

The Tatem Laboratories at University College, Cardiff.

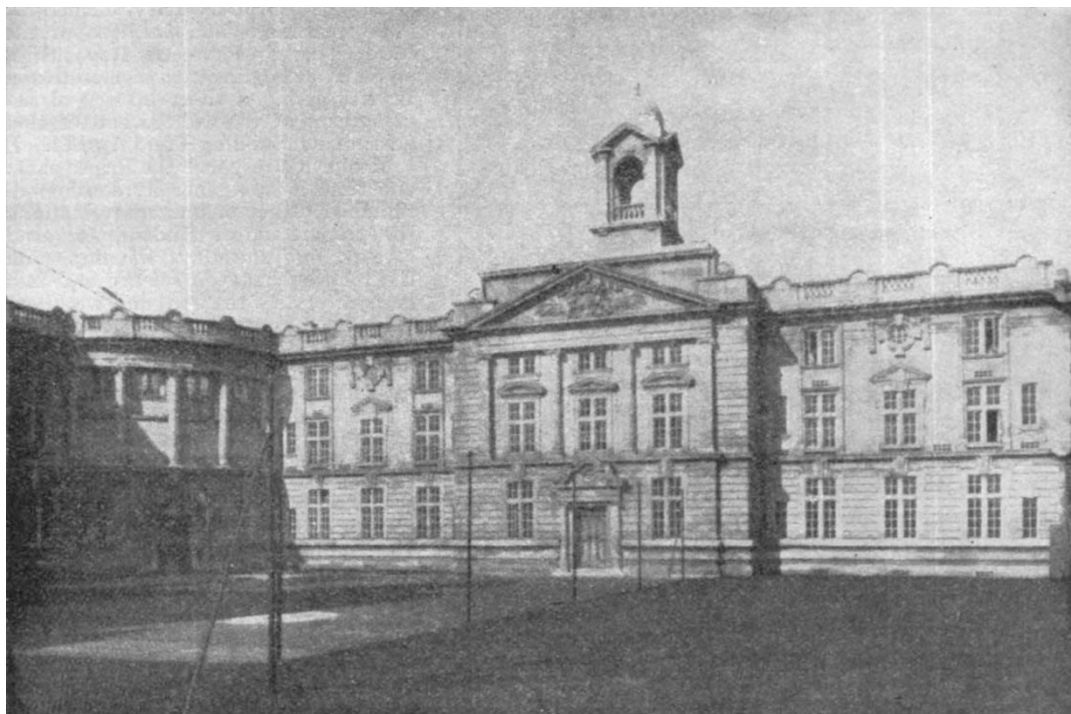
UNIVERSITY College, Cardiff, was honoured on May 21 by a visit from H.R.H. the Prince of Wales, Chancellor of the University of Wales, for the purpose of opening the new laboratories of chemistry and physics and inspecting the Advisory and Research Department of Agriculture and the Institute of Preventive Medicine of the Welsh National School of Medicine.

The laboratories of chemistry and physics constitute the north wing of the College buildings in Cathays Park, Cardiff, the civic quarter of the city, which is exclusively devoted to public buildings designed to form an harmonious ensemble. Long projected and long delayed by the great rise in the costs of building since the War, these laboratories are the culmination

laboratories for 60 and 30 students respectively, three balance rooms, combustion room, an electro-chemical laboratory, store and service rooms, a library, and staff private rooms.

On the second floor are two physico-chemical laboratories, a dark room, three research laboratories, a workshop, and two lecturers' rooms. The basement, approached by a cart-way from the street, provides a store for acids, solvents, and heavy chemicals, with communication by lift to the laboratories and to further capacious store rooms on the upper floors.

At the present moment the building of the chemical lecture theatres, preparation rooms, and museum is not being proceeded with, although the foundations of the whole block have been laid.



Photo]

FIG. 1.—Physics and Chemistry Laboratories.

[Blakeman.

of an effort of local patriotism which the depressed state of industry in South Wales has made trebly difficult. Nevertheless, they are only an instalment of the completed plan. The arts and administrative sections of the College have been housed upon the Cathays Park site since 1909, but it yet remains to erect the south wing, to accommodate botany, zoology, and geology, which are still in their old quarters in Newport Road, as well as to put up the Great Hall of the College on the fourth side of the quadrangle.

The new wing which has been formally opened by the Prince, was designed by Mr. W. D. Caroë, the architect of the main buildings. In it, chemistry and physics are accommodated together in close association and in a manner really worthy of the intellectual and industrial importance of modern studies in these subjects.

The Department of Chemistry occupies the basement and the first and second floors. The first floor comprises a qualitative laboratory for 102 students, a quantitative laboratory for 60 students, two organic

Special attention has been given to efficient ventilation. Each series of fume chambers is independently exhausted by fans to the roof, while the rooms are fitted with a specially designed system of air-flues, also connected to a large exhaust-fan on the roof. Accessibility of water, gas, electric, and drainage services has been secured wherever possible. In the larger laboratories, ridge and furrow top-lights have been employed, ensuring exclusively north lighting. The benches in the large laboratories have been arranged on the island principle and their low superstructures facilitate supervision of large classes.

The physics accommodation occupies the whole of the ground floor, with an additional six rooms on a mezzanine floor. As the new laboratories communicate directly with the ground and first floors of the Viriamu Jones Memorial Research Laboratories, the Physics Department is now, after many years, once more housed under one roof, with, obviously, very great advantage to all concerned.

As in the case of chemistry, the present accommoda-

tion represents only a stage in the complete scheme. Another wing is to be provided, with a large lecture room, workshop, additional research accommodation, and small laboratories for special research. The present building contains a small lecture room and a temporary workshop, which is, however, very well equipped. Other small rooms, originally planned for special experimental work, have had to be used for routine work by honours students, as a result of the large increase of the honours school.

The greater part of the physics for intermediate and final degree students is accommodated in three large, well-lighted rooms, each approximately 30 ft. by 50 ft.



Photo]

FIG. 2.—Institute of Preventive Medicine.

through a terminal board of special design, 28 points and sub-switchboards in the teaching and research laboratories. Any voltage from 10 volts to 140 volts, in steps of 10 volts, can be supplied to any point. Large currents over a wide range of voltages can be supplied through the same board, from either a large or a small motor generator, installed in the switchboard room.

The building of these laboratories on such a scale was made possible by the generosity of a number of public men in South Wales. The chief donors were Lord Glanely, sometime president of the College, and his successor in that office, Sir David Llewellyn, Bart.

His Royal Highness was received by Lord Treowen, president of the College; Principal J. F. Rees; The Hon. W. N. Bruce, Pro-Chancellor of the University of Wales, and others. He inspected the statues of His Majesty the King and of himself as Chancellors of the University, niched in the College facade, which had been unveiled by Lord Glanely prior to His Royal Highness' arrival. Lord Treowen then addressed the Prince, giving a short history of the development of the College and of the progress of its Building Fund Appeal. In the course of his response the Prince said: "At one time it was generally considered that the chief object of university training was the preparation of students for academic careers, but nowadays the importance of the relation between science and industry is more clearly realised, and we know how valuable a contribution scientific training makes to our commercial and industrial welfare. Close co-operation between leaders in academic life and the controllers of great business concerns is in the best interests of the country, and from its universities in future will go forth not only the teachers of the generations to come but also—and this is just as essential—young men well equipped by their training to maintain our vital supremacy in commerce and industry."

Lord Glanely then announced that he had decided to increase his benefaction by the sum of £20,000, which would wipe out the debt on the existing building and provide a capital sum for maintenance, while on behalf of himself and Sir William Reardon-Smith, he also announced the foundation of three new scholarships. The Prince then announced a further donation from Mr. Dan Radcliffe, treasurer of the College, of another scholarship and a capital sum of £5000.

Finally, the architect, Mr. W. D. Caroe, handed the key to His Royal Highness, who declared the building open. Prof. H. R. Robinson (physics) and Prof. W. J. Jones (chemistry) were then presented and accompanied the Prince in his inspection of the Laboratories.

Afterwards, a short visit was paid to the Advisory and Research Department of Agriculture, a block at the south end of the main facade of the College, which also owes its existence to the great generosity of Lord Glanely. Here there are three floors, containing the offices of the advisors in veterinary science, agricultural botany, and agricultural zoology respectively, together with a large joint Museum and three laboratories, as yet unfurnished, which it is intended to devote to research in problems ancillary to agriculture.

In the afternoon the Prince paid a visit to the Institute of Preventive Medicine of the Welsh National School of Medicine in The Parade. The foundation

Except in the case of the junior laboratory, large, fixed benches in the centres of the rooms have been entirely avoided. The essential gas and electric services are led to a series of light-posts, about 4 ft. high, around which working tables are grouped as required. This arrangement, with its obvious flexibility, has proved very satisfactory in practice.

The senior electrical work is provided for by two fairly large electrical laboratories. These were originally intended to be reserved for final and honours students respectively, but a certain amount of overflow has been inevitable. Four darkened rooms are provided for optical experiments and there are smaller rooms for experiments which cannot conveniently be carried out in the general laboratories.

Electrically, the laboratories are very well supplied with lighting and power points for 200-volt D.C., while 200-volt, 50-cycle alternating current is available also at a number of points. The galvanometer lamps are supplied with 12-volt A.C., stepped down from the municipal A.C. supply. Steady current for experimental work is derived from a battery of seventy 250 ampere-hour accumulators. This battery feeds,

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stone of this Institute was laid by His Royal Highness in 1921, on the occasion of his installation as Chancellor of the University of Wales.

The present visit enabled Sir William James Thomas, Bart., the donor of the Institute, to hand over the title-deeds of the building to the University College of South Wales and Monmouthshire.

The Institute comprises four storeys and a basement, and contains, beginning at the top floor, first, the Department of Tuberculosis, supervised by Prof. Lyle Cummins, the David Davies professor of tuberculosis in the School of Medicine and Director of Research to the King Edward VII. Welsh National Memorial (Tuberculosis) Association. On the second floor is the Department of Pathology, at present in charge of Dr. J. B. Duguid, the chair being vacant. The first floor is devoted to the Department of Preventive Medicine, in charge of the Mansel Talbot professor, Dr. E. L. Collis, who is also Director of the Institute. Lastly, the ground floor is occupied by the joint City and County Laboratory of Public Health. This is a most valuable feature of the organisation, since it is housed here alongside of the Department of Preventive Medicine and the materials, equipment, and personnel of the public laboratory are available as part of the organisation of the teaching department.

The Research Scheme of the Institute of Brewing.

IF we except the research work carried out with the object of elucidating medical problems, there are no other investigations of so comprehensive a character as those concerned with malting and brewing. The problems here presented are connected with biology, chemistry, physics, and engineering, and the knowledge gained is of service, not only in the branches of technology for which they are undertaken, but they also find application in many other directions. To take but one instance, the study of fermentation has produced results of incalculable benefit to mankind in general; for cannot we trace our present knowledge of zymotic disease to the researches of Pasteur on wine, beer, and vinegar? It is therefore of the highest importance to review the knowledge that is being collected by those who are working under the Research Scheme of the Institute of Brewing, an outline of which is given in the Memorandum for 1930 which was issued a short time ago.

An important part of the researches on barley is concerned with the production of new varieties and the Institute is, in this connexion, closely associated with the National Institute of Agricultural Botany, Cambridge, as well as with the Rothamsted Experimental Station, Harpenden and Woburn; nor must we omit to mention the valuable work on barley breeding carried out by Dr. E. S. Beaven. The Institute is collaborating with the research staff of the Distillers' Company in tracing the changes that occur in the protein and carbohydrate constituents during the development of the grain and during the malting process. The metabolism of the proteins of barley in the germination process is being studied at Rothamsted by Dr. R. L. Bishop, whose results are of far-reaching importance and interest to both pure and applied science. Manuring experiments on barley and on hops are being carried out and the crops submitted to small-scale brewing trials in the laboratory. The breeding of new varieties of hops has for many years been carried out by Prof. E. S. Salmon of Wye College. Some of the new varieties obtained have been put through brewing trials by well-known brewery firms.

Methods for determining the brewing and antiseptic

properties of hops have been devised by Mr. A. Chaston Chapman (chairman of the Research Committee), by Messrs. Ford and Tait, Prof. F. L. Pyman, Dr. T. K. Walker, and Mr. J. J. Hastings. The diseases to which hops are subject are being studied by Prof. Salmon and his colleagues. Mr. A. H. Burgess is engaged in experiments on the drying of hops, and he has specially studied the processes in vogue at Czechoslovakia.

Researches on yeast were commenced at the Imperial College of Science and Technology by the late Prof. S. B. Schryver. This work, as well as that on the nitrogenous constituents of wort, which was interrupted by the untimely death of Prof. Schryver last year, is being continued by other investigators.

The existing methods of estimating starch in barley and in malt are being revised by Prof. A. R. Ling and new methods are being devised. This work, it is hoped, will be published very soon. Prof. Ling is also working on the carbohydrates of barley and malt other than starch.

This activity in research, under the able direction of Mr. H. Lloyd Hind, must commend itself alike to all scientific workers.

University and Educational Intelligence.

CAMBRIDGE.—Mr. M. H. A. Newman and Mr. A. S. Besicovitch have been reappointed University lecturers in mathematics; Mr. W. M. Smart, of Trinity, and Mr. A. E. Ingham, of Trinity, have been appointed University lecturers in mathematics. Mr. T. G. Bedford, of Sidney Sussex, has been reappointed University lecturer in physics, and Mr. J. D. Bernal, University lecturer in structural crystallography.

Mr. E. B. Worthington, of Gonville and Caius College, has been elected to the Balfour Studentship.

The Vice-Chancellor has published a letter from the Universities Bureau of the British Empire in which it is stated that the executive committee of the Bureau has been asked by the Trustees of the Josefine and Eduard von Portheim Foundation to make grants to enable one or more graduates of universities of Great Britain and Ireland to take a post-graduate course or undertake research in the University of Heidelberg. Preference on the occasion of the first election will be given as between candidates of equal merit to a student proposing to work in mineralogy or crystallography in the Mineralogical Institute founded and directed by Prof. V. Goldschmidt.

New regulations for the Economics Tripos will come into effect next year. Under the new scheme, the first part of the Economics Tripos will become a one-year course and the second part will, normally, take two years, although candidates coming from another Tripos in their third year will be allowed, if they wish, to take it in one year but with a reduced number of papers. The objects of the change are to throw the emphasis more on the second part than it is at present, getting thereby a higher standard of advanced work, and to strengthen the political side by putting in a practically compulsory paper on the principles of politics.

LONDON.—The following appointments have been made: Prof. H. R. Robinson, since 1926 professor of physics at University College, Cardiff, to the University chair of physics tenable at East London College; Dr. J. W. Munro, who has since 1926 been responsible for the control of the Imperial College Biological Field Station at Slough and for the direction there of a research for the Empire Marketing Board, to the University chair of entomology tenable at the