Trevor Shaw

CAVE STUDIES IN THE PAST

This is a supplement to the e-book **"Martel in the Slovene Karst in 1893. Translated from his Publications and Correspondence by Trevor Shaw"**, published under the CC BY-SA licence by ZRC SAZU, Založba ZRC in 2021: https://doi.org/10.3986/9789610505334

Založba ZRC

INTRODUCTION

Two previous books (Shaw 2008 and Shaw & Čuk 2015) have been written on the historical aspects of caves in Slovenia and their exploration over the centuries. This has been part of wider studies on caves and karst and it has recently been suggested that these should all be examined as part of my wider life, showing the interaction of these apparently very different interests – marine engineering in the British Royal Navy and the history of science in which both of my doctorates were awarded.

As in all lives, the author has been influenced by parental, educational and professional background and relationships with fellow researchers in other nations.

The wider aspects of his life provide the context within which cave research developed. His other activities provided opportunities and contacts for his cave work and also show how he became the person he is. The cave-related and other happenings with which he has been associated, and the people involved, are important. Thus it provides a history of speleological research over much of the last century.

The chapters of the book fall naturally into two groups. The first group covers his education, his time spent as an engineer in warships of the Royal Navy in many parts of the world, his work in research and development of constantly improving propulsion machinery in British warships and the post-graduate education of young naval engineers.

Following the 48 years for which the Queen paid him to do this, there have been a further 28 years in which she has provided the pension that has enabled him to devote his time to cave research, most of it as an Honorary Fellow of the Scientific Research Centre of the Slovene Academy of Sciences and Arts and as an Honorary Research Fellow of the Karst Research Institute in Postojna. It is this that is described in the second group of chapters.

PARENTAGE

Trevor Royle Shaw was born on 31 March 1928, at about nine o'clock in the morning at Exeter in the English county of Devon.

My father, Royle ("Roy") Herbert Shaw (1890-1972), was born on 1 August 1890 in Leeds (Yorkshire) where his father had been a chartered civil engineer. My own father died on 19 August 1972.

Trevor's mother, born Madeline Dora Barlow (1890-1986), had ancestors traced back to the 13th century (M. Barlow [1932]. *Barlow Family Records*).

My father, (Fig. 1) is described here first as he had much the greater influenced on me. He too was a professional civil engineer, a member of the Institution of Civil Engineers and so a chartered civil engineer. From the 1930s onwards and perhaps before also, he was a specialist on roads and bridges and was employed in the Ministry of Transport. During World War II he also built runways for military airports. When living with his parents in London before 1914 he played hockey for the county of Essex.

Being 24 years old when World War I started, he volunteered immediately for service in the Army and served in France and Belgium as an officer in four different regiments (Fig. 2). One was an infantry regiment (I do not know which), another was the Royal Fusiliers as recorded on one of his campaign medals. Yet another was the famous Scottish regiment the Seaforth Highlanders.

Finally, he was transferred to the Royal [Civil] Engineers (Fig. 3), where his professional knowledge could be utilized. Why so many different in four years I do not understand. Apparently it was all in attempts to get to the Royal Engineers. He told me that he reached the rank of captain in each one, and then dropped to lieutenant at each change. This is why he was never made colonel, as many of his contemporaries were. The death

Fig. 1: Father – late 1940s

Fig. 2: Captain R. H. Shaw (2nd from right), September 1916

Figs. 3: Captain R.H. Shaw in the trenches (WW I)

rate in that war was so high that there was plenty of room for promotion.

In 1919 he was offered a permanent commission in the Army but refused it, a decision he afterwards regretted.

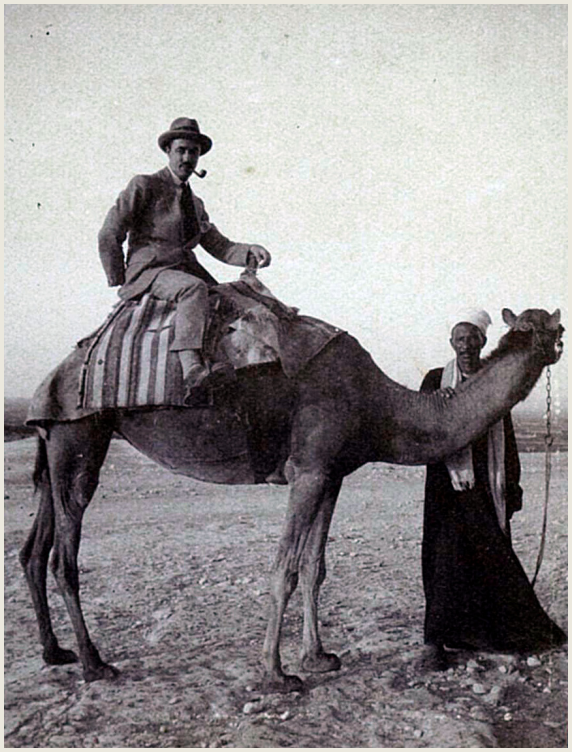
He married Madeline (Fig. 4) in 1920 or 1921. In 1921 and 1922 they lived in Egypt which was then a British protectorate. Like today, experience abroad was often regarded as an aid to future promotion. They were at Suez, at the southern end of the Canal (Fig. 5 & 6), and I used to think of them there on the many occasions I passed through the Canal in the 1950s and 1960s. As was normal, he paid a formal visit to King Fuad (1868-1936) (Fig. 7).

My own memories of Father go back to the early 1930s. I always respected and liked him and the more I have learned about him since, the more I admire him. He never ever told me about what happened in the 1930s which must have ruined all promotion chances in his profession.

In 1936, or possibly late 1935, the family moved from Exeter to Solihull, a suburb of Birmingham where Father had been transferred. I did not know at the time that this was normal practice in many professions to give individuals breadth of experience to fit them for further promotion – in this case from a country town to one of the major cities of England, I remember that at the time there were long (but never heated) arguments between the parents. I used to hear them through my bedroom window but not what was said. I enquired of Father what was going on but he said I would not understand, which was quite true as I was only eight years old. Apparently Mother insisted on returning to Exeter, where she was happy, and was unable to accept (or perhaps even understand) the effect it would have on Father's career. Father's intense loyalty to his wife caused him never to reveal the truth or even hint at it.

Another feature of Mother's selfish behaviour, which she almost certainly never realised, was related to Father's rather early death. He died at 82, she at 96, and I am still here at 94. Mother greatly admired our doctor (G.P.), Dr Rufus Harris, and made no secret of it. I see from my childhood diaries that he was called to visit several times whenever I had a cold. And she would refer to him as the "nice man". There was nothing improper but she made her admiration for him obvious. As a result, Father distrusted all doctors and never consulted one even when he must have been suffering from cancer. I was abroad for much of that time but when I said my final goodbye to him, amid spasms of pain, he kept saying "damn those doctors".

Fig. 4: Mother – late 1940s


Figs. 5: Father in Egypt 1921/1922

In speaking to me afterwards about his death, she complained that her doctor (not the same one) had "been almost brutal to me" about her lack of care or recognition of what was happening. She had been unable to understand why.

That is enough of unhappy paragraphs.

Returning to the 1930s. In that period the Royal Navy used to hold "Navy Weeks" at all the home ports, Devonport, Portsmouth and Chatham. The warships were open to the public who could see not only the upper decks but also much that lay below and could experience the ethos of the Service. Devonport is only 72 km from Exeter and Father took me there in 1937 and 1938 when I was 10 and 11 years old. Something must have got into my subconscious, for from then on I always knew that I wanted to join the Navy. At the age of 13 I tried to enter the Royal Naval College at Dartmouth but I was not good enough. In 1945, at the age of 17, I was accepted and spent 38 happy years in

Figs. 6: Mother in Egypt 1921/1922

Fig. 7: Father about to meet King Fuad

the Royal Navy. I am sure that Father knew I would be influenced by those occasions in the 1930s and they did result in my having a career he could be proud of.

During World War II he was too old for military service, but his work in the Ministry of Transport ensured the necessary flexibility of road movement throughout the war. In late 1942 he was in charge of an independent area based in Reading, making for greater local control in wartime conditions.

For most of the War, Exeter was almost unaffected by air raids, though air raid warnings were sounded whenever enemy aircraft approached, usually on their way to industrial targets further north. We would then go downstairs to the hall, which had no windows and a boarded up glass front door. It was on the night of 3 to 4 May 1942 that most of the centre of Exeter was destroyed by incendiary (non-explosive) bombs. I

remember being able to read a newspaper by the light of these fires, where we lived one kilometre away.

More personal was when such a bomb was dropped on the house on 24 April. It was a single solid cylinder of magnesium with an igniter and tail fins. Once alight it cannot be extinguished but a spray of water on the surroundings prevents the fire spreading, I heard the sound of it penetrating the tiled roof above the toilet. I recognized what it was: Mother said "nonsense" but Father took a ladder and a stirrup pump to restrict the damage and so save the house.

People used to remark on a physical resemblance between us, even though he had a military moustache and I had a naval beard. I believe I inherited more than that from him. Most of what is good in me – clear thinking, decision-making, determination, loyalty and even any diplomacy I may have – came from him. And I here acknowledge it.

My Mother, Madeline Dora (Fig. 4), was born in London, on 12 January 1890 and died at Exeter on 1 August 1986. Her father, Thomas Edward Barlow (Fig. 8), was a London business man born in 1876, In his last years he lived with two unmarried daughters, Margaret Muriel (Madge) 1878-1963, and Edith (Ursula) Rawson 1879 - 1965 in the small Devon village of Ringmore in the parish of Teignmouth. He died there in 1961 and is buried in the same grave as Madge. I met him briefly in his old age and as a child I knew Aunt Madge and Aunt Ursula very well, for Ringmore is only 26 km from my home in Exeter and I often stayed in their cottage. Two other daughters (Ethel) Mary 1882-1974 and "Binnie", Beatrice Isabel, 1884-1956 were also unmarried and lived together in Kent and London, depending on the season. As was usual at that time, these ladies had no profession and lived on the interest on the money bequeathed to them. The next of his children was William Rawson Barlow (1888-1977), my Uncle Bill (Fig. 9). He became a medical doctor and went to Canada where he served in the cold regions of Labrador (where many of his patients were eskimos), Newfoundland and Nova Scotia. His descendants are still in Canada. Uncle Bill was only one year older than my mother and they remained close throughout life. He had wished to be in the Royal Navy but that was not possible as he had lost an eye. So he joined the ships of the Canadian Coastguard

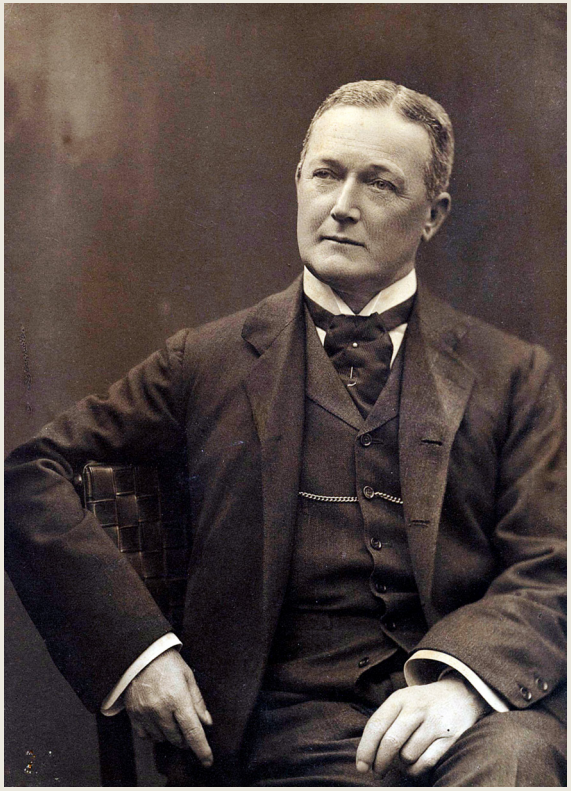


Fig. 8: Grandfather – Thomas Edward Barlow (1876-1961)

Fig. 9: Uncle Bill – William Rawson Barlow

Service and was still serving at sea when he was 70. He came to England several times but on each occasion I was in south-east Asia so we never met, to our mutual regret. It is said that, when he stayed with his sisters in Ringmore, he would tease them by leaving a bottle of rum very visible on his window-sill, to give the local villagers something to talk about.

Mother was the only one of the five sisters to marry. She therefore had no financial problems but, as was usual at that time, she had no paid profession and so no income of her own. She was, however, a gifted musician and a Licentiate of the Royal Academy of Music (LRAM). She was a competent pianist and also a soprano of some quality. She was once auditioned by Sir Henry Wood, the founder of the famous Promenade Concerts in London. She was not accepted as a soloist but even to have been considered at that level was an honour. She encouraged me to play the 'cello through my school days and later I played in string quartets and amateur orchestras such as the 'Plymouth Symphony Orchestra' but, one cannot keep a large instrument like a 'cello in a warship. Without constant playing, it was not possible to keep up to standard so I stopped altogether. My last ever performance was in 1950 in a string quartet in Nice, using a borrowed 'cello.

In World War II Mother trained as an emergency nurse and was awarded the Defence Medal.

SCHOOL

My schooling was much as it would be today, with the exception that at that time it ended at the age of 17 rather than 18. That was the age at which people qualified to enter university or the military.

From the age of 5 until 13 I was at a primary school, called a "prep school" because it prepared boys to go on to their main school at 13. I use the word "boys" because at that time most schools were single sex.

My prep school was Norwood School in Pennsylvania Road in Exeter. The headmaster was C.J.B. Robinson and Mrs Robinson was the matron, looking after the boarders.

A wide range of subjects was taught, including Latin (required for entry into major universities) but not Greek. It was quite a small school. Other subjects were

the standard maths, English, French, geography and history, together with physical training in the gymnasium. We had our own playing fields for football at a nearby farm and cricket was played near the edge of the Devon County Cricket Ground, well away from where the professionals played.

I went on to Exeter School (Fig. 10) in 1941. It was much bigger, with its own fields for cricket, rugby football and hockey. The headmaster was Mr. J. L. Andrews. The first two years had a broad syllabus, similar to the earlier school, and led to "School Certificate", the modern equivalent of which is "O-level". The final two years, in the 6th form, culminated in "Higher Certificate", now "A-level". That was much more specialised, with only 2 or 3 subjects studied depending on whether one was going to be a scientist (or engineer), a linguist, a historian or a classicist. Geography was not an option because of the shortage of teachers during wartime.

To qualify me to enter the Royal Navy as an engineer, my main subjects were maths and physics with subsidiary French. On my own account I also studied chemistry independently from text books but achieved only "subsidiary" standard. My overall exam standard was sufficient for me to have gone to Oxford, where I would have studied physics, but I achieved what I wanted, a naval career, by being one of the successful six in the separate and highly competitive Royal Navy entrance exam, complete with an interview to assess personal suitability for that career.

Fig. 10: Exeter School c. 1950

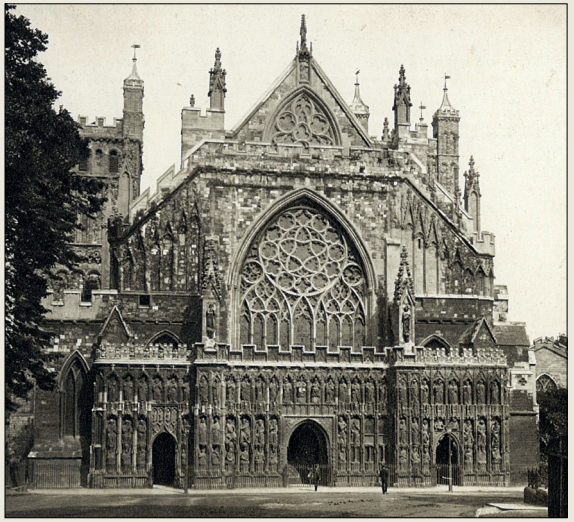


Fig. 11: Exeter Cathedral

That successful result was communicated to me on 21 August 1945 at the Longmoor Army base of the Royal Engineers, where I was doing a voluntary course arranged by the school. It was an appropriate coincidence: Father had been a Royal Engineer in World War I and I was accepted as a Royal Navy engineer while on Royal Engineer territory in the last month of World War II.

In my school days it had been the practice for me to attend services at Exeter cathedral (Fig. 11) from 1939, the year when I heard

the Dean announce from the pulpit at eleven o'clock that war had been declared on Germany. I realise now that Dean Carpenter (Fig. 12) had a great influence on my life by demonstrating that a busy professional life as a senior priest, which included the restoration of Exeter cathedral after bomb damage, could be combined with published historical research of the highest standard.

Fig. 12: The Very Rev. S.C. Carpenter, Dean of Exeter

As will be seen, my first experience of exploring previously unknown cave passages occurred in 1944 and 1945 while I was at Exeter School. This will be reported in a later chapter of this record.

NAVAL ENTRY AND TRAINING

I entered the Royal Navy on 27 September 1945 and remained a cadet for the first twelve months.

Before going into detail of what, when and where, it is necessary to describe the nature and purpose of the training. It is much more than just providing educational and technical ability for a career. Most of all it is the spirit, the ethos and the loyalties of a naval career that are instilled into young officers. This cannot be taught but it can be absorbed.

For this reason, the professional skills needed for the equivalent of a university engineering degree are learned, not entirely in training and educational establishments ashore, but also in real warships at sea in company with real sailors and naval technicians. People are more important than things and interacting with them at work is an essential part of becoming a naval officer.

That is why the first four and a third years (13 terms) of naval life include two two-term spells in sea-going ships, as well as two terms in the cadet training ship.

The time when I joined was just as war routines were changing to those of peace. Thus I was at first sent to the Royal Naval College of Dartmouth, which had been moved during the war to the safer area of Eaton Hall, the Duke of Westminster's estate in Cheshire where we lived in nissen huts made of corrugated iron. But, after three weeks there, the pre-war cadet training ship, HMS *Frobisher* (built in 1924) had been

recommissioned and we all caught the train to Devonport. Five days later we were at sea on the way to Gibraltar and Malta. The purpose of the training ship, an old cruiser fitted with additional class-rooms on the upper deck, was for future officers to live under the same conditions as junior sailors. We slept in hammocks slung from the deck above, less than a metre apart, and there was no air-conditioning in those days. We certainly learned how the other half lived and respected them for their cheerfulness and loyalty under such conditions.

What did the cadets do while at sea in this period? The main purpose was to familiarize us with naval life by working in all the various departments: seaman, supply, engineers and electrical, radar and weapons. By understanding the problems of each we learned how to work together as a single unit.

Five months after the end of the war, Malta's towns and dockyard were still largely destroyed by bombing (Figs. 13, 14). Sunk in the harbour was still the famous tanker, *Ohio*, that had brought vital fuel to the island. After many days of air attack she had been kept afloat by having a destroyer lashed on each side and now she was still visible but resting on the bottom. It put our being there in stark contrast to what it had been like before.

Fig. 13: Valletta: the Chaplains' houses before the main door of the Conventual Church

Fig. 14: Valletta: the Conventual Church from the north-east

In January 1946 *Frobisher* went to the West Indies, visiting the islands of Trinidad, Grenada, Barbados, Dominica, Antigua, St. Lucia and also Jamaica where there had just been a minor revolution. It gave us experience of living in a tin box in the tropics. This visit also served a diplomatic purpose by showing that the Navy was back, with cricket matches, cocktail parties and 'normality' again. No British warship had been to the islands during the war.

From 1946 to 1949 we were at the Royal Naval Engineering College in Plymouth, with eight more months at sea in the middle. In addition to normal first degree engineering training, there was experience with the various trades in Devonport Dockyard. It was this practical experience that caused the Institution of Mechanical Engineers to accept our training as full qualification to be chartered engineers, whereas university engineering degrees had to be supplemented by such experience to gain acceptance. There was also very high standard rugby

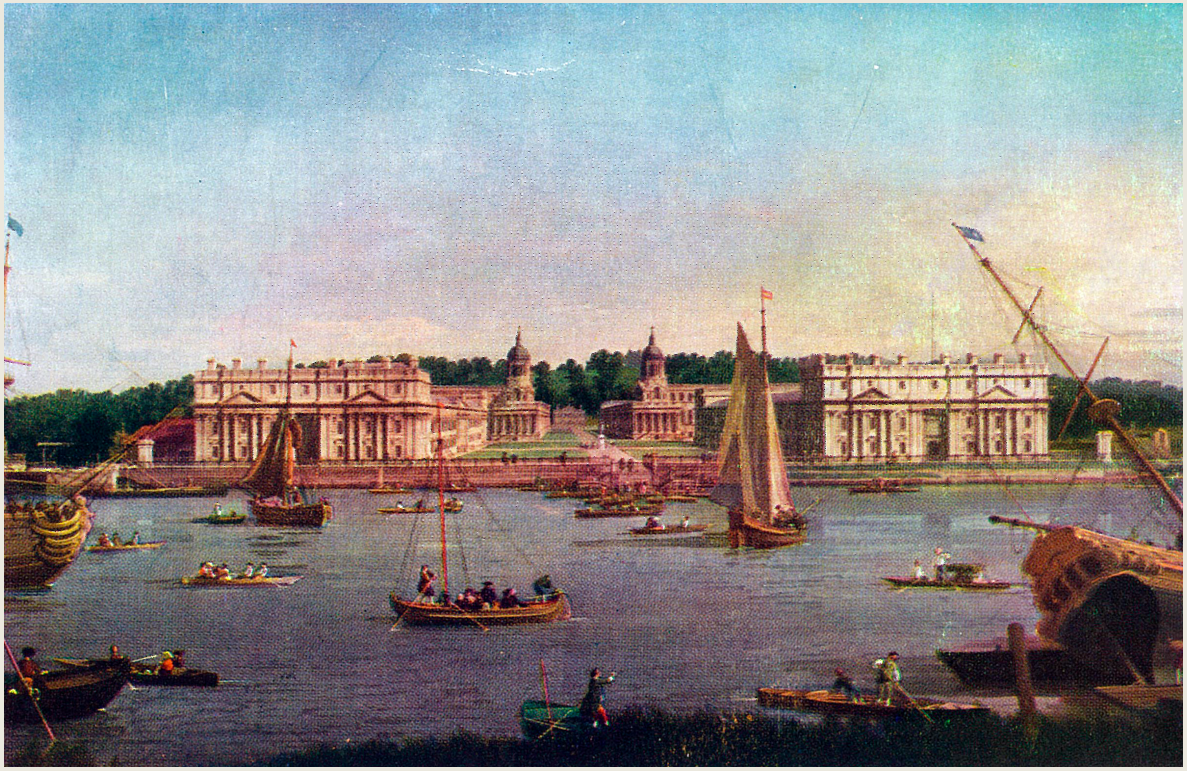


Fig. 15: Royal Naval College, Greenwich

football and much exploring of Dartmoor, both on foot and in pubs.

During that period four years passed during which we were promoted from cadet, through midshipman to sub-lieutenant, the first "proper" commissioned rank with its formal document signed by Lord Mountbatten of Burma on behalf of King George VI – the road to the future.

At about the middle of this time at the Engineering College we were each sent to different operational ships of the fleet to experience what life was like in both big ships and small ships. I spent part of that period in the old battleship, HMS *Anson* and two destroyers, HMS *Cadiz* and HMS *Dunkirk*.

The calendar next takes me to sea as a fully qualified engineer officer (see later). But it is convenient to mention first a two-year engineering course at the Royal Naval College at Greenwich (Fig. 15), leading to an *MSc*. Only four others of my year were also selected to do this course, which included one year of more engineering lectures, followed by a year of research and the writing of a thesis. I shall say more about this course when we come to the late 1960s, when I was the professor running it.

Again, increased interest in the study of caves during this period is covered in a later chapter.

SEA TIME

While much of my useful time in the Royal Navy (i.e. after the six years of being trained ashore and afloat) was spent ashore devoted

to research and development, the remaining years were spent afloat in progressively more senior posts as a marine engineer officer in warships around the world.

Why, it may be asked, is it necessary to have British warships so widely spread when there is no war on?

One obvious reason, of course, is to be ready for the next war. There have to be suitable ships with fully trained crews and up-to-date equipment available at short notice, as for the Falklands war of 1982.

Even more important is to provide a deterrent to prevent war because a potential aggressor knows he is unlikely to win. Wars are all started by politicians, the Kaiser, Hitler and General Galtieri allowed their enthusiasm to influence their judgement. They failed.

Those who succeeded were those of the Cold War. The nuclear deterrent was successful. On a much smaller scale was the successful carrying, in the aircraft carrier HMS *Albion*, of a whole Royal Marine Commando, with all its weapons and vehicles, to within range of Beirut during troubles there in 1958. We remained out of sight so as to avoid being provocative but our presence was known to the powers concerned.

There are also positive reasons for a naval presence: diplomatic links and disaster aid.

Constant visits to foreign countries, formal and less so, maintain friendly personal contacts and respect between different nations. They provide a subconscious background that influences subsequent discussions and reports to their political masters. It is sometimes called cocktail party diplomacy.

The importance of disaster aid speaks for itself. Not only does it provide real and otherwise unobtainable help when it is needed, but it also benefits relationships with the countries concerned. The immediate needs in such cases are the supply of water and food, medical assistance, burial of the dead and sometimes prevention of looting. My experience includes a major earthquake in the Greek island of Zante and flood relief in Bangladesh. There was also a 750-mile tow of a disabled Indonesian merchant ship from the Red Sea to safety in Aden.

The places visited in each of the five warships in which I served for any significant period between 1950 and 1971 are listed below. Those marked with an asterisk are ones at which caves were seen.

HMS ***Phoebe***, light cruiser, 1950-1951,

Malta*, Monte Carlo*, Gibraltar*, Venice, Trieste*, Taranto*, Crete, Greece, Cyprus, Naples, Nice

HMS ***Bermuda***, cruiser 1953-1955,

Greece, Malta*, (flat ashore 1953-54), Egypt, Leghorn, Gibraltar*, Corsica, Cyprus, Lebanon*, Turkey, Trieste*, Sardinia, Taranto*, Venice, Devonport (for refit).

HMS ***Albion***, aircraft-carrier 1957-1959 (Fig. 16).

Oslo, Gibraltar*, Lisbon, Portsmouth (for refits), Cyprus, Malta*, Aden, Karachi, Singapore, Sin Cowe (a Pacific Island), Hong Kong, Auckland, Wellington (N.Z.), Tasmania*, Sydney*, Melbourne, Fremantle, Manila, Malacca, Singapore, Diego Suarez

(Madagascar), Durban, Capetown, Rio de Janeiro, Brasilia

HMS *Lion*, (cruiser), 1962-1964 (Fig. 17)

Malta, Aden, Trincomalee (Ceylon), Hong Kong (Fig. 18), Saigon, Singapore, Nagasaki,

Fig. 16: Lt. Cdr. Shaw in HMS Albion

Fig. 17: HMS Lion

Fig. 18: HMS Lion at Hong Kong, April (May 1963)

Fig. 19: HMS Intrepid, assault ship

Fig. 20: Cdr. Shaw transferring at sea from HMS Intrepid. 7 January 1971

Osaka, Kobe, Kotakinabalu (Borneo), Lisbon, Fremantle, Beirut*, Gibraltar*

HMS *Intrepid*, amphibious assault ship (Figs. 19, 20) 1968-1971 (5593 miles)

Singapore, Penang, Hong Kong, Bahrain, Durban, St. Helena, Gibraltar, Devonport (refit), Casablanca, Capetown*, Mauritius, Chin Hae (S. Korea) Hiroshima, Hong Kong, Kuching* (Sarawak)

RESEARCH, DEVELOPMENT AND TEACHING

Besides the obvious naval duties of serving at sea, covered in the previous section, there is equally important task of developing the ships and equipment for the future.

The design of the ships themselves is done by members of the Royal Corps of Naval Constructors. The development of ship's machinery and weapon systems is done by naval marine engineer officers and

weapons engineer officers, the very same people who at other times serve in those departments in the ships themselves. Also working on development of future machinery and weapons, in conjunction with these naval officers, are civilian chartered engineers who only rarely go to sea. This ensures that all those concerned with the future are kept in touch with "the real world". The two-year Advanced Engineering Course at Greenwich enables those officers who have done it to be specially suited for this development work.

My own subsequent career thus included two years (1960 – 1961) in the Naval Marine Wing at the National Gas Turbine Established at Pyestock near Farnborough and also a posting in charge of the gas turbine section in what I still think of as The Admiralty in Bath. It is responsible for development of gas turbine engines to be fitted in new ships. It is aided by the development work and trials at the Naval Marine Wing at Pyestock and by Rolls Royce Industrial and Marine Division at Ansty, not far from Leicester.

It was during this time that I was doing my PhD research and drafting the thesis. The proximity to Leicester aided my academic links with the university there and also my marriage to Jean O'Connor who was the medical librarian there.

On 1 January 1965 I was promoted to commander and appointed to the staff of the advanced marine engineering course ("the Dagger Course" because the names in the Navy List of those who had completed it were marked with a dagger) at the Royal Naval College at Greenwich.

In preparation for this I was sent to Sheffield University for a short course on gearing design (Professor W.A. Tuplin).

The period at Greenwich lasted for four years, from 1965 to 1968. Initially I was on the staff there with special responsibility for warship gearing. I wrote a complete book on the subject to help students and to sharpen my mind. It was not intended to be published but copies were requested by engineers on the staff of gearing manufacturers such as David Brown of Huddersfield.

Greenwich kept to a conventional academic year timetable and during the leave periods I would take the students (five in all, of lieutenant rank) to visit the major engineering companies that supply machinery to the Navy and in some cases carry out trials on new equipment. These firms were in places such as Rugby, Newcastle, Huddersfield and Pershore. We went also to YARD (Yarrow Admiralty Research Department) in Glasgow.

In 1968 I became the senior member of staff, with the title of Professor. I initiated action with CNAA (Council for National Academic Awards) whereby subsequent students, after my time, are now awarded MSc certificates.

The Royal Naval College, Greenwich, was the home of many and various courses including the Senior Officers War Course (for Captains, R.N.), the Staff Course, the Nuclear Engineering courses, a general course for sub-lieutenants and the initial course for newly promoted WRNS officers.

The diversity of these courses and the fact that we all knew each other as individuals

made Greenwich widely educational in the broadest sense. Being located so close to central London made it easy to attract lecturers of high standard and sometimes of distinction.

Special cultural activities at Greenwich included small meetings of the Vanbrough Society. This included one with the poet Cecil Day Lewis and another on prehistoric cave paintings by Dr Andrée Rosenfeld of the British Museum. The Archbishops of Canterbury and York preached in the chapel.

It was while I was at Greenwich that the seed of my own academic qualifications was sown. The professor of history and English there, knowing the extent and depth of my studies on the history of karst studies, said to me: "Trevor, you are doing all this good work, why don't you get it recognized by registering for a PhD degree?" So I did. Conversation with Dr Trevor Ford at Leicester set it in motion, and in due course that degree was awarded in 1976. Marjorie Sweeting was one of my examiners. Subsequently, in 2004, I was given the higher doctorate, DSc, for my published work.

MINISTRY OF DEFENCE AT BATH 1971-1993

The marine engineering part of the Ministry of Defence has been in Bath ever since it was hastily evacuated there during World War II. Single-story huts were erected on the level ground at Combe Down on the southern edge of Bath. The place was known as Foxhill because it is at the top of a small approach road of that name. The hutments were identified as A at the north end and G in the south where the security police guarded the main entrance. I served in blocks G and A.

After a short and undistinguished spell in the Forward Design Group in 1955 to 1957, I returned in 1971 as head of the Gas Turbine Section, responsible for all research and development on marine gas turbines for the Royal Navy until 1975. HMS *Intrepid* had been my last sea-going appointment.

My staff in Bath consisted of 2 or 3 chartered engineers. Some were naval officers (one on exchange service from the Royal Netherlands Navy) and some were civilians, as well as technician civilians. The Naval Marine Wing at Pyestock, where I had once worked, was under my jurisdiction, and so was development work at Rolls Royce Industrial and Marine Wing at Ansty.

The extent and interrelationship of all this inevitably meant many meetings. The subjects covered at these meetings were so diverse that some were of interest to only a few of those present so I delegated them to a number of concurrent "mini-meetings" which took place after each main one.

As both the Royal Navy and the US Navy were at a similar stage in the development of gas turbines for their ships, there were many meetings with our counterparts in Washington. I was also invited to attend and speak at meetings of the American Society of Mechanical Engineers in Washington, Castine (Maine), Houston and New Orleans. There were also visits to Ottawa, Indianapolis, Philadelphia, Paris, Bremen and Rome.

The extent of gas turbine work going on at that time meant that my funding, in

millions of pounds, was second only to that for the development of nuclear propulsion.

I left that post in 1976. In 1974 I had been elected a senior chartered engineer as a Fellow of the Institution of Mechanical Engineers and in 1976 I was made OBE (Officer of the Order of the British Empire, Military Division) for public service and decorated by Queen Elizabeth II at Buckingham Palace on 8 December (Fig. 21)

Having been associated with gas turbines for so long, it was only natural that my next job in the Ministry of Defence would be to set up the Gas Turbine Allocating Authority where I remained from 1976 to 1980. This authority was unique in that it controlled the movements of the British-made Rolls Royce gas turbines that were owned jointly by the navies of U.K., France, Belgium and the Netherlands. These engines, fitted in ships of these four navies, were not repaired in those ships but replaced by others that were either new or refitted by the manufacturer. The engines removed were then refitted in turn. Thus any one engine might spend its life in any or all of those four nations.

Fig. 21: Buckingham Palace 1976

It was a simple concept and worked very well, but such joint ownership seemed strange and was sometimes believed unbelievable. As the allocating authority I had occasion once to seek information from the British Ministry of Defence regarding an engine fitted in one of the "foreign" ships. The initial reply stated that "it is not the practice of Her Majesty's government to provide such information to foreign powers"!

Necessarily the four navies had to meet quite frequently, so there were meetings in Brussels, The Hague, Nantes and Toulon.

My last appointment while on the active list (i.e. before retirement) was running the Ministry of Defence department of fuels and lubricants from 1980 to 1983. Foreign visits to ensure compatibility between NATO nations, were in Belgium, Canada and USA. The Falklands War of 1982 raised interesting questions about the behaviour of oils at low temperatures.

From 1983 until 1993, when I became 65, I edited the Journal of Naval Engineering, a professional journal publishing material of use to engineer officers.

In those 10 years I produced 21 issues, totally 4786 pages and broadened the scope of the Journal to include much on naval architecture and combat systems as well as the traditional mechanical engineering of the old "purple empire".

Vice-Admiral Sir Robert Hill said, in a letter to me dated 1 July 1983:

> Thank you very much indeed for many issues of JNE, all of an excellent quality providing such a first class vehicle for officers of all seniorities and interests to publish their work. It was gratifying that interest in JNE and in providing articles continued to increase – a sure indication of a successful editor.

It may be not inappropriate to conclude this section of biography by quoting the printed entry that appeared in the JNE when I retired:

> He joined the Navy as a Special Entry cadet in September 1945, spending three weeks at Dartmouth (then evacuated to Eaton Hall in Cheshire), before going onto the first post-war training cruises in HMS *Frobisher* (which had reciprocating main circulating pumps). Engineering training at the RNEC at Keyham and Manadon lasted eleven terms, including two at sea in the battleship *Anson* and the destroyers *Cadiz* and *Dunkirk*. In 1950 he gained his engine room watchkeeping certificate in the four-shaft light cruiser HMS *Phoebe*, which returned home from the Mediterranean the following year with only three shafts after a close encounter with *Gambia*. A short spell in the battleship *Howe* and the two-year "dagger" Course at the RNC Greenwich, were followed by two years as the senior watchkeeper of HMS *Bermuda*. In the Mediterranean. Then came the first stint in Bath (1955-1957), in the future projects section. Back to sea again for the next two and a half years as the Flight Deck Engineer Officer of HMS *Albion*, then a fixed wing aircraft carrier operating mainly in the Far East. From 1960-61, he was at the Naval Marine Wing of the National Gas urbine Establishment at Pyestock. Back to sea for another two and a half years as the Senior Engineer of HMS *Lion*, principally in the Far East, and was promoted commander in 1964.

The next four years were at the RNC Greenwich, on the staff of the "dagger" courses and then as the Professor of Marine Engineering. Then to his final sea job (1968-70), as the MEO of HMS *Intrepid*, again in the Far East, with a boiler explosion contrived by a new method for which he was not court-martialled.

From 1971 he became firmly anchored at Bath, firstly in charge of the gas turbine section (1971-75), at the time when Olympus and Tyne engines first went to sea in the Type 21s and 42s. To retain his sanity during this period, he obtained a doctorate in the history of geology. There followed some years setting up and operating the Gas Turbine Allocating Authority, for the joint ownership and common repair of the gas turbines used in he Belgian, French, Netherlands and Royal Navies. He took up his appointment as Editor in 1983, when he retired from the Active List.

"RETIREMENT"

"Retirement" in my case can only mean the period when the Queen ceased to support me other than by a retirement pension. Nevertheless, my day continued to be occupied by (unpaid) research and writing. Work on the history of karst studies, already in progress, was continued and extended.

So I prefer to see the phase already adopted by most English-speaking Europeans – "in pension".

Details of the work carried out from 1993 are covered in forthcoming sections. Here I am concerned with the ways in which my way of life changed while "in pension". Some other miscellaneous information about my life then is provided in appendices.

I remained in the same house in the village of Shoscombe, but visits abroad no longer included those formerly to other NATO countries. However ones to central Europe, especially Slovenia, increased greatly. An apartment (stanovanje) in the Karst Research Institute there was made available whenever I was in Slovenia. The number of days spent there, before and after 1993, are given in Appendix I. For many years these included three month-long periods, sometimes only two. Recent covid restrictions have reduced them to none. The number of days spent in Slovenia overall is 2037. That is a total time of five years and eleven months or about 6¼% of my whole life at the time of writing.

EARLY CAVE VISITS

My life, spent largely in studying caves and the history of their investigation , must have started somewhere. Was it chance that led me in this direction or was there some identifiable cause? Certainly in its earlier years there was no direct inspiration from some other enthusiast, although such influence was important later. Entries in early diaries are the only evidence for that time.

The first non-commercial cave I came to was Pixies' Hole at Chudleigh, about 16 km south of Exeter. This was in 1943. The main

passages there, of no more than 130 m, were already quite commonly visited. From there, however, a climb up a spacious rift with an overhang over a jammed rock, led to a small higher passage with a tiny third entrance near the top of a high vertical cliff outside. Other passages went down from it to a lower level, one of them containing speleothems which are not present elsewhere in the cave. There was no evidence that this part had ever been entered before and it was not known to local people. I went there many times with fellow pupils from Exeter School and later with young naval officers from Plymouth. I published a description of the cave in a newspaper, *The Western Morning News*, on 8 June 1948 and also in *The Transactions of the Deveonshire Association* for 1949.

Certainly it was the cave itself that inspired my interest but that was because part of it was "new" – unexplored previously. Its attraction was similar to that of a new route up the side of a mountain: it just happened to be a cave. It was only later in life, when I know more caves, could compare them and became familiar with their phenomena, that they came to have a special attraction of their own.

Circumstances in England at that time were very different to those of today. With the exception of The Yorkshire Rambler's Club from 1892, the University of Bristol Spelaeological Society from 1919 and The Wessex Cave Club from 1934, there were no local clubs from which interest could spread. We were on our own and that in itself was an added attraction. As will be seen in the next section, it was only a very few years later that such a club was formed, quite independently, in Devon. It was based at Buckfastleigh, 20 km from Chudleigh and half way between Exeter and Plymouth. Those of us from Chudleigh joined it to explore, survey and publish the other caves of Devon. Inspiration and knowledge spread together and nourished each other.

DEVON SPELAEOLOGICAL SOCIETY AND BATS, 1947-1949

John Hooper (1916-2005) (Fig. 22) was a professional oil chemist, working with BP and living at Ashford in Middlesex. It was he who, in 1947, started seriously recording the Devon caves at Buckfastleigh. The surveys he made with compass and tape were reasonably accurate.

Knowing of his work, I had written to him on 12 May 1947 and he invited me to meet him at Whitsun. Before that, on 28 April, I had already seen Edgar Reed (1899?-1984), the leader of the local explorers, Wilfred Joint ("Squeak") (1919?-1994), John Woodward and other local people. It was Woodward who took me, on June 8, into Reed's Cave, discovered not long before.

These people, under Hooper's leadership, had formed the Devon Spelaeological Society in that year. It produced a small *Bulletin*, reproduced from typewriting,

Fig. 22: John Hooper at Pridhamsleigh, 8 Sept. 1948

Fig. 23: Trevor and Winifred at Dart Garage Cave, July 1949

in 1947-1948, and this continued as the *Newsletter* and then *Journal*.

The headquarters of the Society consisted of three rooms in a building in the yard behind Reed's grocery shop. One room contained rope ladders and other equipment and another was for changing and sleeping. The third room was used for report writing and the drawing of cave plans as well as for living and eating.

The principal caves at Buckfastleigh were Baker's Pit (1220 m) and Reed's Cave (666 m) both of them had been surveyed before I joined, and Pridhamsleigh Cave (916 m long) was still being done on June 21 with me present. John was also taking many high quality photographs in these caves. In later years all the other caves known in the region were explored and recorded by us.

While Hooper at first concentrated his work on the cave themselves, once they had all been explored, mapped and published, he and his wife Winifred (1911-2006) (Fig. 23) turned their attention to the bats that inhabited them.

Fig. 24: Winifred Hooper and Casteret's House, 24 Aug. 1919

These were mainly the Greater Horseshoe bats (*Rbinolophus ferrumequinum*) which at that time congregated in masses of up to 300 on the roofs of chambers in Baker's Pit cave. There were also Lesser Horseshoe bats (*Rhinolophus hipposideros*) and some Long-Eared Bats (*Plecotus auritus*), Natterer's bats (*Myotis nattererei*) and Daubenton's bats (*Myotis daubentoni*).

Their movements were recorded by attaching aluminium rings to their wings, numbered and labelled "LOND. ZOO", so that their finding again could be recorded.

It was found that bats did not hibernate throughout the winter, as had been thought, but would make night journeys of up to nearly 11 km even on frosty winter nights.

I assisted in this work for several years and in 1951 the three of us produced a paper in the prestigious international journal *Nature*.

It was in 1949 that I sent with Winifred to the Pyrenees (Fig. 24), meeting the distinguished French speleologist Norbert Casteret (1897-1987) and I remained in touch with him until his death.

THE BRITISH SPELEOLOGICAL ASSOCIATION 1951-1974

The British Speleological Association (BSA) had a strong influence on my future life. Not only did it introduce me to the Yorkshire Dales and to their physically demanding caves and potholes, but I got to know the creator of BSA, Eli Simpson (1884-1962) (Figs. 25, 26), very well.

Simpson, known as Cymmie, had first explored caves as a member of the Yorkshire Speleological Association (1907-1909) and continued to do so. Then in the 1930s he founded the British Speleological Association. He created it as a scientific society like those in mainland Europe. The founder members in 1937 included Sir Arthur Keith as the president and Lady Boyd Daurkins. It published the printed journal, *Caves and Caving*. A European tour for members to Germany, Czechoslovakia and Austria took place in 1937. Some of the

Fig. 25: Cymmie (Eli Simpson) 1884-1962

Fig. 26: Eli Simpson at Lancaster Hole, 18 Aug. 1948

European explorers of the time, such as Gustave Abel (1901-1988), remembered him with respect when they spoke.

World War II stopped all that and, when BSA was revived afterwards, it was much more of a regional club, working mostly in Yorkshire and Derbyshire. It still published, in *Cave Science*, to a wide international readership and it included much of my work on Gibraltar and Malta. For many years *Cave Science* was produced manually and I well remember assisting Simpson in Settle, laying out and stapling the pages.

Perhaps even more important for the future, was his role as the "Recorder" or archivist of BSA. He was also a historian, and cardboard box files contained not only published material but also reports, letters and photographs, many of them from the 19th century. There was material from all parts of the world. When he died, some of the books were stolen and reappeared in antiquarian booksellers' shops but most survived and are now properly and safely stored. I had the privilege of access to these archives in his lifetime and I certainly contributed to them myself.

So, it is due to Cymmie's influence that my collection has been built up for the future where it will be housed in the heart of the karst world at the Karst Research Institute in Postojna.

This leaves little space for what I actually did underground in Yorkshire with other members of BSA.

It was on 21 January 1948 that I had joined BSA and I later became an honorary member. This continued until the merger with the Cave Research Group took place in 1974. The Cave Research Group (CRG) was a more conventional learned society, also devoted to caves. The BSA was by then little more than a high quality caving club, but with magnificent archives. I was vice-president of BSA when the successful negotiations with the CRG took place. Thereafter the two were combined as the British Cave Research Association (BCRA).

The Yorkshire caves I visited with BSA were not original explorations. They included Bull Pot of the Witches (65 m deep), Gaping Gill (138 m), Lancaster Hole (77 m) and Lost Johns (154 m).

The more significant occasion was on 13-14 May 1951 when I joined the renowned "hard man" R.P. ("Bob") Leakey (1914-2013), Ken Pearce (1932-1992), as well as Frank Atkinson (1924-2014), Keith Braithwaite and John Williams and made the second visit to Pen-y-Ghent Pot (161 m). This was the Ken Pearce who later dived at the very bottom of the Gouffre Berger which was then the deepest cave in the world at 1123 m. All went well in Pen-y-Ghent Pot until on the return journey Williams, evidently suffering from exposure, let go the ladder and was left swinging on his lifeline. He was lowered to a shelf part way down the pitch where he remained with Leaking trying to keep him warm until he could be got out. By then he was dead.

GIBRALTAR AND MALTA

A naval career meant that I was very frequently in Gibraltar and Malta. Gibraltar, which I visited 14 times, was always the first stop on the way east, either just into the Mediterranean or to south-east Asia or Australia. Malta was the base for ships on the Mediterranean station, providing maintenance facilities and being where sailors could go ashore and relax. Both places had caves in their limestone.

Many officers brought their wives out to Malta and rented flats in Sliema where the ladies would remain when the ships were elsewhere. Those with wives living ashore were known as "natives".

My wife, Pat, was in Malta for part of 1953 and 1954. She was flown out by the RAF on 3 November, and eleven days after her arrival I was sent to Port Said in HMS *Bermuda* (Fig. 27), The Egyptians were getting restless and the Suez Canal needed protecting. The resulting bar to the Naval General Service Medal reads "Canal Zone".

The ship remained in Egypt over Christmas but the rest of our time in Malta was very pleasant.

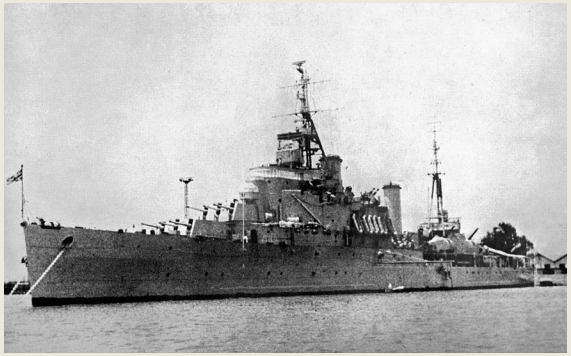


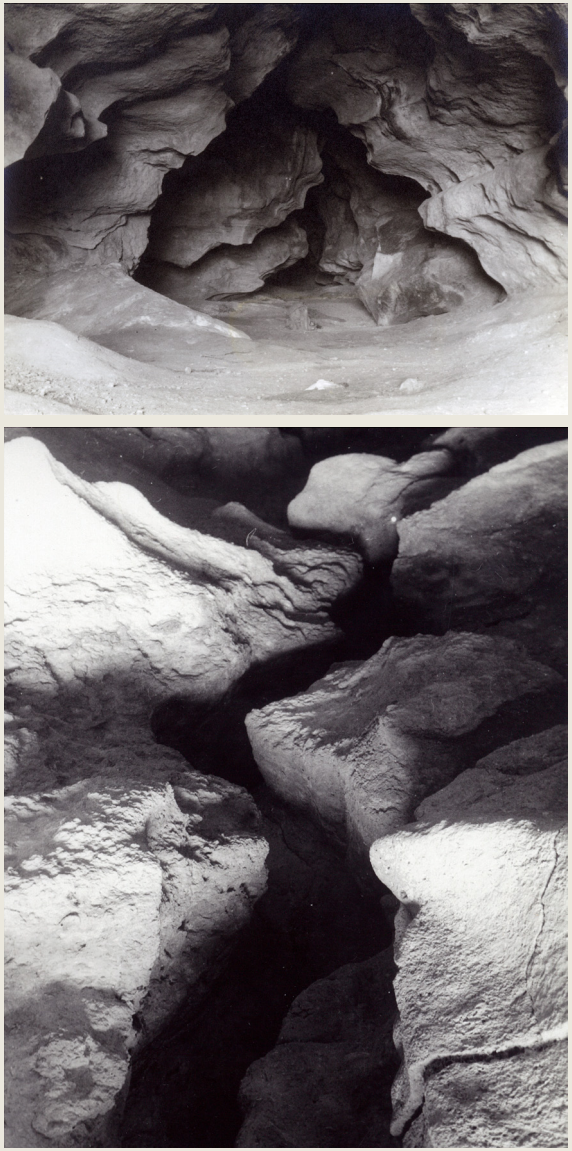
Fig. 27: HMS Bermuda at Port Said, 1954

The excellent bus service took us to most towns on the island and also to Gozo. We would then use the 2 inch Ordnance Survey maps for many good walks. Both then and in 1950, when I was there alone, I would explore, survey and photograph the caves and publish them (Figs. 28, 29). The caves were all quite small but the remains of prehistoric animal bones had led to extensive excavations in the 19th century.

So much for Malta where we lived together for nearly a year.

Gibraltar, consisting almost entirely of Lias limestone, had many more and larger caves, many of them explored in previous centuries. As a historian, I had examined these early reports and published them together with contemporary illustrations. Some of these earlier visits had been by sailors and others were made by the resident Royal Engineers.

Indeed it was the Royal Engineers who were responsible for finding many of the caves in the course of their tunnelling for military defence purposes.



Figs. 28: Malta, main entrance passage of Hassan's Cave

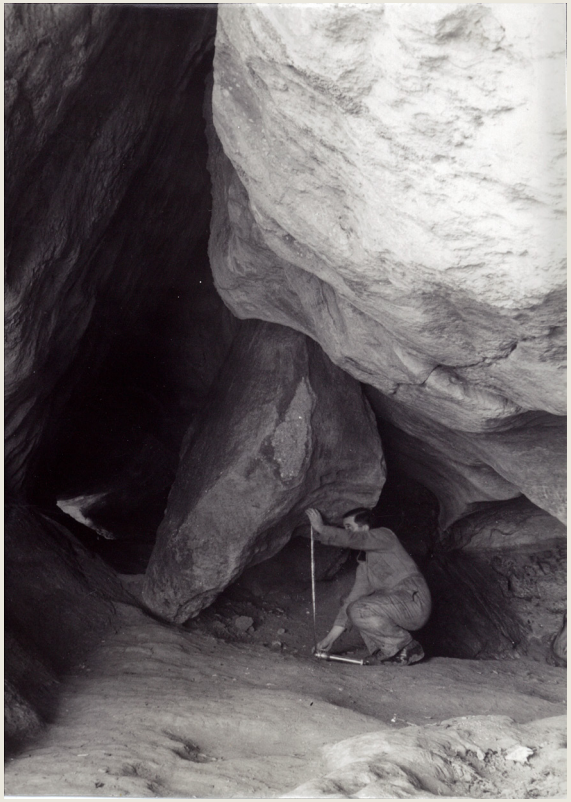


Fig. 29: Hassan's Cave., fallen boulder in main East Passage

St. Michael's Cave, now called Old St. Michael's Cave to distinguish it from the New St. Michael's Cave first entered by tunnelling in 1942, was mentioned in many travel books from 1583 onwards. These I

recorded and published, together with my own descriptions and the surveyed plans I made in 1953.

What I knew in the 1940s and 1950s as New St. Michael's Cave is now just called St. Michael's Cave (Fig. 30) because it is the one that is electrically lit and shown to visitors. As the caves are regarded as the "property" of the Army, modern reproductions of my survey are now sometimes credited to Lieut. T.R. Shaw RE instead of RN!

When Admiral Lord Louis Mountbatten, The C-in-C Mediterranean Fleet, expressed an interest in visiting (New) St. Michael's Cave it was inevitable that I was asked to show him round, I remember my worry when he walked on the narrow calcite ledges round the edge of the lake, lest he fall in.

I also went into the lesser-known Martin's Cave on the east side of the Rock and Ragged Staff Cave discovered during tunnelling in the south west.

The Royal Air Force cadet training college arranged for a party of flight cadets to fly out from England to explore and survey the St. Michael's Cave as an "officer training exercise". This took place over the New Year 1953-1954. Not unnaturally I, then doing the MSc course at the Royal Naval College, Greenwich, was asked to lead them. We thoroughly investigated both caves and had a New Year party at the Gibraltar RAF Mess.

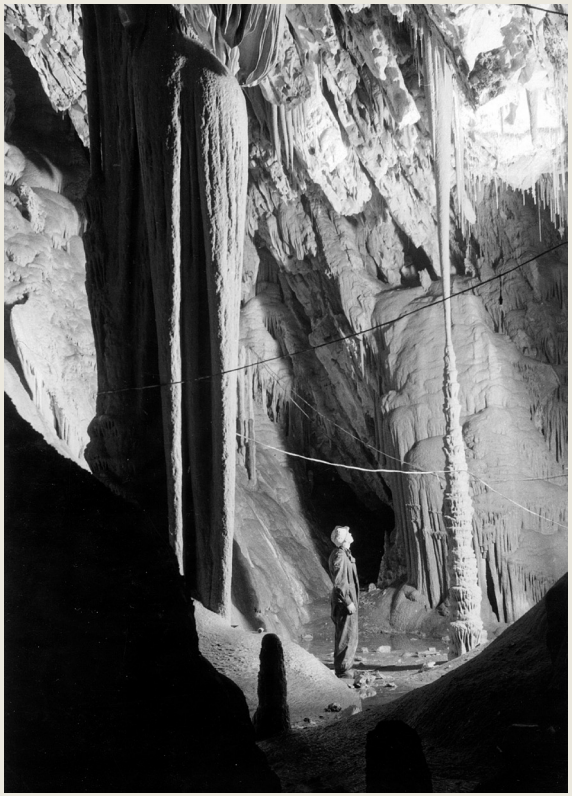


Fig. 30: St. Michael's Cave, Gibraltar, 2 Jan. 1953

Old St Michael's Cave had been visited by many travellers ever since 1771. I traced their descriptions and made them accessible again in print. Not only was it a "must see" for travellers, but the main hall was for many years used for ceremonial balls with bright lights and military music. These were the subject of many early illustrations.

THE UNIVERSITY OF BRISTOL SPELAEOLOGICAL SOCIETY

The University of Bristol Spelaeological Society (UBSS), founded in 1919 and internationally known for its studies on caves and archaeology, is primarily for staff and students of the University, but others may be invited to join.

In 1955 I had written an article in the Wessex Cave Club Journal on my exploration of the Nar el Kelb cave river in the Lebanon

Fig. 31: Prof. E.K. Tratman (left) and Professor Leo Palmer (right) at the UBSS New Year party in 1956 (photo G.D. Witts)

Fig. 32: The New Year Party in 1956

and this had caught the attention of Dr Oliver Lloyd, a senior member of the UBSS. On 10 September he took me to its excavations at an iron age camp on Little Solisbury Hill on the outskirts of Bath. Professor E.K. Tratman (1899-1978) (Fig. 31), president of UBSS, was in charge and I was introduced also to Dr Desmond Donovan of University College London, Struan Robertson (UBSS secretary). Andrée Rosenfeld (1934-2008), later to be an authority on cave paintings, and others. That dig lasted from 10 to 20 September and I was made a member of the Society. On 15 September I had supper in the UBSS hut on Mendip near Burrington. By 25 September I was typing library catalogue cards for the Society at its Bristol headquarters. I last saw Andrée Rosenfeld in 1985 when we had lunch together at the University in Canberra.

On 1 October I was digging with the students in GB gorge and then we went to their regular Mendip pub in the village of Rickford. Our close links started to be formed. On 11 October Professor Tratman ("Trat") came to dinner with us in Bath. On 13 October I attended the weekly Museum Night at the UBSS headquarters in Bristol. On 19 October Oliver Lloyd came to dinner and on 23 November we dined at his house. On 12 December there was dinner in Bristol with Trat and Prof. Bob Davies, a distinguished cave diver. On 31 December was my first of many UBSS New Year dinners at the Hut (Fig. 32). There were 15 of us there.

1956 was a continuation of the same, with regular Museum Nights and caving from Burrington. On 2 to 4 March I brought UBSS members to the Devon caves at Buckfastleigh. Andrée Rosenfeld and I are the only people who have been able to pass through the "impassable" squeeze between Reed's Cave and Baker's Pit. On 14 April I assisted Donovan surveying the drained underground storage tanks of the Roman Baths system in Bath. From 5 to 21 July there was a UBSS visit to caves in Co. Sligo and C. Fermanagh in Ireland. Then on 3 November I camped inside Pridhamsleigh Cave in Devon with Pat Tangye and Garry Witts of UBSS.

In the next year the UBSS Irish visit was to Co. Clare, staying at Ballynalacken Castle (Hotel). Then in 1958 I stayed with Tratman at his Primrose Cottage in Burrington. I was there again on 23-24 March 1961. On 4 May of the same year Oliver Lloyd celebrated his 50th birthday at Priddy: a sherry party on the village green followed by a birthday cake party in the Old Grotto in Swildon's Hole in period costumes and lit by candle light.

On 29 September 1966 Oliver Lloyd stayed overnight with me at the Royal Naval College Greenwich. In 1968 Tratman did the same from 13 to 15 March, and on 17-19 May I stayed at his house in Burrington. I started to write the history of UBSS, a first draft of 81 pages. I found writing this very difficult, having to keep so many threads in my mind at the same time. This experience and the confidence it produced meant that I never had this trouble again. At about the same time (27 March) I discussed with Donovan the possibility of doing a PhD.

I was editor of the UBSS Proceedings from vol. 17 no. 2 for 1985 to vol. 18 no. 3 for 1989.

THE FAR EAST AND AUSTRALIA

The karst of Australia was visited on two occasions – in 1959 when I was in HMS *Albion* and in 1985 at the invitation of Elery Hamilton-Smith who arranged the whole schedule. Sarawak, in Borneo, was the subject of a nine-day stay in 1970, having flown from Singapore to Kuching.

The ship was at Hobart in Tasmania from 6 to 11 February 1959. Almost as soon as we arrived the president of the Tasmanian Caverneering Club (Douglas Turner) came on board with Frank Brown and Riende Vries, the secretary. They stayed to plan the forthcoming weekend. On the next day we went to Hastings, staying at the cavers' hut with its 87°F thermal pool, given to them by the Forestry Commission. We went beyond the tourist part of Newdegate Cave and also to Ida Bay Entrance Cave with it luminous glow-worms. The return journey down hill from there was on a flat-top trolley with no brakes, running on rails at high speed.

The next 1959 stop was at Sydney Harbour from 13 to 23 February where Noel Fraser, who had visited us in England, came on board. I also had a fruitful visit to the national Mitchell Library and to antiquarian booksellers where I bought 19th century photographs of Jenolan Caves.

I attended the Annual General Meeting of the Sydney University Speleological Society and afterwards they took me to Jenolan (Fig. 33) overnight in a magnificent 1928 Buick car. We set up our camp on the old playing fields where the first Test Match with England had been played. Someone bought a 33 pound water melon. We were at the various caves at Jenolan from 20 to 22 February. They told me afterwards that they showed me so much that they had to take it in turns to accompany me. From 3 to 8 March I was in Melbourne, meeting Elery Hamilton-Smith for the first time. I learned too that the Mines Department still had for sale copies of their early publications, new in the publisher's half calf bindings. Naturally I bought all the relevant volumes.

Fig. 33: The buildings at Jenolan Caves

The 1970 visit to one of the karst areas of Borneo took place from 31 October to 8 November. Its purpose was for me to familiarise myself with the rather small limestone caves in which the animal skulls found in the 1870s and 1880s provided evidence for discussions on the origin of man – the "missing link".

More importantly, it enabled me to examine and copy archives in the museum in Kuching. These included letters of the Rajah Brooke and A.H. Everett, as well as articles in *The Sarawak Gazette* and *The Sarawak Museum Journal*. I was allowed free access to the museum even when it was closed and I well remember, when I used to return there after dinner, having to step over the sleeping Indian guard.

Jean and I were in Australia together from 2 to 22 November 1985. The whole schedule – Sydney, Wellington, Katoomba, Wombeyan, Jenolan, Canberra, Yarrangobilly, Buchan and Melbourne – was arranged by Elery Hamilton-Smith.

Met at Sydney airport by Ross Ellis, we stayed with him overnight, sleeping in his garage, and then on to Taronga Zoo with its views of Sydney Harbour. We hired a car for the drive as far as Canberra where Elery met us and we went on for the rest of the journey with him.

Our route took us via the koala park, Katoomba and Dubbo, staying there with Steve Opper and his wombat Harry who liked my beard. Then Western Plains Zoo and Abercrombie caves where we stayed at the Caves Hotel. We were at Jenolan Caves for five days, meeting many people and seeing many caves. The JCHAPS[1] seminar on Australian cave history was held there and I had to give the opening paper. Then to Wombeyan cave where a wombat was warming his paws on an electric light by the entrance.

At Canberra Elery joined us and I returned the car. I met again Andrée Rosenfeld, formerly of Bristol, and had lunch with her on a lawn in the University ground.

We went on, in Elery's van, to Yarrangobilly where we stayed in the otherwise closed old Caves Hotel. Kangaroos were all round us. Next day we had a long drive across the Snowy Mountains to Buchan, visiting Royal Cave, and on to Bairnsdale in the south.

---

[1] JCHAPS: Jenolan Caves Historical and Preservation Society

For the next three days we stayed with Elery at his house in Canberra. Many Australian cavers were there too. From there we went on to Naracoorte and its caves, Alexandra, Blanche, Engelbrecht, Tantanoola, etc. On the very next day (22 November) we flew to London via Sydney, Singapore and Bahrain.

RESEARCH FOR DOCTORATES

There has necessarily been some historical information evident in previous sections. As time drew on I became increasingly interested in this aspect and it became clear that previously there had been little or no study of cave and karst history as a whole. History of individual caves or regions, yes: but of karst history as a whole, no.

Scope for studying something that has never been studied before is always fascinating, and I found that almost unconsciously I was starting to do just that. I did it because I was curious and wanted to. As a professional engineer in the Royal Navy, with engineering research and development as well as time at sea, I had no professional or academic target to aim for. It did, however, result in a PhD and a DSc.

It was while I was professor of marine engineering at the Royal Naval College at Greenwich in the 1960s that the professor English there said to me "Trevor, you are doing all this original historical research: why don't you get it recognised by registering as a PhD student?" So, having discussed it briefly with Professor Donovan of University College in the University of London, I decided to do just that.

One of the geologists at the University of Leicester (Trevor Ford) studied caves himself, though not from a historical point of view. So he recommended that the university should take me on. He was a pleasant enough fellow but there was little he could do to help. The subject was not his and I already knew my sources. More important, my own experience had taught me how to write.

I was able to follow my leads in the libraries of the British Museum (later the British Library), the Natural History Museum, the Geological Society (of which I became a fellow) and University College London, as well as archives in UK, France, Germany, Austria, Italy and Slovenia (then part of Jugoslavia). Sources in USA were mostly too recent to be of help.

As the research was going on at the same time as my professional work in the Royal Navy, four years elapsed between registering as a PhD student and having my thesis accepted in 1975. Dr Marjorie Sweeting of Oxford was my principal external examiner and apparently thought quite highly of my work. I had, in the normal way, submitted relevant published work as well as the thesis which itself was later published as a book (two editions).

It was first printed in Wales by Anne Oldham in 1979, using the cyclostyle process. One hundred and fifty copies were produced and they reached many parts of

the world. One of them attracted the attention of Greg Middleton in Australia and he created a much improved second edition in 1992, published by the Sydney Speleological Society. The distinguished Austrian professor Hubert Trimmel, President of the International Union of Speleology, wrote a foreword. His assessment of the book and his kind remarks encouraged me to continue and extend my studies on the historical aspects of cave study, leading to a further nine books on the subject, all published by the Slovene Academy of Sciences and Arts in Ljubljana.

Twenty-seven years later, in 2004, I submitted several boxes of publications made since the PhD and was awarded a senior doctorate as Doctor of Science by the same university.

EUROPEAN LINKS

Most of these last paragraphs have been concerned with happenings in the UK. Increasingly, though, there has been interaction with organizations and activities in Europe. These, leading right up to the present, will be the subject of a later section. Before that, though, comes mention of written sources.

Books manuscripts, papers, drawings and photographs, plans, etc. are the source of all history. Many of these, of course, I had become aware of in the libraries already mentioned, but at the same time they were being supplemented by material I acquired myself. This included unpublished notebooks, early postcard images, plans and 19th century photographs. Some of these were purchased and others came from colleagues with similar interests. The result has been an extensive collection of such items and of relevant books and other publications, all of which will go to the library of the Karst Institute in Postojna, in accordance with my will. Some items have been transferred there already.

Links with other European institutions have also been invaluable for exchange of information and mutual inspiration. My introduction to this was in 1979 at Wien where a Symposium on the History of Cave Studies was held. Then, inspired by Dénes Balázs of Hungary in the year 1992, there came the first of a long series of ALCADI meetings (Figs. 34-35). The name ALCADI comes from the initial letters of the words Alps, Carpathians and Dinarids, and the area was much the same as that of the former

Fig. 34: Near Rakoczi Cave entrance. Karl Mais & Trevor Shaw. 21 May 1992

Fig. 35: At viewpoint near Szeleta. 22 May 1992

Austro-Hungarian Empire. These meetings were held successively in Budapest (1992 and 2006), Austria (1994 and 2008), Postojna (1996), Slovakia (1998), Zadar (2000), Gorizia (2002) and the Czech Republic (2004). I participated in all of these.

POSTOJNA

Clearly, Slovenia has been a most important part of my life, as I have spent a total of three years living there. I have been an important part of Slovenia's life too, having had ten books on aspects of that country printed by the Založba ZRC (publisher) of ZRC SAZU, Research Centre of the Slovenian Academy of Sciences and Arts. In 1998 I was made a Slovene citizen by invitation.

My interest in the region has been because of the extent of its limestone karst country and it has been the main subject of my historical research over the years. From the 17th century travellers (and these were many, as the place is on the principal route from central Europe to the Mediterranean) have described its unusual terrain.

It was in 1973 that I paid a one-day holiday visit from Opatija to the cave at Postojna. This was followed in August and early September 1974 by more day visits to Slovene caves. On August 25 I visited the cave of Dimnice which was then partly illuminated by newly installed electric lighting and partly by carbide light. My first visits to the Karst Research Institute were on 27 and 30 August and several caves were seen in the next few days.

It was in 1976 that the first serious stay at Postojna occurred. For two weeks I lived at the Proteus hutment site and this enabled me to get to know the people at the Karst Research Institute in the main square of the town, especially Peter Habič who was the director and also Andrej Mihevc and Franjo Drole. In later years my accommodation at the (old) Hotel Kras (1996 to 2000) was subsidised and, after the restoration of the Institute building was finished in 2000 (Fig. 36) I was always allocated the stanovanje (a 3-room apartment) on the lower ground floor. At the same time I was made a member of the Institute staff and given my own room for research.


Fig. 36: Karst Research Institute, Postojna

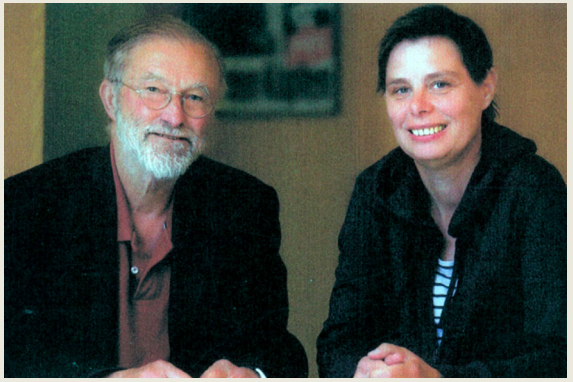


Fig. 37: Trevor and Alenka

From then on, for between one and three times each year (except 2020 and later), I was always in the Institute for a month at a time. Ever since 1990 I have been working closely with Alenka Čuk (Fig. 37) the historian in Notranjski Muzej. She was the joint author of four of my books. More researchers joined the Institute. Some were there as PhD students, of whom many later became full members of staff. I, and my wife Jean, got to know them all very well, together with their children and in some cases their parents too. Petra Gostinčar allows me to call her children (Vesna and Živa) my honorary great grandchildren. I was allowed to use the Institute cars until I reached the age of 90.

In later years my publications were mainly books, but before that I produced many papers in *Acta Carsologica*, the journal published by the Institute. It was as a member of the Institute that I attended the ALCADI meetings elsewhere in Europe.

The World Heritage site of Škocjanske jame was my second home with very close personal relationships but no accommodation.

Back now to more detailed accounts of my work year by year. After blank years in 1977 and 1978, real activity started in 1979.

In September of that year I attended my first international speleological meeting, a symposium on the history of speleology held in Wien. My contributions were on the history of the Cerknica lake 1551 to 1781 and a biographical study of Adolf Schmidl (1802-1863).

My activities from then on were inseparable from the happenings in central

Europe. These occurred in the karst regions there. Besides the Karst Research Institute in Postojna and the Landesverein für Höhlenkunde in Wien, there are the Czech Speleological Society, the Hungarian Karst and Cave group, the Slovak Museum of Nature Protection and Speleology, the Željezničar Club in Zagreb, the Società delle Giulie Commissione Grotte in Trieste and the Circolo e Idrologico Friulano in Udine.

The members of those institutes know each other and attend each other's meetings. Each organisation publishes each its own scientific journal and I have contributed to these, as well of course to *Acta Carsologica* in Postojna.

These links are further strengthened by annual meetings of the International Karst School held at Postojna, as well as ALCADI meetings held every other year in the region of the Alps, Carpathians and Dinarids.

Subsequent pages cover the other work I have done in this region and elsewhere. To record it all would be tedious and unnecessary, so I record only special occasions, notable visitors, etc.

In 1981 there were visits on naval business to Toronto, Ottawa and Washington in April, followed by a NATO meeting in Belgium where I took the occasion to see caves at Han, Rochefort and Remouchamps.

The first of the ALCADI meetings was in May 1992 in Budapest. 19 people from 6 countries were registered and a total of 37, including local people, attended. Notable were Kinga Szekely and Katalin, also Tamas Hazslinszky and Nora Fleck. All the lectures were held at the Szemlöhegy cave. Then buses took us to Josvafő for two days and nights. There we visited the great Baradla cave and the newly discovered Rákoczi cave (Fig. 34). Then, further east near Miskolc, we saw travertine caves including the Tapolca thermal lake cave in which we swam. There was an open-air goulash party (soup with meat and potatoes in it, served in an enormous iron tureen). The idea of having such meetings devoted to the history of karst studies was that of Dénes Barlazs, a geographer and African explorer, which it was why it was held in his home town of Budapest. He did not have long to live so he gave us all signed slips of paper to paste in his book which had not yet appeared.

In 1994 I was involved in 3 international occasions – 2 presentations in Prague, an ALCADI meeting in Semriach (Austria) and a Karst symposium at Liptovski Mikulaš in Slovakia.

I was in Prague in April, going first to the HQ of the Academy of Sciences where I undertook to write a biographical article on Adolf Schmidl (1802-1863) for their publication Vesmir. Next day, at the HQ of the Czech Speleological Society, I was presented by its president with the Petrbok medal in silver for services to speleology. There followed an excursion in the karst with a visit to the cave Koněpruský jeskyne. On 26 April there were interviews by a German television crew, one of them on Martel. This one was to be shown on German and French television.

The ALCADI meeting on May 4-8 was similar in style to the one of 1992 but took place at Semriach. The excursions were to the Drachenhöhle at Mixmitz and Lurgrotte

at Semriach, where the early female cave explorer, Poldi Fuhrich, had died in 1926.

The symposium at Liptosky Mikulaš was only 4 days long. The first day, 5 October, was occupied entirely by the Demänovska dolina excursion. The lectures and discussions were held at the Museum of Nature Protection and Cave Study, director Marcel Lalkovič. The two main caves, Demänoska Slobody and Demänoska Mieru, are connected but shown as 2 tourist caves. The Mayor's reception was, in fact a very good dinner at which I sat next to Vladimir Panos.

There were three periods in or near Slovenia in 1995.

In March we drove right across northern Italy to Montovini, somewhere west of Cremona, for a Symposium on Environmental Measurement in show caves. 13 nations were present and we visited the Grotta di Bossea. A special lunch was provided at a luxurious mountain hut reached by ski lift at the summit of Monte Morro (1739 m).

In November I spoke on Foreign Travellers in Slovenia in the 17th to 19th centuries. This was at a SAZU conference in Ljubljana on Multicusturism in Central Europe in Historical Perspective.

As always on these periods in Slovenia there was field work in the Karst.

At my visit to Postojna in 1996 the Postojna Institute was temporarily housed in an old school in Planina while our normal building in Tito trg was repaired and extended to have a new top floor. As I lived in Hotel Kras, Franjo Drole collected me with the mail from the post office.

This year's ALCADI meeting was held in Postojna.

Ana Kogovšek, daughter of our Janja, spent a week with us in England.

In September, inspired by Oto Luthar, director of all the SAZU institutes, a "sports day" for all of them was held at Šobec on the Dolinska branch of the Sava river. 33 attended in all, 11½ of them from the Karst Institute (the ½ is the young daughter of Tadej Slabe, the head of the Institute).

Honorary membership of ZRC is given to one person each year. On January 17, 1997 it was announced as me at Cankarjeva dom in Ljubljana by the actor Janez Škof who came on to the stage on a pair of stilts. The Plečnik Medal was awarded to me also.

On 16 to 18 October, also in 1997, a Martel colloque was held in the Lozère town of Mende to commemorate his visit there. The associated excursion was to the Causses of Sauveterre, Méjean and Noir with a visit to the Grotte de Dargilan.

In 1998 the Institute was still evacuated to the old school building in Planina and I shared a big room with Stanka Šebela and Metka Petrič. The 180th anniversary of Postojnska jama being opened to the public was celebrated with a special cave tour with music and folk dancing as well as an open-air lunch at Pivka jama.

In 1999 I was researching and writing for the 1st edition of *Foreign Travellers in the Slovene Karst*, to be published next year. In Račiska pecina I photographed the 2½ m long fallen stalagmite cut in readiness for use as a monument but never removed.

By now I was already being assisted by Christine Ballinger who has prepared the texts of all my publications since then.

The 7th Karstological School was held in Hotel Jama.

In January 2000 the Karst Institute returned to its old building in Tito trg and I soon started to live in its renovated stanovanje (apartment) as well as my having my own office on the 2nd floor. This was one of the few times I was in Postojna in winter, with temperature falling to -13°.

My book on *Foreign Travellers in the Slovene Karst* was accepted in May by Vojo Likar, the SAZU publisher in Ljubljana, and it was published later in the year.

The ALCADI meeting was held at Zadar in May and the 8th Karstological School at the Institute in June.

Hotel Kras was closed for renovation for a period in May but I was given a key to remain living there and I cooked in the Institute kitchen.

Elery Hamilton-Smith, the Australian speleologist, was with us for 3 weeks as my guest.

In November I arranged with Prof. John Gunn to write 30 entries for his *Encyclopaedia of Caves and Karst Science*.

The Karstological School of 2001 was on June 27-29 and had many foreign students attending who remained for a while afterwards. One Czech and two Romanian students slept on the tiled floor outside my stanovanje, using my kitchen and bathroom. So did three Polish PhD students including Violetta Krzaczek who remained until 5 July. She returned several times in subsequent years and we got to know each other well, both here and in England as we shall see.

On December 11 and 12 President Kučan, President of Slovenia, was in London and I was involved in his programme. There was a reception for him in the town hall of Woolwich (a town twinned with Maribor) and then a dinner in the Royal Artillery mess, also in Woolwich. I arranged to stay there over night and had breakfast there, just as we used to accommodate distinguished visitors after events at Greenwich.

There was little of note in 2002. Even in England the winter was cold: -7° in Bristol in January. The 10th Karstological School was held in Postojna and ALCADI 2002 took place in Gorizia. I was awarded honorary membership of the National Speleological Society of USA.

In 2003 the 11th Karstological School resulted in even more attending students sleeping on the tiled floor outside my stanovanje: 6 Czechs, 3 Slovenes and 2 Estonians. In October I spent almost an entire day in Postojnska jama with the head guide Stanislav Glažar identifying the present-day names of places recorded in other languages in earlier years.

The 2004 Karstological School, the 12th, had as its theme the dating of sediments and speleothems. It was held in Postojna on 21 to 24 June. I noted cave bear scratches on a wall in Račiška pečina.

There were 3 spells in Slovenia during 2005. In April I noted bear prints in the snow near the Koča on Nanos. The Karstological School in June was attended by Patrick Boylan from UK as well as Hubert Trimmel from Wien. An excursion to the limestone hill of Udin Borst near the Alps suffered extremely heavy thunder rain. I well remember the scene when some 6 groups of 8 or 10 people each huddled under umbrellas. There

was room only for the heads under shelter: all the rest was exposed! A brave Italian took a photograph but I did not get a copy.

In September Alenka Čuk and I did another television programme: this time for half an hour.

There is little to report for 2006. In April I hosted Bendt Kleibhan from Germany and then in June Elery Hamilton-Smith paid us another visit from Australia. Then on 6 July 9 of us combined our birthdays to make one large one at the forestry house that Šutko (Leon Drame) rents at Vrh Korene beyond Jurišče, north-east of Palcje. It started at noon and ended at about 1600.

The annual Karst School again had some students from Estonia.

In 2007 the usual Karstological School took place in September of that year. Karsten Plewnia, a German PhD student, visited with his parents and we took them into the field. In December the Slovene ambassador in London, Iztok Mirošič, started to plan next year's Valvasor exhibition in London.

On April 23 to 24, 2008, a special exhibition was held at the Royal Society in London to celebrate Valvasor having been one of its earliest fellows in the 17th century. Lord Rees (President of the Royal Society), Iztok Mirošič and I all spoke.

The 17th International Karst School took place in 2009 and I also located the sites of early drawings made in the Vilenica cave.

In 2010 the President of Slovenia presented volumes of Valvasor's drawings to the Royal Society to celebrate its 350th anniversary. On 14 May the 5th generation descendants of Luka Čeč, (Julie and Bascanini), visited the Institute. The missing photographs taken in Postojnska jama in the 1860s and found in Kranjc's personal files, were returned to Notranjski muzej.

The 19th to 26th International Karst Schools were held in Postojna in the years 2011 to 2018.

Appendix I
Days Spent in Slovenia

1973	2	**1985**	-	**1997**	32	**2009**	90
1974	10	**1986**	-	**1998**	60	**2010**	90
1975	-	**1987**	-	**1999**	72	**2011**	77
1976	15	**1988**	14	**2000**	112	**2012**	76
1977	-	**1989**	-	**2001**	115	**2013**	74
1978	-	**1990**	9	**2002**	76	**2014**	89
1979	-	**1991**	14	**2003**	75	**2015**	88
1980	-	**1992**	15	**2004**	100	**2016**	90
1981	-	**1993**	16	**2005**	81	**2017**	60
1982	-	**1994**	14	**2006**	90	**2018**	90
1983	-	**1995**	33	**2007**	90	**2019**	60
1984	-	**1996**	21	**2008**	64	**2020**	-

Appendix II
Books Published

PhD thesis, "A history of the scientific investigation of limestone caves to 1900" was first published under that title in 1979 with a 2nd revised, edition, *History of Cave Science, the exploration and study of limestone caves to 1900*, published in Sydney, Australia in 1992.

Foreign Travellers in the Slovene Karst 1537-1900, Ljubljana 2000, (with Alenka Čuk)

Royal and other Noble Visitors to Postojnska jama 1819-1945. Postojna 2002

Names from the Past in Postojnska Jama (Postojna Cave). Ljubljana 2006

Foreign Travellers in the Slovene Karst 1486-1900. Ljubljana 2008

Aspects of the History of Slovene Karst 1545-2008. Ljubljana 2010, (with Alenka Čuk)

Slovene Caves & Karst Pictured 1545-1914. Ljubljana 2012, (with Alenka Čuk)

Slovene Karst and Caves in the past. Ljubljana 2015, (with Alenka Čuk)

Slovenski Kras in Jame v Preteklosti. Ljubljana 2015

Škocjanske jame 1920-1940. Ljubljana 2018

Appendix III
Relevant Awards

1992 Appointed Honorary Research Fellow at the Karst Research Institute, Postojna

1994 Appointed member of the editorial board of *Acta Carsologica*

1994 Awarded the Memorial Medal of Jarsolav Petrbok (in silver) by the Česka Speleologická Společnost "for his achievements in Speleohistroical researches"

1995 Appointed reviser of English language texts for *Acta Carsologica* and for books written by researchers of the Karst Research Institute

1997 Awarded Honorary Membership of the Scientific Research Centre of the Slovene Academy of Sciences and Arts. (Only one is awarded each year; the others include the President of the Slovene Academy of Sciences and Arts)

1997 Biographical entry appeared in Enciklopedioja Slovenije

1998 Elected Fellow of the Linnean Society of London

1998 Made a citizen of Slovenia on the special recommendation of the Director of Scientific Research Centre of the Slovene Academy of Sciences and Arts

1998 Elected Honorary Member of the British Cave Research Association

1999 Appointed to the Editorial Board for the Proceedings of ALCADI 2000 history of karstology symposium held at Zadar

2000 Appointed to Editorial Advisory Board of *Encyclopaedia of Caves and Karst Science*

2001 Appointed to Scientific Committee of ALCADI 2002, held in Gorizia (Italy)

2002 Awarded Honorary Membership of the National Speleological Society of America. (only one is awarded each year)

2004 DSc (a senior doctorate of the University of Leicester) awarded for published work on karst

2004 Awarded Honorary Membership of the William Pengelly Cave Studies Trust

2007 Awarded Honorary Membership of the Wessex Cave Club

2008 → Member of the Organizing and Scientific Committee of the International Karstological Schools

2009 Appointed to the organizing committee of the future International Karstological Academy