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The Well-Rounded Man

"Musical, literary, artistic, but I should say normal—a very charming girl."

"Margaret's anger and terror increased every moment. How dare these men label her sister! What horrors lay ahead! What impertinences that shelter under the name of science!"

Thus does E. M. Forster, in his novel *Howard's End*, epitomize the differences between the scientific-medical and the romantic-humanistic appraisal of personality. And Sir Charles Snow, in his *The Two Cultures and the Scientific Revolution*, thus deplores the gulf between those educated in the humanistic and those educated in the scientific tradition: "Closing the gap between our cultures is a necessity in the most abstract intellectual sense, as well as in the most practical. When these two senses have grown apart, then no society is going to be able to think with wisdom."

The latest evidence that the gap exists is provided by the results of a test prepared by Kenneth Richmond of Glasgow University [*The Times Educational Supplement* (29 Sept. 1961)]. Each of more than 3000 people (students and professors) was asked 20 questions in the arts and 20 in the sciences. Here are some of the questions in the sciences: "The uncertainty principle was enunciated by (a) Gauss; (b) Heisenberg; (c) Tinbergen; (d) Lamarck; (e) T. H. Huxley; (f) none of these. A cloud chamber is used in (a) an artist's studio; (b) an oil refinery; (c) a physicist's laboratory; (d) a weather ship; (e) an actor's dressing room." And in the arts: "One of these is said to have a *Blue Period*—(a) Henry Moore; (b) Cezanne; (c) Utrillo; (d) Balzac; (e) Picasso; (f) Rembrandt; (g) none of these. With which of the following would you couple the name of Frank Lloyd Wright? (a) Erik von Stroheim; (b) Jan Van Eyck; (c) Mies van der Rohe; (d) Gerard Manley Hopkins; (e) Schrodinger; (f) none of these."

The following tentative conclusions emerge: the average performance is surprisingly low; those who do well in science are on the average more one-sided than those who do well in the arts; and few do well in both fields. The averages range from a low of 3.2 out of 20 in the arts and 3.7 in the sciences for students at a women's training college for teachers to a high of 7.3 in the arts and 10 in the sciences for "sixth-formers" (grammar school students) in a public (equivalent to our private) school. Graduate students in university teacher-training courses did a little less well than the sixth-formers: 6.8 in the arts and 9.3 in the sciences in one university; 7.4 in the arts and 8.6 in the sciences in another.

It is not clear whether the pattern of one-sidedness and the attitudes that accompany it are set so early that broader education could not correct the imbalance, and whether, indeed, Sir Charles and Mr. Richmond are asking the most important questions. Would all be well if education could fuse the two cultures into one, as Sir Charles seems to imply?

What is extraordinary about this test and about Sir Charles's book is the assumption that knowledge of the sciences and the arts is alone worth considering. As Lloyd Fallers points out in the *Bulletin of Atomic Scientists* (Oct. 1961), Sir Charles almost completely neglects a "third culture—that concerned with man in society." So does the test. Education that neglects to give some understanding of politics, of history, of anthropology, of economics, and of the parts that science and engineering play and should play in a modern state, will hardly suffice to give us wise administrators in government and industry—G.DuS.