

The Contribution of Science to the Future

THE leading article under the above title in NATURE of Sept. 3 is a timely reminder of the outstanding problem of the present age. When science begins to question what is being done with its lavish gifts to humanity, it is a healthy sign, and gives grounds for hope that something may be done towards solving the greatest anomaly of our time—that of scarcity in the midst of abundance, and its attendant evil, unemployment. It is, too, a sign of awakening to the realities of the situation that there were echoes of this question at the recent meeting of the British Association—notably in the president's address and in the suggestive address by Prof. Miles Walker on "The Call to the Engineer and Scientist". Moreover, there are not lacking other signs in various directions that this question is becoming a live issue, and one that must be grappled with, and that quickly.

The question arises, What is the best way of following up these finger-points, and translating them into action?

It may I suppose be laid down as a general proposition that the fruits of science—and they are many—ought to be made available to the community, free of any exacting toll, and in such a way that the benefits are distributed as evenly as possible to every member of the community. Efforts should be directed towards seeing that there is no loss of efficiency between the findings of science on one hand, and their application to human life on the other. Here, if anywhere, should be evidence of the 'conservation of energy' on its highest plane.

Thanks to science, the problem of production has been solved, and by means of a policy of rationalisation, costs have been reduced to a minimum. On the *distributive* side, however, there has been no corresponding advance or change. In the midst of an otherwise changed world, we continue to pursue the same outworn methods of our forefathers of 150 years ago, relying upon the inertia of the past to carry us through.

This disequilibrium between the productive and distributive side of industry, which is the root of the problem, must be righted if civilisation is to reap the benefits of scientific progress. Here more than anywhere else is abundant scope for rationalisation in the proper sense of that rather hackneyed term. Nothing indeed could be more irrational than the existing state of affairs.

The fact is, there has been a sad lagging behind the advance of science on the part of what may be termed the non-scientific world, that is, the ethical and spiritual, and we might add, the political. There has been no preparing of the ground for the coming of the gifts of science, and the result is that much that should otherwise have been a benefit to mankind has simply led to social chaos.

As to what is to be done, a humble suggestion may be hazarded. In these days of over-specialisation, when the general is apt to be lost in the particular, should not an attempt be made to co-ordinate all the leading forces of to-day—scientific, ethical, industrial, political, etc.—by forming some sort of general council, the object of which would be to concentrate upon this special problem of how Nature's gifts, as revealed by science, can best be applied to the welfare of mankind; to plan definitely, and if need be to create, a new order of society, fitted to receive, and make adequate use of, our newly found

powers; and further, to tackle the correlative problem of providing for the proper use of that leisure which may be expected to be the outcome of a proper use of Nature's bounties? The one essential qualification for members of such a council would be the possession of those qualities of mind referred to in the article: it may, perhaps, be summed up in freedom from the inertia and prejudices of the past, and an open mind towards the future. The recommendations of such a council could, I feel sure, be made to carry weight in political quarters, and so in time filter through into national life.

Prof. Walker's suggestion of an experimental self-supporting colony under scientific supervision is also worthy of attention.

One is tempted to reflect that if some self-sacrificing genius could be found to devote as much, or even a tithe of the attention and research upon this seemingly recalcitrant problem as is concentrated upon, say, the breaking up of the atom or the origin of life, a solution would not be long in being forthcoming. Is it too much to hope that some such genius may one day be found?

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A Biological Conversion of Glucose to Glucosone

WHEN the fully developed mycelium of a certain mould belonging to the flavus section of the *flavus-oryzae* group of Aspergilli, is allowed to act upon a 5 per cent solution of glucose in the presence of a small quantity of toluene, I have observed that glucosone is produced. This may be detected in the medium when the experiment has been allowed to proceed at a temperature of about 27°–28° for several days, the presence of the glucosone being demonstrated by the fact that addition of phenylhydrazine acetate in the cold gives rise immediately to a precipitate of glucosazone. A 5 per cent solution of glucose on treatment with phenylhydrazine acetate in the cold does not yield immediately a precipitate of glucosazone.

The glucosone was also characterised as an azine, which was formed when *o*-phenylenediamine was added to the medium from the culture flask. The derivative melted at 194°–195° and proved to be identical in appearance, composition and behaviour, with the azine obtained by treatment of a solution of authentic glucosone with *o*-phenylenediamine. A mixture of the two specimens also melted at 194°–195°.

This formation of glucosone from glucose under the influence of an enzyme or system of enzymes present in a mould is not without interest in view of the suggestion made by Hynd¹ that the first step in the utilisation of glucose in the animal body is oxidation to glucosone, insulin being presumed to act as an oxidase catalysing the conversion.

Further study is being made of the conditions under which this transformation can be effected by biological agency.

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¹ *Proc. Roy. Soc.*, B101, 244; 1927.