

The Cleavage in Biology

THE leading article on the "Relationship of Pure and Applied Biology" (NATURE, 147, 427; 1941) paints a lamentable picture of the separation of pure and applied biology, lamentable because, as it claims, each is needed to fertilize the other. The article explains how in the universities research has become an end in itself and purity its ideal. It implies also that in research stations utility often provides an opposite and exclusive ideal. Each of the two ideals justifies its own kind of enthusiasm for research and persuades us of the reality of the opposition between them. Nothing but good can come of showing that the opposition is unnecessary; that snobbery and counter-snobbery are equally artificial, and that pure research can develop as it should develop only if it is continually harassed by the demands of necessity. It is the absence of necessity or apparent use that in past times has often led science, or some parts of it, into backwaters where the inevitable weeds of scholasticism have clogged its stagnant channels.

All this is clear enough; but it is not the root of the matter. There is, as the article says, underlying the cleavage of ideals a cleavage of organization and material resources. With a few important exceptions there is a division in biological research between those who have to teach in the universities and are free to follow pure research in their spare time, and those again who work in research institutes of medicine or agriculture and who to a greater or less extent are expected to achieve practical results. Each party develops its own comfortable philosophy, comfortable at least in a stable environment. *Il n'est point de sot métier.*

The separation of teaching from applied research does harm to the research. New recruits to research from the universities have to unlearn a great deal of what they have learnt and, having in this way lost their simple faith, stand a poor chance of being allowed to teach again. But consider the harm it does to the teaching. A professor of botany told me recently that it was no use trying to develop the teaching of botany into something more useful since botany was only taught to people who would teach botany to people—and so on for ever. This is the principle of the 'fundamental training' seen from the other side of the hedge. Is it any wonder that the standard university text-books scarcely mention any of the uses that can be made of a knowledge of plants and animals? And that they confine their statements about genetics and cytology, for example, to a reiteration of formulæ which have obviously meant as little to the men who write them as they will to the men who read them?

Surely then the remedy is not, as the article proposes, an interchange of personnel between institutions which continue to pursue divergent paths of pure and applied research. Such a policy would touch only the surface. No, the union of interests must be complete. The divergence must be suppressed; and it must be suppressed by the fusion of pure and applied research, by the fusion of both with teaching.

A radical reconstruction is therefore needed in the relations of teaching and research, of universities and stations. Let no one object that fearful obstacles lie in the way. Of course they do. Thirty years will be needed to accomplish the change. But accomplished it will be.

Once an organic union of the two parties is estab-

lished the rest will follow. Syllabuses will be revised, the necessary 'fundamental training' will become much more fundamental and much more of a training. The sterile separation of botany and zoology will become a fruitful union. The combination of small departments will bring them to a size suitable to the work in hand. The importance of chemistry and statistics and even downright craftsmanship will be admitted and exploited; and, by accident or design, the impossible hope of NATURE will have been realized—a training in biology will have become an education in itself.

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As Dr. Darlington points out, the divergence between pure and applied biology must be suppressed "by the fusion of pure and applied research, by the fusion of both with teaching". Thirty years, indeed, will be needed for this, if not much longer. To effect this remedy immediately is, of course, impossible; then surely the suggested interchange of personnel should be the immediate aim with complete fusion as the ultimate aim.—Editors of "NATURE".

"The Man of Science as Aristocrat"

IT is indeed a privilege that in NATURE we can enjoy an article by Mr. H. G. Wells. I, like him, would like to preface the remarks I have to make upon his contribution by paying my modest tribute to NATURE. I know nothing more wholesome than a perusal of the "Letters", at least 50 per cent of which must be pure gibberish to most people, but absorbing to the few interested in their particular subject raised. Humility of mind over such abysmal ignorance of so many subjects is a fine correction in these days of the 'cock-sure'.

H. G. Wells obviously comes under the head of a man of 'general intelligence'. I make no such claim. I get included by virtue of "a broad curiosity outside the ranks of the specialist worker".

In a debate on Mr. Wells's recent lectures in the United States and why he was allowed to go and air such curious views Mr. Peake, speaking for the Government, put up an admirable defence of his conduct on the ground that we all knew Mr. Wells and that we must look upon him as one of our "invisible exports". I have never quite decided whether Mr. Peake meant very subtly that we can all see through Mr. Wells or not, for although he derides the patent laws and condemns them—"we must all work for the common good"—, I see no urgent advocacy of the abolition of copyright. The miserable capitalist world that recognized Mr. Wells's genius has by its machinery not only kept him from starvation and being 'bumped off', but also made him incidentally one of the most privileged of the privileged classes.

Success in literature has been his, with its reward. If he had levied toll on the world for his invention of the cinematograph, would the "arrogance and detestableness of his nature" have been brought out? Certainly not. It was not brought out by his success in literature for the reason it was not there. A more lovable, maddening man I have never met.