If, however, the claim of biochemistry is to describe life, at any level, in chemical terms it may come more under the eye of philosophy than perhaps any other branch of biology. There are schools of philosophy which will continue to ignore facts of a kind accessible to the chemist as being without significance in their search for reality; but there are other schools which will at least take note of them. In any case there are biologists with philosophical leanings who still suspect that biochemical facts are of chemical interest only.

The chemist on the other hand hopes to gain real understanding from his own standpoint of whole organisms through his study of their parts.

But these are days in which there is much insistence on the view that in the world-scheme only wholes can partake of reality. The truth that the whole is something different from the arithmetical sum of its parts, felt vaguely, but almost instinctively, even by commonplace and uninstructed minds, has been sublimated and raised to the status of a philosophical doctrine.

It is impossible at Harvard to forget the teaching of that profound philosopher, Alfred Worth Whitehead, who came one day to Cambridge from Cambridge. We have his assurance that the conception of organism must replace in thought the abstract entities which were the units of Newtonian physics. Reality always involves relations, internal and external; while an event, and not any static entity is the unit of things real.

Biology from its very nature has never been much tempted to abstraction, and for it the organism has always been the only significant unit; while the living organism as it exists in time is essentially a directed event. The question that arises is whether the modern biochemist, in analyzing the organism into the parts which he is best able to study, has so departed from reality that his studies have no longer biological meaning. I myself would venture to answer that question by saying that so long as his analysis involves the isolation of events, and not merely of substances, he is not in danger of such departure. We should learn little about the nature of an organism by being shown a collection of every substance it contains in stoppered bottles, however well known the constitution of each. Each isolated event on the other hand partakes, at least, of the nature of the whole organism. Even if on occasion it is but a single specifically catalyzed biochemical reaction it remains an event controlled and directed. True it has lost the influence of the environment which is provided by the whole organism, and its progress may thus be modified in detail, but in detail only, not in its essential nature.

I do not find that Professor Whitehead doubts the validity of such an approach to the biological whole through its chemical parts. In his Lowell Lectures published in the book, "Science and the Modern World," while claiming that, because of its concern with organism, the physiological standpoint "put mind back into nature" he remarked that "viewing the question (of organism) as a matter of chemistry, there is no need to construe the actions of each molecule in a living body by its exclusive particular reference to the pattern of the complete living organism." He suggested that each molecule may be so affected by the pattern of the whole living system as to be otherwise than what it would have been if placed elsewhere; but remarked that "it would be entirely in consonance with the empirically observed action of environments if the direct effect of aspects as between the whole body and its parts were negligible." It is true, of course, that no molecule when actually playing a part in dynamic events within an organism remains the same as when it contributes to the contents of a bottle on the shelf of the chemist. It is different because it is activated, and may be undergoing transition. The precise state at a given moment of every molecule in a living cell is doubtless determined by the state of the whole cell at that moment. Such relations, however, though so complex, are not of a kind which need escape the ultimate power of experiment to define.

It is sure, I think, that biochemical facts and biochemical thought will provide fresh aspects for biological thought. They will no less strengthen the ability of biological science to serve humanity.

It is sure that if he can add to what the eye itself reveals an adequate mental picture of the invisible molecular events which underlie the visible, the biologist will gain increased understanding of the behavior of every living thing. The physiologist too will add to his understanding of every organic function; and the clinician, no less than the pathologist, will acquire a deeper insight into the significance of every departure from the normal. This is my faith, and I hope it may be yours.

SCIENTIFIC EVENTS

VISCOUNT GREY MEMORIAL

THE following appeal, setting forth the form of the memorial by which it is proposed to commemorate the late Viscount Grey of Fallodon, has been issued:

More than two years have gone by since the death of Lord Grey of Fallodon. The time has come when the affection and admiration which he inspired among so many of his countrymen should find expression in some permanent memorial.

He is remembered as the statesman who fought so long and so hard the losing battle for European peace; and

who, amid the blinding passions of war, with failing health and eyesight, never lost his mental vision of two main principles of his practical idealism, the necessity of friendship between the British Empire and the United States, and the necessity of some collective security for future peace, which from the first he strove to see embodied in a League of Nations.

He is remembered also as the lover of nature. In writings that combine the poetry and the science of bird observation, he has taught many to find the purest and most lasting joys of mind and heart.

Yet the two aspects of his life are not to be dissociated. If the strength, integrity and simplicity of his character made him for eleven years the notable representative of his country before the world as foreign secretary, and helped to give to the British Empire and her allies confidence and unity at the supreme crisis of fate, these qualities were drawn from the same well-springs of old English rural life which inspired him as a countryman, a naturalist and an author.

We therefore propose to erect to his memory a threefold memorial:

1. To set up a statue or bust in a central spot in London.

2. To acquire and make over to the National Trust "Ross Castle," the small hill-top crowned by an ancient earthwork which adjoins Chillingham Park in Northumberland, a favourite view-point of Lord Grey's, which he often visited from Fallodon.

3. To develop (by further endowment and otherwise) the existing scheme of research maintained by the British Trust for Ornithology at Oxford, of which university he was an undergraduate and in later years the chancellor, to form a permanent Institute of Bird Studies, to which his name would be attached.

STANLEY BALDWIN
COSMO CANTUAR
CREWE
G. M. TREVELYAN
HALIFAX
(*Chancellor of Oxford University*)
A. D. LINDSAY
(*Vice-Chancellor of Oxford University*)

Subscriptions from the United States may be made payable to J. P. Morgan and Company and sent to that firm at 23 Wall Street, New York City.

IN HONOR OF WILLIAM HALLOCK PARK

DR. WILLIAM HALLOCK PARK, Biggs professor of preventive medicine, professor of bacteriology and director of the bacteriological laboratories of the New York University College of Medicine, and for forty-one years until his retirement last December director of the bacteriological laboratories of the New York City Board of Health, has been granted leave of absence for a year, after which he will become professor emeritus. The council of New York University has adopted the following minute:

William Hallock Park, born in the City of New York, December 30, 1863, was graduated from the College of the City of New York in 1883 and obtained the degree of Doctor of Medicine at Columbia University in 1886. After serving three years at Roosevelt Hospital he went to Vienna for a year of post-graduate training, returning to New York in 1890 to assume practice as a specialist in diseases of the ear, nose and throat. At the same time he carried on research at the College of Physicians and Surgeons, and made a special investigation of diphtheria through the technique of bacteriological diagnosis at the Willard Parker Hospital which commanded the interested attention of Dr. Hermann M. Biggs, who at the time was a professor in the Medical College of New York University and also in charge of an important division of the New York City Health Department. As a result Dr. Park was appointed bacteriological diagnostician of diphtheria in the department, and director of its research laboratory in 1894. There, under his direction, the first municipal bacteriological laboratory was inaugurated, and methods of diagnosis, investigation, control and prevention of disease were originated which have since been adopted the world over. This venture into the field of public health marked a turning point in his career. For forty-two years he has continued his labors as active head of the public health laboratory, tending its growth from infancy to its present maturity as a great research institution. He has served as consulting bacteriologist to the New York State Department of Health since 1914, medical examiner in bacteriology since 1917, and consulting bacteriologist to the United States Quarantine Service since 1921.

Dr. Park's connection with New York University dates from 1898, when he was appointed adjunct professor of bacteriology and hygiene. A year later he was promoted to associate professor and in 1900 professor, a chair which he held until 1933, when he was designated the first incumbent of the Biggs chair of preventive medicine. He served for a year, ad interim, as dean of the Medical College. From 1895 to 1932, he served the Willard Parker Hospital as visiting bacteriologist, and since then in a consulting capacity. In the two institutions, the college and the hospital, he carried forward year after year intricate and intensive studies in the prevention of human ills and the alleviation of distress. The history of the science of bacteriology parallels in time the years of his career, and it is a history wherein his own name will ever be gratefully commemorated.

From his early studies of diphtheria came the development of the wonderfully efficacious antitoxin. And from such representative studies of Dr. Park as those of the tubercle bacilli, the dysenteries, the typhoid bacilli and typhus carriers, the curative value of spinal administration of tetanus antitoxin, the bacteriology of respiratory infections, the bacteriology of the pneumococcus, methods of producing immunization against diphtheria, and the treatment of pneumonia, have come incalculable benefits to mankind everywhere. But the worthiest citation of all is undoubtedly his gift to little children of immunity against the dread ravages of diphtheria. There are un-