

even finer. Thus in 780 "the astonishing result of three weights is 32.662, 32.665, and 32.667 grains," or all within a third of a milligram. As Sir Flinders says, "to reach such accuracy it was needful to use the finest chemical balance, with closed case, double weigh the glass weights against each other, and read a long series of swings of the balance. How such accuracy was reached in the manufacture is incomprehensible. Nothing known of any other age at all approaches the fine weighing of the eighth century."

That the Arabs made an intensive study of the balance from both the theoretical and the practical sides, is well known. There is, indeed, a wide literature on this subject, which was considered to be a distinct branch of science. The celebrated mathematician Thābit ibn Qurra (836-901) wrote on the Roman balance or *qarastūn* (χαριστήριον) a treatise ("Kitāb fi'l-Qarastūn") which is still extant (MSS. Berlin, 6023; India Office, 767, No. 7). Other authors who dealt with the theory or practice of weighing are Al-Farabi, Avicenna, Qusta ibn Luqa, and Ibn al-Haitham. Most important of all, however, is the treatise written by Al-Khazini in 1121 for the Sultan Sinjar. "This is not confined to the description of various balances but includes also geometrical and physical considerations on everything connected with weight. Notably, it gives theorems on centres of gravity according to Ibn al-Haitham and Al-Kuhi; it mentions an instrument for measuring liquids, after Pappus; it touches on philosophical problems and, with Thābit, seeks for the 'different causes of heaviness.'" Al-Khazini's book, which is entitled "The Book of the Balance of Wisdom," contains an excellent description of the hydrostatic balance and gives tables of specific gravities which differ in general very little from the values accepted at the present day—that of lead, for example, is given as 11.33, which compares very well with our value of 11.35.

In spite of this attention to the science of the balance, it appears that accuracy in weighing deteriorated after the eighth century. Perhaps it is a mere coincidence, but it is worth noticing that the eighth century was the time in which Arabic chemistry reached its zenith. The balance continued to play an important part in chemical laboratories, however, and we find that Al-Jildaki, who died about 1360, makes the remarkable statement that "substances do not react except by definite weights."

An excellent picture of a medieval chemical balance, in a closed glass case, is given in the British Museum MS. of Thomas Norton's "Ordinal of Alkimy."

E. J. H.

² Baron Carra de Vaux, "Les Penseurs de l'Islam," vol. 2, p. 181.

University and Educational Intelligence.

ABERDEEN.—Prof. R. W. Reid has intimated his resignation from the chair of anatomy, which he has held since 1889.

BRISTOL.—On Tuesday, June 9, their Majesties the King and Queen visited Bristol, where they opened the new buildings of the University, as recorded in our issue of June 13, p. 913. Before proceeding to the University, the King received an address from the civic authorities, and in his reply, referring to the great generosity to the University shown by the Wills family, said that it "is a convincing proof that the race of pious founders and benefactors did not become extinct with the passing of the Middle Ages." At the University, the Chancellor, Lord Haldane, presented an address in which he pointed out clearly

the significance of the university in modern life. "It is our happy lot and duty," he said, "to cultivate and encourage learning both by imparting knowledge to those who seek it, and not less by providing facilities for its development through maturer study and research. . . . We are conscious, too, that it is incumbent upon us to bring science to the aid of industry." In his reply, the King enlarged upon this theme. The duties of the universities are: "To hold in trust for the common use the treasures of past thought, to provide for the creative minds of the present a congenial and stimulating home, to give to all the opportunity of a liberal education in the arts and sciences. . . . Their responsibilities are heavy, as their opportunities are great; and they can only rise to the full measure of their task if they be strong in public sympathy and support."

Honorary degrees were conferred on June 10 upon a few distinguished representatives of the Church, arts, and science who are natives of Bristol, or have been associated with the city or the neighbouring districts through education or public service. Among these were Lord Bledisloe, Sir Richard Gregory, and Sir J. Herbert Parsons, each of whom received the degree of D.Sc.

CAMBRIDGE.—Dr. A. B. Appleton, Downing College; Mr. D. G. Reid, Trinity College; Mr. A. Hopkinson, Emmanuel College; and Mr. V. C. Pennell, Pembroke College, have been reappointed as demonstrators of anatomy.

The Council of the Royal Agricultural Society has notified the University that it is prepared to grant the interest on the money given to the Society in 1896 by the late Sir Walter Gilbey to the University of Cambridge to assist the University to maintain the Gilbey lectureship in the history and economics of agriculture.

LEEDS.—Dr. W. H. Maxwell Telling, who has occupied the chair of therapeutics for the past two years, has been elected University professor of medicine and head of the Department of Medicine, as from October 1, on the retirement of Dr. T. Wardrop Griffith.

LONDON.—The Johnston-Lavis Geophysical Collection, which was bequeathed to the University of London by the late Dr. Henry James Johnston-Lavis, will be formally opened at University College on Thursday, June 25, at 4 P.M. After the opening ceremony has been performed by Sir Henry A. Miers, Vice-Chancellor of the University of Manchester, in the main college buildings, visitors will have an opportunity of inspecting the Collection in its temporary quarters at 134 Gower Street. Those who would care to attend are requested to communicate with the Secretary of the College.

THE Liddle triennial prize, value 120*l.*, of the London Hospital Medical College is being offered for an essay on "The etiology and treatment of primary high blood pressure." Competing papers should be sent by at latest January 30 next to the dean of the college, Turner Street, E.1.

APPLICATIONS are invited for the Gull studentship in pathology and allied subjects, including bacteriology, at Guy's Hospital Medical School. The studentship is open to candidates who have studied at the medical school of Guy's Hospital. It is of the annual value of 250*l.* and is tenable for three years. The latest date for the receipt of applications, which should be sent to the Secretary of the Board of Electors, at the School, is July 4.