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SCIENCE

International Competition in Science

The Soviet ability to launch large missiles has been misinterpreted as indicating superiority over the United States in scientific matters. Actually there are few areas of science in which the Russians excel. Despite their ability to place large pieces of hardware in orbit, their contributions to space research have been meager. They have nothing to match our Mariner II results, and their exploration of regions closer to the earth has been less intensive than ours. In high-energy nuclear physics our discoveries are unmatched, as is our progress in maser-laser studies and in semiconductors. In most areas of chemistry the Russians are behind us; plastics and petrochemicals are outstanding examples. In the exploitation of radioactive isotopes much of the Russian work is mere repetition of our research. In biochemistry, biophysics, and molecular biology we are superior. The Russians have achieved nothing like our progress in deciphering the genetic code or in determining amino acid sequences in proteins.

Innumerable examples could be given; we compete on countless frontiers of science which, in sum, are vastly more important than space. On many of these frontiers, such as solid-state physics, advances are crucial to future economic and military strength. Fundamental research is now often quickly followed by practical applications. A substantial fraction of today's commerce is based on discoveries of the last two decades. It is of interest to compare American and Russian competition in world markets in items involving science and technology. By this yardstick the Soviet Union is a third-class power. It is no match for Western Europe, the United Kingdom, or Japan.

The Japanese are competing in technological areas requiring first-class scientific competence. Their electronics products such as transistor radios and television sets are selling for less than ours on our own soil. To a degree this reflects cheaper labor, but only in part. The production of transistors and other solid-state electronic components involves sophisticated technology. Even the cheapest labor is no substitute for scientific ability in this field.

Western Europe is far stronger scientifically and technologically than the U.S.S.R., and the Western Europeans are rapidly closing in on us. If present trends continue, it will be only a matter of a few years before they achieve supremacy.

Western Europeans have long proved that they are, individually at least, as competent scientifically as we. They have made a remarkable recovery from the effects of World War II and are again in a position to challenge us. In the contest they have two advantages. Research costs them about one-fourth what it costs us, and proportionately less of their talent is occupied with military and space efforts. Leaders of industrial research in this country are increasingly concerned with the overpowering competition of government-financed programs for first-class scientific talent. One research director told me recently, "We need good people, but my company can't compete with projects paid for by the U.S. treasury."

We have chosen to stake our national prestige in a propaganda contest with the Russians in one of the few major areas of technology where they have an edge over us. In the meantime we fail to note that the Western Europeans are getting ready to walk away with the trophies which really count.—P.H.A.