a presentiment of new truths; the far greater number merely develop and follow the ideas of others. In a few instances the presentiment is extraordinary, but it is always likely to be a brilliant example of the scientific use of the imagination. Of the first order of magnitude was Harvey's assumption of the existence of minute vessels uniting the arteries and veins and completing the circuit of the circulation. In his day the microscope was too primitive to reveal them; in fact, Malpighi's discovery of the capillaries occurred four years after Harvey's death and thirty years after the publication of the "Motion of the Heart and Blood in Animals."

At all periods, voices have occasionally been raised to decry the domination of medicine by science. These timid souls would return to the less aided senses in order to provide the so-called intuitive faculty of the physician with greater latitude. Just now this thesis has been put forward by an eminent German surgeon—Sauerbruch—and an active controversy has been started. The weight of opinion, fortunately, is more modern and logical, for while it is properly admitted that superficial science can never compensate for slipshod observation, and while it is allowed that one doctor's wits are sharper and quicker than another's, yet it is urged with easy conviction that without true knowledge even the supremely intuitive can reach no real goal nor pass beyond the limits of the "inspired ignoramus."

If, therefore, we may not seek to organize the subject-matter of research, we may nevertheless undertake to organize the facilities which make the prosecution of research more consistent and less a matter of chance. In carrying out this purpose, we must ever keep in mind that the outstanding discoveries in science are the accomplishments of real men and usually of great men. Now, as it has been well said, great men are just those who bring with them new ideas and destroy errors. They do not, therefore, respect the authority of their predecessors and they do not move in an ordered way. While it is of course true that the discoveries of the great men preceding them stand at the base of their own discoveries, yet neither is ever the promoter of absolute and immutable truths. "Each great man belongs to his time and can come only at the proper moment, in the sense that there is a necessary and ordered sequence in the appearance of scientific discoveries. Great men may be compared to torches shining at long intervals to guide the advance of science. They light up their time, either by discovering unexpected fertile phenomena which open new paths and reveal unknown horizons, or by generalizing acquired scientific facts and disclosing truths which their predecessors had not perceived. If each great man makes the science which he vitalizes take a long step forward, he never presumes to fix its final boundaries and he is destined to be outdistanced and left behind by the progress of successive generations. Great men have been compared to giants upon whose shoulders pygmies have climbed, who nevertheless see further than they. This simply means that science makes progress subsequently to the appearance of great men, and precisely because of their influence. The result is that their successors know many more scientific facts than the great men themselves knew in their day. But a great man is, none the less, still a great man, that is to say—a giant."[9] And who would presume to confine, that is to restrict by organization, a band of giants? It is enough to provide them, as they may now hope to be provided, with suitable material resources with which to perform their gigantic, wonder-working tasks, of which they are often the unconscious agents. This, and as it seems to me, this alone is the purpose and the justification for the organization of science: to afford opportunity commensurate with the objects to be attained, for both the giants and their associates of smaller stature, for him who blazes the trail and him who clears the path, since both operations are needed in order that knowledge may be increased and the light be made to enter the still dark places, and the spirit of man be thereby enlarged and made to shine with ever greater brilliance.

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SCIENTIFIC EVENTS

THE CONVERSAZIONES OF THE ROYAL SOCIETY

THE first of the two conversaziones given annually by the Royal Society has taken place at Burlington House, when, as usual, an array of exhibits was provided for the instruction and entertainment of the visitors.

According to an article in the London *Times* one of the most striking demonstrations was that of Mr. A. A. King, who showed the application of ultra-violet radiation from a mercury vapor lamp to the detection and estimation of minute quantities of arsenic. When a mercury-arsenic stain on a piece of filter-paper sensitized with mercuric chloride is examined in ultra-violet light the unchanged mercuric chloride fluoresces blue, while the mercury-arsenic stains stand out as a black disc. Arsenic stains,

[9] Bernard, Claude, "An Introduction to the Study of Experimental Medicine," English Translation, 1927, p. 41.

which are quite invisible in ordinary light, may be revealed in this way, and it is said to be possible to detect and estimate quantitatively amounts of arsenic as small as 0.00001 of a milligram. Impurity in distilled water is also revealed by fluorescence in ultraviolet light, and it has not yet been found possible, even with the most refined methods of distillation, to prepare water that does not show some sign of fluorescence. An exhibit from the National Physical Laboratory also illustrated the difficulty of preparing substances in a state of absolute purity. It included specimens of iron, manganese and chromium, the impurities in which are detectable only with the spectroscope.

Another exhibit from the National Physical Laboratory showed the structure of pure mercury in the solid state, the metal being kept frozen by liquid air or carbon dioxide snow and acetone and etched with a solution of hydrochloric acid that does not freeze at the temperatures employed. A collection of metallurgical specimens exhibited by Sir Robert Hadfield included sections from reinforcement bars of high tenacity non-corrodible steel, which are being used in the preservation work at St. Paul's to replace the original wrought-iron bars put in by Sir Christopher Wren.

Bolometers responding with remarkable rapidity to radiant heat were shown by Mr. H. Dewhurst; they consist of a narrow strip of bismuth, believed to be only 0.0000007 cm. thick, deposited on thin celluloid films by electrical evaporation. The thermostat of Lieutenant-Commander F. J. Campbell Allen and Mr. A. E. Salisbury depends on the fact that magnetic metals lose their magnetic properties at certain temperatures; in the apparatus an armature normally attracted by the metal drops as the temperature of the metal is raised, to be attracted again when the temperature falls.

Other physical exhibits included apparatus devised by Professor O. W. Richardson and Mr. F. S. Robertson for comparing the yield of soft X-rays from different substances; a demonstration by the British Thomson-Houston Company of the phenomena produced by an arc in a hot cathode discharge tube containing argon when tungsten vapor is injected; the Selényi method of measuring the vacuum in a lamp and new methods of using gas-filled photoelectric cells, one enabling very small illuminations to be detected without any delicate apparatus, and the other suitable for picture telegraphy, by the Research Laboratories of the General Electric Company; and apparatus for analyzing gases by means of high-frequency vibrations and for estimating flame temperature by spectrum line reversed, by the National Physical Laboratory.

AN INTERNATIONAL SOCIETY FOR THE STUDY OF PEATLANDS

AN international organization for the study of peatlands (Moorforschung) has been formed as a subcommission of Commission VI of the International Society of Soil Science. The object is to promote peat investigations on an international basis and to coordinate and develop, in cooperation with governmental, state and private agencies such research and uniformity of methods in laboratory and field practices as are deemed in the interest of the fullest investigation, utilization and protection of peatland resources. The work of the organization is to be carried on by the following officers: Dr. A. P. Dachnowski, U. S. Department of Agriculture, chairman; Dr. Hugo Osvald, director Peat Experiment Station, Jönköping, Sweden, secretary; Professor Dr. B. Tacke, Germany; Colonel J. Girsberger, Switzerland; Dr. L. von Post, Sweden; Professor S. H. McCrory, Washington, D. C.; Dr. F. J. Alway, Minnesota, U. S. A.; Dr. W. S. Dokturowski, U. S. S. R. (Russia); Dr. A. Kirsanov, U. S. S. R. (Russia).

Cooperation has been assured by an International Peat Committee which consists of leading members well known for their investigations in the geographical distribution of peatlands, in paleobotany, stratigraphy, agronomy, forestry, engineering and other special phases of peatland utilization.

The formation of the organization was initiated at informal conferences with directors of peat institutes and peat specialists in several countries of Europe. The proposal was made and approved of holding a special peat session in the United States and organizing during the sessions of the First International Congress of Soil Science, held in Washington, June 13 to 22, 1927.

The value of the special peat session just closed was shown by the interest in an exhibit of different types of peat and profile sections of peat areas, and by the commission's formal recognition of the advantages of genuine international action in common projects. It aims at the coordination of fundamental peat investigations with the practical technique of utilizing areas of peat for different purposes. At its final session the Congress recommended to secure uniformity of methods of procedure for the investigation and handling of peatlands, with the ultimate aim of obtaining an accurate determination of the agricultural and industrial possibilities of peatland resources throughout the world.

Persons engaged in any aspect of this subject and desiring to associate themselves with the work of the international sub-commission are invited to join as members. Communications may be addressed to Dr.