"THE LANCET,] WALES AND ITS MEDICAL SCHOOL.—ÆTIOLOGY OF ECLAMPSIA. [Oct. 31, 1925 925



LONDON: SATURDAY, OCTOBER 31, 1925.

## WALES AND ITS MEDICAL SCHOOL.

As was noted in our columns last week, a further stage in the controversy regarding the government of the Welsh National School of Medicine was reached at a meeting of the Court of the University of Wales at Llandrindod on Oct. 16th, when, on the proposition of Alderman WILLIAM GEORGE, a resolution was passed by 71 votes to 41 expressing the opinion that the School should be constitued as an independent school of the University and resolving that His Majesty in Council should be petitioned for a charter to bring this about.

The controversy is of some standing, and the salient points may not be within the recollection of all. In 1916 a Royal Commission, presided over by Lord HALDANE and composed of many distinguished educationists, unanimously recommended that the School should be a separate entity of the University of Wales. This course was not followed, and in 1921 the complete School was established as a part of the University College of South Wales and Monmouthshire at Cardiff, with special arrangements, including the formation of a board of medicine to administer the School under the Council and Governors of the Cardiff College. A draft supplemental charter to ratify these arrangements was submitted by the Cardiff College to the Privy Council, which rejected it, and affirmed the recommendations of the Haldane Commission. As the College did not agree, the Privy Council referred the question to the University, which through its Council recommended a school directly under the University and submitted a draft scheme to the Privy Council. Approval of such a scheme has now been obtained from the Court, the governing body of the University, at its Llandrindod meeting. The advocates of an independent school separated from the Cardiff College contend that thereby the School will be truly national, its prestige greater, its administration simplified, and its financial support larger and more assured. Those against separation from the College point out the advantages to medical staff and students of College association and stress the difficulties of separation as regards land, buildings, and money. very animated discussion, which lasted most of the day, took place at the Llandrindod meeting. Members of the Court had already received a considerable amount of literature which included, as expressing outside opinion, statements from Sir CHARLES SHERRINGTON and Sir THOMAS LEWIS in favour of separation and from Prof. ADAMI against it. The arguments employed by the opponents to the policy of separation have been summarised in the frank statement circulated from the Vice-Chancellor of the University of Liverpool, and while admitting that on the constitution and conduct of universities he must be considered a first-class authority, we do not find the views of those who think with him broadly correct on general principles. Under the policy of separation it should be realised that the University connexion will be retained. Further, the apprehension that the other constituent Colleges of the University will be led to the burden of starting departments of anatomy and physiology out of rivalry to Cardiff seems to be farfetched, for the number of students requiring courses

on these subjects but not wishing even to enter the medical school of the University can hardly be large enough to warrant any dissipation of energy.

CUS417/38.19

We have nothing but sympathy with the aspirations of Wales to establish a good medical school, and our sympathy is extended also to the Cardiff College which founded the School and naturally desires to keep it. A school of medicine, however, with its associated hospital organisations (and it is to be noted the Cardiff Royal Infirmary is in favour of separation) is too big a thing for a single university college to manage. The opinions and desires of the Royal Commission and Privy Council must carry weight. Association of staff and students cannot be forced; it will come naturally by work in institutions situated side by side. Only by an untrammelled and simplified administration can the School realise itself and develop on the best lines in the future. Granted goodwill on all sides, which should be forthcoming, disentanglement of mutual possessions should be a simple matter, especially as school properties are only held on trust by the Cardiff College and it has no power to deviate them from school purposes. We are of opinion that only by the constitution proposed by the University of Wales will the School undergo proper development and become not only a national but an international institution for medical education and research.

## THE ÆTIOLOGY OF ECLAMPSIA.

PHYSICO-CHEMICAL methods are continually being applied to the medical sciences, and the harvest which is being reaped as a result of this application is of significantly ingravescent magnitude. It may be regarded as an axiom that every principle involving the inorganic world will ultimately be involved in the attempt at a rational interpretation of the organic. As long ago as 1690 HUYGENS, when studying the refraction of light through a crystal of Iceland spar, discovered the fact of plane polarisation. Over a century later ARAGO noticed that when a plate of calcite cut in a plane perpendicular to the axis was placed in the beam of light traversing a path between two crossed nicols, no rays passed the analyser. If, however, a plate of quartz were substituted for the calcite, part of the beam of light was transmitted. Evidently the plate of quartz had rotated the plane of polarisation which had been impressed on the light-waves during their passage through the first nicol. Some substances were found to rotate the plane in a clockwise, others in an anticlockwise direction, and were consequently given the names dextrorotatory and lævorotatory. A more puzzling phenomenon was brought to light when it was found that certain liquids-e.g., turpentinealso produced rotating polarisation and that this power was not lost even when the substance was in the state of vapour. Clearly the phenomenon was one intimately connected with the structure of the individual molecules. Solutions of some substances likewise exhibit this phenomenon, and the fact that the degree of rotation is proportional to the concentration of solute at once gives the possibility of quantitative analysis to this principle. If two or more rotatory substances are in solution together, then the degree of rotation is the algebraical sum of their individual rotations when separately investi-gated in the same concentrations. The application of these principles, as is well known, has been of great industrial value in the determination of sugar and is also made use of extensively in the estimation of sugar in biological fluids.

[Ост. 31, 1925

We publish in this issue a paper by Dr. ALEXANDER HYND on some preliminary experiments on the nature of urinary protein, in which the principle of rotatory polarisation is invoked. Some extremely interesting facts have come to light. Investigation of the rotatory Some extremely interesting power of the urine from a case of eclampsia showed that this was considerably less lævorotatory than would have been expected from the amount of protein present and from the assumption that the protein present was serum albumin. This result led to a more careful and systematic investigation of the rotatory power of the carefully purified albumin obtained from the urines of 12 cases of albuminuria of pregnancy (without convulsions) and of 14 cases of eclampsia. Five cases of proteinuria not complicated by pregnancy were similarly studied. In all the cases of albuminuria of pregnancy without convulsions the specific rotation of the urinary albumin ranged from  $-48.9^{\circ}$  to  $-65.7^{\circ}$ , with a mean value of -55.81°, a figure which agrees extremely well with the mean value of the specific rotation of the albumin excreted by the five cases of proteinuria uncomplicated by pregnancy, viz.,  $-54.27^{\circ}$ . Since the specific rotation of human serum albumin prepared by a process exactly similar to that employed in the purification of the urinary albumin gave a value which approximated closely to those given above, one is tempted to conclude that the albumin excreted in these conditions is serum albumin, a tentative conclusion which agrees with the commonly accepted view.

In the cases diagnosed as eclampsia, however, the rotatory power of the urinary albumin is in many instances much below the serum albumin figure and warrants a division of the series into a high and a low rotatory group. The specific rotation in the latter group varied between the limits of  $-33.92^{\circ}$  to -41.61°, with a mean value of  $-38.5^{\circ}$ ; that in the former between  $-49.4^{\circ}$  and  $-58.67^{\circ}$ , with a mean value of  $-56.37^{\circ}$ , a figure agreeing closely with that of serum albumin. Dr. HYND shows that cow's lactal bumin has a specific rotatory power of  $-41\cdot17^{\circ}$ . The figure for human lactalbumin would probably be of like magnitude, and "it would seem," he says, "a significant fact that while in no case of proteinuria uncomplicated by pregnancy, nor in ' albuminuria of pregnancy' without convulsions, has an abnormally low specific rotation for the urinary albumin been observed, in a large percentage of the eclamptic cases the albumin excreted in the urine is considerably less lævorotatory than serum albumin. Experiments have been in progress to determine the nature of this low optically active urinary albumin, but owing to the difficulty of obtaining material suitable for such investigation, so far no definite conclusion has been come to, and further work will be necessary. The value of the specific rotation, however, suggests that the albumin may be lactalbumin." If this suggestion be accepted, "we have in certain cases of eclampsia an analogous condition to the lactosuria which not infrequently occurs in the late months of pregnancy or soon after labour, while corresponding to the symptomless albuminurias of pregnancy there exists the fairly common glycosuria of preg-However, while the presence of lactose in nancy. the blood and its excretion in the urine would do little or no harm to a patient, the presence in the blood-stream of lactalbumin, which must be regarded as a foreign protein, might entail great danger." The suggestion is tentatively promoted that eclampsia is the symptomatic expression of a supersensitiveness to lactalbumin and is essentially of an anaphylactic nature.

We shall look forward with interest to the results of a more extensive investigation on the nature and origin of the urinary protein in eclampsia, and to the effect which these will inevitably produce on the fascinating suggestions made in Dr. HYND's paper as the result of his preliminary and carefully conducted experiments

## MALARIA AND AGRICULTURE IN BENGAL.

A REPORT<sup>1</sup> to the Government of Bengal, on malaria in relation to agricultural conditions in that province, by Dr. C. A. BENTLEY, Director of Public Health, raises questions of general interest no less than of vital local importance. The report urges that the Gangetic Delta depends both for prosperity and health on annual inundation, which leaves on the land a deposit of fertilising silt, and hinders anopheline breeding during many weeks of otherwise favourable conditions. Nevertheless the very circumstances which bring richness to the land tend to its decay; for with each annual flood the layer of fertilising silt, while deposited broadcast, yet reaches its greatest depth close to the river banks, so that natural embankments are there formed over which the normal annual flood finally fails to escape. During flooding, silt is also deposited in the river beds themselves, whence however it is ordinarily scoured out, for the now clarified flood water drains back into them as the river level falls. If this process do not occur, such waterways are left, in the dry season, choked, stagnant, and dead. This condition, as would be expected, is most advanced about the apex of the Gangetic Delta where land is extensively derelict, wild and cultivated vegetation indicate soil drought, and malaria is excessive. It is, moreover, held that this natural decay of the Bengal river system is accelerated by embanking the rivers, and is intensified by the building of thousands of miles of raised roads and railways; for-and the point is stressed—embankments of this kind, fallow land, and malaria are all more abundant in Western than in Eastern Bengal; thus it is definitely concluded that such embanking is the cause both of the existing agricultural depression and of malaria. Among examples is cited the Hoogly district, where embankment of the left or eastern bank of the Damodar has prevented the river from spilling eastwards across that district into the Hoogly river, the westernmost of the stream of the Gangetic Delta. Crop experiments have shown that the average out-turn of the rice plant is greater by half when irrigated by Damodar water than when not so irrigated, while the Hoogly district is now one of the most malarious in the province, to which condition is also largely attributable the fact that its population in 1921 was less than in 1872. Further. comparatively healthy Eastern Bengal, which is yearly flooded, has, relative to area, 28 per cent. of the railway and 6 per cent. of the road mileage of the more malarious Western Bengal. It is therefore argued in the report that, to prevent extension of malaria in the Delta, normal inundation must be encouraged by maintenance of channels and spill areas, and by absolute prohibition of all embankments, including those of railways and roads, until these can be constructed without obstructing natural irrigation and drainage. In the meantime the effects of embankments upon the water table should be investigated and a survey should be made of malarial distribution, of agricultural conditions, and of the various watercourses, drainage maps of the district being prepared. These recommendations lead naturally to a scrutiny

of the proffered evidence that embankments of these

<sup>1</sup>Calcutta: Bengal Secretariat Book Depôt. 1925. 4s.