Philipp-Lenard-Institut at Heidelberg

CEREMONIAL DEDICATION

THE centre of physics teaching and research at the University of Heidelberg, hitherto known simply as the Physikalisches Institut, has recently been solemnly renamed the Philipp-Lenard-Institut. On December 13, at what the local Press justifiably called a unique ceremony, the Minister of Education (*Kultusminister*), Dr. Wacker, deputising for *Reichsminister für Wissenschaft, Erziehung und Volksbildung* Dr. Rust, who was unable to attend owing to illness, formally dedicated the building. His speech may be summarised in a sentence taken from it which, literally translated, reads: "It is, then, very superficial to speak of science 'as such', as a common property of mankind, equally accessible to all peoples and classes and offering them all an equal field of work. The problems of science do not present themselves in the same way to all men. The Negro or the Jew will view the same world in a different way from the German investigator." Prof. J. Stark, the president of the Reichsanstalt, who followed him, was, according to the German report, "particularly zealous against the followers of Einstein and attacked with the greatest frankness the scientific methods of Prof. Planck, who, as is notorious, even to-day stands at the head of a celebrated learned institution!" The ceremony concluded with a *Sieg-Heil* and the Horst-Wessel song.

On the next day, a further ceremony took place, the following account of which is literally translated from the German Press, where it appeared under the heading "A Germ-cell of German Science" (*Eine Keimzelle deutscher Naturwissenschaft*). With one exception, those who took part in this imposing function are, in spite of their high academic positions, comparatively little known in scientific circles in England. The exception is, of course, Prof. Lenard, the student of Hertz, whose papers he edited. A life of Hertz by Prof. Lenard appears in his "Great Men of Science", published before the new régime came into force in Germany and reviewed by Lord Rutherford in NATURE of September 9, 1933 (132, 367).

On December 13 the Minister of Culture and Education, Party-member Dr. Wacker, ceremonially dedicated the Philipp-Lenard Institute of the University of Heidelberg, in the presence of the Reichstatthalter Robert Wagner. On the next day an imposing number of German physicists assembled to make public confession of their union against the Jewish evil (*jüdischer Ungeist*), from which German science must be completely freed. The director of the Institute, Prof. Dr. A. Becker, also welcomed numerous guests, who, with active sympathy, followed the seven speakers, whose discourses occupied the morning and afternoon.

Party-member Prof. Dr. Tirala (Munich) spoke on "Nordic Race and Science", to which race we owe the great series of discoveries, from Hipparchus and Leonardo da Vinci to Kirchhoff and on into the present time. He clearly characterised the essence of German blood in the fight for knowledge of Nature and was able to bring out the features common to all these Nordic investigators.

Party-member Prof. Dr. Krieck (Heidelberg) went into the changes of the conception and system of science in the national-socialist world-philosophy (*Weltanschauung*). Without ambiguity he made clear the new direction towards objectives of scientific co-operation. After him Party-member Prof. Dr. I. Stein sketched out the significance of scientific knowledge in the education of the doctor. He recalled the epidemics which the ancient Greeks regarded with fatalistic helplessness until Hippocrates came to aid with new methods of investigating Nature. After the Middle Ages came the mighty phenomenon of Paracelsus, who sprang of Nordic blood. Experiment came to the aid of experience. Under national socialism the medical man realises his high responsibility for blood and race, health and potency of his people.

Prof. Dr. A. Seybold (Heidelberg) spoke on the co-operation of physical and biological research, which was being aimed at in the new Germany. In a convincing way he exposed the advantage, nay, the necessity, of this co-operation, such as is being furthered in the woodland camps. As pioneers he acclaimed three German investigators: Albrecht von Haller, Goethe and Johannes Müller.

After the luncheon interval Prof. Dr. H. Rukop (Berlin) spoke on problems of physics in science and industry, and laid stress on some characteristic ones, such as cathode rays, phosphorescence and so on. He contrasted the physicist in industry with the research worker in pure science, and emphasised the kind of features demanded of the physicist in industry: speed, constant alertness and so on.

Prof. Dr. Tomaschek (Dresden) had chosen as his subject "The Development of the Conception of the Ether". He went back to the Hindus, who were certainly excellent mathematicians, but were unable to attain to any scientific discoveries. The ancient Greeks came nearer to the nature of the ether, for which they provided the name. For a thousand years the urge to knowledge was lost in the preconceived dogma of the theologians, until Heuss, Euler, Young and other lonely pioneers brought forward a conception of the ether which was long derided. To Faraday above all it fell to lift

the veil which Nature had drawn over her secrets. He conceived with clarity the idea of lines of force.

A series of slides, including portraits of Heuss, Euler, Young, Faraday and others, enlivened his discourse. In an enthralling way he contrasted the Nordic conception of infinity with the strange shrinking of the Semites from such infinity (the Bedouin tent). In the same spirit he explained Einstein's theory of relativity, with which he settled in great style. To the abstract mathematical junk of the Jewish physicists he opposed the living conception of high and holy laws of Nature, such as the Nordic investigator wins for himself in reverence before the logic and greatness of Nature. At the conclusion of his stirring address, Prof. Tomaschek emphasised that overloading and complicating the methods of research with many mathematical formulæ would certainly not lead to Nature. He hoped that German youth, brought once again near to this Nature, would once more find the way to meet her with clear young eyes.

Party-member Dr. A. Bühl (Karlsrühe) subjected the teaching of physics in the German schools and universities to sharp criticism. In addition to the values of humanistic education he demanded more physics even in the secondary schools, and directed attention to many questionable practices of the teachers of physics in the schools. It was much more important to provide clear and well-understood foundations than to give prominence to hypotheses, which did not acquire a meaning until the scientific struggle began.

Geheimrat Lenard delivered the concluding words, and expressed his approval of these addresses. He exhorted all to continue energetically the fight against the Jewish spirit, which had by no means vanished from the German universities. He recounted many examples of Jewish arrogance (Einstein), supported by Jewish publishing houses (Springer), and expressed his confidence that this movement for German co-operation would embrace all our centres of higher learning.

Synthesis of a Natural Colouring Matter

ORGANIC chemists have devoted much time and ingenuity to building up the complex products of life ever since Wöhler and Liebig first broke down the barrier which had separated them from the artificial products of the laboratory, by their synthesis of urea. Sometimes the problems presented are of a peculiarly baffling nature, and we can only marvel at the astonishing progress which has been made both in unravelling and in reassembling the intricate structures of molecular architecture found in Nature. The prolonged and brilliant researches of Emil Fischer upon sugars, proteins and purines have inspired later workers to engage upon still more elusive problems. In Great Britain, Prof. R. Robinson, of Oxford, has already succeeded in laying bare the constitution of numerous alkaloids, colours and other products of plant life. Among these are the anthocyanins or the pigments of flowers. The rapid growth of this branch of chemistry in recent years is apt to become bewildering to the student. We are therefore indebted to Prof. Robinson for the clear exposition which he gave in his Friday evening discourse on November 15 at the Royal Institution, describing the general lines on which one single investigation was carried out, with the view of illustrating the special technique which has had to be evolved.

The pigment chosen was that of the scarlet *Pelargonium*, which occurs also in pink carnations and red dahlias. The problem was approached by three separate methods, namely, isolation as a chemical individual and characterisation of the purified natural pigment, analytical dismemberment of the complex molecule into simpler ones of known constitution, and finally, synthesis therefrom of the identical compound by methods which leave no doubt as to the constitution. The analytical and synthetical methods are complementary and entirely independent of one another. Proof of structure depends equally on both.

Extraction of the pigment from petals by solvents was effected in 1903 by Griffiths and in 1905 by Molisch. In 1911 Grafe, using Molisch's method, extracted 10 gm. of a beautiful crystalline pigment from 28 kgm. of fresh petals. A greatly improved method was devised by Willstätter and Bolton in 1915, who obtained pelargonin chloride, $C_{27}H_{31}O_{15}Cl.4H_2O$, although the natural colour is probably the tartrate. The chloride can be prepared from the natural pigment, and is more suitable for characterisation than the tartrate. Hydrolysis by acids splits the molecule of this chloride into pelargonidin chloride, $C_{15}H_{11}O_5Cl$, and glucose, the reaction being

$$C_{27}H_{31}O_{15}Cl + 2H_2O = C_{15}H_{11}O_5Cl + 2C_6H_{12}O_6.$$

Removal of glucose in this way has no marked effect on the colour, so that the chromophore has evidently not been broken down. Thus pelargonin chloride appears to be a diglucoside of pelargonidin chloride. By partial hydrolysis it has also been possible to obtain a monoglucoside, and it was