

Oceanic and Atmospheric Administration; new position.

FEDERAL COMMUNICATIONS COMMISSION

Thomas J. Houser, of Illinois, to be a member of the Federal Communications Commission for the unexpired term of 7 years from July 1, 1964, to which office he was appointed during the last recess of the Senate.

Robert Wells, of Kansas, to be a member of the Federal Communications Commission for a term of 7 years from July 1, 1970, to which office he was appointed during the last recess of the Senate.

OFFICE OF ECONOMIC OPPORTUNITY

Frank Charles Carlucci III, of Pennsylvania, to be Director of the Office of Economic Opportunity, to which office he was appointed during the last recess of the Senate.

EQUAL EMPLOYMENT OPPORTUNITY COMMISSION

Ethel Bent Walsh, of the District of Columbia, to be a member of the Equal Employment Opportunity Commission for the term expiring July 1, 1975, to which office she was appointed during the last recess of the Senate.

U.S. TARIFF COMMISSION

Chester L. Mize, of Kansas, to be a member of the U.S. Tariff Commission for the remainder of the term expiring June 16, 1974, to which office he was appointed during the last recess of the Senate.

U.S. POSTAL SERVICE

The following-named persons to be Governors of the U.S. Postal Service for the terms indicated, to which offices they were appointed during the last recess of the Senate:

Elmer T. Klassen, of Massachusetts, for a term of 1 year.

Frederick Russell Kappel, of New York, for a term of 2 years.

Theodore W. Braun, of California, for a term of 3 years.

Andrew D. Holt, of Tennessee, for a term of 4 years.

George E. Johnson, of Illinois, for a term of 5 years.

Crocker Nevin, of New York, for a term of 6 years.

Charles H. Coddling, of Oklahoma, for a term of 7 years.

Patrick E. Haggerty, of Texas, for a term of 8 years.

M. A. Wright, of Texas, for a term of 9 years.

SMALL BUSINESS ADMINISTRATION

Thomas S. Kleppe, of North Dakota, to be Administrator of the Small Business Administration, to which office he was appointed during the last recess of the Senate.

SECURITIES INVESTOR PROTECTION CORPORATION

The following-named persons to be Directors of the Securities Investor Protection Corporation for the terms indicated, to which offices they were appointed during the last recess of the Senate:

Andrew J. Melton, Jr., of New York, for a term expiring December 31, 1971.

Glenn E. Anderson, of North Carolina, for a term expiring December 31, 1972.

George J. Stigler, of Illinois, for a term expiring December 31, 1972.

Donald T. Regan, of New York, for a term expiring December 31, 1973.

Byron D. Woodside, of Virginia, for a term expiring December 31, 1973.

CONFIRMATION

Executive nominations confirmed by the Senate January 28 (legislative day of January 26), 1971:

DEPARTMENT OF THE INTERIOR

Rogers C. B. Morton, of Maryland, to be Secretary of the Interior.

EXTENSIONS OF REMARKS

NATIONAL RAIL PASSENGER SYSTEM

HON. LEE METCALF

OF MONTANA

IN THE SENATE OF THE UNITED STATES

Thursday, January 28, 1971

Mr. METCALF. Mr. President, the following Senate resolution from the Montana State Senate speaks eloquently for adequate rail passenger service through Montana. A copy has been sent to Mr. Volpe and I hope he heeds it in his decision on passenger routes today.

I ask unanimous consent that the resolution be printed in the Extensions of Remarks.

There being no objection, the resolution was ordered to be printed in the RECORD, as follows:

RESOLUTION

A resolution of the Senate of the State of Montana urging that passenger train service to the State of Montana be included in the basic system of the National Rail Passenger Act of 1970

Whereas, the Congress of the United States by Public Law 91-518 has proposed a complete revamping of the National Rail Passenger System and by such law instructed the Secretary of Transportation to issue a Preliminary Report outlining future rail passenger routes and such Preliminary Report having been published outlining, among other things, as "End Points" the municipalities of Chicago, Illinois, and Seattle, Washington, and proposing that all rail passenger service within the state of Montana be discontinued in its entirety and further proposing that such traffic between the respective points proceed via Omaha, Nebraska, and Green River, Wyoming; and

Whereas, the existing schedules in the state of Montana provide rail passenger service in an east-west direction on both the Burlington Northern Inc. Northern Division routing (formerly Great Northern Railway) and the southern routing (formerly Northern

Pacific Railway) and the Preliminary Report of the Secretary of Transportation would terminate such service; and

Whereas, the state of Montana is six hundred (600) miles in length in an east-west direction and approximately four hundred (400) miles in length in a north-south direction; and the current northern routing presently serves ten (10) counties with a population of approximately one hundred twenty-eight thousand (128,000), with nearly two hundred (200) smaller communities completely dependent upon rail transportation because no air service, bus service or other public transportation exists, and such routing provides through rail connection with entrances to Glacier National Park, and such routing constitutes the fastest, most direct route between Chicago and Seattle; and the southern routing through the state of Montana presently serves twenty (20) counties with a population of over three hundred fourteen thousand (314,000) and the major industries of the state of Montana are located along said route; and

Whereas, the Interstate Commerce Commission, the National Association of Railroad Passengers and the Montana Railroad and Public Service Commission have recommended the following program for rail passenger service to the state of Montana.

Now, therefore, be it resolved by the Senate of the State of Montana: That the senate of the state of Montana recognizes that the public interest and convenience of the citizens of the state of Montana require that existing east-west passenger train service be continued, and therefore, urges the Department of Transportation to maintain existing east-west passenger train service through the state of Montana in the Basic National Rail Passenger System; and

Be it further resolved, that if it is absolutely impossible to maintain existing east-west passenger train service through the state of Montana, the senate of the state of Montana urges the Department of Transportation to include in the Basic National Rail Passenger System both the northern Montana route and the southern Montana route, with east-west passenger train service on such routes on alternate days; and

Be it further resolved, that the secretary

of state of Montana be instructed to send copies of this resolution to the Department of Transportation; John Volpe, Secretary of Transportation; the Honorable Warren G. Magnuson, Chairman of the Senate Interstate and Foreign Affairs Committee; the Honorable Harley O. Staggers, Chairman of the House Interstate and Foreign Commerce Committee; the Honorable Mike Mansfield and the Honorable Lee Metcalf, Senators from the state of Montana; the Honorable John Melcher and the Honorable Richard Shoup, Congressmen from the state of Montana; and to each officer of the corporation formed to administer the Basic National Rail Passenger System after such corporation is formed.

WATER WONDERLAND ON THE COLORADO RIVER

HON. CRAIG HOSMER

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, January 26, 1971

Mr. HOSMER. Mr. Speaker, following the November elections, my wife and I returned to Washington by automobile, the first time in many years we had taken such a trip.

En route, we stopped at the Grand Canyon area on the Colorado, a region that has consumed a good deal of my legislative time over the past 20 years.

It was readily apparent during our brief stopover that the dams which make water and power available to millions of people in the Pacific southwest also make the Colorado one of America's most sought-after recreation centers.

Over the years, many have argued against damming the Colorado, but it is clear to me that the Congress and the Bureau of Reclamation have significantly enhanced the environment of that region.

A fine article by Lupi Saldana, of the Los Angeles Times, one of the Nation's foremost outdoor writers and environmentalists, reports that the area has been turned into a "water wonderland."

Because I have sincere pride in what we have accomplished there, I am including Mr. Saldana's article in the RECORD:

#### THE COMPLEAT COLORADO RIVER

(By Lupi Saldana)

History doesn't record it, but the most disappointed explorers to set foot in the west were probably members of the Francisco Vasquez Coronado expedition. Coronado's soldiers of fortune braved the elements and some of the most rugged country in the world in 1540 in their search for the fabled Seven Cities of Cibola, which legend said overflowed with gold and precious gems.

Instead of the cities and the riches, the Spanish explorer's troops discovered a gaping chasm and a muddy river . . . the Grand Canyon and the Colorado River. This was little reward for their troubles, but the discovery earned the expedition a niche in history as the hole in the ground and the river became world renowned.

Today the Grand Canyon has become one of the natural wonders of the world and the muddy Colorado River has been fashioned into a water wonderland winding 903 miles from Utah to the Mexican Border. The backbone of this recreational paradise is the sparkling lakes which sit behind the dams constructed by the U.S. Bureau of Reclamation—Lake Powell, Lake Mead, Lake Mojave, Lake Havasu, Lake Moovalya, Imperial Reservoir and Laguna Reservoir.

Coronado would find the transformation unbelievable. The mud-red river has been tamed and, for the most part, it now flows clean and blue and full of life as it shelters 18 species of game fish. And the scenes the waters have created as they filled the red sandstone canyons are breathtaking.

The combination of natural beauty and unlimited recreation will lure more than 10 million persons to the river area this year. They will come to fish, boat, camp, swim, water ski, hunt, paint, ride the rapids, study nature or just marvel at the magnificent, water-inspired scenery. Yet this is just the beginning, because in the next decade the number of visitors is expected to reach 20 million annually.

One of the main attractions will be the newest jewel in the string of lakes, Lake Powell, which is surrounded by some of the most striking land formations found on the river. Its beauty and its vast array of recreation are only now being discovered by the multitudes.

In addition to the dams, all tributes to America's ingenuity, there is another man-made object which will attract tens of thousands to the river—the transplanted London Bridge. The bridge is beginning to rise at Lake Havasu City on the shore of Lake Havasu, and by the fall of 1971 fishermen may be catching fish under its ancient span.

The beautifully rugged country of the Colorado Plateau and the river were known to man for centuries before Coronado arrived. During the last 2,000 years Indian settlements were founded along the river, but many were abandoned because of the long periods of drought. Later the white man learned that the river was inhospitable in other ways. During the spring the river, which begins its wild descent in the lofty Rocky Mountains in Colorado, often became a raging torrent that destroyed crops, lives and property.

One of the river's most famous floods took place in 1905 when control gates were being constructed on the lower river to bring water to the Imperial Valley. The surging flood destroyed the gates and for two years water

poured into the ancient Salton Sink and created today's Salton Sea. This was a blessing in disguise, for the Salton Sea has developed into an outstanding recreational area.

The dreams of taming the "Big Red" began to develop into reality in 1922 when representatives of the seven Colorado River Basin states—California, Nevada, Utah, Colorado, Wyoming and New Mexico—met in Santa Fe, New Mexico, and drafted the Colorado River Compact. This agreement, which did not solve all of the legal problems of water distribution, was a milestone, because it divided use of the river's water between the upper and lower basins and paved the way for construction of projects to control, regulate and utilize the river's natural resources.

Congress gave the program official muscle in 1928 when it passed the Boulder Canyon Project Act authorizing construction of Hoover Dam and the All-American Canal system in the Imperial Valley. The value of the work was graphically demonstrated when Hoover Dam was completed in 1935. Since then there has not been a flood or drought on lands served by the lower river.

When Coronado's explorers arrived, the river contained only a few nondescript species of fish such as hump-back suckers, bonytail chubs and squawfish, also known as Colorado River Minnows. The only fish of any value was the now little-seen squawfish, which were caught by Indians using traps.

Today fishing is the No. 1 recreational attraction on the river. The dams which created lakes behind them and clean, cool streams immediately below them made it possible to introduce an amazing number and variety of game fish.

Thanks to the excellent scientific management being given the lakes and streams by state and federal wildlife officials, all of those species are thriving. The key to the good condition of the fisheries and the excellent growth of the game fish is shad, a forage fish present along the entire river. The shad is a prolific reproducer and the favorite food of the game fish.

Although the original objectives of the dam system were to provide a constant supply of water and electricity for domestic and agriculture use, federal officials have now recognized two other important facets—recreation and environment. As a result, the Bureau of Reclamation has named Al Jonez, veteran biologist for the Nevada Department of Fish and Game, to establish an Environmental Branch. This group will concern itself with the fisheries, wildlife, environment and ecology of the river.

Despite the bureau's new awareness of the public's recreational desires, it is receiving some brickbats from sportsmen who oppose the bureau's channelizing program on the lower river. The bureau says the channelizing—straightening the river and lining the sides with concrete—is being done to save water. However, sportsmen claim the small amount of water saved doesn't compensate for the fish and wildlife habitat being destroyed by drying up sloughs and other backwaters. As a compromise, the bureau is creating some man-made backwaters that should benefit wildlife and provide additional recreation.

Another federal unit playing a vital role in the recreational development of the river is the Willow Beach National Fish Hatchery. Since it began production in 1963, the hatchery has poured 14 million fingerling and catchable size trout into the lake and stream areas. These trout plants have been augmented by California, Nevada, Arizona and Utah.

Today the entire river is a year-round playground with all areas providing good facilities for fishing, boating, camping, water skiing, etc.

The major areas follow:

#### LAKE POWELL

The newest, longest and most spectacular beauty-wise of the lakes along the Colorado River is Lake Powell, which started to fill the giant canyon-studded basin behind Glen Canyon Dam in 1963. The lake is 186 miles long with 1,860 miles of shoreline.

The colorful sculptured shoreline and the lake's blue-green water create scenes that bring lavish praise from visitors. Even the dam, rising 710 feet above bedrock, is an artist's dream.

Fishermen also eloquently praise the lake's fishing in general and largemouth bass fishing in particular. Besides bass, the lake also contains rainbow trout, channel catfish, crappie and kokanee salmon. There are plans to stock striped bass. It has been stocked with more than three million bass and 14 million two to five-inch trout.

Bass fishing is spectacular from April to July when the fish take surface lures. After July, the bass leave the shallow water and return to the rocky ledges of the canyon walls. As the surface water cools, they move deeper and by November the larger fish will be 50 to 60 feet deep. Good bass fishing at the south end of the lake begins at Last Chance and Rock Creek canyons. The best trout fishing is found along the first 15 miles behind the dam from November to May. There is also good trout fishing in the river below the dam.

The south entrance to the lake is in the Page-Wahweap area, which has motels, trailer parks, restaurants, grocery stores, camp sites and other facilities. The dam is in Arizona, but most of the lake is in Utah. At the Wahweap Bay Marina six miles north of Page, there is free boat launching, boat rentals, fuel, fishing tackle, fishing licenses, etc.

Fifty miles north and reached only by water is Rainbow Bridge Marina. At the 92 mile mark is Halls Crossing Marina, which is also accessible by road. Four miles north of Halls Crossing on the opposite side of the lake is Bullfrog Marina, which is reached by a paved road and has excellent facilities. Houseboats are now available at Bullfrog. At the northern tip is Hite Marina, which has lodging, boat rentals and other facilities.

Due to the distances between marinas and the many miles which may be traveled into the deep canyons, boaters are urged to carefully check their supplies, gasoline and other equipment before leaving the dock.

#### LAKE MEAD

The rugged Grand Canyon, created by the Colorado River knifing its way through the arid West, lies between Powell and Lake Mead. The water then spills into Lake Mead, which backs up for 115 miles behind Hoover Dam. The lake has 550 miles of shoreline.

As the first lake in the chain, Mead became a fisherman's paradise from the beginning. And with the introduction of striped bass, silver salmon and rainbow trout in the last two years, its fishing future is brighter than ever.

Striped bass are not expected to enter the fishery for another year or two. Meanwhile, more stripers will be stocked in order to establish a good fishery.

Largemouth bass are still number one on the Mead fishing parade. The lake has had good spawns of bass for the last three years. Bass average about two and a half to three pounds and fishing follows the same pattern as that in Powell—good in the spring, early summer and fall. Trout and salmon fishing is best in the late fall, winter and early spring.

Major fishing and recreation areas are Boulder Basin, Virgin Basin and Overton Arm. The lake has six marinas—Boulder Beach, Las Vegas Wash, Callville Bay, Echo Bay, Overton Landing and Temple Bar. Developed campgrounds are available at all marinas except Callville Bay and Overton.

Lodging is available at Echo Bay, Overton and Temple Bar. Camping is also available at Bonelli and Detrital camps. All marinas offer free boat launching and there are also improved launching ramps at Kingman Wash, Hemenway Wash and South Cove.

#### LAKE HAVASU

The area from Davis Dam to Parker Dam—46 mile long Lake Havasu and the river in the Topock Swamp-Needles-Bullhead City sector—is the most heavily developed section of the river. A good example is Lake Havasu City, which is only six years old yet has a population of 6,500 residents. Growth should continue as it is installing a major man-made attraction—the London Bridge, which should be finished late next year.

Stocked in the lake are large-mouth bass, striped bass, crappie, bluegill, catfish, sturgeon and occasionally a trout swims in from the river below Davis Dam. Although the hefty striped bass have caught the fancy of the expert fishermen, the large-mouth bass is still the most popular. Bass average one and a half to three pounds with an occasional six, seven and eight-pound whopper taken.

The best bass fishing months are April, May, June, October and November. The larger fish are taken in the winter months in water 40 to 60 feet deep. Some of the best fishing areas are Pilot Rock, Lava Beds, Sunset Point, Newman's Hole, Chalk Bluffs and the many coves.

Striped bass remain in the deep part of the lake near the dam most of the year. In April they begin their spawning migration to Davis Dam and produce some of the most exciting fishing on the river because the bass average 15 to 20 pounds. The best area in April, May and June is from Blankenship Bend to the dam.

The cool water pouring from below the dam has created excellent fishing conditions for trout near Needles and Bullhead City. State and federal agencies stock this section of the river with rainbows. Spring and fall months are best for trout.

Marinas on the lake are Lake Havasu City, Black Meadow Landing, Havasu Springs Resort, Havasu Palms and Havasu Landing. They all have boat launching ramps, boat rentals, bait, licenses, restaurants and sleeping accommodations.

#### LOWER RIVER

There is fishing along most of the 138 miles of the river from Parker Dam to the Mexican Border. There are no large lakes in this section, but there are many opportunities for fishing in secluded backwater sloughs and many miles of good boating water, but this sport can be difficult when the flow in the river is reduced.

The best fishing is from Palo Verde Lagoon below Blythe to Imperial Dam. Some of the best producing waters are Lake Martinez, Lake Ferguson, Taylor Lake and Senator Lake. Anglers will find largemouth bass, crappie, bluegill, channel catfish, flathead catfish and an occasional stripped bass in these waters.

The recent addition of the flathead catfish has added a trophy fish to this area, because these "cats" grow large. Heaviest taken so far was a 34½-pounder.

The best fishing months in this area are spring, early summer and fall. The early summer months produce spectacular largemouth bass fishing as the bronzebacks hit surface lures readily.

These lakes are in a semi-wild area with a minimum of facilities and a boat is necessary. There are boat launching sites at Martinez Lake, Ferguson Lake and Imperial Dam.

#### EQUIPMENT AND TECHNIQUE

For all fish except striped bass, a six to seven and a half-foot casting rod with a lot of backbone and a sensitive tip is standard. Conventional and closed-faced spinning

reels are the most popular, but a level wind reel is recommended for trolling. Line in eight and 10-pound test is fine.

For largemouth bass, bottom bumping lures such as plastic worms and lead-headed jigs with pork rind and deep running lures like Bombers, Mepps, Thin-Fin and Hell-benders and such live baits as mudsuckers and waterdogs are effective most of the time. However, in late spring and summer surface lures like chuggers and poppers produce good results.

One of the deadliest lures has been the plastic worm, which works best when retrieved slowly. Trolling deep running lures is effective when the fish are in water 10 to 30 feet deep. Number four and six hooks are recommended for live bait.

Trout and salmon are taken trolling lures such as Flatfish, Rebels, Rapalas and Hot Shots. These fish also hit Mepps, Super Dupers and red-chrome jigs cast close to shore. Trout, particularly in the river, hit well on cheese baits and salmon eggs. Some of the heaviest trout have been taken at Willow Beach with floating cheese.

Striped bass, being larger and tougher, require a heavier outfit. A light salt water or steelhead rod with 15 or 20-pound line will handle the stripers. They hit best on large trolled lures (six to eight inch Rapalas and Rebels) and threadfin Shad, which do not have to be alive.

Crappie and catfish hit best at night. The crappie are taken around the docks with minnows and go-getter type lures, while the catfish prefer the backwaters and hit best on shrimp, cut mackerel and special catfish bait.

Limits on the river are: three striped bass, minimum size 16 inches; 10 trout or 10 silver salmon, but not more than 10 in the aggregate; 10 largemouth bass; catfish, 10 to 25, depending on state. There is no limit on crappie and bluegill. The season on sturgeon is closed.

### THE LEGISLATIVE ROLE IN SCIENCE POLICY

#### HON. JAMES G. FULTON

OF PENNSYLVANIA

IN THE HOUSE OF REPRESENTATIVES

Tuesday, January 26, 1971

Mr. FULTON of Pennsylvania. Mr. Speaker, as the ranking minority member of the Committee on Science and Astronautics, which is in the midst of its 12th annual conference with the panel on science and technology, I should like to call the attention of the Congress to comments made to the panel by the distinguished Senator Allister Grosart of Canada. The paper has particular significance for the Congress since it deals with the complex parliamentary aspects of international science cooperation as well as with the interparliamentary mechanics of promoting it.

Senator Grosart represents Ontario in the Canadian Parliament, and serves as chairman of the steering committee of the special committee on science policy of the Canadian Senate. Senator Grosart was born on December 13, 1906, at Dublin, Ireland. Educated at China Island Mission Schools, Chefoo, North China, 1915-23; University of Toronto 1923-27 politics and law and 1928 postgraduate International Law. Degrees: B.A., Carnegie Fellow of International Law, 1928. Served with Irish Regiment of Canadian 2d Battalion, C.A. (R) with rank of lieu-

tenant to major. Former vice president of McKim Advertising Ltd., Toronto and Montreal; former managing director Peer International—Canada, and former national director P. C. Association of Canada. Member of Royal Canadian Geographic Society, Canadian Bibliographical Society, Canadian Library Association, and National Press Club, Ottawa. Summoned to Senate September 24, 1962. Party politics, Progressive Conservative.

The speech follows:

SPEECH BY SENATOR ALLISTER GROSART OF CANADA

Mr. Chairman and Distinguished Guests, it is a very great honour to have been asked by Chairman Miller to again attend this prestigious Conference convened by his internationally renowned Committee.

I was here last year as a listener and member of the audience. This year I have been promoted to the platform for this occasion. This dual role in these two years recalls the comment of that great English wit, Augustine Birrell, who when asked if a speech he had made had been a success replied: "The speech was a success but the audience was a failure."

I hope that will not be the case today. I am sure it will not, because I can rely on your tolerance towards a layman who, as a very non-scientific member of the Committee on Science Policy of the Canadian Senate, has been lured out of his depth into the deep seas of Science and Science Policy. In that capacity I may say that I am substituting on very short notice for our Chairman, Senator Maurice Lamontagne, a former Cabinet Minister and one of Canada's leading economists.

However, whatever my reception here may be, it will perforce be mild compared to that which the first volume of our Senate Committee's Report has received, in certain scientific quarters in Canada. This is not surprising, of course, in view of the fact that the whole tenor of this first volume is highly critical of Canadian Science policy over the past 50 years, and by implication of many of the individual and institutional policy-makers involved. It was not easy to decide to publish the conclusions we had reached because it was inevitable that they would give offence. We did so only because we had become convinced that it would be calamitous if the New Round of Science Policy-making that is about to begin was based on the conventional wisdom of the past rather than on the abundant evidence in our own experience (and in that of other countries) that Canada has not and never had—an overall science policy. We cannot hope therefore to use effectively our limited financial resources in support of Science and Technology (and particularly Research and Development), on the basis of the existing pattern of diffuse, ad hoc, responses to funding and performance claimants on the public purse.

Not without some concern that we would be misunderstood or misrepresented we have come out for an overall Science Policy at the highest political levels—that is to say for a macropolicy approach to Canadian science policy to rationalize in advance the hundreds—perhaps thousands—of micropolicies which have resulted in what we called "Science Policy by Accident".

We found that in comparison with other OECD countries both our public and gross funding of R & D was inadequate; that Canada was at the bottom of the list in both funding and performance of R & D by business enterprise and therefore in innovation generally; that we are doing far too much of our R & D in government laboratories; that we have probably the lowest rate of

transfer of R & D to industry from government laboratories and universities; that our new Science Council (1966) is operating "in a vacuum"; that our National Research Council, despite its accomplishments and international repute among scientists, has not fulfilled its intended role in terms of national scientific policy.

I need hardly say that there have been some howls of protests—particularly from fundamental scientists—who seem to find it so hard to understand, that political or public insistence on the application of social, economic and technological criteria to overall national scientific productivity is fully consonant with staunch public support of basic, curiosity-oriented research.

Indeed, from a political point of view it seems to me that pure scientists would have far more to gain than lose from a well planned overall science policy. This is so, because pure science is the one area in which the political decision to spend is exempt from the normal requirement of cost-benefit justification. Here, as nowhere else in the national budget can a case be made that basic research has a clear claim on public funding without strings attached. I need hardly say that all claimants for public funding in science affairs would like their funds "without strings attached". Fortunately or unfortunately, depending I suppose on one's viewpoint, this runs counter to the essential requirement of accountability of all public servants for the expenditure of public funds.

All of which leads directly to the whole question of the role and responsibility of the individual legislator in and for national science policy. I am sure that in most of the countries represented at this Conference, the essence of the control of the executive branch by elected representatives is through the control of the purse—the annual Budget, Appropriations or whatever it may be called.

This, of course, assumes that in each legislature there are individual members or groups of members who have expert knowledge of the many objects of public expenditure as they appear in the annual Estimates. There will be a few, perhaps, who will have a special competence to relate the totality of suggested expenditures to its impact on the national economy and the underlying societal values. But they will be few. The majority of members will have special competence in one or two particular spending areas—agriculture, social welfare, health, education, industry, foreign affairs, justice, resources—and so on. This is so because these have for a long time been major objects of public expenditure. By and large they have high visibility in the sense that the expenditures can be readily apprehended and assessed in relation to the general or regional interests affected. The whole concept of representative government is based on the assumption that all claims on the public purse will have effective examination by members of the legislature. This system, with its checks and balances, claims and counter-claims, has worked tolerably well where the areas of expenditure have grown gradually with matching development of competence on the part of legislators.

The system tends to break down, however, when a completely new and expensive program or project is introduced. Its very newness finds the legislators unprepared to assess critically. It gets easy passage through the legislature because members do not feel qualified to discuss it critically; have neither the time or inclination to do their homework and therefore have no way of knowing its general or regional implications. The history of politics is full of such cases and the inevitable matching story of false starts, colossal waste of public money and even scandals.

The studies we made in the Science Policy

Committee of our Canadian record and that of other countries in national science policy seems to suggest that Science and Technology (and their handmaidens Research and Development) are often in this category. Certainly in all the industrialized countries which are engaged in what has been called "the Science and Technology race", there have been in recent years fantastic increases in the public funding of R&D activities. In our own case in Canada from \$70 million in 1951 to \$583 million in 1970. Here in the United States from \$1,301 million in 1951 to \$16,922 million in 1970.

If I read the evidence of the countries concerned correctly, I have to conclude that no executive—and certainly no legislature—was even remotely prepared to assess these new and prodigious claims on the public purse, even in such basic decisions as the respective funding responsibilities of the public and private sectors; of the most effective "mix" of performance by government agencies, universities and industry; of a viable distribution of funding between basic and applied research, development and innovation; on the proper roles of decision-makers all the way from the Cabinet through mission-oriented departments, councils, boards, Budget Bureau and Treasury officials, to the individual scientist or institution.

This of course, is what the so-called Great Debate on Science Policy is all about. If one looks at the widely-diffuse answers to these questions that various countries have given one looks in vain for any kind of rationale that could by any stretch of the imagination be regarded as the end product of a national science policy. Certainly not to the same extent that there is a visible fiscal, farm, welfare, or foreign affairs policy.

In Canada we had a Cabinet Science Committee which never met for ten years. We embarked on the public funding of one scientific project which was finally cancelled when there was a change of government. It took ten years for government funding of science in industry to reach the previous level. There are similar cases in other countries.

I make this case for the general imprecision of national science policies because I believe that some, at least, of the responsibility lies with the members of national legislatures. We did not, in the initial stages of science spending, equip ourselves to make the same kinds of judgments that we were able to make in other policy fields. The reasons are understandable. The suddenness of the technological explosion, as I have already indicated in one. Another is the complexity of the subject itself. A third is the fact that very few scientists become legislators. A fourth is that in most countries the majority of legislators are not yet aware of the fact that national science policy is now the major determinant of the whole future way of life—in both quantitative and qualitative values—of those who have entrusted to their judgment the decisions on which those values rest.

In Canada we have no Ministry of Science, and no overall science estimates. Therefore—under our system—we have no standing Committee on Science or Science Policy. Not only so—but because ours is a system of parliamentary Responsible Government in which members of the Cabinet are in the legislature, there is no Minister a member can question about overall science policy. In other countries there are Ministers with specific Science Policy responsibility.

Two perhaps in Britain (Science and Education and the Ministry of Technology; In France, a Minister of Industrial Development and Science; In West Germany a Federal Minister of Education and Science; In Belgium, the Prime Minister is the Chairman of a Council of Ministers on Science Affairs, and is assisted by a Minister without Port-

folio who is responsible for science policy and programs; In The Netherlands, a Minister of Education and Sciences; In Sweden, the Prime Minister is Chairman of the Science Advisory Council; in Switzerland, however, no Minister of Science.

I confine my comparisons here to those countries the Senate Committee had the opportunity to study on the spot.

Most industrialized countries have, of course, legislative Committees which specialize in science policy. It is the exception rather than the rule for any such Committee to have before it an overall Science budget as such, an innovation which, judging from its operation in France, Belgium and the Netherlands, would seem to be a requisite for the full participation of the elected representatives in any country in the development and control of national science policy.

Here in these United States there is, as we all know, no Cabinet Secretary for Science (although there is one for Health, Education and Welfare). There is, I believe, no Science Budget in the European sense, but our American friends have, as would be expected, carried into the science policy field their genius for government by checks and balances. So we have the Bureau of the Budget concept where the science items in the departmental budgets are received as a whole, with the result that there is at least a defacto science budget available sooner or later for examination and assessment by members of Congress.

There is the Science Advisor to the President, the President's Science Advisory Committee (PSAC), the Office of Science and Technology (OST), the Federal Council for Science and Technology (FCST), the National Science Foundation (NSF) and others all making visible inputs to the national policy—illustrating magnificently the usual wonderful American anomaly of a constitutional structure which in theory shouldn't work but which in practice works rather better than some other constitutional structures which should work much better, but don't.

Our Senate Committee visited a number of countries in Europe and met many legislators interested directly in national science policy. We gathered from them that the problems of the average legislator or member of parliament are much the same everywhere:

For example the number of legislators willing to become actively involved in the making of national science policy are everywhere too few. These few make valiant efforts to enlist support from their colleagues but generally without too much success. The science-concerned members are regarded as a bit odd—specialists in the abstract rather than in the bread-and-butter issues of politics.

The subject matter of science policy is so vast, complex and pervasive that it is taken for granted that any overview of the whole is beyond the scope of the ordinary legislator. It is too easy for the Executive to persuade him that the best he can hope to do is to concern himself with it piece by piece as it comes to him as items in the budget of a department or agency.

Which leads to the suggestion that perhaps it is easier to obtain legislative approval of the science budget if it is so fragmented. This has been put forward to justify this approach—but it leaves unanswered the larger question of legislative responsibility for the adequacy of both the quantity and quality of the science budget as a whole.

I think it is Jacques Barzun who gives the amazing example of United States expenditures on Oceanography. Eight different agencies were involved in the input. The Federal Council meshed them into an overall Oceanography support program. This came to Congress redivided into parts in the operating budgets of the agencies. The parts were referred eventually to 13 sub-committees of 7 House of Representatives Commit-

tees, 1 Joint Committee and 9 sub-committees of 6 Senate committees.

It could only happen, perhaps, in the United States Congress where, if my survey of comparative legislatures is valid, the U.S. Congressional Committees—substantive and appropriations—have developed a capacity for expert examination of science spending unmatched by any other legislature. I need hardly, in passing, acknowledge the debt of all who are interested in this problem to the Committee on Science and Astronautics which sponsors this meeting, and to its subcommittee on Scientific R & D. When we add the Senate Committees and the Appropriations Committees of both houses—one of them powerful enough to kill the ill-fated Mohole project—it would appear that American legislators, at least, are fully and effectively involved. Yet, as astute an observer as Professor Michael Regan could write as recently as 1969: "Our \$17 billion for R & D is still in search of a policy. . . . No other area of discretionary expenditure is larger in today's budget, yet none is less well rationalized, less satisfactorily justified or distributed among competing claimants . . . overall national policy regarding science and technology is still not clear."

And he makes it clear that he is referring not merely to justification at the executive level but to what he calls an adequate "joint-executive-legislative frame-work".

Harvey Brooks of Harvard says one of the main reasons for a planned science budget is "to get the \$17 billion under control".

It has been the privilege of our Canadian Senate Committee to hold two joint sessions with Chairman Miller's Committee and we have, of course, studied the U.S. science legislative frame-work in some detail,—and with considerable envy and much admiration. Compared with other national frameworks, I would have to say that if any should work, it should be it. Professor Regan's comment, therefore, seems to make it clear that we all have a long way to go before any science policy anywhere can be said to be under effective legislative control.

This does seem to me to be cause for alarm given the abundant evidence of the degree to which the interests of our constituents are bound up with national science policy.

The problems, of course, are enormous, the conflicts inevitable. The concept of control by representatives of the public is a political, not a science concept.

Yet as Derek de Solla Price says "the density of our science in our culture is quadrupling during each generation". We know that Science can now make man's environment, his society,—man himself. We know that we must somehow achieve a synthesis between Science and Society—that, whether we like it or not, science policy is science politics. That being so, surely legislators as a whole dare not continue to ignore the overall policy aspects as they appear to have done so far.

Of course, the legislators are only part of whatever control mechanism may be required. Alexander King, the genial science sage of OECD, was one of the "wise men of science policy" who gave our Committee the benefit of their knowledge. He told us that the problem was a mixture of "the naivete of the natural scientist, the arrogance of the economist, the complacency of administrators and the ignorance of politicians".

And if any politician here present objects to being called "ignorant" on this account, I would suggest that he read the comments by René Dubos in a recent article entitled "The State of Our Ignorance". It was reprinted in that excellent official U.S. Government underground magazine called "Dialogue". He tells us that 70% of the particular contaminants in urban air are still unidentified and suggests that we are chasing a will o' the wisp if we think that even complete control of soot, carbon monoxide and

sulphur dioxide would make very much difference to the total state of air pollution. "No one knows which air pollutants are most dangerous or where priority control should be". If these things be so, is it too much to suggest that a lot of legislators in a lot of countries are being led up a lot of garden paths.

"Can the individual and science co-exist?" asks Professor Z. Brzezinski of Columbia. His question might be paraphrased "Can the legislator and science "co-exist." One would hope so.

Andrew Shonfield, Chairman of the British Social Science Research Council, says "It is out of knowledge of Society rather than Technology that the major insights about a quarter of a century away are likely to come."

And again: "Futurology, one must conclude, cannot be turned into a respectable "hard" science merely by getting the economists and technicians to put some numbers to it. These solid-seeming, straightforward, statistical measurements acquire significance only when the speculative social imagination is applied to them".

That may be intended merely as a plea for a greater input of social science into national science policy—a point greatly emphasized in our Senate Committee Report. Yet—inherent, surely, in the concern for this synthesis between science and society, is the responsibility of the legislator—the average, ordinary, back-bench legislator who is, if he is anything, society's representative in the governmental process.

There is more than one side to this. Donald Hornig, a former Science Advisor to the President, tells us that the main reason why the American public has supported government science spending to the point where it constitutes the largest percentage of GNP of any country in the world, is that Science and Technology have been identified in the public mind with political, social and economic goals.

Michael Regan drawing on research by Martha Ornstein and others, points out that the gap or gulf between Science and Society has not always been a problem. In its early days the Royal Society of Britain was a club of non-professional gentlemen interested in science, who were quite competent to discuss 4/5ths of the papers presented by other members. It was 200 years or more before its membership became limited to research scientists. In 1800 there were 100 science journals. Today there are over 100,000 in many different languages.

In the pre-technetronic world—as indeed in the legislatures of some of the newer countries today,—Science as it affected Society was within the knowledge spectrum of the average legislator. How times have changed, at least in the post-industrial world!

"We so refine what we think" said the late Robert Oppenheimer, speaking as a scientist to scientists. "we so change the meaning of words . . . that scientific knowledge today is not an enrichment of the general culture . . . it is not part of the common human understanding."

It is easy, of course, to blame the scientists and technologists for doing, what to them, comes naturally—pushing back the frontiers of science wherever and however they may be pushed back. But Donald Hornig makes a telling point when he says that "putting limits on what people may or may not discharge (into the air and water) is not an R & D problem."

We know whose it is. All the evidence of the failure of voluntary restraints on individuals and institutions throws the problem right back into the lap of the legislator.

Social moralists like Joseph Wood Krutch may tell us that the technologist is a "Sorcerer's Apprentice who does not know how to turn off what has turned on"—but the technologist can be forgiven if he replies that

it is not his job to turn it off. Again we come back to the legislator. "Let's design the 'off' switch before we turn on the 'on' switch" we were told in Canada recently by Dr. Athelstan Spilhaus, President of the American Association for the Advancement of Science.

In our Committee's briefings in other countries we were particularly interested, of course, in learning what mechanisms legislators had developed to make themselves better informed on science policy matters.

In general, we found that these broke down into a number of procedures—not all of them, of course, found together in every country. These are:

1. *Standing Committees*: In these, legislators examine officials and sometimes special witnesses (i.e. scientists) on science items but only incidentally to the routine examination of Estimates, Budgets, bills or other matters referred by the legislature.

2. *Special Science Committees*: A good example is the Select Committee on Science and Technology of the British House of Commons constituted in the 1966-7 session and re-constituted each session since. It has unusually wide powers for a House of Commons Committee. Its terms of reference are "to consider Science and Technology and report thereon from time to time". The Congressional committees already referred to are in this category, although each is rather more specialized in its approach than the British Committee.

The Netherlands has a Standing Committee of the Second Chamber (Lower House) on Education and Sciences.

Sweden has a Supply sub-committee dealing with "Research, Education and Technology".

West Germany has a Bundestag Committee for "Science, Education Policy and Journalism". It "prepares the ground for discussion and decision" by the Bundestag. It invites experts as witnesses.

Belgium has a Joint Committee for Science Policy established in 1962 but it is said to meet infrequently.

The U.S.S.R. I find (although our Committee, regrettably was not able to include it in our briefing sessions abroad) constituted in 1967 a Standing Committee of the Supreme Soviet on "Education, Science and Culture". It has the authority, held by no other Science Committee that I know of, to initiate bills as well as to study the relevant items in what, for want of a better word, I will call the state budgets.

*Voluntary Committees*: 3. A third mechanism for the involvement of legislators in science affairs is the voluntary association (sometimes called a Committee) of legislators. This is a sort of science club of parliamentarians without official constitutional status. The outstanding example is, of course, the Parliamentary and Scientific Committee of the British Parliament, a non-party group which was established as long ago as 1939. It provides "permanent liaison between science bodies and Parliament as a centre for the consideration of science matters in both Houses of Parliament." It provides members of all parties with working summaries of science subjects as they come before Parliament.

Sweden has a similar association called RIFO, its name derived from the initial letters of the words for Parliament and Research. It dates from 1959 and has some 400 members of whom 225 are legislators. A Board of ten constitutes a working Committee.

Denmark has tackled the problem head on, it would seem, by setting up a Committee of 5 legislators and 5 scientists known as the "Contact with Science Group". It arranges regular meetings between scientists and parliamentarians.

These are but random examples to indicate a growing awareness among legislators

of the need for more thorough-going immersion of parliamentarians in the deep waters of science than in more traditional subjects of legislative concern.

As far as I know the *International Panel* concept is unique among legislative science committees. It does, however, point up a very important aspect of science involvement by parliamentarians which was quite often brought to the attention of our Canadian Committee when we visited other countries. Over and over again we were asked the question "How do you handle it?" in matters ranging all the way from total public funding of R & D to the science brain drain problems of developing countries.

It would be an understatement to say that it was a rewarding experience for the members of our Committee to be able to bounce off some of our assessments of the evidence we had heard at home on fellow legislators in other countries as well. Of course, on Ministers, administrators, industrialists and academics. I would go so far as to say that we could not have written our Report with any confidence without those contacts. Long ago Dr. Killiam of M.I.T., made us aware that one, at least, of the international spin-offs of the S & T explosion was what he called the "eclipse of distance" between nations in both transport and communications. Today we call it the concept of the global village.

We in Canada, for example, are aware of our dilemma in international science created on the one hand by our minimal input into world science (probably not much more than 1%) and on the other by the fact that we exercise political sovereignty over the second largest national land area, and the air and atmosphere above it and much of the Arctic shoreline, and large sectors of the Atlantic and Pacific coasts.

When we meet legislators from other countries in frank discussion—franker perhaps

than takes place at any other level of international contact—we are often impressed with the similarity of the concern at our levels about input and output problems of air, sea and soil pollution, weather modification and forecasting, nuclear fall-out and so on.

Such meetings with our colleagues take place under a surprisingly varied set of auspices. In Canada we have delegations of legislators continuing coming and going to meetings of such international associations as the Inter-Parliamentary Union, the Commonwealth Parliamentary Association, the Francophone Nations, the NATO Council of Europe, the Canada-United States Parliamentary Group.

I wonder perhaps if the time is not now ripe for the organization of an international Parliamentary Science Association. From the experience of the Canadian Senate Committee the advantages would seem obvious. The Panel meeting we are attending is, I think, a far-sighted recognition by Chairman Miller and his associates of the value of an international meeting of minds concerned with the very great problems posed by national science policies within the clearly evolving pattern of international science policy.

I believe that such an association would make a very real contribution to the great international science problems—the high seas and the ocean floors, disarmament, satellites, population, food and the transfer of scientific and technological resources from the affluent to the developing countries.

I put forward the suggestion today at this important International science meeting in the hope that it might be taken into consideration by some of those who are here from other countries. I know the obstacles because I have had something to do in a small way with similar organizations in other fields. I know, too, how great the rewards can be because of the immensity of the vacuum that exists in the knowledge and under-

standing between legislators in different countries about the procedures and mechanisms that are developing here and there in this important business of the involvement of parliamentarians in science policy making.

The available information and literature at the moment is minimal—almost non-existent. It has found practically no place in the proliferating literature on the Great Debate about science policy. Everywhere the stress is on the role of government—a syllogistic short cut perhaps but prone to many fallacies. In the long run it will be the generality of legislators in each individual country who will, as the elected representatives and spokesmen for society at large, resolve the conflicts between Science and Society. What a happy "technological innovation" it would be if somehow they were to find a way to join minds and hands across the boundaries of lands and waters to achieve that reconciliation for all men and all seasons.

#### MAN'S INHUMANITY TO MAN— HOW LONG?

HON. WILLIAM J. SCHERLE

OF IOWA

IN THE HOUSE OF REPRESENTATIVES

Thursday, January 28, 1971

Mr. SCHERLE. Mr. Speaker, a child asks: "Where is daddy?" A mother asks: "How is my son?" A wife asks: "Is my husband alive or dead?"

Communist North Vietnam is sadistically practicing spiritual and mental genocide on over 1500 American prisoners of war and their families.

How long?

## HOUSE OF REPRESENTATIVES—Friday, January 29, 1971

The House met at 12 o'clock noon.

The Most Reverend Mark J. Hundiak, Bishop of Washington, D.C., of the Ukrainian Orthodox Church of the United States of America, offered the following prayer:

In the name of the Father, and of the Son, and of the Holy Spirit. Amen.

Almighty and eternal God, we lift up our hearts to You in humble prayer with gratitude for all the blessings You have bestowed upon the United States of America. Bless, O Lord, our President, the Vice President, the Members of both Houses of Congress, and all those in authority. Guide our Government in the crusade for just and honorable peace. Send Your blessings upon our Armed Forces; sustain them in their loyal service; heal the wounded and maimed; give eternal peace in Your kingdom to the souls of heroic dead; and console their bereaved families. Save our country from discord and violence; enlighten the misguided youngsters and adults who are undermining the welfare and future of America. Endow us with the spirit of brotherhood and dedication to the ideals of democracy, upon which this Nation was founded.

Grant, O Lord, that America remain the example and the beacon of hope for all the peoples who are in bondage.

On this day of the 53d anniversary of the proclamation of independence of the

Ukrainian National Republic, we offer to you, our merciful Father, humble, and fervent prayers for the Ukrainian people and all captive nations enslaved by the godless and cruel Red regime. Sustain them, good God, in their aspirations and struggles for liberty and independence.

Grant us the privilege of welcoming the dawn of liberty, equality, and brotherhood of all nations and races under Your divine fatherhood. This we humbly ask in Your most holy name. Amen.

#### THE JOURNAL

The SPEAKER. The Chair has examined the Journal of the last day's sitting and announces to the House his approval thereof.

Without objection, the Journal stands approved.

There was no objection.

#### MESSAGE FROM THE PRESIDENT

A message in writing from the President of the United States was communicated to the House by Mr. Geisler, one of his secretaries.

#### RESIGNATION FROM THE HOUSE OF REPRESENTATIVES

The SPEAKER laid before the House the following resignation from the House of Representatives:

WASHINGTON, D.C.,  
January 28, 1971.

HON. CARL ALBERT,  
Speaker, House of Representatives.

DEAR CARL: First, may I extend to you my heartiest congratulations and best wishes. You are going into a very critical task at a very critical time in the history of our nation. The American people are fortunate that a person of your great qualifications is assuming not only the responsibility of leadership in the House of Representatives, but an important position of succession to the Presidency.

It is with a very mixed feeling of emotion that I leave my seat in the House to move into the Department of the Interior. But I believe it is so important that we bring to people everywhere a new sense of responsibility to the values of our environment and our natural resources.

Please find enclosed a copy of my resignation to the Honorable Marvin Mandel, Governor of Maryland.

Again, with all best wishes, I remain,

Yours sincerely,

ROGERS C. B. MORTON.

The SPEAKER. Without objection, a letter to the Governor of Maryland will be printed at this point in the RECORD.

There was no objection.

The letter is as follows:

WASHINGTON, D.C.,  
January 28, 1971.

HON. MARVIN MANDEL,  
Governor of Maryland,  
Annapolis, Md.

DEAR MARVIN: It is my sad duty to advise you that I must resign from the House of