

the opposite view, that is, by looking for the most refutable assumption.

The author does not deal very fully with the difficulty that annihilation of matter may well lead to experimental effects which have not been observed; for example, to the half-life of the proton which one would expect to be able to measure. But I do not wish to be altogether critical of the book. There are many interesting flashes of insight scattered about it, notably a discussion about gravitation. The author lists a set of problems about gravitation; for example, Why should there exist a field which tends to increase its sources, unlike every other field, which tends to decrease them (because like masses attract)? Why, indeed, do like masses attract, and why have we only ever found positive gravitational masses? Why does the inertial mass always occur in association with an active gravitational mass (if, as I would accept, the general theory of relativity merely incorporates the equivalence of inertial and passive gravitational masses)? Why is there only a limited number of constant ratios between unit charge and the inertial mass of the elementary particles? Can one reconcile what is known about gravitation with action at a distance? All these seem to me questions which are worth asking at this particular time.

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## ESSAYS IN COMPARATIVE EDUCATION

### The Child, the Parent and the State

By James Bryant Conant. Pp. vi+211. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1959.) 28s. net.

*SPUTNIK I* had a traumatic effect on public opinion in the United States. A scapegoat seemed necessary, and the public education system was selected. Education and educationists—already under fire from several quarters—were increasingly blamed for the apparent failure of the United States to meet the Soviet challenge. Some of the criticism has been virulent, polemical and not infrequently uninformed. Fortunately Dr. James Bryant Conant, the very distinguished scientist, educational administrator, statesman and diplomat, has entered the fray.

Conant's tremendous contribution to the debate in the collection of essays under review is that his criticism of American education is, as befits a scientist, cautious, balanced and thoroughly informed. He chides its more violent critics, but nevertheless examines the problems of American education within the framework of the Soviet challenge to his country. He is not inclined to see it solely, or even principally, in terms of scientific and technological man-power although this aspect cannot be denied. Rather does he accept Comte's view that the great task of education is to rear "a generation of citizens who will be able to rise to the moral and intellectual challenge of these fateful times". In these terms, Conant appreciates that too few American educators have recognized the international post-war role of their country and that too many still continue to believe that "they can live and prosper in an isolated, insulated United States". He sees the larger problems as those of preparing "men and women who can exercise wise leadership" and of developing "intelligent discrimination in future voters". These are

formidable tasks indeed, but tasks which Conant admits have been conscious objectives in American education for a long time.

In the face of these problems the process of policy formulation in the United States is one of great complexity. Fundamentally, as the author's title suggests, there is conflict between the interests and demands of children and parents and those of the State. Hence much of Conant's analysis deals comparatively with the mechanics of policy-making in the United States and in Europe. The crucial issue concerns the part the State should play in the maintenance of academic standards, the organization of the curriculum, the training and qualification of teachers, and the finance of schools. Some of Conant's suggestions sound somewhat platitudinous, but one at least is bold. If taken seriously his plea for Federal aid on a large scale for education is bound to provoke controversy. His own proposals regarding the consolidation of 'high schools', the teaching of foreign languages and the place of mathematics and science in the curriculum are moderate and likely to appeal to the practical educator. His support of vocational schools and for some kind of day continuation system is more novel. Many serious educators, however, will think of his proposals as little more than temporary expedients.

Unlike many critics Conant is aware of the difficulties of reforming education. He recognizes, for example, that some policy decisions are not reversible and makes clear that changing conditions in the United States had more to do with the changes in the educational system than irresponsible theorists. In the face of several possible policies from which to choose Conant consistently applies the pragmatic test of asking what consequences—social, political, economic and educational—are likely to flow from the adoption of any one of them. Indeed, one might hazard the guess that he regards the task of prediction as central to the serious study of education. Certainly only through improvements in this field can the study of education grow into a science.

Conant's own method of inquiry—stated by him to be empirical—seems basically pragmatic. His insights are revealing, his analysis of problems acute, and some of his solutions bold. Yet some doubts might be raised about the effectiveness of his comparative approach. The text and very full notes contain much information about the schools of Europe. The appendixes provide a valuable digest of Mr. Khrushchev's memorandum on Soviet education of September 21, 1958, and an extract from the December, 1958, "Law of the Supreme Soviet on School Reorganization". Parenthetically, both documents reveal how universal are some of the problems of education in this technological age. But his analysis of policy formulation in mid-nineteenth century England, present-day Western Germany and the Soviet Union seems dangerously to over-simplify very complex and subtle processes. There are, in brief, rather more sophisticated models on which to base comparative education studies.

Finally, in distrusting discussions about the meaning—and presumably the aims—of education and in eschewing theory in favour of an empirical approach, Conant seems to have failed to distinguish between normative theories and predictive theories. Students of education, in fact, are in real need of the latter and it might be that comparative studies, more than any other type, might make a significant contribution to this task.

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