

"Energy, Economics and the Environment: The Old Order is Breaking Down -- The Old Rules Don't Work Any More," Yale Political Union, December 3, 1976

NOTE: The following text has been edited from the original notes used for this speech; some handwritten notations have been enclosed in brackets for clarity

I welcome this opportunity to exchange my legislator's toga for academic robes, and to offer some longer range, rather tentative **reflections** on the course of our economy and our country. Despite the season, I warn you that I do not bring unmitigated tidings of **comfort and joy**.

Like books, the lives of people and of nations are divided into **chapters**. I start my remarks tonight with the conviction that we are turning the page and **closing out** one of the major chapters in the history of the United States and mankind. It spanned the last 30 or 40 years, and in my judgment, it was unique.

Not long ago, I went back to the little town where I grew up, and where my grandfather is buried. He died in 1937. And in re-reading his **autobiography**, I was struck by the fact that his life was not very different from his grandfather's life. Basic matters didn't change much from generation to generation. You still traveled by horse and wagon, you raised your own food, you stitched your own clothes together, and if you were a member of the literate **minority**, you read by firelight. And one generation's skills would be useful to the next -- you could learn **farming** or smithing or milling from your father, and be secure in the knowledge that you had a trade for life.

And it was just in my youth that this age-old patten began to shatter. From about 1940 to 1970, an incredible three decades, we went from 10 million automobiles to 20 million, and then to 40 million, and then 80 and now 120 million.. Energy consumption doubled every eight to ten years. We've had the jet age, the space age, the atomic age, the computer age all blossoming at once. And our watchword, our magic word for this explosive generation was "**growth**." Growth was the answer to all our problems. It had some bad byproducts, yes, but they would be cured by more growth. **By that view**, our problems of the past **five** or **six** years have been a temporary aberration.

Well, there is another magic word in Washington during these few weeks -- "transition." And I think it is **more** important than just the shift from Ford to Carter and the people he appoints. Because it is my judgment that the past **several**

years [70's] were not just a temporary slump, but that they heralded a fundamental and permanent change. Looking back, history is going to say that our fantastic 40-year binge was not the normal course of human civilization, but an unusual one-time **leap forward**. I believe this because those years were based on the convergence of a few special circumstances. These included:

- An oil supply that seemed cheap and inexhaustible.
- The expectation that if oil ever did run out, nuclear power would provide a cheap and inexhaustible substitute.
- And a similar seeing abundance of water, minerals, timber and other natural resources.

We have come up against a rock called exponential growth [-- checkerboard].

We acted in good faith, but we acted on those faulty assumptions, and we built an economic machine heavily dependent on a constant doubling of energy, a constant doubling of **resource consumption**, a constant doubling of the Gross National Product. So long as our resources lived up to our assumptions, it worked. But, as James Reston said, there are dogmas and creeds and practices ideally suited to one age and **disastrous** in another. I am convinced that we must make dramatic changes in our economy and our lives if we are to [create] a sound, sustained-yield economy in a good and just country.

So the story of the '70s and the '80s and indeed the rest of our lives will be one of **transition** -- of adaptation to the new realities that rendered obsolete our old assumptions. To get about the business of this transition, we had better face up to some facts: Hundred millions of years, that the human race is essentially out of oil and gas in 30 years -- even sooner if other nations try to emulate the United States of the past generation; [child of the 1930's 1/2 lost 20 years] that the nuclear option, far from becoming more certain, is increasingly clouded in doubt; that other basic raw materials, from timber to copper to water, are limited in the long term and probably in the **short term**, requiring more capital and energy and environmental damage to extract **less and less**; and that economic growth cannot be maintained at exponential rates when such basic factors of production are declining. [Checkerboard -- 64 X nations]

I make these points, not to conjure up nostalgia for a happier time, because the "good old days" of my grandfather were really pretty harsh; and not to suggest that we were wrong to ride the crest of growth for 30 years, because it brought immense physical and psychic comfort to millions of Americans; and not to predict a future of subsistence farming in sod huts, because we will remain an urban, industrial, mechanized society. My point, rather, is to give us a backdrop for analyzing what is

going on today, in 1976, in this period of transition between the Ford and Carter Administrations.

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We inaugurate a President seven weeks from now. The great debate about the new Administration's economic policies has already begun. We sit poised, waiting to see if Arthur Burns [Imperial Chairman like Kruschev] will accept the election results or continue to feed us Nixon-Ford economics; [Incredible -- Congress and President can declare war, but not declare interest rates] waiting to see if Jimmy Carter and his economic braintrust will propose a tax cut or a spending stimulate; the battle is joined over the best **growth** rate, over whether we can balance the budget in four years or five.

This battle will take place on the evening news, on the pages of the *New York Times* and *Washington Post*, in the parlors of Georgetown. But if you watch closely, you will see that **behind all these conflicts in policy** is the **assumption** that the old rules of the '50s and '60s are still valid -- that somewhere between Burns and Carter there lies a compromise that will give us a quick fix and restore the growth patterns of the last generation. And we'll all live happily ever after.

I hate to break it to you this way, but there is no Santa Claus. We won't wake up one morning and find all those presents under our tree. I believe that framing economic debate in those kinds of terms is increasingly futile. It ignores the hard realities I mentioned a few moments ago. It can do little to improve short-term conditions, and it obscures the long-term decisions we must make soon.

We have become like an alcoholic or a drug addict, hooked on the quick fix of economic stimulation. The shot gives us a temporary high, but each time it takes **more** to do it [R. Long, \$30 billion] -- and each time we come down sooner, down harder and down lower. For perspective, in 1964, we enacted a tax cut because our economy was in terrible trouble. Get this bottom: Unemployment was **5.5** percent, and inflation was a frightening 1.7 % -- the highest it had been in five years! If Gerald Ford could have produced a peak **recovery** equal to the **depths** of that recession.

We might not have a transition today. Compare that 1964 tax cut with the **\$22** billion package we enacted 18 months ago. **Already** the impact has worn off, and now we're in another trough, and again we hear the cries for a tax cut. When we passed that **reduction**, early last year, we had **8.5** % unemployment and 7% inflation. If we pass another one now, and all goes well ... and OPEC shows restraint ... and the steel companies hold the line ... then **maybe** a year from now we'll be back at another peak,

with the good news that unemployment is only seven per cent and inflation is down to five per cent. And some would call that prosperity.

I guess when Richard Nixon boldly declared that he was a Keynesian, that should have been the tip off that Keynes' dogmas -- at least as propounded by his disciples -- wouldn't work any more. [1st Jewish] There have been changes in the dynamics of growth and the supply of energy and other resources. Because of them, I believe, the old economics of manipulating aggregate demand and fine-tuning the economy -- and ten years ago, we called it the "new economics" -- just might do the job with any degree of efficiency of predictability.

Also in doubt, by my reading, are the neat trade-offs economists read into the **Phillips** curve. That thesis holds that inflation and unemployment are **opposites** -- evils to be balanced off against each other from time to time. If unemployment is **high**, forget about inflation, demand will drop and **prices** will **fall**, so you can stimulate the economy into recovery without much risk of inflation. If it overheats and inflation begins, you cool it down by raising taxes and interest rates. But, as H. L. Mencken told us, for every problem there is a solution which is simple, neat and wrong.

So today, our "mainstream" economists want to keep riding the twin horses of Keynes and Phillips, but I'm afraid they can no longer carry the load. Richard Nixon used to say that America shouldn't have to make the cruel choice between inflation and unemployment. And we didn't. He -- and Gerald Ford, and Arthur Burns, and William Simon, and Alan Greenspan -- gave us both. Burns and Simon, now tell us inflation causes recession, rather than being a product of boom and overheating.

I'm not saying we should throw up our hands and walk away. A tax cut or other stimulation may indeed be justified, for humane reasons, because we haven't yet developed the other policy tools we will need. But we shouldn't hold out the hope that just one more tax cut, or one more public works program, will bring about the millenium. To the extent that it works at all, it will probably just be a stopgap.

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While I'm whacking away at myths and assumptions, I'd like to take on one more piece of conventional economic wisdom which has boomed in recent months: the notorious capital shortage. This myth tells us that there is some mysterious force at work hiding away the necessary billions of new generating plants, new factories, new oil drilling, new oil shale plants, and all of the rest. This can only be dispelled, so the legend is write, not by market forces, by more loopholes, special business tax credits and tax exemptions and tax shelters and accelerated depreciation and the like. Certain

avored businesses can tax **their** taxes and spend on machinery. This is another facet of the "junkie" mentality I mentioned earlier. Because it worked for Jack Kennedy, the reasoning goes, it must work for Jimmy Carter. But there is no evidence that all these special benefits really stimulate investment that would not otherwise have been made. It is not all that clear that government is wise enough to decide -- rather than market forces -- where available capital should be spent.

It is not surprising that this cry has come loudest and longest from the energy industry, going all the way back to the granddaddy of them all, the oil depletion allowance. Now we are told that we will need a trillion dollars in capital investment in energy in the next ten years to maintain our economic growth. As long as we continue to base our economy on exponential **energy** growth, we will be forced to pay that price -- three-fourths of all the capital available in this next decade -- while sacrificing cities, and housing, and mass transit, and environmental protection, and all our other urgent social needs. And, if the hard physical limitations I have discussed are true, it still won't give us full employment, stable prices, or adequate energy supplies.

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So, if all these old rules no longer work, if some major truths are really myths, what **do** we do? It's hard to lay them aside, because certainty -- even erroneous certainty -- has its **comforts**, and because a lot of powerful people have vested interests in the old rules. But the only real certainty is that there **will** be change, and we are beginning to pass through an era of change perhaps as fundamental as the Industrial Revolution. If we seize the initiative now, we can be masters of that change; if not, we shall be its **pawns**. So I say lay some of these old myths and assumptions out, salute them, shed a tear or two, and give them a decent burial. Let's get on with the hard realities of **our** time: we're not going to have all the oil we want any more, even with oil shale and offshore drilling and that leaky pipeline up in Alaska. We're not going to have the constant doubling and redoubling of **material** goods we grew accustomed to in the last 30 years, Quick tax cut won't produce enough jobs, or channel capital to its most productive long-term uses.

Walter Lippmann said in 1940, after the Nazis had invaded France: "You took the good things for granted. Now you must earn them again. For every hope that you entertain, you have a task you must perform. For every good that you wish to preserve, you will have to sacrifice your comfort and ease. For there is nothing for nothing any longer." I'm not offering much comfort or ease tonight, but I'd like to suggest some alternative approaches that might work. I've mentioned a lot of our disadvantages; but we have advantages and strengths -- and resources -- too. They are resources of the mind and spirit and intelligence, as well as a sizable remaining base of natural and **technological wealth**. Technology -- the right kind -- is critical. With

our brains and resilience; there is no reason why the United States cannot move successfully through the coming transition, not painlessly, but in pretty good shape. The sooner we act, the easier it will be.

Our first step should be to make the most of what we have through a vigorous program of energy conservation. I reject the notion that we must double energy use every eight years to "maintain our standard of living." Last three years -- zero energy growth -- sky did not fall. This was not such a bad place to live in 1965, and we now use twice as much energy as we did then. We use two and a half times as much as the Scandinavians and Germans do today, and they have the same per capita production and standard of living. I have mentioned the capital cost of doubling energy in the next decade. Old formula: to get doubling time divide percent growth rates into 75. If we just slow that energy growth from five or six per cent to two per cent a year, that twelve years become thirty-five years. We buy time to answer the tough questions about nuclear power, to address our other social needs. We buy time to develop the habits and technologies of thrift to see us through the big transition.

Second, we should abandon the phony hope of a magic technological fix that will get us off the hook and let us continue our old habits [fusion]. We often hear wistful talk, for example, of the trillions of barrels of oil locked up in the shale of the Rockies. Well, there is a reason it is still locked up: no one is willing to invest the kind of money it would take because there is no way it could be produced at a reasonable price. To squeeze one barrel of petroleum out of shale takes an amount of energy equivalent to three to five barrels. To feed even five per cent of our energy appetite from shale would require earth moving equivalent to digging a new Panama Canal - - **every week**. It would use up most of the water in the West -- none left over for people, none for cattle, none for crops, none for recreation. It would require us to level mountains, and fill canyons with the waste. And it would require an immense taxpayer **subsidy**. A wasteful system.

Third, we have to make a hard reassessment of the nuclear option. I'm not prepared to rule it out, but two years of intensive study have convinced me that neither the industry nor its regulators have faced its problem squarely. Twenty-five years ago, Admiral Strauss was forecasting limitless power so cheap we wouldn't need meters. Now the price of uranium and of building reactors is skyrocketing, reliability has been below expectations, and safety remains problematic. Just last week, the Washington papers reported:

- that it will cost the taxpayers \$540 million just to **close down** a nuclear waste facility in New York;
- that accumulated plutonium nearly caused an atomic explosion at a waste disposal site in Washington state;

- and that a Navy technician was disciplined for refusing to turn on a reactor he believed to be unsafe.

The question is not whether we will have a nuclear future. We have a nuclear **present**, with more than 50 reactors in operation and 60 more under construction. But if we get going on conservation, and make a spirited effort on renewable, non-capital-intensive sources like solar, and wind, and geothermal and tidal power, maybe in 20 years we can look back at nuclear as a dangerous road down which we did not have to travel

Fourth, we must develop a whole new ethic of **resource** conservation, with the legal and social institutions to support it. Today we throw away our car bodies and tin cans and bottles and everything else, while we dig lower and lower grades of ore -- in correspondingly great quantities -- to replace them. For the results, look at what Reserve Mining is doing to the waters of Lake Superior, and possibly the people on its shore, to get a low-grade iron ore we might not even need if we recycled. Then look by contrast at cities like Ames, Iowa, where they don't use their garbage for landfill, but sort out the iron and copper and aluminum for resale, and burn the organic wastes to help supply their electricity. We need to ask ourselves what kind of society would structure its laws so that it is more economical to bury our wastes and dig up and process virgin ore than to simply recycle our worn out cars and empty cans? [Sun afternoon -- tons of paper, acres - trees] What kind of society, given the choice between **recycling a mountain of paper** and denuding a mountainside of trees would make a conscious decision to do the latter? The answer is -- our kind. And it is time to change that.

That leads to my fifth point -- not only do we save resources by making these sorts of change, we also can create **more jobs**. For 200 years, since the days of James Watt and that great Yale man Eli Whitney, we have been substituting **capital** and **natural resources** for labor [people] as factors of production. Perhaps that made sense, given the realities of those times. But here again, we let transient reality harden into universal principle. And times change. Now, as some of the limits of this finite planet come into view, it's time to start reversing that process. We should move toward a more labor-intensive, energy-and-resource-efficient job mix. Some examples: every study I've seen concludes that **recycling** creates more jobs than our current dig-and-discard philosophy. It takes \$25,000 to create one permanent job in general manufacturing, and even less in many service industries, while it takes **\$200,000** or more to create a similar job in the energy industries.

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Well I've tossed around a lot of heady long-range ideas for this Big Transition I see coming. But there is that other transition, the one down in Washington, and we have

to look at our immediate problems. What **do** we do about inflation and unemployment? Now -- this year? The orthodox answer is that you manipulate interest rates and tax loopholes and the other levers of fiscal and monetary policy, and eventually, indirectly, in some fashion, jobs will trickle down to the unemployed and the fires of inflation will be cooled. Well, we've tried that, and it doesn't seem to work very well or very long. So I subscribe to the heretical notion that we ought to act directly: ["Great masses"] Well, Mo Udall believes the way to cut unemployment is to put people to work. Heaven knows, there is work to be done -- just wander through any part of any city. And you can drop by the unemployment office in case you doubt that there are people who want to work. Humphrey Hawkins is better than Arthur Burns or trickle down.

Similarly, I don't think it makes sense any longer to maintain the fiction that we can fight every form of inflation through **indirect** means, by juggling interest rates and cutting spending on human needs and deliberately putting people out of work. Our inflation of recent years has been caused largely by scarcity of resources, such as oil, which we can fight by using less of those resources; and it has been caused by structural defects in the marketplace -- by a lack of competition. Steel prices up -- demand soft -- [words indistinct]. Well, I like unfixed prices. I like the free market. I just have a hell of a hard time finding it sometimes. And when it is clear that prices are going to be fixed, and the question is whether it will be done by a handful of dominant steel companies or by the government of the people, then maybe we ought to take the direct route until we can restore some old fashioned competition.

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Out in Kansas there is a young assistant professor who forced himself to read all the speeches of my presidential campaign to write an article. I'm not sure whether that should be classified as **publishing** or **perishing**. But he concluded that there was an overall theme to that 18-month adventure, that the Udall message was this: "The future is not what it used to be."

I think that is a good way to sum up my theme of transition. Our nation -- indeed, our planet -- is going through a major transformation, and we can no longer rely on yesterday's visions of tomorrow.

And we have a very few years in which to decide what form that change will take -- whether we face years of increasing polarization, of war between man and nature and between haves and have-nots, or whether we can move toward a genuine society, a genuine community, living in harmony with each other and with nature. Yes -- our lives will change whether we like it or not. But they can be better if we use our brains and do it right.

So I close with the words of an illustrious relative of mine, written when he was Secretary of the Interior: ". . . at this moment in history we need to realize that: bigger is not better; slower may be faster; less may well mean more."