factorily only in terms of experience, not of the external world. It is in any event undeniable that all we can know of any world at all must come from our experience of it—not necessarily sense experience alone, but experience taken as a whole. If then we describe the task of science in terms of experience we shall describe it more directly than is possible in terms of an investigation of a postulated world. That might have been realized long ago; the physics of the past century has made its realization inescapable.

THE 250TH ANNIVERSARY OF YALE UNIVERSITY

By DR. JOHN F. FULTON, O.B.E.

Yale Medical Library

THE year 1951 marks the two hundred and fiftieth anniversary of the founding of Yale University, and under the leadership of its energetic new historian president, Mr. A. Whitney Griswold, the University is marking the occasion by a series of ceremonies.

The idea of establishing an institution of higher learning in New Haven was conceived many years before the College was actually established, having first appeared in the mind of the Rev. John Davenport, an Oxford man, who, with a group of his countrymen, founded New Haven in 1638. But New England was already supporting one College—Harvard—and it was not until 1701 that ten Congregational ministers met together, each bringing a gift of books, and made plans to petition the General Assembly of the Colony for a charter for a College, granted later that year.

Through the efforts of the Connecticut Colony's agent in London, Jeremiah Dummer, more books were soon on their way across the Atlantic from such well-wishers of the young College as Sir Isaac Newton, Sir Richard Steele, Dr. Edmund Halley, Dr. Richard Mead, Sir Hans Sloane, Dr. Richard Bentley, the King's Librarian, and many others. Among these books were a first edition of Newton's "Opticks" and a second edition of his "Principia", *Tatlers* and *Spectators*, the works of the Honourable Robert Boyle, Robert Hooke, Nehemiah Grew, Thomas Burnet, John Woodward, and such others as enable Yale proudly now to boast of the finest collection in America of books and manuscripts of eighteenth-century England—including the outstanding Falconer Madan Collection on the history of Oxford (acquired in 1929).

Our patron, Elihu Yale, was among these early friends of the College. The main facts of his life can be found on his tombstone in Wrexham:

Under this tomb lyes interr'd Elihu Yale
of Place-Gronow, Esqr; born 5th April 1648,
and dyed the 8th of July, 1721, aged 73 years.

Born in America, in Europe bred,
In Afric travell'd, and in Asia wed,
Where long he liv'd and thriv'd; at London dead.
Much Good, some Ill he did: so hope all's even,
And that his soul thro' Mercy's gone to Heav'n.

You that survive and read, take care
For this most certain Exit to prepare,
For only the Actions of the Just,
Smell sweet and blossom in the dust.

In addition to books, a gift of East India goods which brought £562 12s. in the Boston market came from Governor Yale and prompted the clergymen directing the destinies of the Collegiate School to change its name to Yale College in 1718 in honour of its generous benefactor. The portrait of King George I, which came with the other benefactions and which now hangs in the Yale Art Gallery, is to-day the earliest portrait in continuous ownership in an institution of higher learning in the United States.

In 1743 the Rev. Thomas Clap, the progressive president of the College who in his twenty-six years in office did much to broaden Yale's stature as an educational institution, "with considerable Labour and Pains, prepared a Catalogue of the Books in the Library under proper Heads so that you may Readily know and find any Book, upon any particular Subject". From this list of the books in the Library in 1742, a room has been arranged in the Sterling Memorial Library known as the 1742 Library, and on the shelves in their original order can be found many of the early volumes. Among the medical texts were works by Cowper, Willis, Freind, Cheyne, Sydenham, Sanctorius, Cheselden, Van Helmont, Harvey and Glisson—a noteworthy collection for any American library of that time. The Cowper was probably the gift of Daniel Turner, a London physician, who gave a number of books to Yale, for he wrote: "I have robbed my own library of a book very valuable beyond all others and now, as I know, not procurable elsewhere, the Great Anatomy of our Cowper, that with it I might adorn yours". Turner's letter contained a postscript: "If your worships consider me worthy of the doctoral degree of Yale Academy and have the diploma sent me, I shall receive it not only as a sign of your gratitude, but I shall consider it an honour as much as though it had been conferred by another university, though of greater note. Farewell . . . and may your academy flourish." Rising to the occasion, the College authorities conferred on Daniel Turner in 1723 an honorary degree, the first medical degree to be granted in the American Colonies.

From Britain in these early days of Yale's existence came not only material gifts but also encouragement and inspiration for those who were interested in science, particularly in astronomy and mathematics. When in 1802 President Timothy Dwight persuaded the Corporation to establish a chair of chemistry and secured a young barrister, Benjamin Silliman, to fill it, it was to England and Scotland (after a year in Philadelphia) that Silliman journeyed to acquire his scientific knowledge. The contacts he made there at that time with many of the leading men of science, and later his *American Journal of Science*, to which British and Continental scientific men contributed, ensured a steady flow of influence and ideas from across the seas. His son-in-law, James Dwight Dana, who rose to eminence as a geologist, carried on in Silliman's tradition as editor of the journal and in the chair of geology.

Another outstanding Yale man of science well known in Britain and on the Continent was Josiah Willard Gibbs. He was a man of extraordinary capacity—shy and retiring as a personality, but possessed without doubt of one of the most gifted minds and one of the most original intellects of any nineteenth-century man of science. His genius was more promptly recognized in Britain than in America; but we are happy to record that a definitive biography

of Gibbs has now been written by one of the last of his students, Lynde Phelps Wheeler, and published by the Yale University Press as one of the several volumes that have appeared on the occasion of the two hundred and fiftieth anniversary.

Yale's first gesture to mark the anniversary occurred at Commencement in June 1951, when twenty-five honorary degrees were conferred on outstanding American scholars (the usual number in a given year is eight or ten). One of these was conferred on a British subject, the distinguished Polynesian anthropologist and physician, Sir Peter Henry Buck, a native-born Maori chieftain who is now director of Yale's Bernice P. Bishop Museum in Honolulu. Another colourful degree-recipient was the ninety-two-year-old philosopher and educator, John Dewey, who was described as representing the "experimental spirit of America". The venerable Otto Loewi, Austrian pharmacologist and Nobel laureate, was also among those who received degrees, as was the psychologist Edward C. Tollman, "valiant defender of the freedom of the mind", lately removed from the faculty of the University of California for having, with many others, refused to sign the loyalty oath. Still another was Dr. Gerty Cori, the distinguished biochemist who in 1947 shared the Nobel Prize in Medicine and Physiology with her husband, Dr. Carl Cori.

The formal celebration of the anniversary will take place on October 19. To share in this ceremony the President and Fellows of the University have invited representatives from Oxford, Cambridge and Harvard, the universities from which Yale traces its descent, and in addition representatives from the forty-odd American colleges and universities which were originally administered by graduates of Yale. Prof. E. Ll. Woodward, professor of modern history in the University of Oxford, will be the official delegate from Oxford, and Mr. S. C. Roberts, lately vice-chancellor of the University of Cambridge, will represent Cambridge. There are to be formal addresses by Mr. A. Whitney Griswold as President, by Lord Halifax who will be the guest of the University, and by President James B. Conant, the official representative of Harvard University.

There will be a further occasion on Alumni Day, February 22, 1952, when President Griswold and the chairman of the Yale Alumni Board will award Yale Medals to alumni for outstanding service to the University. The anniversary year will come to an end with the Commencement exercises in June 1952. In the future, as during its first two hundred and fifty years, Yale will be mindful of the fundamental purpose of education, phrased by John Davenport as being "for the better trayning upp of youth in this towne, that, through God's blessing they may be fitted for publique service hereafter, either in church or commonweale".

OBITUARY

Prof. Gilbert Cook, F.R.S.

GILBERT COOK, who died on August 28, was born in Blackburn in October 1885 and he received his early education there and in Todmorden, Yorkshire. He distinguished himself at school, and in 1902 proceeded to Owens College, Manchester, where he studied under Osborne Reynolds. In 1905 he graduated in engineer-

ing with first-class honours and was awarded a graduate scholarship and the Freebairn Engineering Prize. After spending some time in the engineering workshops and as a pupil of the late D. C. Rattray, chief engineer to the Lancashire and Yorkshire Railway, he was appointed assistant engineer with that company. In 1910 he was awarded a Vulcan research fellowship at the University of Manchester, where J. E. Petavel was director of laboratories, and there he commenced the investigations which formed perhaps his chief scientific interest throughout his life. With Andrew Robertson he published in 1911 a paper on "The Strength of Thick Hollow Cylinders under Internal Pressure" and in 1913 one on "The Transition from the Elastic to the Plastic State in Mild Steel". They were followed by a number of authoritative publications on associated subjects spread over the years.

At the outbreak of war in 1914, Cook was an assistant lecturer in the Engineering Department of the University of Manchester, and he soon laid aside his university duties to serve first in the Royal Garrison Artillery and later in the technical branch of the mining and mine-sweeping service of the Royal Navy. Service routine did not smother his sense of scientific inquiry, and papers on the accuracy of range finders and on submarine depth meters were the outcome of his war-time experience.

Cook returned to his peaceful pursuits in the University of Manchester in 1919, and soon thereafter gained the award of a D.Sc. There followed in 1921 his appointment to the chair of mechanical engineering in King's College, London, where he enhanced his reputation as a teacher and administrator. It was in 1936 that he received the King's commission to be regius professor of civil engineering and mechanics in the University of Glasgow, and there he takes a worthy place in a succession which includes James Thomson and Macquorn Rankine.

Gilbert Cook was a member of the Council of the Institution of Civil Engineers and for many years a member of the Institution of Mechanical Engineers. The election to the fellowship of the Royal Society came to him in 1940. In Scotland he had given valued service to the Institution of Engineers and Shipbuilders, and he was just completing his period of office as president when he died. He served on many educational and technical committees, to which he gave conscientious service. He was consultant and advisor to the Admiralty Hydro-Ballistic Research Establishment, a member of the Advisory Council on Building Research, of the Board of Advisors in Engineering to the University of London and of the Properties and Mechanics of Materials Committee of the Department of Scientific and Industrial Research.

In the fifteen years of his tenure of the chair at Glasgow, Cook made a place for himself in the councils of the University and in the esteem of his colleagues which now cannot readily be filled. He was an excellent teacher, clear and convincing because he was a complete master of his subject. He was a sound administrator because he brought to the consideration of every issue with which he had to deal a logical mind and a conscientious judgment. He was a good colleague, frank, scrupulous, considerate and loyal. In addition to his great qualities of intellect and character, he had a cultured mind and an interest in music. He is survived by his wife.