

basic training of students. If only advanced research were encouraged—and this is more attractive than scientific education—a gap may develop between the qualifications of graduated scientists and the requirements necessary for advanced research.

Plant physiological subjects of immediate importance are, for example, mineral nutrition, water balance for irrigation and hardiness problems, hormones as regulators of translocation, growth and development, nitrogen metabolism, and protein production from both old and new sources. Even the highly theoretical topic of photosynthesis has gained in practical importance after the discovery of the special anatomically-linked mode of photosynthesis in tropical and subtropical plant species, responsible for their

high productivity. There is also an urgent need for a study of the physiological parameters of crop yield in the Indian region. Too little or no research is done in these fields in India.

An appreciation of the importance of plant physiological research for crop improvement, and closer collaboration between physiology and genetics with adequate support from the policy-making bodies, will help to improve the situation. But the problem is so vast that international support is needed.

¹ Burström, H. G., Boon-Long, S., Lincoln, R. G., and Sen, S. P., *The present state of plant physiological research in India. A report of its problems* (stencil), 152 pp. Appendix i-iii (Indian Society for Plant Physiology, 1973).

international news

Civil Service scientists take action on pay

John Hall

MEMORIES of the dear dead days of the Aldermaston demos by the Campaign for Nuclear Disarmament (CND) were stirred by the prospect of government scientists broadcasting messages of protest at the gates of their own establishment. An Aldermaston gates meeting was one of the disruptive moves planned as part of a national work to rule started by the scientists' section of the Institution of Professional Civil Servants (IPCS), who are demanding a restoration of salary parity with the Civil Services' administration and executive classes (AEC). The scientists at the Atomic Weapons Research Establishment showed signs of their militant mood as long ago as December, when the announcement of a pay research settlement for the AEC prompted them to fire off a telegram to the civil service department in the following terms:

"Well deserved AEC award rubs salt into wounds already inflicted by CSD. Aldermaston scientists demand justice. Unfair comparisons will bring disruptive action."

A meeting of more than 400 scientists who sent the message decided on "uncooperative" action in January unless a satisfactory pay settlement was made. The mention of unfair comparisons referred to methods of determining what the basis for an increase should be—a problematical question, since, the scientists hold, there are no valid industrial parallels which might help the Pay Board to come to a decision.

The "uncooperative" action was started on January 21, when the IPCS's 20,000 scientific members embarked on a fifteen-point programme of protest actions which included meetings during working hours, half-day strikes and overtime ban. Among the more devious strategies which the disaffected scientists planned was for all suitably qualified staff to apply for every job vacancy advertised in the Ministry of Defence's weekly lists. This would virtually jam the entire machinery of making appointments in key research establishments.

At the end of the first week of 'uncooperative' action at Aldermaston, an IPCS spokesman there declared with satisfaction that scientific work at the establishment had almost come to a stand-still. This was due in large part to the introduction of a scheme requiring all communications within the establishment and with the outside world to be conducted by letter rather than by telephone. No research programme proceeds at white heat when colleagues who are able to wave to each other through their windows elect to exchange views by means of a protracted correspondence.

Industrial action was precipitated by news that the Pay Board, already criticised for being tardy over the scientists' claim, announced that it would not be ready to report before March at the earliest. This news was the straw which broke the camel's back, for it extended the disparity (and the frustration it has generated) that has existed between the pay of scientists and executive civil servants since 1971.

Although there was a correlation between the two branches before that date, a difficulty in assessing criteria for determining a scientist's pay allowed the administrators to jump ahead while the scientists' case was chewed over.

Now, on entry as a Scientific Officer, a graduate can expect to earn £1,300 to £2,200, while his counterpart, the Executive Officer, can expect £1,700 to £2,600. Higher up the scale, the Principal Scientific Officer receives £3,500 to £4,600, while a principal in the administrative group expects £4,100 to £5,400.

In further support of their demands, the scientists point out that between January 1971 and November 1973 the retail price index rose 27.1%, the weekly wage index rose by 39.9%, and the pay of government scientists rose by between 19.4% (in the highest grade) and 23.9% (in the lowest grade). And that included a 7% stage three entitlement.

Nixon announces energy budget

Colin Norman, Washington

In a highly unusual move, President Nixon last week treated the American public to a detailed preview of his Administration's forthcoming budget request for energy research and development in the 1975 fiscal year. The figures, contained in a fact sheet distributed by the White House along with this year's first Presidential energy message to Congress (there were at least three such messages last year), herald a veritable bonanza for research and development aimed at increasing production and use of coal.

The total expenditure proposed for all energy research and development is \$1,810 million, an increase of 81% compared with this year. All areas of research get a look in, but some are more favoured than others—nuclear fission takes pride of place, for example,