

Otago and Southland regions of New Zealand led to a life-long love of hiking, characteristically in some of the more remote areas of the globe. In 1954 he hiked in Northern Malaysia and Southern Thailand, and in later years spent much time in thoroughly investigating the islands of the Lesser Antilles in conjunction with his geological studies. His love of nature began at his own door. His intense interest in gardening is mirrored in the beautiful surroundings of his home, achieved entirely without professional assistance. When the garden did not claim his efforts, he and May relaxed in the enjoyment of music, particularly that of the 17th and 18th centuries. Following a visit to Fiji, he developed a strong interest in the life, history, and art of the Polynesians, with particular reference to New Zealand, the Chatham Islands, the eastern part of the Fiji Archipelago, and the Cook Islands. In his usual fashion, he developed this interest into a knowledge little short of authoritative.

In all aspects of his life and work, Colin was marked by a strong sense of responsibility and by the most careful attention to detail. He was devoted to his students; although his illness had begun in early summer and was advanced by the time Autumn

Quarter began, he insisted on teaching a regular schedule which must have taxed his physical strength enormously. There was no way to deter his indomitable will or to prevent his discharging what he regarded as an obligation to his students and to the University.

Colin Hutton married May Piggot in 1940 upon his return to New Zealand from Cambridge. To be invited for tea with Colin and May at their beautiful home was considered a special treat by his students, looked forward to by all. To quote May Hutton: "I consider Colin's role as a husband surpassed all his other achievements; to have shared his successful, happy marriage of 31 years was indeed a privilege". Survived by his wife, May, and a sister, Mrs. Tui Todd of New Zealand, Colin Osborne Hutton will be missed not only by them, but by students, faculty members and fellow scientists.

We would like to thank our colleagues at Stanford University and the U.S. Geological Survey, Menlo Park, and particularly Professor D. S. Coombs, University of Otago, and D. W. A. Waters, New Zealand Geological Survey, for their assistance in the preparation of the memorial.

American Mineralogist, Volume 58, pages 372-375, 1973

Memorial of Arthur William Gerald Kingsbury June 27, 1906—August 3, 1968

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At the time of his sudden death on August 3, 1968, Arthur Kingsbury was the leading authority on British minerals. For several months, through the kindness of Professor E. A. Vincent of Oxford University, he had been spending two or three days a week in the British Museum (Natural History) annotating and putting in order the mineral collection of his old friend Sir Arthur Russell—a task which only he had the extensive knowledge and experience to perform. The distinction between the amateur and the professional mineralogist crops up as a subject for heated dispute from time to time, and Arthur Kings-

bury was one of the few who have managed to bridge the uneasy gap by being both.

He was born on June 27, 1906, at East Meon, Hampshire, the eldest son of Gerald Kingsbury. He received a classical education at Bradfield College, Berkshire, and amongst other activities played the part of Eurydice in a performance of *Antigone* in 1922. His headmaster, recognizing his gifts, was unsuccessful in persuading his parents to send Arthur to university, and to his lasting regret he was articled to a London firm of lawyers. In 1929 he took his final examinations and practised as a solicitor (at-



torney) in the West Country, first at Sherborne and later at Crewkerne. Several members of the family had been interested in natural history; on his mother's side were keen ornithologists, who encouraged his powers of observation, and on his father's side a collection of minerals had been started by his great-grandfather Thomas Kingsbury (1777-1854) who frequently travelled to Cornwall. His grandfather, William Joseph Kingsbury, was a civil engineer of some standing who was awarded the Telford Medal for his work on a section of the London docks, and who added to the mineral collection.

Kingsbury became actively interested in minerals in 1927, and the move to the West Country made field collecting much easier, with Cornwall and Devon much closer and the Mendip Hills almost on the doorstep. Work on the Mendips led to his meeting Dr. L. J. Spencer, who had published on Mendip minerals in 1899 and 1923, and later Mr. Arthur Russell with whom he maintained a firm friendship until the latter's death in 1964. Spencer's active encourage-

ment caused Kingsbury to examine in detail an area some 12 miles by 30 miles, and the results were published in 1941. Perhaps the most interesting part of this work was the rediscovery of pyromorphite in 1936, at a locality lost since its mention by John Woodward in 1728; many years later, Arthur Kingsbury told me that he had dreamt the details of the discovery, at a place he had not yet visited, some days before the fact. He had hopes that this work might help him to get a job in the Mineral Department of the Natural History Museum, but the war intervened and he moved from the West Country to become managing director of a small engineering works in Slough that produced precision tools for the aircraft industry. Despite his ability in this work he was unsuited by inclination and temperament to an industrial life, and gave it up in 1946.

In 1947 Mr. R. C. Spiller, Reader in Mineralogy at Oxford, was seeking a research assistant to work on the collection of minerals in the University Museum, and Kingsbury's wide knowledge coupled with Russell's recommendation gained Kingsbury the job. It was at this time, in my freshman year, that I first met him and became infected by his enthusiastic interest in everything connected with specimen mineralogy. To accompany him on a field trip in the Lake District of Cumberland, or in Cornwall, was both a delight and a source of dismay; it was fortunate that the warmth of his friendly company more than compensated the keen disappointment of finding out at the end of a hard day's collecting that one had got nothing but rubbish in comparison with the specimens spotted by his eagle eye!

Arthur Kingsbury's contribution to mineralogy lay not in detailed instrumental examination of minerals in the laboratory, for which his full-time employment in the science had come too late in life, but in his meticulous eye for paragenetic detail aided by an uncanny accuracy of 'eyeball' identification. The mineralogy of Britain has been studied for over two centuries, and it is no mean tribute to his skills that he was able to add more than 50 species to the long list of those known from the country. Many of these were never published but are represented by specimens generously presented to the National Collection; others, including argentojarosite, cinnabar, and bismutoferrite, are mentioned as exhibits in the *Proceedings of the Mineralogical Society*. It is instructive to note some aspects of his method of working, even though the majority of us possess neither the patience nor the accurate memory needed to put

it into operation. First, acquire an intimate acquaintance with mineral specimens from as wide a range of localities and associations as possible, paying particular attention to the color and habit variations not only of the species in question but also of all the associated species and the matrix. Next, and in parallel with the first study, read as widely as possible about the species and their associations in the literature; Professor Ivan Kostov has remarked to me that this sort of detail is all too commonly omitted from papers, either as a matter of editorial policy or because the authors do not think it necessary. Comparison of associations of minerals between a new locality and a described one will often lead to the discovery of unsuspected species at one or the other; rhodizite has been noted in association with lepidolite and rubellite, and this knowledge led Kingsbury to find it as minute crystals at the Meldon pegmatite, Devon. Perhaps the third point to note is that a field trip is not the time to attempt detailed examinations, so collect as much as possible for leisurely study—and remember that even yellow ochre just may turn out to be argentojarosite!

A Fellow of the Geological Society of London, Kingsbury was awarded the Bolitho medal of the Royal Geological Society of Cornwall in 1957 in recognition of his contributions to Cornish mineralogy. He was elected a fellow of the Mineralogical Society of America in 1960. He became an M.A. by decree of Oxford University in 1968, and a senior member of Wolfson College. In earlier years he was a keen photographer, and many of his bird studies were published in popular periodicals. He was interested in music, and his competent performance on the guitar gave pleasure to those who were on the field excursion to Cornwall and Devon which he and Sir Arthur Russell led for the International Geological Congress in 1948. More recently, he led the field excursion to the south-west of England for the Cambridge meeting of the International Mineralogical Association in 1966. In later years he became one of Oxford's best-known wine tasters, and his advice was valued in the purchase of wines for some of the Oxford cellars; the portrait with this memorial was taken at a tasting session.

The mineral arthurite was named in joint honor of Arthur Kingsbury and Sir Arthur Russell.

In 1941 he married the youngest daughter of Colonel and the Hon. Mrs. B. R. James, Philippa Margaret, who with their children Martin and Lucilla survives him. It is thanks to their kindness that

the British Museum (Natural History) has acquired his mineral collection together with his manuscript notes and an invaluable set of annotated maps. His loss, at the early age of 62, is still keenly felt by his friends and colleagues.

Publications of Arthur W. G. Kingsbury

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- (1957) Rockbridgeite from Cornwall and Devon. *Mineral. Mag.* **31**, 429.
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- (1965) Tellurbismuth and meneghinite, two minerals new to Britain. *Mineral. Mag.* **35**, 424.
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American Mineralogist, Volume 58, pages 375-377, 1973

Memorial of Maharajapuram Sitaram Krishnan

August 24, 1898—April 24, 1970

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Dr. Maharajapuram Sitaram Krishnan, the first Indian Director General of the Geological Survey of India and a distinguished fellow of the Mineralogical Society of America, died on the 24th of April, 1970, at Tanjore, after a brief illness. Dr. Krishnan's death has created a void in the geological world; he belonged to the diminishing group of geologists with a profound knowledge of the entire spectrum of geological science.

Dr. Krishnan was born on the 24th of August, 1898, in the Tanjore district of Madras in a poor Brahmin family of scholars. At the early age of four, young Krishnan lost his father and was brought up by his mother and elder brother. After schooling in Tanjore where he showed high promise of ability, he completed his undergraduate studies with distinction at the St. Joseph's College, Tiruchirapalli. Thereafter he joined the Presidency College, Madras, taking his B.A. (Hons) degree with high distinction in Geology in the year 1919. After graduation he worked for a while as a demonstrator in geology at the Presidency College and also engaged in geological field work in Central India.

In 1921, Krishnan proceeded to the United Kingdom on a scholarship and joined the Imperial College of Science and Technology (Royal College of Science, London). The very next year he received the A.R.C.S., obtaining a first class, and qualified for the diploma of the Imperial College of Science in the

following year. His studies on the volcanic rocks from Western India under the guidance of Professor W. W. Watts earned him the Ph.D. degree in 1924. This study on the petrography and chemistry of Deccan basalt differentiates from the Girnar and Osham hills in Gujarat, published in 1926, remains a classic. Dr. Krishnan was selected by a Board in England for appointment as a Geologist in the Geological Survey of India, he being the first with a doctorate degree to join as Geologist.

After joining the Geological Survey of India, Dr. Krishnan was assigned geological surveys and mapping of a difficult terrain in Eastern India. Nine years of intensive field studies coupled with petrographic studies resulted in the monumental memoir on the geology of Gangpur State. During this period, he published several brief papers on mineralogy, petrography and mineral deposits in the Records of the Geological Survey of India and in the journals of the Mining, Geological and Metallurgical Institute of India and the Mining, Metallurgical and Geological Society of India. Earlier, Dr. Krishnan, while in London, had studied the optically anomalous cordierites of Southern India and published a paper in the *Mineralogical Magazine* as early as 1923. This was followed in India by his studies on the giant pleochroic halos in cordierites of peninsular India. Studies on such pleochroic halos have now assumed considerable importance and there have been many