

it was concluded that students of high ability attending highly productive institutions have a pattern of traits, values, and attitudes which is more closely related to serious intellectual pursuits than have students of high ability attending less productive institutions (16).

#### References and Notes

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11. Weissman devised a method of classification of responses on the Strong Vocational Interest Blank on a theoretical-applied continuum representing intellectual disposition or orientation scores. There are three major categories of disposition, with a number of subcategories under the first two. Included under category *A* are the profiles representing a theoretical and abstract orientation. The other two categories represent a less theoretical and more applied orientation, *B* being distinguished from *C* chiefly on the basis of "more applied dispositions at professional rather than technical levels of responsibility." The system makes it possible to assign each profile of scores to a single category. The names of the categories and brief characterizations are as follows:  
*A: Theoretical.* A0, abstract: intellectual curiosity centers on the world of ideas, concepts, and theory, often without tangible subject focus. A2, scientific: intellectual activity involves speculative and creative thought, the spirit of inquiry, and the scientific "method"; intellectualism centers on science and especially scientific research. A3, social: intellectual interests center on social institutions, customs, and behaviors.  
*B: Applied-professional.* B1, biological: orientation is to the application of principles in a broad area of independent responsibility; focus is on medical, biological, and natural sciences. B2, technical: orientation is to application and independent responsibility in technical fields. B3, welfare: orientation is to application and independent responsibility in work with people. B4, business: orientation is to application and independent responsibility in business. B5, verbal: orientation is to application and independent responsibility in "verbal" activities, often of a political or economic nature.  
*C: Applied-technical.* orientation is to application but with limited aspirations for responsibility. Interests are in active, outdoor, technical, or mechanical affairs.
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16. The collection and analysis of data discussed in this study were part of a larger project made possible through a grant from the Carnegie Foundation. Drs. John Darley, Elwin Farwell, and Harold Webster and Mr. George Yonge served as consultants for the project and the study.

## Science in the News

### Kennedy's Economics: The Dismal Science Made Cheery; Science, Education, and Economic Growth

There are a number of points in common between the Economic Report that President Kennedy presented to Congress last week and the report that President Eisenhower presented 2 days before he left office, which is interesting, because the policy recommendations made in the two reports, despite the common agreements, are miles apart.

Both start with the same data: that unemployment is high, production has declined. Both agree that a moderate upturn is likely in the coming months, even if the government does nothing special to stimulate the economy. Both accept the idea of government intervention in the national economy: the Eisenhower report speaks approvingly

of "a keener awareness [since the war] of approaching downturns and a determination to meet them by positive action rather than by passive acceptance."

Both reports agree that deficit spending can help stimulate the economy: the Eisenhower report notes, as one of the policies that helped stop the 1958 decline, that "a substantial deficit was incurred." Both agree on the need for support of such things as science and education as part of a program for economic growth: the Eisenhower report notes the requirement for "a huge expansion of the Nation's commitment to education." And both agree on the need to control inflation: the Kennedy report calls inflation "a cruel tax upon the weak . . . the certain road to a balance of payments crisis and the disruption of the international economy of the Western World."

This list could easily be doubled in

length while still confining itself to major points of agreement on economic facts and principles, and what it proves, in the main, is the wisdom of General Marshall's plea: "Don't ask me to agree in principle; that just means we haven't agreed yet."

### The Dismal Science

Thomas Carlyle gave economics its familiar tag, the dismal science, at a time when one of its implicit axioms was that the mass of men are necessarily condemned to existence at a bare subsistence level.

That axiom has become obsolete. No one today accepts the inevitability of permanent economic misery even for the undeveloped nations, and the conditions of mass poverty have already largely disappeared in the more advanced countries. But a remnant remained in the Eisenhower Administration in the form of a conviction that full employment is inconsistent with preserving the value of the dollar, a conviction that grew out of the well-observed tendency for prices to rise before reasonably full employment, say not more than 4 percent unemployment, had been reached.

This suggested that full employment would bring with it strong inflationary pressure, which in turn led an Administration passionately concerned with the value of the dollar to accept as one

of the dismal facts of economics what the Kennedy Administration now says should never be accepted: "We must never," says the Kennedy report, "... come to accept the proposition that reasonable price stability can be achieved only by tolerating a slack economy, chronic unemployment, and a creeping rate of growth."

The Eisenhower report, in much different language, endorses substantially the policy that Kennedy condemns: "Some temporary acceleration of growth might have been achieved," the report says, "if expectations of price increases had been allowed to persist and to become firmly rooted. But the unsustainable nature of such growth would now be confronting the economy with the need for far-reaching and painful correction."

### Two Views

It was this sharp divergence in views that led Eisenhower to announce himself well satisfied with the recovery from the 1958 recession even though unemployment, at the peak of the recovery, remained half a million higher than it had been at the peak of the previous cycle two years earlier; Kennedy now calls this recovery "anemic."

The Eisenhower report confidently asserts that its policies "to maintain stability and balance" have succeeded in putting the economy in a position to look forward "to a period of sound growth from a firm base," while the Kennedy report claims, on the basis of Eisenhower's own figures, that his prediction of a resumption of sound growth implies that "unemployment would hover between 6 and 7 percent throughout the year," that is, there will be an extra million or two unemployed above what would be expected under reasonable full employment.

Both sides have freely resorted to euphemism and vague language to shield the less popular side of their views from the public: the Eisenhower people have never conceded in so many words that they accept the dismal view that a slack economy is the only answer to inflation, although their frequently stated satisfaction with the current trend of the economy allows no other conclusion; Kennedy has never bluntly told the public that in order to put his more cheery view of economics into practice he means to deliberately unbalance the budget to take up the slack in the economy; nor has he said, or even publicly hinted, that it is quite

possible, and perhaps inevitable, that he will have to ask for some form of wage and price regulation to control the inflationary pressure that will probably develop.

Instead Kennedy, while warning that the fiscal '61 and '62 budgets may not be in balance, has delicately blurred his intention to make sure that they will not be in balance. He has used, on several occasions, the curious phrasing that claims "the programs I am now proposing will not *by themselves* (italics added) unbalance the budget." All this means is that Kennedy thinks, and almost everybody, including the Wall Street Journal, agrees, that Eisenhower's proposals for the fiscal '62 balanced budget were achieved primarily by wishful thinking. No one even doubts any more that this was the case with the fiscal '61 budget. All Kennedy means by his claim that his proposals by themselves will not unbalance the budget is that the budget was probably going to be unbalanced anyway, even without his additional spending proposals.

Similarly, on inflation, Kennedy has announced the formation of a President's Advisory Committee on Labor-Management Policy as the instrument to try and control, through voluntary compliance, excessive wage or price increases; but it is most doubtful that anyone near Kennedy really believes that setting up an Advisory Committee will really be enough to deal with the problem. The committee is quite likely to be more useful in the long run as a means of publicizing the need for stronger action than as an effective instrument in dealing with inflation. Meanwhile, like the vague statements about next year's budget, it helps keep his potential opponents quiet for a while longer.

### Conservatives and Keynes

The Eisenhower people, although willing to concede that deficits can help a recession, have never been able to bring themselves to really accept the idea of a deliberately unbalanced budget: even Hoover had unbalanced budgets, for they are hard to avoid when the economy is weak, but it is difficult for conservatives to cross the line from *accepting* an unavoidable deficit as useful to *planning* a deficit as desirable.

The idea of planned rather than unavoidable deficits to be balanced by a surplus in good times dates only from

the late 1930's, when the ideas of John Maynard Keynes began to take hold. Roosevelt apparently never accepted the idea, and regarded his own deficits as unfortunate necessities. Nevertheless, the Eisenhower Administration might have been willing to take up Keynes, despite its distaste for federal intervention in the economy, if only the problem of inflation didn't seem certain to accompany Keynesian stimulation of the economy: what was the use of taking up what is still regarded by conservatives as a radical fiscal policy if the strong economy you hoped to achieve through this policy would bring with it the necessity for a move even further left to keep a leash on prices and wages?

### Kennedy's Position

The Kennedy Administration, though, has no qualms. The Kennedy people do not think the United States can afford a slack economy at a time when the world is watching and wondering if communism does indeed represent the wave of the future; on the level of practical politics they start by seeing the need for a wide and heavy variety of expenditures at home and abroad, and arrive at the conviction that stimulation of economic growth is a much easier way to get a big share of the money to pay for them than by having to ask for massive tax increases; indeed they are convinced that without a stronger economy what must be done will not be done, and that to accept Eisenhower's view is tantamount to accepting world-wide defeat.

They not only believe that the situation is bad now, but that it will get worse unless something is done: the Kennedy report points out that there should be a normal growth in productivity per man hour of about 2 percent a year, and a growth in the labor force of about 1½ percent a year. This adds to a potential growth rate of 3.5 percent, although the actual growth under Eisenhower has been only 2.5 percent.

Where has the excess gone? Partly, say the Kennedy people, into a slow increase of the level of unemployment which the nation has been told to accept as normal; partly it has simply failed to appear as businessmen have been unwilling to push investment that would produce increased productivity for an economy which offers no outlet for the extra goods produced.

The Kennedy people point out that since the late 1940's the rate of eco-

conomic growth, as measured from the peak of one business cycle to the next, has consistently declined, and that in more recent years a similar increase in the rate of unemployment at the peak of succeeding business cycles has also appeared.

Aside from this direct loss of economic growth, the Kennedy people say that a further increment to growth, above the normal 3.5 percent, has been ruled out by the Eisenhower policies. This increment, they say, is readily available if the nation will invest more money in such things as scientific research and education. The Eisenhower Administration has agreed in principle, but has felt the nation could not afford these investments, a feeling that was strengthened, of course, by that Administration's reluctance to raise the size of the federal budget and to increase the degree to which science, education, and other factors depend on the federal government.

The Kennedy people disagree: such investments, it is true, will unbalance the budget, which is just fine, in their view, for they feel the country needs a budget deficit. "Pledged expenditure programs that are desired for their own sake," said the Samuelson task force report, "should be pushed hard. If 1961-62 had threatened to be years of over-full employment and excessive inflationary demand, caution might require going a little easy on them. The opposite is in prospect."

So the outlook is for more money for a great many things, including science and education, and for a rousing political battle between the new Administration and the conservative opposition which is convinced that "you can't spend yourself rich." All of this has exhilarated the part of Washington that sympathizes with Kennedy, and has begun to appall his opponents.

The Kennedy people seem to glory in the size of the problems at home and abroad: they no more regret them than a mountaineer regrets that there are Everests to climb. "In the long history of the world," Kennedy said at his inauguration, "only a few generations have been granted the role of defending freedom at its hour of maximum danger. I do not shrink from this responsibility—I welcome it. I do not believe any of us would exchange places with any other people or any other generation." Whether he has his way or not is in question, but no one doubts that it will be a grand show.—H.M.

## News Notes

### Space: 7-Ton Sputnik; NASA Chief; Chimp's Rocket Trip; Samos and Minuteman Fired

Five days of major events in the history of space development culminated on 4 February in the Soviet launching of a 7.1-ton sputnik, the heaviest vehicle ever put into orbit. The period of space activity opened on 30 January with President Kennedy's selection of James E. Webb to succeed T. Keith Glennan as head of the National Aeronautics and Space Administration. The next day a chimpanzee made an 18-minute, 420-mile rocket flight and was successfully retrieved. On the same day, the Air Force sent a Samos reconnaissance satellite into polar orbit from Point Arguello, Calif., in the first successful launching of this experimental vehicle, designed to perform photographic missions. And on 1 February the Air Force fired a three-stage Minuteman intercontinental ballistic missile 4600 miles down range from Cape Canaveral, establishing it as the largest solid-propellant rocket ever fired in the Western world and the first major missile to be tested as a complete unit at its initial launching.

#### The Soviet Satellite

The new 14,000-pound sputnik was sent aloft with an "improved multistage rocket," according to the Soviet news agency Tass, which released very few details about the satellite, not even its radio frequencies. The vehicle is circling the earth once every 89.8 minutes in an elliptical path that has an apogee of 203.5 miles and a perigee of 138.9 miles. Tass reported that the orbit was "close" to the one intended, and that equipment aboard had "functioned normally." (The heaviest satellite launched so far by the United States was the 9000-pound Atlas, fired on 18 December 1959.)

#### NASA Head Named

The new space chief James E. Webb—a lawyer, businessman, and former government official—will relieve Hugh A. Dryden, who has been acting administrator of NASA since Glennan's resignation. Dryden will continue as deputy administrator of the space agency. [Glennan has agreed to serve as a special consultant to the Senate Space Committee, according to its new

chairman, Senator Robert S. Kerr (D-Okla.), who has been a business associate of Webb's.]

Webb is at present chairman of the Municipal Manpower Commission, a study commission financed by the Ford Foundation to determine how able men and women can be attracted to public service at the local-government level. He served the federal government as director of the Bureau of the Budget from 1946 to 1949 and as Under Secretary of State from 1949 to 1952.

#### Chimp's Space Trip

Ham, the 37-pound male chimpanzee who was rocketed over the Caribbean from Cape Canaveral, is apparently in good condition, although his flight capsule traveled 120 miles further than planned. The experiment was a first major test of the environmental control system to be used for Project Mercury. There have been reports that one of Mercury's six astronauts would make a trip similar to Ham's in late March. However, more chimpanzee flights are expected first.

#### Samos and Minuteman

The Samos reconnaissance satellite, which is designed to perform photographic missions formerly conducted by U-2 aircraft, is circling the earth every 95 minutes in a polar orbit that has an apogee of 350 miles and a perigee of 300 miles. The vehicle is expected to stay aloft a year. The orbital weight of the satellite is 4100 pounds, and the instrument package is believed to weigh 300 to 400 pounds.

This was the second attempt to orbit Samos. The first failed last October. The Samos program has been in operation 3½ years and has cost \$300 million.

The successful first test of the 60-foot Minuteman is of particular significance because this missile is intended to be the Air Force's principal weapon. It will have an eventual range of more than 6300 miles. There are reports that Air Force officials are especially elated over Samos and Minuteman because the two tests strengthen the Air Force's position in the competition for funds in the new Administration's first budget.

#### Atomic Energy Hearings Scheduled

The congressional Joint Committee on Atomic Energy has announced that public hearings on the development, growth, and state of the atomic energy