

its witnesses, and in March 1894, Rücker revealed recommendations for the "New University of London". The main danger which he foresaw the new university facing was jealousy between semi-independent colleges, in a university non-federal in theory but federal in fact. "The only safeguard against this", he surmised, "is that everybody concerned will do his best" for the progress of knowledge<sup>10</sup>.

In South Kensington there was other excitement. In December 1890, W. E. Ayrton announced to *Nature's* readers that the government had begun "shaking the foundations of science" by announcing that an underground railway (the South Kensington to Paddington suburban railway) was to be built right under the laboratories of Rücker, Lockyer and Boys at the Royal College of Science. The impending loss in damage to the accuracy of the delicate scientific instruments by the railway was beyond belief. "The English nation", Ayrton announced<sup>11</sup>, "must abandon its . . . claim of being a practical people. Germany will laugh us to scorn. France will hit us with an epigram and Italy will view us with polite amazement". Happily the train was re-routed and now passes through South Kensington. In April 1891, Lockyer wrote a leading article on the proposed Gallery of British Art to be built at South Kensington. Lockyer had long believed that the land west of Exhibition Road on the Gore estate should be reserved for science and strongly fought the penetration of art. In the end, the scientists won; space was saved for the Science Museum and Mr Tate sought premises on Millbank instead.

In November 1895, *Nature* congratulated *The Times* for having awakened to the necessity for state action for industrial science "which we have been preaching for some years"<sup>12</sup>. A hopeful sign brought a second leading article from H. E. Armstrong, on December 5, on the "Organization of Science". Armstrong recalled the Council of Science recommended by the Devonshire Commission 20 years before, and pleaded for the application of scientific method in the public services<sup>13</sup>. The phrase "organization" came repeatedly to mind; it was a particular favourite of the German chemist, Wilhelm Ostwald, whom Lockyer, and William Ramsay in particular, admired. Ramsay sent one of Ostwald's letters to *The Times*, which devoted a leading article to it. *The Times*, however, concentrated on the duty of industry to endow research, while Lockyer, writing in August, put the blame on the government. "The real remedy", he added, "lies in consistently organizing both our peace and war forces . . .". Gregory added a paragraph saying that the existing political leaders were unable to reach a solution<sup>14</sup>; ". . . what we do criticize", he said, "is the political system which does not consider it necessary that the educational and scientific welfare of the country should be the business of those who are able to appreciate the work done, to see the necessity of reforms and to know the directions in which developments should take place". This theme of "expert" government by an "organized scientific élite" became commonplace in the next decade.

The German scare reached greater intensity in 1896 when E. E. Williams's *Made in Germany* appeared. Henry Armstrong observed that scientific education had made Germany at once a "cultured" nation and an industrial leader<sup>15</sup>. "The application of science to industry has brought the whole world into competition and only those who fully understand and can apply all the rules and every detail of the game can hope to succeed in it." Blame was shared out between apathetic industry, inadequate secondary schools and universities unfitted for research.

But in June 1897, O. Henrici talked about the hostility between the *technische hochschulen* and the universities of Germany, and stressed the little remembered stand of the universities against the intrusion of technical studies. But in February 1899, Meldola observed that even if Germany's supremacy in technical chemistry were not equalled by her efforts in inorganic chemistry or other branches of science, Britain's limited chemistry brought only dismay.

The nineties also saw fresh criticism of the Royal Society in the press and a defence in *Nature* by Thiselton-Dyer of Kew in favour of electing non-scientists. In December 1892, Huxley took the chance to defend the society from charges of prejudice in its election procedures and over representation of certain men in its permanent offices. In June 1893, Huxley and a group of Fellows determined to deny election to an eminent man of letters who was not a scientific man. Thiselton-Dyer argued that "if the Royal Society were simply constituted of professional scientific men, its influence in the country would be vastly diminished. . . . A purely expert Royal Society would be treated with a kind of ironical respect but otherwise left alone . . ." and isolated from the public. Thiselton-Dyer's defence was upheld and the nominee was elected, but the society remained a calculated distance away from public involvement. Despite its many tasks for government, it refused to be fettered with any trace of political preference in the interest of the scientific community.

During these months Lockyer himself was not inactive. In February 1892, he defended the Chair of Astronomy at Cambridge, left vacant by the death of Adams, against attempts to disconnect it from the Observatory or to regard it as a sinecure<sup>16</sup>. "The subject, indeed, is one in which we are at present scarcely holding our own", while America and Germany were spending vast sums for the equipment required by new methods of physical analysis. Above all, he felt<sup>16</sup>, the observatory should be saved from becoming "sleepy willows for mathematicians, however distinguished, who have given no hostages to fortune in the shape of noble astronomical work".

<sup>1</sup> *Nature*, 106, 22 (1920).

<sup>2</sup> *Nature*, 18, 1 (1878).

<sup>3</sup> *Nature*, 32, 205 (1885).

<sup>4</sup> *Nature*, 21, 295 (1880).

<sup>5</sup> *Nature*, 36, 145 (1887).

<sup>6</sup> *Nature*, 36, 217 (1887).

<sup>7</sup> *Nature*, 37, 49 (1887).

<sup>8</sup> *Nature*, 46, 121 (1892).

<sup>9</sup> *Nature*, 46, 193 (1892).

<sup>10</sup> *Nature*, 49, 409 (1894).

<sup>11</sup> *Nature*, 43, 145 (1890).

<sup>12</sup> *Nature*, 53, 73 (1895).

<sup>13</sup> *Nature*, 53, 96 (1895).

<sup>14</sup> *Nature*, 54, 386 (1896).

<sup>15</sup> *Nature*, 56, 409 (1897).

<sup>16</sup> *Nature*, 45, 337 (1892).

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#### NOTES

WELL-WISHERS of the University of Oxford will rejoice to hear that the honorary degree of D.C.L. has been offered to Mr. Darwin. The state of Mr. Darwin's health unfortunately precludes him from accepting the proffered honour, but the scientific naturalists of this and other countries will none the less appreciate the compliment which has been paid to their great leader. It is all the more graceful as Mr. Darwin is not an Oxford, but a Cambridge man, a circumstance which the University of Cambridge seems to have forgotten; though by-and-by it will be one of her claims not to be herself forgotten.