of a potential in physics. It will be noticed, moreover, that the observer is not directly concerned in this equation ; in a sense, therefore, it is invariant in this respect.

The train of thought just followed has not resulted in establishing a calculus or test of significance in art ; perhaps such an outcome is entirely beyond us. It has, however, suggested a connection between the energetics of an object of art (somewhat akin to a closed system in thermodynamics) and a quantity called the organization. From this interdependence some estimate of the effort involved in creation may be obtained, and consequently a glimpse of the cost to be faced in the conveyance of meaning. To repeat : it is not meaning itself which has been measured ; it is the price of meaning to which a token value has been given. A sublime work of art, a statue by Michelangelo, for example, possesses vast intrinsic energy ; its majesty, however, resides in its (connotative) changelessness—or low free energy—a reminder of the creative energy outpoured in its fashioning.

An Attempted Synthesis

We are left with the two relationships, the explicit equation $M=O/C$ (Birkhoff), and the function $E_f=F(\psi)$ (Gestalt). Examination of the complexity C suggests that it has the dimensions $[mt^{-2}]$ which must also be the dimensions of O, since the æsthetic measure M is a numeric. If now E_f is interpreted as a surface density of free energy (rather than free energy itself) this becomes of like dimensions, that is $[mt^{-2}]$. Since M is a measure of merit, it follows qualitatively that, for a given order, æsthetic value increases the lower the free energy density, in harmony with the Gestalt concept, which derives from totally distinct postulates.

Let us return in the end to the contemplation of a supreme work of art. We can, perhaps, determine its æsthetic measure ; we can but dimly sense its free energy. Of one thing only can we be sure—of the strife inseparable from its creation.

[1] "Aesthetic Measure", by G. D. Birkhoff, Harvard University Press, 1933.

[2] "An Experimental Philosophy of Paintings", by F. Ian G. Rawlins, *Science Progress*, October 1939, pp. 263–276.

OBITUARY

Mrs. Tyndall

THE death of Mrs. Tyndall on August 19 removes one of the last links of the Royal Institution with the great era of Victorian science. Louisa Charlotte Hamilton, which was her maiden name, was born on August 3, 1845, and was the eldest of three daughters of Lord Claud Hamilton and Lady Hamilton. Her mother's maiden name was Elizabeth Emma Proby, and her only brother, Douglas James, who assumed the name of Proby in 1904, died in 1931.

Before her marriage, Mrs. Tyndall enjoyed the privilege of meeting in her father's house in London the great men and women—statesmen, writers, and leaders of thought—of a particularly interesting period of British history ; with the further experience of residence and travel in Ireland and abroad, where her father held diplomatic appointments. At a time when science and research were studies pursued by relatively few, she became one of an earnest group of women of high social position who followed the lectures on scientific subjects provided by the Royal Institution. It was in the winter of 1860 that she was taken by her mother to Faraday's juvenile lectures at the Institution. Tyndall had then been professor of natural philosophy there since 1853, having been appointed to the post on the recommendation of Faraday, whom he succeeded as superintendent in 1867, but it was not until later that she made his acquaintance when travelling with her father in Switzerland. His tribute to Faraday's genius and loveable nature was paid in his book "Faraday as a Discoverer", first published in 1868—a year after Faraday's death. To the fifth edition, which appeared in 1894, Mrs. Tyndall added a note saying that the preface to it was written a few days before his death.

It was on February 29, 1876, that Miss Hamilton became the wife of Tyndall ; and from that time she was, to quote her own words, "his companion in all things". She was a perfect hostess in the busy and intensely interesting years of residence at the Royal Institution, where the superintendent's apartments over the lecture theatre were their home. Here she received a warm welcome in the large circle of Tyndall's friends, which included the Rayleighs, Huxleys, Herschels, Lubbocks, Hookers, Tennysons, Pollocks, Herbert Spencer, and many others. In all Tyndall's investigations and activities, Mrs. Tyndall was his constant companion and an intelligent helper as recorder and amanuensis ; in his hard-earned holidays the best of comrades, while ever watchful of his health and untiring in her efforts to find food suited to his weak digestion, which had troubled him from early years.

So early as 1857, Tyndall had paid a first visit to the Swiss Alps with his friend, T. H. Huxley, to make a holiday study of glacier ice. The mountains fascinated him, and from then onwards all his holidays were spent in Switzerland. Soon after their marriage, the Tyndalls built a cottage on Bel Alp, high above Brieg, in the Canton of Valais, and there they afterwards spent their summers. Some years ago, with the ready consent of the local authorities, she erected nearby a simple monument, consisting of a single massive stone, to her husband's memory.

In 1885, the Tyndalls bought about one hundred acres of land on the summit of Hindhead, in Surrey,

then a wild heather-clad hilltop, where they built what Tyndall termed a "retreat for my old age". After Tyndall's retirement from the Royal Institution in 1887, most of their time was spent at Hindhead, and it was there that he, whose health had been failing for some years, during which his wife nursed him devotedly, died on December 4, 1893, as the result of an overdose of chloral accidentally administered by her.

The rest of Mrs. Tyndall's life was mainly devoted to the collection of material for Tyndall's biography, which they had jointly planned during his lifetime, and which she intended to write; but the work was constantly interrupted by the claims of her family and of friends and dependents, and especially of her mother, Lady Claud Hamilton, who died after several years' illness at Hindhead in 1900. Though she lacked the qualifications to deal with Tyndall's scientific work, she contributed an admirable memoir on him to the "Dictionary of National Biography", but owing to her intense admiration for him and devotion to his memory, she was unwilling to entrust the work to anyone else, and various proposals and suggestions as to the choice of a biographer, which might have resulted in the production of the work in her lifetime, came to nothing.

A vast amount of material relating to Tyndall's life and work was collected by Mrs. Tyndall, with the valuable assistance of several friends, among whom Miss M. Dodd (Mrs. Lewin) may be specially mentioned, with the result that when Mrs. Tyndall's health broke down five years ago, the greater part of the preliminary work had been completed. Since then, what was still needed in the way of arrangement and sorting of the material has been put in hand by her nephew, Mr. Granville Proby, and a biography of Tyndall, for the publication of which she provided in her will, is in course of preparation. In addition to Tyndall's scientific papers, the material includes thousands of letters, among them being a large foreign correspondence with Helmholtz, Bunsen, Clausius, Pasteur, and many others.

It is fortunate that, by her devotion to her husband's memory, Mrs. Tyndall was able to preserve so much material relating to his original scientific work, as well as of his advocacy of the use of scientific thought in other fields of inquiry, and his influence in extending general interest in advance in natural knowledge during a very fertile period of development. The biography will be a valuable record of this period and a long-needed memorial to one who did so much to shape it. Two other tributes to Tyndall's memory are the gift by Mrs. Tyndall, some years ago, of a fund of £1,500, administered by the Royal Society for the purpose of encouraging and furthering research in matters relating to mining, and a fine valley at Hindhead, known as Tyndall's Wood, which has become the property of the nation through the National Trust.

WE regret to announce the following deaths:

The Duke of Bedford, K.G., K.B.E., F.R.S., formerly president of the Zoological Society of London, on August 27, aged eighty-two.

Dr. J. Burtt-Davy, formerly University demonstrator in forestry and lecturer in tropical forest botany in the Imperial Forestry Institute, Oxford, on August 20, aged seventy.

Prof. C. F. Jenkin, C.B.E., F.R.S., emeritus professor of engineering science in the University of Oxford, on August 23, aged seventy-four.

Sir Oliver Lodge, F.R.S., on August 22, aged eighty-nine.

NEWS AND VIEWS

Daniel Solander

THE June issue of the *Anglo-Swedish Review* contains an address recently delivered at the annual meeting of the Swedish Academy of Science on Dr. Daniel Charles Solander, F.R.S., the Swedish botanist, in whose honour the Academy's commemorative medal has been issued this year. Solander was born in the small town of Pitêa in the north of Sweden on May 13, 1735. At the age of twenty he entered the University of Uppsala, where he studied medicine and became one of the most gifted pupils of Linnæus, who sent him to London in 1760 to encourage the study of natural history in England. He soon came in contact with Mr. (afterwards Sir) Joseph Banks and was made an assistant in the British Museum Library in 1763. In 1768 he was engaged by Banks to accompany him on Captain Cook's voyage in the *Endeavour* to Tahiti, and in 1772 visited Iceland with Banks. The following year he was appointed keeper of printed books at the British Museum.

Solander was not the author of any independent work, but in 1756 he edited Linnæus's "Elementa Botannica", in 1766 he described the fossils in Brander's "Fossilia Hantoniensia", and in 1786 arranged and described the material in John Ellis's "National History of Zoophytes". In 1764 he was elected F.R.S. and in 1771 was made hon. D.C.L. at Oxford. His name has been commemorated in the genus Solandra and in an island in the Pacific Ocean near the south coast of New Zealand discovered by Captain Cook in 1770. He died at the early age of forty-six of apoplexy on May 16, 1782.

Dr. Felix Gerlier (1840–1914)

DR FELIX GERLIER, a distinguished Swiss physician, was born at Ferney-Voltaire in 1840, the son of a local practitioner. He qualified in Paris in