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## Johnson or Goldwater— Two Scientists Explain Their Choice

*Since scientists seem to be showing an unusually active interest in the current presidential election campaign, Science has asked two politically active leaders of the scientific community to state the reasons for their political choice. Specifically, they were asked to explain their political preference, "with particular emphasis on matters of direct professional interest to the scientific community, such as federal support for education and basic research . . . (and) . . . how the outcome of the election might affect the present relationship between science and government, including the effects it might have on the development and quality of American science."*



Edward Teller, associate director of the Lawrence Radiation Laboratory, played a key role in the development of the hydrogen bomb, and has been associated with the nation's atomic energy effort for more than two decades. He is a member of the Republican Task Force on Science, Space, and the Atom.

### The Case for Johnson, by G. B. Kistiakowsky

Why is President Johnson my choice in the coming election?

Why am I unalterably opposed to Senator Goldwater?

For several reasons, among them what the legislative records of the two men and their public statements during the last few years indicate as to their understanding of the problems of the mid-twentieth century and their plans for dealing with them. Consider the issues of special concern to our technical community—foreign policy and education and science.

Our foreign policy, although not free of setbacks, has been, on balance, a very successful one. Confronted with a strong nuclear armed opponent, our bi-partisan consensus has recognized the clear implications of the nuclear age: we cannot achieve "total victory" as it was conceived in earlier ages without incurring perhaps total destruction of our own civilization. Accordingly our bi-partisan foreign policy has been to:

—Maintain a strong military, with complete civilian control; resist firmly aggressive acts but avoid escalation into general nuclear war. Results: prevention of military takeover of Greece by Communists; resistance to attacks on South Korea, Taiwan and South Vietnam; defeat of Berlin blockade; prevention of Cuba becoming militarily aggressive bastion, etc.

—Strengthen the non-Communist world economically and militarily by foreign aid, and establish defensive alliances. The Soviets failed to Communize Western Europe; instead they face flourishing economies and a strong NATO alliance. The survival of other free nations aided by us also testifies to the worth of this policy.

—Seek for effectively safeguarded disarmament steps, in the belief that international tension and arms race *decrease*

### The Case for Goldwater, by Edward Teller

There are three issues which have influenced me in making up my mind about the Presidential election. One is connected with science and technology; another is individual initiative; and the third is peace.

Senator Goldwater is not a typical professional politician. The world of technology has a real attraction for him. He loves photography and electronics, and he practices the art of flying. He has made many contacts with the hard laws of nature. I believe he will not take a superficial view of the development of science. While President Kennedy was a real master among politicians, his insatiable intellect attracted him to many other fields. He asked numerous pertinent questions about the essential scientific developments and arrived at detailed decisions in the most advanced technical fields after he had obtained thorough information.

Unfortunately, this wonderful practice fell into disuse last November. It should be revived. I believe that Goldwater will revive it.

In view of the importance of research and development, we should ask to what extent decisions are based on extraneous political factors and to what extent essential technical arguments are taken into consideration. I believe that, in spite of the availability of excellent technical information, political arguments have played an undue role in the decision for a crash program on the moon shot. The program was adopted against the advice of our most respected scientists. One of the strongest opponents of a lavish space program was Dr. Kistiakowsky.

Senator Goldwater has argued against this extravagant program. Under his administration our space program may begin to look more like science and less like a stunt.

During the last few months industrial research and de-

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our national security. The Nuclear Weapons Test Ban Treaty of 1963 was a partial culmination of efforts by Republican and Democratic Administrations alike.

The radical change of Soviet policy in recent years to one of "peaceful coexistence," and the collapse of a unified Communist front through the Sino-Soviet break testify that *from their point of view* our bi-partisan foreign policy has been distressingly effective. President Johnson (1) has for years been one of the leaders of this policy, and his actions since assuming the Presidency confirm the expectation that he will continue and advance it.

Let us look now at some views of Senator Goldwater:

"I think one of the most imperative decisions that could be made would be for the Congress to stop foreign economic aid." (Address before the National Association of Manufacturers on December 8, 1960, as reported in the *New York Times*, December 9, 1960)

"We should, I believe, announce in no uncertain terms that we are against disarmament. We are against it because we need our armaments—all of those we presently have, and more. We need weapons for both the limited and the unlimited war." (*Why Not Victory?* by Barry Goldwater, p. 85, Macfadden edition, 1963)

"Some day, I am convinced, there will either be war or we'll be subjugated without war. I think that a general war is probable. I don't see how it can be avoided—perhaps five, ten years from now." (Irwin Ross interview, *New York Post*, May 8, 1961)

"I have advocated giving control of nuclear weapons to the supreme commander of NATO forces, not to field commanders. These would be tactical, not strategic weapons. Under the present system red tape makes our nuclear deterrent almost unusable. The NATO commander should not be required to wait while the White House calls a conference to decide whether these weapons should be used." (Press conference, Reno, Nevada, February 13, 1964)

(Some of these tactical nuclear weapons which Senator Goldwater has recently described as "conventional" exceed by far the force of the Hiroshima bomb.)

Senator Goldwater's (2) votes are consistent with his statements regarding our bi-partisan foreign policy. For example, he was *against*: the treaty dedicating Antarctica to peaceful purposes (1960); the Arms Control and Disarmament Agency (1961); military aid to Western Europe on a grant basis (1961); foreign aid appropriations (1960, 1962, 1963); expansion of foreign trade (1958, 1962); authorization of funds for the Peace Corps (1961); Educational and Cultural Exchange Act (1961); loan of \$100 million to the United Nations (1962); Nuclear Weapons Test Ban Treaty (1963).

With regard to education and support of science and technology we also find substantial consistency of policy among recent administrations. It has been the consensus that education in general is a local responsibility, but that in some circumstances the Federal Government must provide assistance if local authorities lack the means or will to do the job. Republican and Democratic administrations differed in defining the proper scope of Federal involvement, but agreed on the need to strengthen scientific and engineering education by Federal acts, such as student fellowships, the National Defense Education Act, support of graduate research, etc. They recognized that to provide for the needs of our growing nation—health, higher living standards,

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development defense contracts have suffered a sharp cutback. This may well have been a measure of economy motivated by the political need to show a better balance in our budget before the election. In my opinion too little consideration was given to the damage that such a cutback could cause in the future defense of the United States.

The Republican platform gives strong support to imaginative research directed toward defense. Such research can make it unnecessary to buy safety by ever more dollars and an increasing multiplication of the same tools of war. In a time when safety requires strength, this strength should be attained by ingenuity and not by brute force.

The question has been raised whether Senator Goldwater, a consistent advocate of local responsibility and of military preparedness, would support peaceful projects which only the federal government can sponsor. There is some evidence on this point. Senator Goldwater has introduced legislation in support of research in medicine, meteorology, and oceanography. No one will argue with his initiative to improve health and to complete the scientific exploration of our planet. Many will argue, and I am one of them, that additional scientific projects must be supported. It is not possible to state what decisions in these important questions will be made under a Democratic or under a Republican administration. I hope that under either administration both applied science and pure science will grow. Our comforts, our safety, and our intellectual development depend on science. There is reason to believe that Senator Goldwater will create a better balance, in the development of science, between the unavoidable political factors and the basic technical arguments.

At this point we must consider the choice between centralized direction and individual initiative. This is a point which will affect our efforts in research and development. There can be, of course, no doubt that Senator Goldwater stands for more individual initiative and for less federal control. In its applications to science this may mean a lesser emphasis on big science and greater encouragement for individual and local initiatives.

This trend seems to have some desirable features. Almost every great step that has been made in science was a surprise. Science lives on surprises. A central bureaucracy may be the appropriate tool for many purposes; it hardly is a tool for planning surprises.

I realize that big science has its proper place in subjects as widely divergent as the study and control of the weather on the one hand and high-energy physics on the other. I am convinced that Senator Goldwater will not deny support in fields like those just mentioned. But to predict in which way detailed decisions will be made is not possible.

In one respect I anticipate a change for the better. In the cooperation between industry and government there have been unnecessarily restrictive regulations concerning patent rights. Patents are devised to reward and to stimulate ingenious research work. It is quite clear that the present patent policies have discouraged industry from spending a greater effort on forward-looking research and development. The great American invention of partnership between government and private enterprise is therefore not encouraged to function in the best possible manner.

The sharpest difference between the present trends and a projected Republican plan will probably lie in the approach to the problems of education. It is not a question of more or less education, but rather of centralized direction

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military strength, successful foreign policy—better and more education and scientific research are indispensable. As a result we had consistent, successful Federal actions advancing American science and technology to positions of world leadership. President Johnson's record (1) of support of these measures is well known; under his leadership the enlightened policies of previous administrations will no doubt be continued and advanced.

Senator Goldwater's position (2) is different:

"The government must begin to withdraw from a whole series of programs that are outside its constitutional mandate—from social welfare programs, education, public power, agriculture, public housing, urban renewal. . . ." (*Congressional Record*, September 3, 1963, p. 15360)

"Mr. President, as the members of this body well know, I am opposed to every form of federal aid to education." (*Congressional Record*, June 21, 1961, p. 10187)

"It is evident . . . that increased school expenditures have more than kept pace with increased school needs." (*Congressional Record*, September 3, 1963, p. 15360)

". . . I do not believe we have an education problem which requires any form of Federal grant-in-aid program to the states." (Statement to Senate Subcommittee on Education, April 30, 1963)

"If we get back to readin', writin', and 'rithmetic, and an occasional little whack where it will help, then I think our educational system will take care of itself." (Quoted by Richard Rovere in the *New Yorker*, November 2, 1963)

Senator Goldwater's record (2) includes votes *against*: the National Defense Education Act (1958); grants for school construction and teachers' salaries (1961); five-year program of aid to higher education (1962); Health Professions' Educational Assistance Act (1963); Federal grants and loans for construction and improvement of academic facilities (1963).

Senator Goldwater's attitude toward Federal support of science in general or basic research in particular is difficult to determine. In view of the specific "no" votes listed above, however, and the essential interdependence of higher education and research, it is my conviction that his actions have been and are most likely to be counter to Federal support of many vital scientific activities. Indeed, his stated intentions to emphasize the military and to reduce the activities of the Federal government in other areas leads me to believe that, if Senator Goldwater is elected, we shall find ourselves in a militarized society in which social progress has been severely impeded.

My endorsement of President Johnson is strengthened by the presence of Senator Humphrey (1) as his vice-presidential running mate. I believe Senator Humphrey is well equipped to be a strong, creative vice president, and is equal to the responsibilities implied in that office. I have not discovered any evidence, on the other hand, that Congressman Miller (2) is so equipped.

There will indeed be a choice on November 3, and my choice will be Johnson and Humphrey!

## REFERENCES

1. For a summary of the records of President Johnson and Senator Humphrey, see *Congressional Quarterly* (1735 K Street, NW, Washington, D.C.), September 1964, pp. 2057-2121, Special Report.
2. For a summary of the records of Senator Goldwater and Congressman Miller, see *Congressional Quarterly*, July 1964, pp. 1571-1631, Special Report.

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as opposed to local control. One may well argue that big government in Washington is the way in which big gains in education are to be accomplished. One can also argue that big government can make big mistakes. The attractive feature of a decentralized plan is that it places responsibility into many hands at local levels. In this way it is possible to experiment.

Education in science has been one of my continuing concerns. I have no general plan to offer, nor do I know of anyone whose general plan I would gladly accept. I feel strongly that in this vital area experimentation is in order. Such experimentation could be guided in an excellent manner by the decentralized education plan that would be introduced under Goldwater.

But all questions discussed so far must appear insignificant as compared to the issue of peace. Here there can be and there actually is only one opinion. We want to preserve peace. But there is a sharp divergence of opinion on how peace can be secured. It is impossible to think of the November election without discussing the most hopeful road to peace.

The point at which opinions differ sharply depends on the evaluation of the Soviet Union. Conditions in Russia are not as bad as they used to be under Stalin. In our specific field, science, it is no longer forbidden to teach the theory of relativity and the law of Mendel. There are those who hope that, if we seek to agree with the Kremlin, further rapid evolution will bring freedom to Russia and will end the threat to peace.

Senator Goldwater takes a different view. He believes that American freedom is a great and remarkable accomplishment. Freedom will not grow of its own accord. One has to defend it and to work for it. I believe that this opinion of Senator Goldwater's is justified. The tyrannical institutions in Russia are even more ancient than our traditions of freedom. The young poet Iosip Brodsky has been sent in 1964 to Arkhangelsk for 5 years at hard labor for a crime no worse than that of being a poet. Brodsky's trial, beautifully reported in *The New Leader*, is the most recent manifestation of the horrible Russian tradition which sent Dostoevski to Siberia.

Senator Goldwater clearly realizes that freedom and peace are inseparable. He also believes that both can be secured by courageous and imaginative action. He advocates that we work for real unity within the Atlantic community. He proposes to cooperate with the advanced free democracies of the West most closely in all matters of mutual interest.

This should have positive results even in our relatively narrow field of science. Why not put emphasis on sharing our space efforts with Western Europe, where we can find so many excellent men to handle the difficult technical problems? Why do we not draw into our plan on desalination of sea water all the free nations with whom joint work can proceed along easy and natural lines?

Such constructive efforts could become early but essential steps that will lead to a real Atlantic community. This community would have enough strength to insure freedom and to avoid war. In fact, on the basis of a strong and free union we could begin to construct a world order firmly based on law.

It was wonderful news to hear Senator Goldwater argue for the NATO alliance and for Atlantic unity. My main reason for supporting Senator Goldwater is the fact that he has proposed a realistic plan for peace.