be established — to strengthen inter-departmental links — to set-up strategic capacities for problems analyses — to stimulate integrated planning and programming of R & D efforts — and to facilitate the implementation of scientific progress (innovation) ;

non-governmental R & D sponsoring organizations be made aware of the vital role science can and should play in contributing to the solution of public problems. A change in these organizations' policies should be induced from being just science-oriented to solving problems arising both outside and inside science.

Organizing and Training for Effective R & D

In the past couple of decades the performance of the R & D community has been raised and maintained essentially by continuous, quantitative, growth, but in the near future this community must probably concentrate primarily on efforts to increase the quality and efficiency of the *existing* R & D units, with respect to programming, budgeting and manpower strategies.

Where necessary and where possible, the sciences should develop new modes of interactions and concerted actions. If scientists learn to co-operate in terms of multi- and interdisciplinary strategies, a number of present innovation obstacles would be removed and the rate of innovation increased. Since physical principles penetrate nearly all branches of R & D, physics has excellent opportunities to take the lead in enhancing interdisciplinary communication links. Therefore, in academic and industrial environments, the effort of interdisciplinary research may be enhanced where possible — staffed on a part-time basis by the manpower of the classical disciplinary structure. If needed, new interdisciplinary centres should be set up.

Furthermore, special manpower on R & D staffs should be provided for, to act as observers and co-ordinators, able and free to communicate with other fields of study ('lookout' manpower). The mobility of trained scientists between functions in industry, in academic institutions, in education and in government should be fostered.

There is a need for a reconsideration and rationalization of our terminology to indicate various categories of physical research. Adjectives like 'pure', 'basic', or 'free' often mask the real issue, objective or motivation.

The curricula of science and engineering training should be adapted to the future needs and performances of the R & D community. Physicists should be given opportunity for science policy training and teamwork experience, in addition to disciplinary training. To this end, science policy units and public policy seminars should be organized in universities.

The most practical and effective way of control being the budgeting and the corresponding allocation of manpower and material means, the following measures are recommended :

University and government institutions should reserve a sizable fraction (say 10 %) of the budget for promoting the work of talented individual scientists.

An equal fraction of the budget should be reserved for interdisciplinary activities and science policy chairs.

Letters to the Editor

Claim for priority in holography

Sir,

I read with interest the article 'Dennis Gabor-Winner of the 1971 Physics Nobel Prize' by E. Ingelstam.[1]

I feel it is my elementary duty to make a small comment. The precursor of holography was a Pole, Mieczyslaw Wolfke, the late Professor of Physics of the Technical University, Warsaw. We find the first mention of holography in his paper 'Über die Möglichkeit der optischen Abbildung von Molekulargittern'.[2] (See also Reference 3.) In his paper, Wolfke writes 'Bei monochromatischer parallel senkrechter Beleuchtung is das Beugungsbild eines Beugungsbildes eines symmetrischen Objektes ohne Phasenstruktur identish mit dem Abbild dieses Objektes.' One can find the full explanation of this statement in his previous papers.[4]

I would like to mention that the problem of holography has been studied carefully for many years by the Russian Professor D.F. Schuschurin of Moscow. In 1971, he published '*History of Holography*' in Russian.[5]

Schuschurin drew the attention of D. Gabor to the publications of M. Wolfke, and Gabor (in a letter dated 19 January 1968 to Schuschurin) wrote 'I have now read Wolfke's paper and see that priority for the "double Fourier transformation" must go to him, not to W.L. Bragg.'

J. Mazur,
Polish Academy of Sciences,
Institute for Low Temperature and Structure Research,
Wroclaw,
ulica Próchnika 95,
Poland.

Sir,

I knew of the contents of the paper[2] to which Professor Mazur refers when I wrote my very short article,[1] which by no means claimed to contain full references. A priority to Wolfke for the double Fourier transformation seems to be clear. Professor Gabor also mentioned this priority in his Nobel Lecture, which will appear in 'Le Prix Nobel 1971'.

E. Ingelstam,
Kungliga Tekniska Hogskolan,
Stockholm 70,
Sweden.

Sir,

Thank your for your letter of June 1, with copy of the letter from J. Mazur. It will be good if wider circles become acquainted with the merits of Mieczyslaw Wolfke. From my side, I wish to add that I have duly mentioned Wolfke in my Nobel Lecture, but I mentioned also that neither I nor Sir Lawrence Bragg knew anything of his paper.

D. Gabor,
Imperial College of Science and Technology,
London SW7.

Editor's note :

Professor Mazur wrote a similar letter to *Physics Bulletin,* **23** *3* (1972) 175.

He also pointed out that D.F. Schuschurin drew the attention of Polish readers to two German references [6, 7] in his supplementary remarks to the article [5] translated into Polish [8].

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