

CORRESPONDENCE

Keynesian or Galbraithian?

SIR,—Surely government spending on research is wise economic policy, not because it is Keynesian, as you suggest (*Nature*, 240, 515; 1972), but because it is Galbraithian. A non-growth economy, such as Galbraith and others have described, will need a place for the able and energetic individuals who in the past have found their rewards as entrepreneurs. Research is as open-ended as business or industry: it can absorb all the enthusiasm of the most able person. But research uses few natural resources, causes little pollution, and seldom contributes in any substantial way to the growth of the economy.

Is it not better for society to pay a man to do research, rather than to pay him to produce and sell goods which society neither wants nor needs? Subsidies to academics and artists to keep their talents out of business and advertising should have at least as high a priority with the government as subsidies to farmers to use their land for one crop rather than another. If we start now to increase the number of research studentships, as well as the funds for research itself, able undergraduates and schoolchildren will tend to steer towards a career in research rather than in business, and there will be fewer frustrated managers in 20 years time.

A substantial increase in the number of people who are focusing a trained curiosity on all aspects of mankind and his world could lead to a new burst of understanding, of the kind last seen during the Renaissance. We can have no more noble aspiration than to try to discover who we are and where we are going. Academics should point out to governments not just that research can be useful in the short term, but also that non-utilitarian research can be valuable.

Yours faithfully,

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Taxonomy and Evolution

SIR,—Professor J. W. Fairbairn queries the significance of the idea of evolution

in the advancement of taxonomy (*Nature*, 241, 225; 1973). He makes very generalized accusations against taxonomists without producing any definite evidence.

I have spent the greater part of the past thirty years in intensive taxonomic study of some tropical families of plants on which previously recorded observations were defective, and taxonomic treatments correspondingly unsatisfactory. I assert that the idea of evolution has always been an essential element in my thoughts on the problems presented by these families. The evidence that organisms have reached their present condition through processes of evolution does not depend only on the taxonomic study of existing organisms; there is much other independent evidence. Evolution implies that there is a built-in natural classification for organisms; our problem is to find it. To regard the results of a taxonomic study as potential evidence of the history of evolution in a particular case is not arguing in a circle. Thought on the possible significance of such evidence often leads one to further observations which may throw further light on the subject. The problem is a dynamic one; to deny phylogenetic thinking is to ignore biological reality. I have attempted to express my ideas on this subject, with reference to some particular families of plants, in a paper entitled "Comparative Morphology, Taxonomy and Evolution" (*Phytomorphology*, 17, 36; 1967) and refer interested readers to that statement.

Yours faithfully,

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Noah's Ark

SIR,—We were pleased to see that your correspondents, Harkins, Stenzel and Black (*Nature*, 241, 226; 1973) have noticed that our paper on protein polymorphisms in man (Haigh and Maynard Smith, *Genet. Res.*, 19, 73; 1972) lends some support to the biblical story of Noah's Ark. What your correspondents have not appreciated is that the biblical story provides the best direct test of Kimura's neutral mutation theory at present available. There are as usual some internal inconsistencies

in the account, but it is reported in Genesis, 7, 2-3, that only one pair each of the unclean animals were admitted to the ark and seven pairs each of the clean animals. It follows that if Kimura is right there should be a greater degree of polymorphism in cows and antelopes than in pigs, camels and ossifrages.

Yours faithfully,

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JOHN MAYNARD SMITH

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Darwin and the Creator

SIR,—Surely it is silly of J. W. Fairbairn (*Nature*, 241, 225; 1973) to "treat the Genesis account of creation with as much respect as that of the biologist". The fact that the biological accounts are varied and unsubstantiated does not in itself mean that any other account has therefore to be put on the same level. Hypotheses come not only as rivals but in rival forms: the various biological accounts of creation fall into one form, whereas religious accounts fall into another form. Quite apart from the more detailed questions of scientific modelling, how does the Book of Genesis stand in regard to the principle of falsification?

The words by Darwin, which J. W. Fairbairn quotes, include in themselves this contrast, for the concept of a Creator is utterly different from that of the "fixed law of gravity". If one assumes the former, why should one accept the latter, and *vice versa*? The two concepts spring from models of the universe which are incompatible.

It is as well to remember that when Darwin published the *Origin of Species* he did so with an anguished regard to the nature of the society in which he lived and worked. He himself was a firm agnostic and his use of the word Creator must be taken as poetical in the same way that any sensible person takes the Book of Genesis itself.

Yours faithfully,

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