movements were unhurried but not slow, and even under pressure she imparted an air of repose. This paradox of tranquillity combined with a life of sustained energy, was a characteristic rarely met with to such a degree. These combined qualities made her companionship both restful and bracing whatever the activity.

She was not, I would say, intuitive, but rich in those qualities which add up to sound judgement. She was a good mixer, with a genuine interest in people whatever their age, status, or diversified affairs. Her retentive memory, wide reading, and interests outside her own subject, such as music (she played the violin and flute), fitted her to contribute something of interest, fun, or wit to most types of conversation. On the other hand, if bored or displeased she could be devastatingly silent, sultry, abrupt, or unco-operative. Partly through natural reticence, partly through the social conventions of earlier life, she seldom alluded in general conversation, professional circles apart, to

her own work and position, or to the international world of distinguished scientists in which, by inheritance and personal achievement, she moved so easily.

Her sympathy with those in mental or physical distress was free of sentimentality, and took the form, wherever possible, of such alleviation as lay in her power. For example, her swift decision to intervene in the prolonged and ineffectual medical treatment of serious injury to a friend's spine, resulted in the substitution, within hours, of curative handling by her own doctor.

Though she was not communicative about her benefactions, two girls to my knowledge owe their good education to her. Yet her private income, though adequate for her careful needs, was not over-large. In many other ways she befriended those in need, exemplified by the asylum given in her Cambridge house to an aged, ailing, and domestically helpless former tutor.

She accepted the long list of honours bestowed on her with pleasurable incredulity. Their value to her rested primarily, I think, in the enjoyment of her relatives and friends and in her satisfaction in having maintained, into the third generation, the remarkable Garrod tradition of eminence in the advancement of scientific learning. I met her immediately after the announcement of her appointment to the Disney Professorship, to which she personally had little expectation of election. Her first comment was 'I wish my father had been alive, and the others'. It needed no imagination to see she was thinking of her brothers, and it conjured up the image of a funerary altar to which wreaths were being offered.

Background. D. G. was always conscious of the hereditary debt she owed to her father and his forebears, of whom she was very proud. The Garrod family is rooted in East Anglia. Her paternal great-grandfather, Robert Garrod, was an estate agent in Ipswich. His only son, her grandfather, was Sir Alfred Garrod, F.R.S., M.D., F.R.C.P. (b. 1819, d. 1907), of King's College Hospital, Physician Extraordinary to Queen Victoria. In his day he was the leading authority on rheumatic diseases and gout. He evolved the 'Thread Test' for uric acid in the blood, the first biochemical test on the blood in the history of medicine. He coined the term 'Rheumatoid Arthritis'.

Sir Alfred Garrod had three remarkable sons, including D. G.'s father. (i) Alfred Henry, b. 1846, d. 1879, was an F.R.S. at the age of 30. He was a leading physiologist and zoologist, whose appointments in his short life included the Prosectorship at the

Zoological Gardens of London, Professor of Physiology of the Royal Institute, and Professor of Comparative Anatomy at King's College. He is, however, best remembered for his fundamental work on the reclassification of birds. (ii) Herbert Baring Garrod, b. 1849, d. 1912, won the Newdigate Prize for Poetry at Oxford and followed a literary career. His writings include critical essays on Dante, Goethe, and Calderon, and he held for most of his life the post of Secretary of the Teachers' Guild. (iii) Sir Archibald Garrod, K.C.M.G., F.R.S., M.D., F.R.C.P., D. G.'s father, b. 1857, d. 1936, was the first Professor of Medicine at Barts and later Regius Professor of Medicine at Oxford. He is regarded as the founder of biochemical genetics and his book *Inborn Errors of Metabolism* is a classic.

D. G.'s heritage of scientific achievement on the paternal side was therefore formidable. It was augmented by that of her mother, Laura, daughter of Sir Thomas Smith, Bt., one of the great surgeons and innovators of his period, Consultant Surgeon at Barts and Surgeon Extraordinary to Queen Victoria and Sergeant Surgeon to Edward VII. One learns with no surprise that on her mother's paternal side lay many generations of gold- and silversmiths in Warwickshire. D. G.'s small, steady hands would have equipped her for surgery or any precision activity. She was in fact always interested in and well informed on the workings of the human body.

She often speculated on the contributions her three brothers (all Marlburians) might have made had they lived. She herself was the second child and only daughter. The eldest, Alfred Noël, born 1887, graduated at Cambridge and had got his M.R.C.S. and L.R.C.P. shortly before the First World War. He was killed in France in 1916, aged 29, while serving with the R.A.M.C. Thomas Martin, born in 1894, joined up in 1914, and died of wounds in France, aged 21. The youngest, Basil Rahere, born 1897, served in the infantry and R.F.C. on the Western Front and died on the eve of demobilization in Cologne aged 22, from pneumonia in the 'flu epidemic of that year.

The tragedy left a permanent imprint on their sister for they were a devoted and integrated family. She once told me that she resolved, at that dreadful time, to try to compensate her parents, as far as lay in her power, by achieving a life they could feel worthy of the family tradition.

The Formative Years. Born in 1892, D. G. belonged to that final generation able to enjoy for twenty years that secure,

dignified, and ample domestic life of the youthful well-to-do, assured of a comfortable well-ordered home, which provided disciplined education in social life, as well as, in her case, the stimulus of relatives and their friends high up in the world of achievement. She was taught at home up to the age of 9, and then attended private classes under the direction of Miss Isabel Fry, where Latin, arithmetic, and history were taught by a lady who later became Mrs. John Masefield. D. G. often spoke of the value of this early education. Finally, a small boarding-school at St. Albans prepared her for Cambridge entrance. At Newnham College she read for the Historical Tripos, 1913-16. Probably owing to war tragedies she achieved only a Class II. 2, and her most distinguished exploit seems to have been hiding an imperative alarm-clock in a cupboard of the lecture-room of a bore who habitually exceeded the endurable time.

A short period in the Ministry of Munitions was followed in 1917-19 by enrolment in the Catholic Women's League huts in France and the Rhineland. On demobilization in 1919 and following the death of the surviving brother, she joined her parents in Malta, where her father, serving as Head of War Hospitals, in his wisdom distracted her mind towards interest in the antiquities. He himself had now been appointed Regius Professor of Medicine in Oxford, and in 1920 left London and settled in Banbury Road, Oxford, with Wilford Lodge, Melton, still their second home.

D. G. was undecided about her career, and at one time thought of architecture, for which her fluent drawing facility would have been suited; but archaeology and anthropology were a counter-attraction and she decided in 1921 to enrol under R. Marrett's brilliant direction for the Oxford Diploma in Anthropology, which she gained with distinction. Henry Field, D. Talbot Rice, and F. Turville-Petre were amongst her colleagues.

Helped by a Travelling Scholarship from Newnham College and armed with introductions from Marrett to a number of French archaeologists and savants, she met Breuil at Count Begouen's house, and in their company visited Niaux and other famous caves. Her career was sealed. In 1922 she became Breuil's pupil and studied at the Institut de Paléontologie Humaine for two years. In her obituary notice of Breuil (23)¹ she

¹ Numbers in the text refer to the chronological selected list of D. G.'s publications, see p. 359. A complete bibliography, compiled by Suzanne de Saint-Mathurin, will appear in *l'Anthropologie*.

relates how the first task he set her was to read Commont's formidable publication on the Somme gravels. This was a cunning test of her calibre; if she had come back saying she understood it and had no particular difficulties, he would have taken no further interest in her. Her close friendship with Breuil for about 40 years was part of her life, clouded only for a period towards the end when she censured his unworthy attack on Vaufreyc, and later when she refused to conform to his opinion of the authenticity of the Rouffignac paintings (22).

At the Institut she met Teilhard de Chardin, who also became a lifelong friend. During the First World War she had turned from the Anglican to the Roman church. Her prehistoric studies, however, induced a change of perspective, and her intellectual honesty caused her withdrawal for some years. It was finally, under the influence of Teilhard de Chardin's philosophy of evolution (at that time frowned upon by his Jesuit superiors) that she returned to the fold, and thereafter to the end of her life found in it conviction and strength.

Her exhaustive education in prehistory was amplified by field-work at La Quina, Charente, under Henri-Martin's direction; by close and lasting contacts with the Saint-Periers, including their Isturitz excavations; and by periods at Les Eyzies with Peyrony, and in Corrèze under Jean Bouyssonie. At this early stage therefore she had the good fortune (won by her own competence) to participate in first-class digs, which at La Quina yielded *inter alia* both a Mousterian industry and two Neanderthal crania, one a juvenile, thereby providing a valuable parallel to her own subsequent find at Gibraltar.

Her first publication was now due, and under Breuil's counsel she gathered together material for a much-needed book on Britain's Upper Palaeolithic. This set out to review and evaluate all scattered remains and records. It brought British palaeolithic prehistory into line with the Continent (1).

Years of Achievement. She was by now a rising prehistorian fully equipped to conduct her own field-work, and Gibraltar became her first independent dig.

Breuil, while on war missions to The Rock in 1917 and 1919, had noticed a talus with fossils at the foot of the Devil's Tower; a sounding produced Mousterian implements. At his suggestion D. G., already interested in Mousterian distribution (2), set out to develop the site, a narrow fissure choked with about 7 m. of deposits overlying the beach of the 8-9 m. phase of the

'Monastirian' or Tyrrhenian III succession of sea-levels, then commonly assigned to a transgression of the last Interglacial, but now under review.

Her excavations occupied seven discontinuous months, between 1925 and 1927. Mousterian occupation was found throughout, further reinforced by five disconnected fragments of an immature Neanderthal skull-cap. Her report appeared in 1928 (3). Few documents of comparable importance have been more tersely and coolly written by a beginner who has just added a chapter to history. Quite rightly, she regarded her exposition as a physiographic and typological preface to the analysis of the human fragments by L. H. Dudley Buxton on the general morphology of the 5-year-old infant, and by G. Elliot Smith on the endocranial casts. An additional report by D. M. A. Bate dealt with mammalian and avian fauna amounting to some thousands.

Sir Arthur Keith in *New Discoveries Relating to the Antiquity of Man*, 1931, devotes a chapter to the Gibraltar and comparable La Quina infants, and concludes: 'In unravelling the plan of human evolution we can learn more from the transitory stages of childhood than from the stable condition reached by the adult. Hence the importance of the child's skull.' The time-span of the deposits, in which no change could be detected from top to bottom, remains unknown.¹ All that then could be deduced was that Neanderthals lived there in a period of regression, evidenced by the blown sands which formed the main ingredients of the deposits.

D. G.'s handling of the Gibraltar excavations placed her in the rank of promising Pleistocene prehistorians; and she was invited in 1927 by the Institut Internationale d'Anthropologie to represent Great Britain on the Committee of Inquiry drawn from six European countries, to investigate the authenticity of the Glozel discoveries. 'L'affaire Glozel' had been plaguing French archaeology since 1921, when the strange assortment of objects found in the field of a peasant farmer at the Glozel hamlet near Vichy was first reported.

Had Salomon Reinach and his supporters inside and outside the Académie Française not given these improbable objects their blessing, it is unlikely that the affair would have snowballed down the years into a passionate and deplorably silly wrangle inflamed by a press rabid in defence of Glozel as the centre of

¹ In 1951-4 J. Waechter obtained C-14 determinations for a comparable Mousterian level in Gorham's Cave, Gibraltar, of 47,000 to 49,000 (*Bull. Inst. of Archaeology*, no. 4, 1964).

world prehistory. The whole thing could have been ended within twenty-four hours had any qualified person had the wits to examine if the objects were truly *in situ* instead of concentrating in learned argument on their individual authenticity.

England remained aloof until 1927 when O. G. S. Crawford, in the first volume of *Antiquity*, boldly proclaimed their fraudulent nature, followed by Vayson de Pradenne who later, when all was over, wrote a history of the episode which appeared in translation in *Antiquity*, vol. iv, 1930, and is an absorbing detective story.

The long report of the International Committee appeared in the *Revue d'Anthropologie*, December 1927, and affirmed the objects to be clumsy forgeries, recently buried. A spirited and amusing account of the affair by D. G. appeared in *Antiquity* (27).

The early year of 1928 was the start of her long association with Western Asia, by an exploratory visit to Kurdistan suggested by the Iraq Department of Antiquities. The area appealed to her discerning eye, which noted Mousterian flakes on ground near Kirkuk; and in the autumn of that year she returned, leading a small party sponsored by the American School of Prehistoric Research and the Percy Sladen Trustees.

Though excavations at Palestinian Shukbah during the summer months intervened between the two Kurdistan visits, it is convenient here to record their outcome and defer Shukbah.

Two caves were excavated: one at Hazar Merd near Sulimani, the other at Zarzi, 50 km. north-west. Local Kurds gave some labour; an armed guard was in attendance, since local lawlessness had been endemic.

Hazar Merd provided the first discovery of Mousterian industry *in situ* in this, then unexplored, region. Its character singularly lacks the Levallois stamp so prominent in Palestine. Overlying the lower deposits, the Upper Palaeolithic resembled that more abundantly found at Zarzi.

Zarzi was prolific in an Upper Aurignacian. A rough estimate of date was made possible many years later, when R. S. Solecki at Shanidar cave in the same area unearthed an Aurignacian of rather later typology than Zarzi. This gave a carbon determination of $12,000 \pm 400$. The Shanidar Mousterian provided a date of $50,000 \pm 3,000$ –4,000 years.

As for the cave Mousterian of Hazar Merd, D. G.'s mind was already at work on the baffling problem of the time relationship with western Europe, and she concluded that correlations of faunal and climatic evidence for physiographic synchronism might, if obtainable, supply an answer. The fauna of the

Kurdistan caves, identified by D. M. A. Bate, offered no help and she returned to the question on Mount Carmel.

In 1928 also, she set foot in Palestine for the first time, and for the next six memorable years devoted her life to the Levant, with auxiliary expeditions to Anatolia and Bulgaria.

She arrived in a land which, since Allenby in 1917-18 had liberated it from the Ottoman Turks, was already far from being the prehistoric *terra incognita* it had been before. American and British Schools of Archaeology were flourishing in Jerusalem; the French were also active, with men of the calibre of R. Neuville whose work she greatly admired, working for the Institut de Paléontologie Humaine. Notable already had been the discovery by F. Turville-Petre in 1925 of the Neanderthaloid 'Galilee' skull with a Mousterian industry of Levalloisian complexion. Certain obscurities in the excavation, excusable at that early date, were re-examined and rectified years later by D. G., on the experience of Mount Carmel (18).

Up to this point field-work in palaeolithic prehistory had been rather desultory and done little to establish an outline sequence, despite prolific material. Apart from Turville-Petre's, no systematic work had been undertaken until D. G., under the auspices of the British School, began excavations in the cave of Shukbah in the Judaeen Desert.

Though the work, so rich in later consequences, had to be left unfinished after two and a half months and was never resumed, it had revealed, overlying a 'Mousterian' occupation with traces of human remains, deep deposits of a then unknown microlithic industry, with abundant, but fragmentary, human remains of *sapiens* type. These she correctly diagnosed as Mesolithic and named them Natufian after the Natuf valley below. Little at that time could she have realized that she had found the nucleus of future discoveries by herself on Mount Carmel, by Turville-Petre at Kebara in the same mountainous range, and by others in later years.

For the Natufian, in terms of Palestinian history, is the turning-point between the desert and the sown, between food gatherers and food producers, between the cave shelter and the stone-built settlement, between the wild animal and the domestic. At Jericho it underlies at one remove the pre-pottery Neolithic, and long afterwards obtained a C-14 determination of $9,800 \pm 240$ B.P. (20). Publication of Shukbah was delayed for fourteen years in unfulfilled expectation of completion (10).

An urgent call had stopped return. The caves of Mount

Carmel were threatened by quarrying. The Director of Antiquities, E. T. Richmond, alerted the American and British Schools, who joined forces under D. G.'s direction in what proved to be an enormous undertaking. For these caves supplied, in her memorable words, 'the key to a large section of the prehistory of this part of the Near East', in as much as they provided between the three of them a still unique and nearly, but not quite, unbroken series of deposits with a combined total of 24 m., representing ten main industrial levels with subdivisions, covering in time something in the order of 80,000–100,000 years.

The work, complicated by geological features, occupied seven seasons between 1929 and 1934, the actual digging time being twenty-one and a half months.

D. G. was fortunate in her assistant, T. D. McCown, a Research Fellow of the American School, and in the intelligent help of students from the joint Schools, many of whom, such as Hallam Movius, T. P. O'Brien, Jaquetta Hawkes (then Hopkins), and Joan Payne (then Crowfoot), became well-known archaeologists.

In the spring season of 1932 she was unavoidably absent, and McCown took over as Acting Director. She had already assigned him the excavation of the Mugharet-es-Skhul, the smallest of the three caves, and it was a lasting regret to her to have been away when he made his epoch-making discovery of the Mousterian cemetery of twelve individuals, men, women, and children, three of them practically complete. She never failed to pay tribute to his admirable handling of them *in situ*, in transit to England, and as Sir Arthur Keith's collaborator in their prolonged preparation, study, and publication (*The Stone Age of Mount Carmel*, vol. ii, Clarendon Press).

Their conclusions may be condensed into the statement that, though the variability of characters exhibited in the associated specimens was exceptionally wide, comprising both Neanderthal and *sapiens* features, they should be regarded as a taxonomic, extinct race, for which the specific name *Palaeanthropus palestinus* was appropriate. They boldly rejected the hypothesis of hybridization in the absence of all evidence for pre-existing or contemporary proto-*sapiens* man, and rationalized the wide morphological divergencies as being the result of a race in a stage of evolutionary instability. This diagnosis drew the criticism of other palaeontologists, and D. G. herself felt reservations. The debate was ended by the war, to be resumed with increasing impetus afterwards.

These osteological activities deprived D. G. for the remaining three years of her aide-de-camp. The strain must have been considerable, but she met it with her normal quiet poise, and to my knowledge never thought of it as such; indeed she referred to those days as 'Bliss was it in that dawn to be alive' (24).

Her own major publication, including D. M. A. Bate's Report on the extensive fauna, appeared in 1937 (29). Its swift completion, impossible today, is a measure of her ability in organized fieldwork and recording, considering the sheer bulk, variety, and novelty of the material and its debateable significance. To take a single example of bulk, 92,000 implements are recorded in detail.

She was fortunate that the stratigraphy of the two caves she herself handled, Tabun and el-Wad, were nearly complementary to each other, the Tabun covering the earlier sequence (Tayacian, Acheulian, Levalloiso-Mousterian); and el-Wad the later (Mousterian, Lower, Middle, and Upper Aurignacian, Atlitian [a new facies] and Natufian). Moreover, she was also fortunate in that R. Neuville's concurrent work in the Qatafa cave in Judaea was yielding kindred evidence, supplemented rather later by his work with M. Stekelis at Qafseh near Nazareth.

This is not the place for archaeological detail, but Mount Carmel can hardly be passed over in the life record without touching upon a few of the additions to knowledge derived from it. The major contributions only may be outlined here:

(a) Exposition of two new lithic industries of far-reaching importance subsequently named Jabrudian (or Yabrudian) and Amudian (or Pre-Aurignacian), found within the 'Final Acheulian' layer E of Tabun cave. These abnormal and mutually exclusive elements were combined with quantities of hand-axes, themselves overwhelmed by alien Yabrudian implements (7,115 hand-axes, to 28,850 'racloirs'). The more sporadic Amudian, in relatively small numbers, tended to concentrate towards the top of the layer. These discoveries were first published in 1934 (5), subsequently in 1935 (6), and finally in 1937 (29). At that early stage D. G. did not specifically name either, though she distinguished the two individually in typology and technique; she used the similitude 'Pre-Aurignacian' to emphasize the Upper Palaeolithic aspect of the Amudian, though not as a label. She regarded it as an intrusive introduction of independent origin. She accepted that the origin of Upper Palaeolithic tools 'must be sought a very long way back' (7). The Yabrudian she considered to be an aspect of regional Late Acheulian development. Almost simultaneously, A. Rust was unearthing both industries in a

cave at Yabrud in Syria, where a clearer stratigraphical context showed two 'Pre-Aurignacian' levels, separated by, and not mixed with, a Yabrudian. Though Rust's publication was delayed until 1950, he designated the two new, unrelated, industries as Yabrudian and Pre-Aurignacian. D. G., however, following the laws of scientific nomenclature, preferred and used the term 'Amudian', after the Amud cave in Galilee where Turville-Petre had, unrealized by himself, found the prototype in 1925-6, and to which D. G. considered the Galilee skull rightly belonged (18-24).

(b) Collection of various Neanderthaloid remains, additional to those found by McCown, including a nearly complete female burial, and an unrelated and morphologically more primitive jaw, from the Lower Levalloiso-Mousterian of Tabun Level C. Both were included by Keith and McCown within the *Palaeanthropus palestinus* range, to which the still more archaic Galilee skull was also assigned. A doubtfully reliable C-14 determination of $40,000 \pm 1,000$ was obtained years later through the kind offices of K. P. Oakley and J. Waechter from a sample of the relevant deposit (24).

(c) Recognition of a new industry, the Emiran, transitional in time and typology, between the Upper Levalloiso-Mousterian and Lower Aurignacian. Its type-tool, the Emiran Point, is, she recognized, akin to the North African Aterian form (5), itself clearly derived from Mousterian antecedents. Her conclusions concerning it may be quoted.

Typologists might claim that in this industry we have a perfect example of culture-contact. I would suggest, on the contrary, that here is a case of the invention of a new technique within an industry of old tradition, a possibility which, I think, we prehistorians have neglected too much in our search for origins. . . . It is, perhaps, significant that precisely in the area we find this industry with old and new characters intermixed, we have, in the preceding Levalloiso-Mousterian stage, a human type which is morphologically intermediate between Neanderthal and modern man. The scanty remains from the Aurignacian of Palestine on the other hand are definitely those of *Homo sapiens* (13).

Contrary to McBurney's claim (*Haua Fteah*, p. 171), she never abandoned this view, though she was ready to do so on fresh convincing evidence. In one of her last publications (1965*b*) she reiterated 'Stages 1 (Emiran) and 2 (Upper Palaeolithic) of the Levant look like a native blade industry developed on the spot from the Levalloiso-Mousterian, but after this an outside influence appears, definitely Aurignacian' (35). The point needs

emphasis, because unlike a majority of typologists, she was more open to admit the probability of technical improvements or inventions to meet new needs within a lithic industry giving birth to a new one, rather than to the prehistorian's prevalent habit of relegating what is not understood to supposed contact with, or origin in, some unexplored region, now in danger of being over-populated by probably lost causes.

(d) The discovery *in situ* and development of the Mesolithic Natufian, first identified at Shukbah, and extensively examined on Mount Carmel, with its large cemetery of a generalized 'Mediterranean' type and an outstanding capacity to shape shell, bone, and stone into works of art (20, 29).

Needless to say, the book remains fundamental to the typological chronology of the Levant. Nonetheless it is, inevitably, a pioneer work dependent on its own internal evidence, with minimal comparative help available at the time of publication, or the assistance of carbon dating, palynology, granulometric analyses, deep-sea cores, and other apparatus of more recent and current statistical prehistory.

D. G.'s final words reflect her own verdict.

If correlation within the borders of Palestine is still unachieved, any attempt over a wider area is obviously premature. The work of the last ten years has established firmly the succession of industries in our region over a long stretch of the palaeolithic. The time has now come for an effort of collaboration to bring the sequence within the framework of geochronology (29).

With this in view she had already in 1935, in collaboration with E. W. Gardner, examined the consolidated dunes (*hamra*) overlooking the 6 m. shoreline near Atlit, and found Mousterian flakes in them (28).

She was therefore thrown back at that time on the attempt to equate the Mount Carmel sequence with climatic shifts to be deduced from the faunal composition and changes in each industrial level, established by D. M. A. Bate's devoted work in the Natural History Museum. Fifty-two species were identified and of these two, gazelle and fallow deer, were selected, on Zeuner's advice, for this purpose, both because their remains were relatively abundant at all levels, and because the environmental habits of these creatures differ markedly; deer in wooded, watered areas, gazelle in sub-desert aridity. D. M. A. Bate's much-discussed graph, based on this premise, shows the alternating predominance of one or the other at different industrial levels equated with climate. No one has challenged its *factual*

validity; its interpretation is a different matter, and as early as 1939 R. Vaufrey, in the *Revue Scientifique*, nos. 6–7, published a damaging article on its physiographical implications, some of it doubtless justified, but forgetful that D. G.'s own words, quoted above, disclose a prudent outlook.

A balanced, critical, and partly rehabilitating review, in wider perspective, of the value of Bate's graph, appeared thirty years later in E. S. Higgs's chapter ii of McBurney's *Haua Fteah* (Cyrenaica). It ends with the statement:

With the clear evidence of direct response to environment from the Palestinian caves, the change in the relative proportions of species at Haua Fteah have been considered as probable indications of climatic change.

If the success of a venture is to be judged by the magnitude of ensuing problems, Mount Carmel scores an *alpha plus*; but it was not until after the war that archaeologists began to think out the implications of the published evidence and raise questions.

Firstly it raised the question of the comprehensive nature of *Palaeanthropus*, as determined, not without hesitation, by Keith and McCown. Was he the creature of evolutionary instability, or do the more archaic Tabun and Galilee specimens approximate to a more or less classic Neanderthal type, whereas Skhul man represents a race of proto-*sapiens*, already hinted at by rare world-wide finds of much older non-Neanderthals, such as Swanscombe, Fontéchevade, and Niah Cave, Sarawak? Could there be a substantial time disparity between Tabun C and Skhul? The typology of both was agreed by McCown and D. G. to be Lower Levalloiso-Mousterian—that is Lower relative to Upper at that particular spot; but the duration of that interminable industry amounts to many thousand years with few typological changes, which D. G., herself a great typologist, could barely differentiate. On the other hand, Bate somewhat guardedly declared the Skhul fauna to be, on the whole, nearer to Tabun C ('archaic') than Tabun B ('modern'). This, however, has been questioned by D. R. Brothwell and E. S. Higgs (*P.P.S.* xxvii, 1961).

The Amudian-Yabrudian problem already alluded to, involving the relationship of one to the other, became even more complex when it was seen to involve, not only the dual relationship, but also that of either or both to the Final Acheulian, and the Levalloiso-Mousterian, in the stratigraphical sequence. Moreover, the Yabrudian was later seen as a form of ancestral

Mousterian, paralleled in some respects by the French Charentian.

Finally, Mount Carmel raised the question of climatic shifts in the Levant (more especially in relation to earlier palaeolithic man), as reflected in pluvial and interpluvial cycles equated with late Pleistocene sea-levels.

As D. G. drily remarked, 'on the question of the palaeolithic chronology of the Middle East there were eventually nearly as many opinions as there were prehistorians' (24).

Meanwhile the years between 1934 and 1937 were spent in Cambridge, teaching and writing. Her father died in 1936; she missed him deeply. With her mother (who died four years later) she moved house nearer Newnham College where she had been a Research Fellow from 1929 to 1932.

In 1938 she was on the move again on a reconnaissance in Anatolia, proposed by the American School of Prehistoric Research, accompanied by James Gaul and Bruce Howe of Harvard, to estimate its value for palaeolithic studies bridging the Near East and Europe (I had, without avail, begged her to attend to Sinai). Official delays in getting excavation permits brought the expedition to a premature end, but gave time for some weeks of profitable surface examination of large areas. D. G.'s Report gives information of lasting value (8), and displays her exceptional powers of dissecting physical geography in brief, comprehensive form, a talent exemplified once more in her Report on Bulgaria.

Frustrations in Anatolia decided the party to use unexpended time and grant in Bulgaria, where official co-operation was assured. O. G. S. Crawford, after a visit, had originated the idea to D. G., and in this he was justified, for the cave of Bacho Kiro in the Balkan Mountains near Drénovo proved fruitful, and the friendly relations with local and central authorities contributed not a little to its success. Bacho Kiro provided a succession of unconformable archaeological levels from Mousterian to Upper Palaeolithic of 'Middle' Aurignacian facies, followed by a less-definite late blade industry. These last were accompanied by bone tools, so conspicuously inconspicuous in Palestinian deposits. The finds reinforce the assumption of the Balkans as a passage of Aurignacian 'influences' between Western Asia and Western Europe as she had predicted. The publication is a model of its kind, admirably illustrated (9).

The years 1939-52 were engulfed by her election to the Disney Professorship, interrupted by the war and her service from 1942 to 1945 with the W.A.A.F., at which moment this memoir

regains its starting-point. She ranked as a Section Officer in the department dealing with reconnaissance photographs and the assessment of bombing damage to German industry. Though life was exacting, she was happy in the work and the companionship of other temporary officers, many of whom, such as Grahame Clark, Glyn Daniel, Charles McBurney, Charles Phillips, and Stuart Piggott were old colleagues.

Peace restored, she returned to the Cambridge chair until 1952 and set about needed reorganization of teaching in her department, resulting in a greatly extended optional range of studies in Part 2 of the Archaeological and Anthropological tripos, still in force today. Teaching was whole-hearted pleasure. She loved her subject and was interested at the time, and in after-life, in her students, both academically and personally. Old students have called her lectures models of clarity, and that certainly is true of the published versions of more formal occasions, such as presidential addresses, or her Huxley Lecture in 1962. But she was not, I think, fully effective in her delivery, due to the quietness of her manner and voice, which, in private life, was one of her attractions.

During these Cambridge years she took an active part in the affairs of various learned societies including the Royal Anthropological Institute, the Prehistoric Society, and the Council for British Archaeology. Not for the first time she served on the Governing Body of Newnham College, and played a leading part in the policy of its Associate body which she believed should be an important element in College affairs and a counterweight to self-sufficiency.

Her heart, however, was not wholly in England; in planned anticipation of premature retirement she built, in 1952-3 to her own requirements, a house near Villebois-Lavalette, in the depths of rural France, close to Dr. Henri-Martin's property then owned by his daughter Germaine, herself a distinguished prehistorian and one of D. G.'s closest friends. A visit to 'Chamtoine' was the delight of many English friends and relatives. I was, I believe, her first guest; a visit to an empty Lascaux, then in its primeval freshness, was a memorable interlude.

It may at this point be convenient to refer to D. G.'s continuous participation between 1948 and 1963 in S. de Saint-Mathurin's summer-seasonal excavations in the late Upper-Palaeolithic rock-shelter above the river at Angles-sur-l'Anglin (Vienne), which have so greatly enriched knowledge of Magdalenian III painting, sculpture, and engraving. They are dated

to about 12,000 B.C. I had the unforgettable experience of being present when, in July 1950, the removal of the occupational deposits of later Magdalenian times which masked them, gradually exposed, sculptured in low relief on the rock wall, the unparalleled life-size torsos, now known as the Three Venuses. They gave palaeolithic art a new dimension. Descriptions of this marvellous group, the painted life-size head of 'Le Sorcier', and the splendid frieze of sub-arctic animals, will be found pending full publication in S. de Saint-Mathurin's guide-book contribution 'L'Abri du Roc aux Sorciers et la Frise Sculptée du Magdalénien III', *Union Internationale pour l'Étude du Quaternaire*, VIII^e Congrès INQUA, 1969; and in D. G.'s bibliography (11, 12, 14, 15, 30).

Years of Fulfilment. The early spring of 1954 inaugurated the last round of her life's work. She was 60 when she left Cambridge in 1952 in order to attempt the co-ordination of the Palestinian cave sequence with the geochronology of the Levantine beaches. Though never controversially, she had been brought up, academically speaking, in a school of 'long' chronologists, wherein much that the 'short' chronologists would assign to the interstadials of the Last Glaciation is placed in the Riss-Würm. But she was in no way finally committed.

The coasts of Syria and Lebanon are ribboned by evidence of late Pleistocene sea-levels, but the choice of the Beirut stretch was largely determined by the geological information provided by present and past members of the local Jesuit community—by Père Zumoffen long ago, and by Père Fleisch since the last war. Their palaeolithic collections and notes, relating to all three Tyrrhenian stages at about 45 m. (T. I), 15 m. (T. II), and 6 m. (T. III) above present sea-level could be studied in Beirut, and Père Fleisch generously placed his valuable observations at her disposal.

During a preliminary visit to Beirut in 1954 she had noted Yabrudian and Amudian implements in the museum collections, and Fleisch called her attention to sites at Adlun, between Tyre and Sidon. These she resolved to investigate, and in 1958, equipped with grants from the British School in Jerusalem, the British Academy, and private sources, returned in partnership with Diana Kirkbride, and for the next five years probed into the question, in terms of marine chronology, of the Amudian-Yabrudian-Levalloiso-Mousterian interrelations. The background official help at Beirut of Emir Maurice Chehab, M.

Seyrig, and M. and Mme Dunand was continuous and invaluable.

Considerable parts of the results, published as interim archaeological reports, are not yet available: specialist studies of fauna, cave morphology, sedimentation, and perhaps carbon dates, have yet to appear. But the salient facts are clear and covered by her own synthesis in the Huxley Lecture of 1962 (24), the publication of which preceded by a year her final and perhaps most important dig, and thus requires readjustment.

I propose here to ignore the order of excavations and outline their content beginning with the geologically oldest. These sites are (i) the Mugharet-el-Bezez (dug 1963); (ii) the Zumoffen Shelter (dug 1958) both at Adlun; and (iii) the Ras-el-Kelb (dug 1959) 15 km. north of Beirut. In the first and second she had the collaboration of D. Kirkbride, and of Germaine Henri-Martin at the third.

The two Adlun caves lie in a low limestone scarp delimiting the Tyrrhenian II shore-line, about $\frac{1}{2}$ km. distant from present sea. Down the ages the limestone has been quarried and the profile progressively cut back. The Bezez (34), its rock floor at 15–16 m. above sea-level, still remained intact, but Zumoffen, at about 12–13 m. had become a mere shelter. The Bezez infilling was complicated by a deep swallow-hole in its floor which had contorted the lower archaeological levels. The opinion of Dr. M. Sweeting, an authority on Karst formation, was invited; her report, based on a ten-day examination, awaits publication. She permits me to state her conclusion that the cave originated as a solution cavity caused by underground fresh-water drainage in balance with the movements of sea-level prior to the 15-m. transgression: the cavity was doubtless later modified by wave, and possibly frost action.

Out of five trenches in Bezez, one fortunately remained unaffected. This showed: (a) scanty Upper Palaeolithic; (b) Levalloiso-Mousterian; (c) Yabrudian of an archaic facies unknown before. The Yabrudian rested directly on a beach overlying bedrock at 15–16 m. above present mean. If the overlying industry is truly Levalloiso-Mousterian, its position here is the earliest recorded appearance in the Levant.

The Abri Zumoffen lies some 3 m. lower (32). Trenches were opened in the platform outside its present limits and reached beach deposits at 12.48 m. rising to 13.15 m. The stratigraphy was (a) Yabrudian with hand-axes; (b) typical Amudian; (c) 'Beach' Amudian, a specialized variant of heavy chopping tools, not

known before, in direct contact with the beach and incorporated in its surface (26). It contained 15.5 per cent of 'Beach' facies, to 27.4 per cent of normal Amudian. The Yabrudian, in turn, contained Amudian-type blade tools as in Tabun E. Thus her observations at Mount Carmel, which had been severely questioned by F. Bordes (*l'Anthropologie*, lix, 1955), were vindicated.

The beach level of the Zumoffen shelter, below the T. II maximum, and above the ± 6 m. level of T. III has given rise to some difference of opinion. F. Zeuner, who joined D. G. for a short visit and gave valued help, considered that this beach might represent the storm-beach of T. III. D. G., however, was unable to reconcile this view with the archaeological evidence, and has maintained, almost certainly rightly, that both Bezez and Zumoffen represent successive stages in the slow retreat from the T. II maximum of 15 m.

Her third test, the Ras-el-Kelb, concerned the Tyrrhenian III beach at 6 m. above present mean (33). It was conducted under unusual difficulties. A wartime railway had tunnelled through the deposits of a headland cave in the limestone, destroying its contents. A road tunnel alongside the railway was in construction when D. G., at a moment's notice following an urgent call from Beirut, flew out from England. The road tunnel, further truncating the cave, had created a ready-made section in the brecciated infilling in process of removal. Soundings exposed a line of pebbles, sand, and shells at 7.70 m. above sea-level, supposedly the storm-beach; occupation deposits and hearths occurred below it, and at 5.80 m. lay the shingle and shells of T. III with a Levalloiso-Mousterian industry, present throughout the whole infilling of the cave, resting directly upon it.

After about seven weeks of work under impossible conditions, endurance was exhausted. The concrete consistency of the deposits, the infernal noise of mechanical drills and blasting in the enclosed space, the shunting tip wagons which stopped work, limited both observation and, as D. G. drily remarked, 'was unfavourable to quiet work on the spot'. She turned therefore to an original method of dealing with the priceless material. The breccia was removed, layer by layer, measured and numbered square by square in labelled blocks, packed in 2,000 sacks, and transported for dissection and study to the National Museum at Beirut, where work on the recovery of the embedded tools and bones proceeded throughout 1960 to 1963. This mass of

material, cleaned, labelled, and inventoried, is still under typological and osteological scrutiny.

Whatever the future interpretations, these results are a powerful contribution to the unravelling of the complexities of palaeolithic history in the Near East. D. G. herself, forming her opinion on all available facts demonstrated by herself and others in the same field, considered that Yabrudian man, physically exemplified in all probability by the Galilee skull, and with an industry directly derived from the Final Acheulian of Tabun F character, occupied the coast soon after the start of the retreat stage of T. II (Riss-Würm) high sea-level, as shown by the Bezez industrial sequence (24). His continued presence was proved at Abri Zumoffen during a further retreat of T. II, overlying an Amudian, which had, between the two retreat stages, made its earliest appearance on the 12-m. beach. This she equated with the onset of Würm I.

The significance of Amudian man, and his, at present, inexplicable habit of scattering his blade-tools in Yabrudian deposits (as in Tabun E and Zumoffen level a), as well as asserting his industrial independence (as at Yabrud 1 and Zumoffen b) remains an enigma insoluble at present. Interpretations are pure guesses.

A substantial interval of geological time followed the retreat of T. II to below present sea-level; its subsequent Würmian transgression to the 6-m. stage at Ras-el-Kelb coincides with a presumably fairly early stage of the long Levalloiso-Mousterian period, associated with an archaic fauna. This she had confidently come to regard as of Würm I-II Interstadial age.

Suspecting C¹⁴ misguidance, she was disinclined to accept as final the determinations of $\pm 41,000$ for the human remains of Tabun C, and $\pm 52,000$ for a lower level of the Ras-el-Kelb. She recognized that the burning question of the age and racial affiliations of Skhul and Tabun man must await the comparative evidence of the Jebel Qafseh fossils, interred likewise with a Lower Levalloiso-Mousterian industry. Five of these, from Neuville and Stekelis's excavations in the thirties, are now supplemented by another three almost complete skeletons found by Vandermeersch's recent work in the same burial level. Though still under study, enough has transpired to show that a strong case is likely to be made out for *Homo sapiens*, though Neanderthaloid characters may also be identified in a *later* industrial horizon.

There is no doubt that the Lebanon work had been exhausting, following, as it did, a serious attack of angina in 1955. The

period of doctors and patching-ups had begun on a heart which was slowly and inexorably demanding more care than it got. Bezez and Ras-el-Kelb remained to be written up, and she referred to the writing of the Huxley Lecture as an anxiety—probably the first admission in a life of writing. The lecture itself, on 2 November 1962, was delivered seated, and the dinner afterwards in the House of Lords, which H.R.H. Princess Alice attended, called for considerable effort from an over-tired body.

Active periods at Chamtoine, in Paris and England, alternated with illness and convalescence. Looking back on these years it is clear that her work was pursued in the face of physical strains which would have incapacitated anyone of weaker will or less whole-heartedly involved; or, one may add, without the support of her cousin Madeleine Lovedy Smith and of her colleague and friend Suzanne de Saint-Mathurin, whose vigilant care undoubtedly reinforced her own undaunted spirit. Her last public engagement took place in May 1968, when she received the Gold Medal of the Society of Antiquaries, and made a lasting impression by the distinction of her bearing and aptness of her words.

In June her heart gave out while on a visit to a cherished cousin in Sussex. Months passed in hospitals, eventually under the over-all care of her cousin Dr. Oliver Garrod, until, nearing the end, and at her wish, she was transferred to the Hope House Nursing Home in Cambridge, among the community of nuns where she wished to die.

The end came on 18 December 1968. Her ashes were buried in the grave of her parents at Melton, Suffolk, beside the Old Parish Church, within which rest the three wooden crosses which marked her brothers' overseas graves of the First World War. A memorial service, beautifully arranged by her constant friends Dr. and Mrs. Glyn Daniel, was held in the Chapel of St. John's College, Cambridge, on 15 February 1969.

Her incomparable work for prehistoric archaeology by a life of enterprise, achievement, and leadership received honours that were her tribute from the academic world. Apart from degrees of M.A. Cantab and D.Sc. Oxon, she received honorary degrees from the Universities of Pennsylvania, Toulouse, and Poitiers. She was elected to the British Academy in 1952, and awarded the Huxley Memorial Medal of the Royal Anthropological Institute in 1962, followed by the Gold Medal of the Society of Antiquaries in 1968. The C.B.E. was conferred on her by H.M. Ambassador in Paris in 1965.

An epitaph written for her maternal grandfather, Sir Thomas Smith, could have been written for her. 'Quick of observation, independent in judgement, receptive of new ideas, of remarkable ingenuity and dextrous with his hands.'

GERTRUDE CATON-THOMPSON

November 1969

ACKNOWLEDGEMENTS

Without the help of Dorothy Garrod's relatives, Dr. Oliver Garrod, Miss Madeleine Lovedy Smith, and Mrs. Mary Benedek, the background history could not have been attempted. From Miss Jean Smith's lifetime intimacy with her I have drawn information not otherwise available. For the chronology of her working life I am indebted beyond thanks to Mlle Suzanne de Saint-Mathurin.

SELECTED PUBLICATIONS BY D. A. E. GARROD

ABBREVIATIONS

A.S.P.R. = *Bulletin of the American School of Prehistoric Research*

B.M.B. = *Bulletin du Musée de Beyrouth*

I.L.N. = *Illustrated London News*

J.R.A.I. = *Journal of the Royal Anthropological Institute*

P.P.S. = *Proceedings of the Prehistoric Society*

- 1 1926 *The Upper Palaeolithic Age in Britain*, Oxford University Press.
- 1927a 'Mousterian Stations in the neighbourhood of Gibraltar' } *Proceedings of the*
- 2 1927b 'Mousterian Implements from Southern Kurdistan' } *Prehistoric Society*
- 1927c 'Notes on some Mousterian finds in Spain and Irak' } *of East Anglia*, v, parts 1, 2, 3.
- 3 1928 'Excavations of a Mousterian Rock Shelter at Devil's Tower Gibraltar', *J.R.A.I.* lii.
- 4 1930 'The Palaeolithic of Southern Kurdistan', *A.S.P.R.* vi.
- 5 1934 'The Stone Age of Palestine', *Antiquity*, viii.
- 6 1935 'Excavations in the Mugharet-et-Tabun', *A.S.P.R.* xiii.
- 7 1938 'The Upper Palaeolithic in the Light of Recent Discovery', *P.P.S.* iv.
- 8 1939 'Report on the Expedition to Anatolia, 1938', *A.S.P.R.* xv.

- 9 1939 'Excavations in the Cave of Bacho Kiro, North-East Bulgaria', *A.S.P.R.* xv.
 - 10 1942 'Excavations in the Cave of Shukbah, Palestine', *P.P.S.* viii.
 - 11 1949a 'New Light on Man's Ancestry', *I.L.N.* 4 June.
 - 12 1949b 'Finding the Earliest Prehistoric Portrait in the History of Man', *ibid.* 16 July.
 - 13 1951a 'A Transitional Industry from the base of the Upper Palaeolithic in Palestine and Syria', *J.R.A.I.* lxxxi.
 - 14 1951b 'The Horses of 12000 Years Ago', *I.L.N.* 7 July.
 - 15 1952 'The Master Sculptors of 22000 Years Revealed', *ibid.* 15 March.
 - 16 1953 'The Relations between South-West Asia and Europe in the Later Palaeolithic Age', *Journal of World Prehistory*, 1.
 - 17 1954 'Excavations at the Mugharet-Kebara, Mount Carmel 1931, the Aurignacian Industries', *P.P.S.* xx.
 - 18 1955 'The Mugharet-el-Emireh in Lower Galilee, type-station of the Emiran Industry', *J.R.A.I.* lxxxv.
 - 19 1956 'Acheuléo-Jabroudien et Pré-Aurignacien de la Grotte du Taboun, Mont Carmel', *Quaternaria*, iii.
 - 20 1957a 'The Natufian Culture: The Life and Economy of a Mesolithic People in the Near East', *Proceedings of the British Academy*, xliii, Oxford University Press for the British Academy.
 - 21 1957b 'Notes sur le Paléolithique Supérieur du Moyen Orient', *Bulletin de la Société Préhistorique Française*, liv.
 - 22 1958 'Rouffignac', *Antiquity*, xxxii.
 - 23 1961 'The Abbé Breuil', *Man*, lxi. 243.
 - 24 1962a 'The Middle Palaeolithic of the Near East and the Problem of Mount Carmel Man', *J.R.A.I.* xcii.
 - 25 1962b 'An Outline of Pleistocene Prehistory in Palestine', *Quaternaria*, vi.
 - 26 1966 'A Pebble Industry of Early Würm from the Abri Zumoffen South Lebanon', *Studies in Prehistory*, R. B. Foot Memorial, vol. i (Calcutta).
 - 27 1968 'Recollections of Glozel', *Antiquity*, xlii.
-
- 28 1935 Garrod (D.) and Gardner (E. W.) 'Pleistocene Coastal Deposits in Palestine', *Nature*, cxxxv.
 - 29 1937 Garrod (D.) and Bate (D. M. A.) *The Stone Age of Mount Carmel*, vol. i, Clarendon Press, Oxford.
 - 30 1949 Garrod (D.) and Saint-Mathurin (S. de), 'Fouilles dans un Abri Magdalénien de la Vallée de l'Anglin', *l'Anthropologie*, liii.
 - 31 1960 Garrod (D.) and Field (Henry), *The North Arabian Desert*. Peabody Museum of Anthropology and Ethnology, 95, 2. Cambridge, Mass.
 - 32 1961a Garrod (D.) and Kirkbride (D.), 'Excavations of the Abri Zumoffen', *B.M.B.* xvi.

- 33 1961*b* Garrod (D.) and Henri-Martin (G.), 'Rapport Préliminaire sur la fouille d'une grotte au Ras-el-Kelb', *ibid.*
- 34 1965*a* Garrod (D.) and Kirkbride (D.), 'Mugharet-el-Bezez, Adlun', *ibid.*¹
- 35 1965*b* Garrod (D.) and Clark (J. G. D.), *Primitive Man in Egypt, Western Asia and Europe*, Cambridge Ancient History (revised edition of vol. i and ii), Cambridge University Press.

¹ Not yet published and number still uncertain.