Letters

Small High Schools

James B. Conant concludes from his survey of the American public high school system that it is burdened with far too many small schools. He says, "The country over, something like a third of our youth are attending high schools that are too small. As a result, one of the most precious assets of our nation is being squandered—the potential talent of the next generation. It is almost impossible for students graduating from many of the small schools later to become members of learned professions [*The Child, the Parent and the State* (Harvard Univ. Press, Cambridge, Mass., 1959), p. 37]. . . . The elimination of the small high school through district reorganization and consolidation should have top priority" (*ibid.* p. 39). Conant's studies lead him to believe that comprehensive high schools with graduating classes of fewer than 100 students inevitably provide an inferior education.

Conant's analyses and arguments, which are based upon his observations of the curricula, the organization, and the staffing of high schools, seem reasonable. But considering how little we really know of the consequences of various educational practices and arrangements, one wishes for data on how students turn out. Some data on this point have come to hand in a recent issue of *Science*.

Harmon [*Science* **130**, 1473 (1959)] in connection with another analysis of public high school graduates, reports data showing that 35 percent of the science doctorates awarded in 1957 and 1958 went to persons who had been educated in small high schools (schools with fewer than 100 graduates each year), and that 6 percent of the degrees were earned by the graduates of very small high schools (schools with fewer than 20 graduates each year). Statistics assembled by the U.S. Office of Education (*Statistics of Public Secondary Day Schools, 1951–52)* show that when most of these 1957–58 science doctors were graduating from high school, about 36 percent of all public high school students attended small schools, as defined above, and 5.5 percent attended very small schools.

Some estimation is necessary here, for Harmon reports class size and the Office of Education reports school size, and the time of graduation from high school of the 1957–58 doctors is not known with precision. The figures given are based upon 1946, the best estimate of the year of graduation for which data are available; the estimates would

not be appreciably changed if data for 1938 were used.

At any rate, it seems clear that the number of science doctorates awarded the graduates of these small schools is in line with the total number of students educated in these schools. How can it be that the small high schools of 1946, that presumably possessed all the curricular, instructional, and material deficiencies said to go with smallness, produced their full quota of scientists in 1957 and 1958?

Is the situation different today?

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Importance of Chinese for Scientific Communication

During recent years the number of scientific journals and the total volume of scientific literature published by the People's Republic of China appear to have increased considerably. Evidence cited by Wilson (*1*) on the magnitude of the effort in scientific education and research leads one to expect that the increase will continue. According to a sampling of journals received by the Harvard-Yenching Institute, Cambridge, Mass., the vast majority of Chinese scientific publications appear only in the Chinese language and normally are not translated. However, two journals published in Peking, *Scientia Sinica* by the Academia Sinica and *Science Record* by the Science Press, consist of papers in Western languages, principally English. These papers, representing various fields of science, often appear previously in other Chinese-language journals.

In view of the rapidly increasing importance of Chinese scientific literature it is desirable that some scientifically trained persons now begin learning to read scientific Chinese. Only when knowledge of the language is widespread can Chinese scientific progress be evaluated accurately. The task may soon be too great for exclusive reliance on the few American scientists who speak Chinese as their native tongue.

Most of the difficulties associated with learning to read scientific Chinese are not associated with the language itself and seem to reflect a lack of interest on the part of Western scientists. According to a study that I have made the following problems stand out.

1) Because of present world unrest, publications of the People's Republic of China do not circulate freely in the United States.

2) No textbooks and selected read-